

# Final Supplemental Environmental Impact Statement (FSEIS)

September 6, 2024



[ This page intentionally blank]



September 6, 2024

**Subject:** City of Lakewood 2024 Comprehensive Plan Final Supplemental Environmental Impact Statement (Final SEIS or FSEIS)

Dear Reader:

The City of Lakewood Department of Planning & Public Works (PPW) has prepared the attached Final SEIS to analyze the potential environmental impacts associated with adopting and implementing the City's 2024 Comprehensive Plan. The City prepared the 2024 Comprehensive Plan to satisfy requirements of Washington State's Growth Management Act (GMA). This Final SEIS is intended to satisfy requirements of the State Environmental Policy Act (SEPA).

The GMA calls for communities to review and, if necessary, revise their comprehensive plans and regulations every ten (10) years to ensure they remain up-to-date (RCW 36.70A.130). The proposed adoption of the Lakewood Comprehensive Plan by the Lakewood City Council constitutes a non-project action requiring SEPA compliance.

Two alternatives are examined in this Final SEIS:

- **No Action:** The No Action Alternative is required under the State Environmental Policy Act (SEPA). This alternative retains the current Comprehensive Plan and associated subarea plans and development regulations. The No Action Alternative has the capacity to meet total job and housing targets but does not provide sufficient capacity to meet housing targets by affordability bands. It is modeled with growth targets for the year 2035 and does not fully meet new GMA requirements for a periodic update.
- **Action Alternative:** The Action Alternative consists of the 2024 Periodic Update of the Comprehensive Plan, including all Elements, the 2024 Tillicum-Woodbrook Subarea Plan (TWSP), and implementing development regulations including amendments to such, particularly "middle housing" as defined in the GMA and critical areas regulations amendments. The Action Alternative as proposed meets citywide growth targets for jobs and housing by 2044, including housing targets by income band. It provides a full update of the Comprehensive Plan elements to meet periodic update requirements, it establishes policy and code amendments to achieve middle housing choices – townhouses, multiplexes, and other housing – in low density areas of the city. It updates critical area regulations to address best available science (BAS), including buffer standards and mitigation for streams, and protection of aquifer recharge areas, wetlands, and floodplains. It advances climate mitigation and adaptation begun with the 2021 Energy & Climate Change Element.

For each alternative, this Final SEIS considers the potential environmental impacts and mitigation measures addressing: natural environment, land use patterns and policies, housing, transportation and parking, public services, and utilities.

The key issues facing decision makers are focused on the creation of a Comprehensive Plan that:

- Offers more affordable housing opportunities and places to retain and grow businesses;
- Promotes a healthy environment and avoids displacement of overburdened households and businesses;
- Fulfills Lakewood's vision and meets state and regional requirements;
- Identifies investments that improve mobility and resilience; and
- Guides development regulations that implement the Comprehensive Plan goals and land use plan, resulting in quality housing choices, and integrating the best available science to protect critical areas.

This Final SEIS supplements the following previously issued SEPA documents:

- City of Lakewood, Comprehensive Plan, Final EIS, June 2000
- City of Lakewood, 2015 Comprehensive Plan Amendments and Update, Determination of Non-Significance and associated SEPA Checklist, July 30, 2015
- City of Lakewood, Downtown Lakewood Plan and Planned Action Final EIS, July 20, 2018, and associated Addenda, September 10, 2018 and September 26, 2018
- City of Lakewood, Lakewood Station District Subarea Plan, Form-Based Code, and Planned Action, Revised Determination of Non-Significance, November 12, 2020, March 30, 2021, and April 29, 2021
- Puget Sound Regional Council, VISION 2050 Final SEIS, March 2020

The City has identified and adopted these documents as being appropriate for this proposal after independent review, and they will accompany the proposal to the decision makers. This Final SEIS builds on these documents and meets the City's environmental review needs for the current proposal.

The City of Lakewood requested comments from citizens, agencies, tribes, and all interested parties on the Draft SEIS from June 3, 2024 to July 3, 2024. Responses to Comments are included in this Final SEIS.

Should you have questions, please contact Tiffany Speir, Planning Division Manager, at 253.983.7702 or [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us). Thank you for your interest in the Lakewood 2024 Comprehensive Plan Periodic Update.

Sincerely,



Angie Silva, Assistant Director and SEPA Responsible Official  
City of Lakewood

# Fact Sheet

## Project Title

City of Lakewood 2024 Comprehensive Plan Supplemental Environmental Impact Statement (Final SEIS or FSEIS)

## Proposed Action and Alternatives

The City of Lakewood Department of Planning & Public Works (PPW) has prepared this Supplemental Environmental Impact Statement (SEIS) to analyze the potential environmental impacts associated with adopting and implementing the City's 2024 Comprehensive Plan. The City prepared the 2024 Comprehensive Plan to satisfy requirements of Washington State's Growth Management Act (GMA). The SEIS is intended to satisfy requirements of the State Environmental Policy Act (SEPA).

Two alternatives are examined in this Final SEIS:

- **No Action:** The No Action Alternative is required under SEPA. This alternative retains the current Comprehensive Plan and associated subarea plans and development regulations. The No Action Alternative has the capacity to meet total job and housing targets but does not provide sufficient capacity to meet housing targets by affordability bands. It is modeled at growth levels based on existing plans to the year 2035 and does not fully meet new GMA requirements for a periodic update.
- **Action Alternative:** The Action Alternative consists of the 2024 Periodic Update of the Comprehensive Plan, including all Elements, the 2024 Tillicum-Woodbrook Subarea Plan (TWSP), and implementing development regulations including amendments to such, particularly "middle housing" as defined by the GMA and critical areas regulations amendments. The Action Alternative as proposed meets citywide growth targets for jobs and housing by 2044, including housing targets by income band. It provides a full update of the Comprehensive Plan elements to meet periodic update requirements, it establishes policy and code amendments to achieve middle housing choices – townhouses, multiplexes, and other housing – in historically single family areas of the city. It updates critical area regulations to address best available science (BAS) including buffer standards and mitigation for streams, and protection of aquifer recharge areas, wetlands, and floodplains. It advances climate mitigation and adaptation begun with the 2021 Energy & Climate Change Element. As a result of public engagement and input the Draft Periodic Update was proposed for amendment in policies and code changes. These changes are considered in the Final SEIS.

## Proponent and Lead Agency

City of Lakewood

## Location

The Proposed Action affects the land contained within the existing Lakewood, WA city limits and proposed annexation areas. Lakewood is located between the cities of University Place and Tacoma on the north, Joint Base Lewis-McChord on the east and south, and the Town of Steilacoom on the west.

## Tentative Date of Implementation

2024-2034

## Responsible SEPA Official

**Angie Silva, PPW Assistant Director and SEPA Responsible Official**

City of Lakewood

City Hall, 6000 Main St. SW

Lakewood, WA 98499

[ASilva@cityoflakewood.us](mailto:ASilva@cityoflakewood.us) | 253.983.7839

## Contact Person

Tiffany Speir, Esq., CPM®, Planning Division Manager

City Hall, 6000 Main St. SW

Lakewood, WA 98499

[tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us) | 253.983.7702

## Required Approvals

All Comprehensive Plan amendments and implementing regulations, including those completed as part of the Comprehensive Plan require a 60-day review by the State of Washington Department of Commerce and other state agencies.

The Puget Sound Regional Council (PSRC) also conducts a comprehensive plan consistency review and transportation element and facilities planning certification review per VISION 2050.

Locally, the Lakewood Comprehensive Plan and all related regulatory updates are considered by the Planning Commission and its recommendations forwarded to the City Council who deliberate and take action for final approval.

## Principal EIS Authors and Contributors

Under the direction of the City of Lakewood, the consultant team prepared the EIS as follows:

- [BERK Consulting](#): prime consultant, land use patterns and policies, housing, climate change
- [Transpo Group](#): Transportation and parking.
- [FACET NW](#): Critical areas ordinance gap analysis and code proposal. (FACET NW was formerly known as DCG/Watershed.)

## Draft EIS

**Date of Issuance:** June 3, 2024

**Comment Period End:** July 3, 2024

## Final EIS

**Date of Issuance:** September 6, 2024

## Date of Final Action

December 2024

## Prior Environmental Review and Adoption

This Final SEIS supplements the following previously issued SEPA documents:

- City of Lakewood, Comprehensive Plan, Final EIS, June 2000
- City of Lakewood, 2015 Comprehensive Plan Amendments and Update, Determination of Non-Significance and associated SEPA Checklist, July 30, 2015
- City of Lakewood, Downtown Lakewood Plan and Planned Action Final EIS, July 20, 2018, and associated Addenda, September 10, 2018 and September 26, 2018
- City of Lakewood, Lakewood Station District Subarea Plan, Form-Based Code, and Planned Action, Revised Determination of Non-Significance, November 12, 2020, March 30, 2021, and April 29, 2021
- Puget Sound Regional Council, VISION 2050 Final SEIS, March 2020

The City has identified and adopted these documents as being appropriate for this proposal after independent review, and they will accompany the proposal to the decision makers. This SEIS builds on these documents and meets the City's environmental review needs for the current proposal.

## Location of Background Data

You may review the City of Lakewood project website <https://cityoflakewood.us/24periodicreview/> for more information. If you desire clarification or have questions, please see the contact person above.

## Availability of Final SEIS

The Final SEIS is posted on the City's website at <https://cityoflakewood.us/24periodicreview/>.

This Final SEIS is available for review in person at:

City Hall, 6000 Main St. SW  
Lakewood, WA 98499

Copies for purchase made be made upon request at cost of material.



# Distribution List

## Federal and Tribal Agencies

- Commander, Joint Base Lewis-McChord HQ
- US Fish & Wildlife Office/ US Service
- Nisqually Indian Tribe
- The Puyallup Tribe

## State and Regional Agencies

- Puget Sound Clean Air Agency
- Puget Sound Partnership
- Puget Sound Regional Council
- Washington Department of Agriculture
- Washington Department of Commerce
- Washington Department of Archaeology & Historic Preservation
- Washington Department of Corrections
- Washington Department of Ecology
- Washington Department of Fish and Wildlife
- Washington Department of Health
- Washington Department of Natural Resources
- Washington Department of Social and Health Services
- Washington Department of Transportation
- Washington Recreation and Conservation Office

## Adjacent Jurisdictions, Partnerships, Ports

- City of Bonney Lake
- City of DuPont
- City of Gig Harbor
- City of Lacey
- City of Olympia
- City of Puyallup
- City of Sumner
- City of Tacoma

- City of University Place
- Pierce County
- Pierce County Assessor-Treasurer
- Port of Olympia
- Port of Tacoma
- South Sound Military Communities Partnership (SSMCP)
- Tacoma-Pierce County Health Department
- Thurston County
- Town of Steilacoom

## Services, Utilities, and Transit

- Clover Park School District
- Clover Park Technical College
- Lakeview Light & Power
- Lakewood Refuse Service
- Lakewood Water District
- Pierce College
- Pierce County Library District
- Pierce County Utilities
- Pierce Transit
- Puget Sound Energy
- Tacoma Power
- West Pierce Fire & Rescue

## Community Organizations and Individuals

See Chapter 4 for Comments and Responses. Persons and Organizations providing comments are receiving notices of availability of the Final SEIS along with the following:

- Active Homeowner Ownership Associations
- American Lake Improvement Club
- Chambers-Clover Creek Watershed Council
- Clover Park Kiwanis
- Clover Park Rotary
- Emergency Food Network
- Habitat for Humanity
- Korean Women's Association

- Lake City Neighborhood Association
- Lake Steilacoom Improvement Club
- Lakeview Light & Power
- Lakewood Chamber of Commerce
- Lakewood Community Foundation
- Lakewood First Lions
- Lakewood Historical Society
- Lakewood Industrial Park
- Lakewood Knights Lions Club
- Lakewood Multicultural Coalition
- Lakewood Rotary
- Lakewood Towne Center
- Lakewood United
- Living Access Support Alliance (LASA)
- Master Builders Association Pierce County
- Multicultural Self-Sufficiency Movement
- North East Neighborhood Association
- North Lakewood Neighborhood Association
- Nourish Food Bank
- Partners for Parks
- Pierce County Business Accelerator Program for Lakewood businesses
- Rainbow Center
- Rebuilding Together South Sound
- Springbrook Connections
- Springbrook Neighborhood Association
- Tacoma Pierce County Association of Realtors
- Tacoma Public Utilities
- Tacoma-Pierce County Chamber of Commerce
- Tahoma Audubon Society
- Tillicum/Woodbrook Neighborhood Association

## Media

- Tacoma News Tribune

# Table of Contents

<b>1</b>	<b>Summary</b>	<b>1-1</b>
1.1	Overview	1-1
1.2	Purpose	1-1
1.3	Study Area	1-2
1.4	Public Comment Opportunities	1-3
1.5	Objectives, Proposal, and Alternatives	1-3
1.6	SEPA Process	1-16
1.7	Key Issues and Options	1-17
1.8	Summary of Impacts and Mitigation Measures	1-17
1.9	Summary Alternative Comparison	1-33
<b>2</b>	<b>Alternatives</b>	<b>2-1</b>
2.1	Introduction	2-1
2.2	Public Outreach	2-4
2.3	Legal Framework	2-5
2.4	EIS Alternatives	2-7
2.5	SEPA Process	2-29
2.6	Benefits and Disadvantages of Delaying the Proposed Action	2-31
<b>3</b>	<b>Environment, Impacts &amp; Mitigation Measures</b>	<b>3-1</b>
3.1	Natural Environment	3-1
3.2	Land Use Patterns and Policies	3-36
3.3	Housing	3-54
3.4	Transportation and Parking	3-76
3.5	Public Services	3-95
3.6	Utilities	3-114
<b>4</b>	<b>Responses to Comments</b>	<b>4-1</b>
<b>5</b>	<b>Acronyms and References</b>	<b>5-29</b>
5.1	Acronyms	5-29
5.2	References	5-31

**6 Appendices**

---

**6-1**

- Scoping Notice
- Housing Affordability Workbook
- Transpo Memoranda and 1-5 Volumes
- FACET NW, Inc. Gap Analysis
- FACET NW, Inc., Stream Buffer Memo
- DSEIS Comments

## Exhibits

Exhibit 1-1. Lakewood Planning Area	1-2
Exhibit 1-2. Future Land Use Map, 2023.	1-5
Exhibit 1-3. Growth Targets and Capacity – No Action Alternative	1-6
Exhibit 1-4. Affordable Housing Targets and Capacity by No Action Alternative	1-6
Exhibit 1-5. Future Land Use Plan and Transit Proximity	1-8
Exhibit 1-6. Growth Targets and Capacity – Action Alternative	1-9
Exhibit 1-7. Affordable Housing Targets and Capacity by Action Alternative	1-9
Exhibit 1-8. Changes to the Action Alternative (Preferred)	1-10
Exhibit 1-9. Comparison of Alternatives	1-13
Exhibit 1-10-11. City of Lakewood Supplemental EIS Process	1-16
Exhibit 1-12. Summary of Comparison of Alternatives	1-33
Exhibit 2-1. Lakewood Planning Area	2-3
Exhibit 2-2. Land Use Designations and Zoning	2-9
Exhibit 2-3. Future Land Use Map, 2023.	2-10
Exhibit 2-4. Zoning Map, 2023	2-11
Exhibit 2-5. Growth Targets and Capacity – No Action Alternative	2-12
Exhibit 2-6. Affordable Housing Targets and Capacity by No Action Alternative	2-12
Exhibit 2-7. Changes to the Action Alternative (Preferred)	<b>Error! Bookmark not defined.</b>
Exhibit 2-8. Housing Types Allowed in Historically Single-Family Areas	2-15
Exhibit 2-9. Future Land Use Plan and Transit Proximity	2-16
Exhibit 2-10. Lots with Critical Areas	2-18
Exhibit 2-11. Growth Targets and Capacity – Action Alternative	2-21
Exhibit 2-12. Affordable Housing Targets and Capacity by Action Alternative	2-21
Exhibit 2-13. Critical Areas Ordinance Gap Analysis	2-22
Exhibit 2-14. Applicable Parking Reductions in Half Mile of Transit	2-25
Exhibit 2-15. Comparison of Alternatives	2-26
Exhibit 2-16. Year 2000 Lakewood Comprehensive Plan EIS, Preferred Land Use Plan	2-31
Exhibit 3-1. Central Pierce County Sole Source Aquifer Area Lakewood Vicinity	3-2
Exhibit 3-2. Aquifers from Puget Sound to Spanaway Lake	3-3
Exhibit 3-3. Priority Habitats and Species in Lakewood Vicinity	3-4
Exhibit 3-4. Biodiversity Areas Lakewood Vicinity	3-7
Exhibit 3-5. Oregon White Oak Woodlands	3-8
Exhibit 3-6. Lakewood Floodplains and Wetlands	3-9
Exhibit 3-7. Clover Creek FEMA Floodplain Comparison	3-10
Exhibit 3-8. Climate Change Documents Included in this Supplemental Environmental Impact Statement	3-17
Exhibit 3-9. Sources of GHG Emissions in Pierce County in 2019	3-18

Exhibit 3-10. GHG Comparison between Inventories for Pierce County	3-19
Exhibit 3-11. Relative Contribution of GHG Emissions by Sector	3-20
Exhibit 3-12. Comparison of Lakewood GHG Emissions in 2019 and 2022	3-21
Exhibit 3-13. City of Lakewood Environmental Health Disparities	3-25
Exhibit 3-14. Lakewood Heat Severity (2020)	3-26
Exhibit 3-15. Tree Canopy Coverage in the City of Lakewood	3-27
Exhibit 3-16. Tree Equity Score Less than 75, American Forest 2018	3-28
Exhibit 3-17. VMT Comparison by Alternatives	3-30
Exhibit 3-18. City's Total Solar Potential	3-33
Exhibit 3-19. Concentration of Sunlight on Rooftops in Lakewood	3-33
Exhibit 3-20. Current Land Uses on Parcels (2019)	3-36
Exhibit 3-21. Zoning Districts – Parcel Acres (2019)	3-36
Exhibit 3-22. Lakewood Shoreline Environment Designations	3-38
Exhibit 3-23. General Land Use – Tillicum-Woodbrook Planning Area	3-39
Exhibit 3-24. GMA Goals	3-41
Exhibit 3-25. VISION 2050 Topic Area Goals	3-42
Exhibit 3-26. PSRC Regional Growth Centers in Pierce County	3-44
Exhibit 3-27. Zone Capacity by Alternative	3-47
Exhibit 3-28. Targets, Capacity, Modeled Growth by Alternative	3-48
Exhibit 3-29. Growth Management Act and VISION 2050 Goal Consistency	3-49
Exhibit 3-30. Proximity to Transit – Growth Capacity	3-51
Exhibit 3-31. Proximity to Transit – Growth Target Allocation	3-51
Exhibit 3-32. Housing Targets by Area Median Income (AMI)	3-54
Exhibit 3-33. Housing Types Allowed in Different Zones, LMC 18A.40.110	3-56
Exhibit 3-34. Special Housing Needs (LMC 18A.40.120)	3-58
Exhibit 3-35. Proportion of Current Housing Types, Lakewood and Surrounding Communities, 2023.	3-61
Exhibit 3-36. Housing Units Completed in Lakewood by Type, 2010–2023.	3-62
Exhibit 3-37. Lakewood Population by Race and Ethnicity, 2022.	3-65
Exhibit 3-38. Lakewood Households by Race/Ethnicity and Tenure, 2020.	3-65
Exhibit 3-39. Lakewood Households by Race/Ethnicity and Income Category, 2022.	3-66
Exhibit 3-40. Lakewood Households by Race/Ethnicity and Cost Burden, 2020.	3-66
Exhibit 3-41. PSRC Displacement Risk Index for Lakewood.	3-67
Exhibit 3-42. Commerce Displacement Risk Map (Draft 2023)	3-68
Exhibit 3-43. Distribution of Population by Race in Lakewood, 2020.	3-69
Exhibit 3-44. Eviction Rate – 2017	3-70
Exhibit 3-45. Tillicum-Woodbrook, City, County Cost Burden – 2020	3-71
Exhibit 3-46. Projected Housing Needs and Capacity by Alternative	3-71
Exhibit 3-47. Lakewood Street Classifications.	3-77
Exhibit 3-48. LOS Standards for Lakewood Streets.	3-78
Exhibit 3-49. Lakewood Arterials Allowing LOS F Thresholds.	3-79

Exhibit 3-50. Transportation Impacts by Land Use Assumption	3-81
Exhibit 3-51. Analysis Districts	3-82
Exhibit 3-52. Vehicle Miles Travelled Analysis Results	3-83
Exhibit 3-53. 2044 Weekday PM Peak Hour Roadway Traffic Operations Summary	3-83
Exhibit 3-54. Northbound I-5 Volumes	3-87
Exhibit 3-55. Southbound I-5 Volumes	3-87
Exhibit 3-56. Parcels of Concern for Significant On-Street Parking Safety Issues	3-92
Exhibit 3-57 Public Services Included in this Supplemental Environmental Impact Statement	3-95
Exhibit 3-58. West Pierce Fire & Rescue Service Area Map	3-97
Exhibit 3-59. Fire Services Effective Level of Services Standards	3-98
Exhibit 3-60. Police Services Effective Level of Services Standards	3-99
Exhibit 3-61. Clover Park Public School Size	3-99
Exhibit 3-62. School Services Effective Level of Services Standards	3-100
Exhibit 3-63. City of Lakewood Park Inventory, 2020	3-101
Exhibit 3-64. Parks and Open Space Facilities in Lakewood	3-102
Exhibit 3-65. 10-Minute Walkshed Measurement & PACA Quality Score for Lakewood Parks	3-104
Exhibit 3-66. 10-minute Walkshed Measurement & PACA Diversity Score for Lakewood Parks	3-105
Exhibit 3-67 Public Service Anticipated Impacts by Alternative	3-107
Exhibit 3-68. Fire and EMS Services by Alternative	3-108
Exhibit 3-69. Police Staff Demands by Alternative	3-109
Exhibit 3-70. School Generation by Alternative	3-109
Exhibit 3-71. Utilities Included in this Supplemental Final Environmental Impact Statement	3-115
Exhibit 3-72. Lakewood Water District Service Area	3-117
Exhibit 3-73. Lakewood Water District Capital Projects (2024)	3-117
Exhibit 3-74. Proposed Water System Improvements 2020	3-119
Exhibit 3-75. Priority Water System Improvements	3-120
Exhibit 3-76. Sanitary Sewer Main Lines in the City of Lakewood	3-122
Exhibit 3-77. Stormwater Basins in Lakewood	3-124
Exhibit 3-78. Lakewood Water Quality Summary	3-125
Exhibit 3-79. Guiding Questions for Basin Prioritization	3-126
Exhibit 3-80. Impervious Area and Landscaping, Open Space, and Environmental Protection	3-127
Exhibit 3-81. Electrical Service Areas by Providers Map	3-129
Exhibit 3-82. Power Services Effective Level of Services Standards	3-130
Exhibit 3-83. Summary Comparison of Utility Implications – No Action and Action Alternatives	3-132
Exhibit 3-84. Additional Water Usage by Alternative	3-134
Exhibit 3-85. Total Increased Water Usage by Alternative	3-134
Exhibit 3-86. Net Growth and Sewer Demand	3-134



Exhibit 3-87. Total Population and Sewer Demand	3-135
Exhibit 3-88. Capacity by Zone and Impervious Limits	3-135
Exhibit 3-89. Power – Annual Loads (Mwa)	3-136
Exhibit 4-1. Comment List - City of Lakewood 2044 Comprehensive Plan	4-1
Exhibit 4-2. Comment Matrix and Responses – June 3 to July 3, 2024	4-3

# 1 Summary

## 1.1 Overview

This Final Supplemental Environmental Impact Statement (FSEIS) analyzes the potential environmental impacts associated with adopting and implementing the City of Lakewood's 2024 Comprehensive Plan. The City prepared the 2024 Comprehensive Plan to satisfy requirements of Washington State's Growth Management Act (GMA). This FSEIS is intended to satisfy requirements of the State Environmental Policy Act (SEPA). This document is organized as follows:

- Chapter 1 Summary
- Chapter 2 Alternatives
- Chapter 3 Environment, Impacts, and Mitigation Measures
- Chapter 4 Responses to Comments
- Chapter 5 Acronyms and References
- Chapter 6 Appendices

## 1.2 Purpose

To evaluate Lakewood proposals, two Alternatives were examined in the FSEIS:

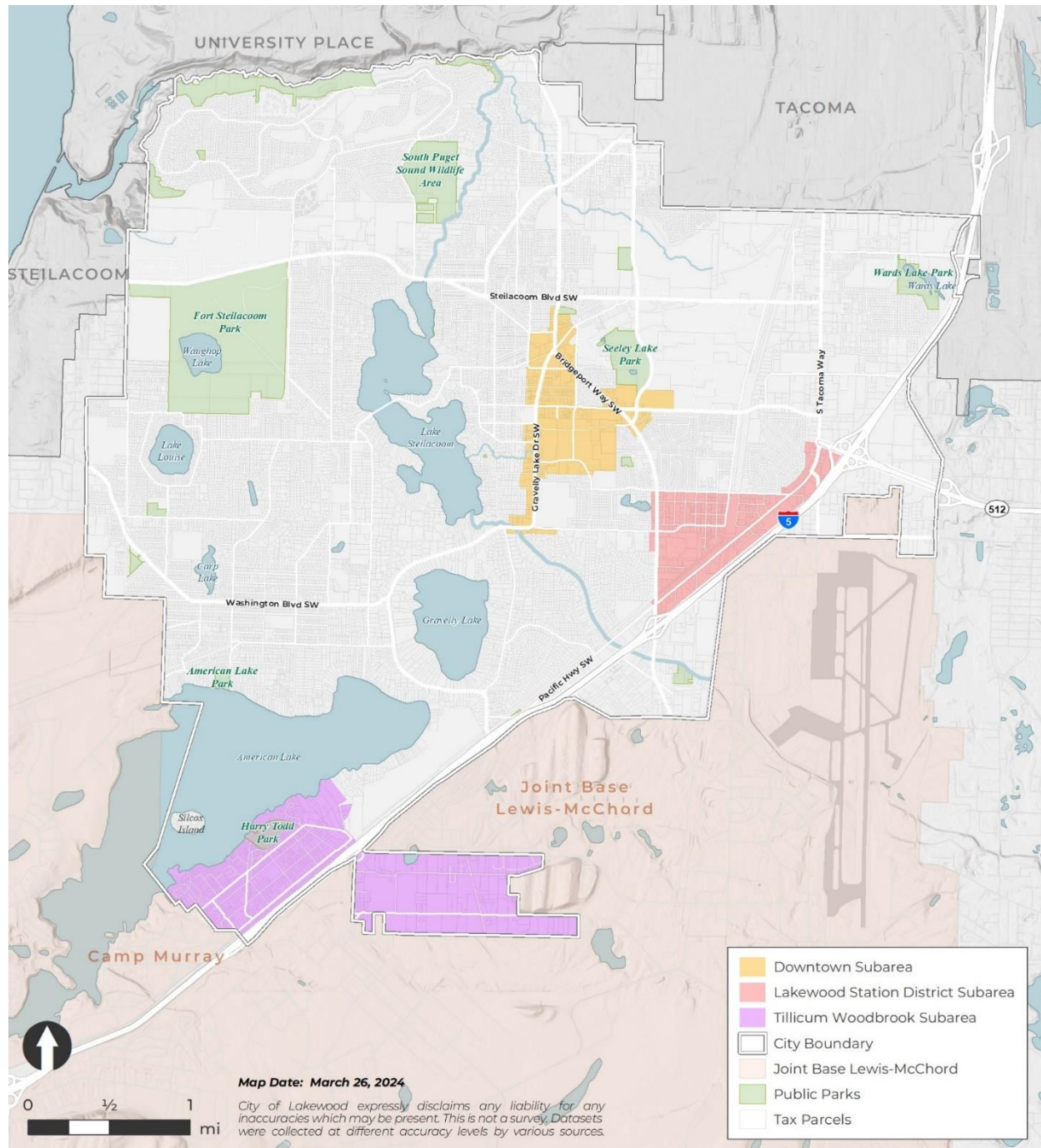
- **No Action:** The No Action Alternative is required under the State Environmental Policy Act (SEPA). This alternative retains the current Comprehensive Plan and associated subarea plans and development regulations. It provides capacity for about 10,242 dwelling units. The No Action Alternative meets the housing target of 9,378 dwellings, but it does not provide capacity for moderate density housing for households earning 80%-120% of the area median income. The No Action Alternative has capacity for 12,212 jobs, 2,834 above the 2020-2044 target of 9,378.
- **Action Alternative:** The Action Alternative consists of the 2024 Periodic Update of the Comprehensive Plan, including all Elements, the Tillicum Woodbrook Subarea Plan Update, and implementing development regulations including amendments to such, particularly middle housing and critical areas regulations amendments. The Action Alternative has capacity for 17,488 dwelling units, and can provide housing at all income levels for the 2020-2044 planning period. It has capacity for 15,238 jobs, which is 5,860 jobs above the 2020-2044 target. As a result of public engagement and input the Draft Periodic Update was proposed for amendment in policies and code changes. These changes are considered in the Final SEIS.

This FSEIS compares the two alternatives for potential impacts to the environment including the following topics: Natural Environment, Land Use Patterns and Policies, Housing, Transportation and Parking, Public Services, and Utilities.

## 1.3 Study Area

The Lakewood city limits, equaling approximately 17.06 square miles (about 10,920 acres), is the primary study area. See Exhibit 1-1. This FSEIS considers abutting lands including potential annexation areas.

### Exhibit 1-1. Lakewood Planning Area



Source: City of Lakewood, BERK 2024.

## 1.4 Public Comment Opportunities

The City has provided many ways to participate in the development of the proposal, and to comment on this FSEIS;

- City and 2024 Comprehensive Plan Periodic Review websites, social media, Connections newsletter, electronic newsletter, and four citywide direct mailings;
- 2023 Citizen Committee provided recommendations to update Housing Element and Energy & Climate Change Element;
- 2024 Comprehensive Plan Periodic Review Steering Committee;
- Tillicum-Woodbrook Subarea Plan (TWSP) Committee;
- Five Open Houses;
- 25+ Planning Commission meetings and 20+ City Council meetings
- Scoping period in 2023 to allow opportunities to comment on the scope of the SEIS. See Appendix A for the Scoping Notice. No comments were received at that time.

With the issuance of this DSEIS, the City offered a 30-day comment period. This FSEIS provides responses to comments on the DSEIS. See the Fact Sheet for information on how to provide public comments.

## 1.5 Objectives, Proposal, and Alternatives

### 1.5.1 Objectives

SEPA requires a statement of project objectives highlighting the purpose of a proposal. The primary objective and need for this proposal is to complete the 2024 periodic update of the Lakewood Comprehensive Plan to meet GMA requirements, multicounty planning policies (MPPs) and the regional growth strategy in VISION 2050, and countywide planning policies (CPPs) and 2044 growth targets in the Pierce County Countywide Planning Policies. The periodic update is also designed to meet a vision statement developed by the City Council in 2021. (See text box below.)

## Vision Statement

Lakewood is a thriving, urban, South Puget Sound City, possessing the core values of family, community, education, economic prosperity, and the equitable delivery of municipal services. We will advance these values by recognizing our past, taking action in the present, and pursuing a dynamic future.

The City Council's vision for Lakewood at its 30-Year Anniversary is a community:

- Inspired by its own sense of history and progress;
- Known for its safe and attractive neighborhoods, vibrant downtown, active arts and cultural communities;
- Sustained by robust economic growth and job creation;
- Recognized for the excellence of its public and private schools, and its community and technical colleges;
- Characterized by the beauty of its lakes, parks and natural environment;
- Acknowledged for excellence in the delivery of municipal services;
- That actively cultivates, embraces, and continually strives to create a more inclusive community with the equitable delivery of City services; and
- Supportive of Joint Base Lewis McChord (JBLM), Camp Murray, service members and their families.

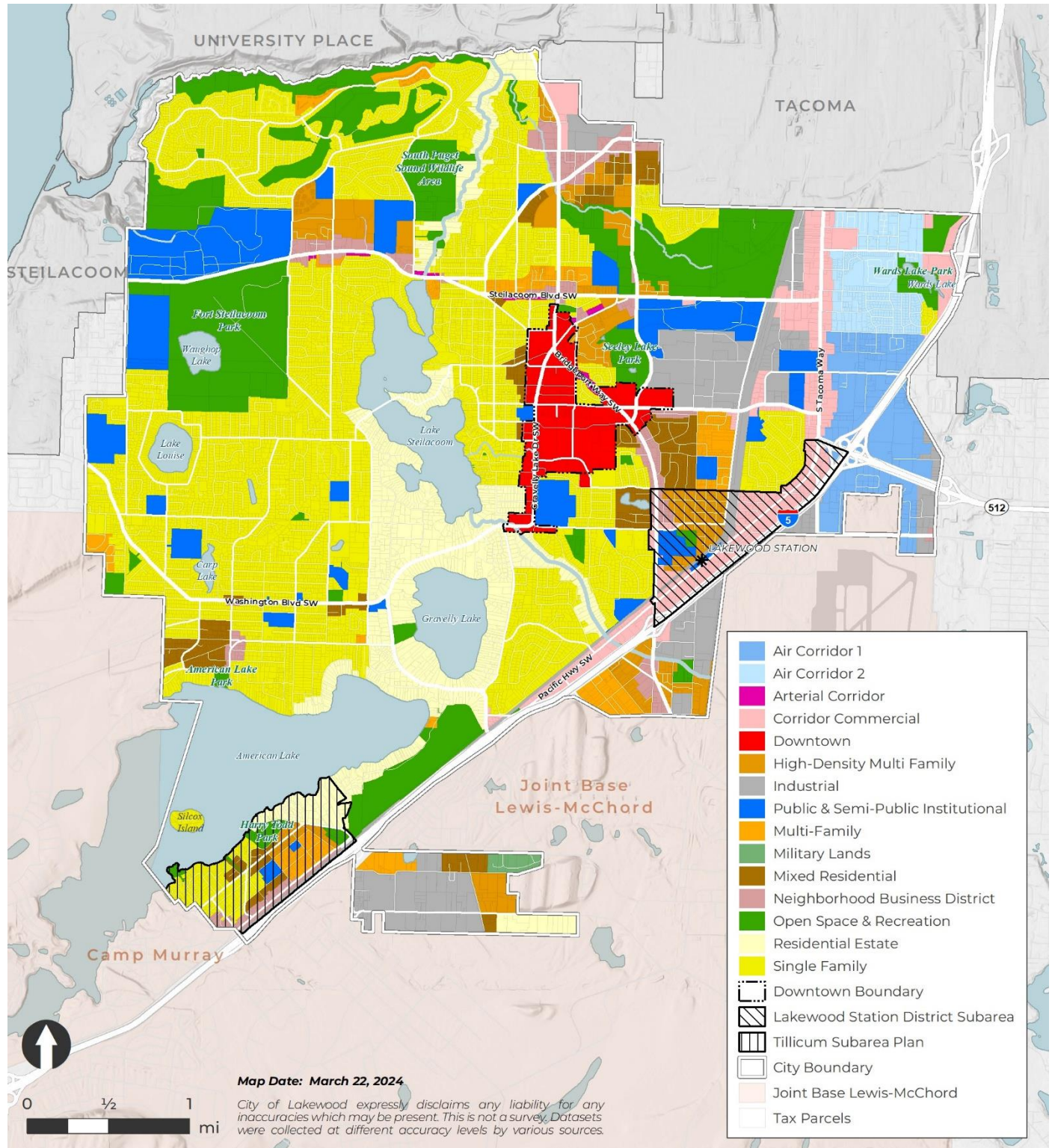
Lakewood City Council, Adopted June 21, 2021

### 1.5.2 No Action Alternative

If the City Council takes no action adopting the 2024 Lakewood Comprehensive Plan, the City's 2023 Comprehensive Plan as adopted would remain in effect until a new plan is adopted. The No Action Alternative as addressed in this FSEIS is therefore the 2023 Comprehensive Plan.

The City has maintained a Future Land Use Map that generally plans for single family uses to the west and north of Lakewood and multifamily, commercial, and industrial uses to the east. See Exhibit 1-2. The City implements its Future Land Use Map with detailed zoning, further described in Chapter 2.

Exhibit 1-2. Future Land Use Map, 2023.



Source: City of Lakewood, 2023.

The current Comprehensive Plan and implementing zoning provides capacity that meets the 2044 jobs target and its overall housing unit target but not the affordable housing targets required per HB 1220. See Exhibit 1-3 and Exhibit 1-4

**Exhibit 1-3. Growth Targets and Capacity – No Action Alternative**

	2020	2044	Growth 2020-2044	No Action Growth Capacity
Population	63,612	86,792	23,180	23,966*
Jobs	29,872	39,735	9,863	12,212
Housing	26,999	36,377	9,378	10,242
Emergency Housing	8	582	574	N/A

Note: \*Housing capacity x 2.34 persons per household (US Census 2018-2022)

Sources: (Pierce County, 2022-2023); US Census Quick Facts, 2023

**Exhibit 1-4. Affordable Housing Targets and Capacity by No Action Alternative**

Income	Projected Housing Need	Zoning Categories Serving Needs	Aggregated Housing Needs	Total Capacity	Capacity Surplus/Deficit
0-30% Non-PSH	1,212	Low-Rise	5,963	8,136	2,173
0-30% PSH	1,637	Multifamily + ADUs			
>30-50%	1,739				
>50-80%	1,375				
>80-100%	592	Moderate Density	1,128	776	(352)
>100-120%	536				
>120%	2,287	Low Density	2,287	1,330	(957)
<b>Total</b>	<b>9,378</b>		<b>9,378</b>	<b>10,242</b>	<b>864</b>

Sources: (Pierce County, 2022-2023), BERK 2024.

While the No Action Alternative capacity meets targets, the studied growth is reflective of the current assumptions in the Comprehensive Plan and transportation model as amended by the Downtown Plan and Station District Subarea Plan:

- 2017 Comprehensive Plan :
  - Households: 31,884
  - Jobs: 33,441
- Comprehensive Plan plus Downtown (2018) and Station Area (2021) Plans:
  - Households by 2035: 34,440
  - Jobs by 2035: 39,159

### 1.5.3 Action Alternative (Preferred)

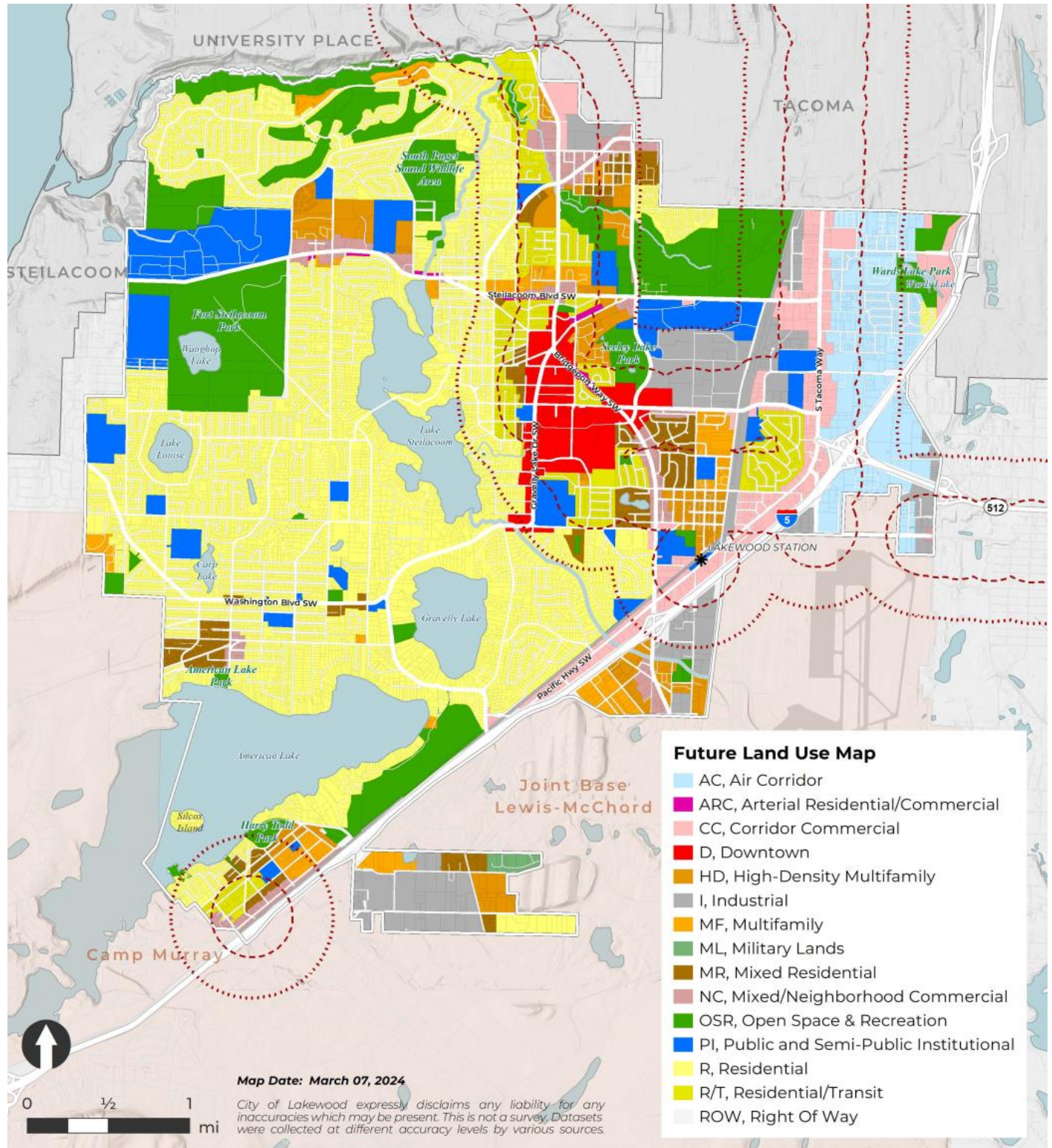
The Preferred Alternative is the adoption of a significantly reorganized Lakewood Comprehensive Plan that reflects:

- Land development capacity consistent with Lakewood's 2044 growth targets:
  - 9,378 new housing units;
  - 23,180 in new population; and
  - 9,863 new jobs.
- Planning for sufficient housing land capacity for all economic segments of the population (moderate, low, very low and extremely low income, as well as emergency housing and permanent supportive housing);
- Making adequate provisions for housing for existing and projected needs for all economic segments of the community, including documenting programs and actions needed to achieve housing availability;
- Providing for moderate density housing options, including but not limited to duplexes, triplexes and townhomes;
- Updating plans and zoning to allow the densification of housing in historically single family areas;
- Identifying racially disparate impacts, displacement and exclusion in housing policies and regulations, and beginning to undo those impacts;
- Identifying areas at higher risk of displacement and establishing anti-displacement policies;
- Updating energy and climate change related policies;
- Coordinating planning with utility providers;
- Promoting civilian-military compatibility;
- Expanding geographic boundaries for the 2024 Tillicum-Woodbrook Subarea Plan to include Woodbrook;
- Providing consistency with the PSRC Centers Framework Policy as it applies to the Lakewood Regional Urban Growth Center; and
- Incorporating optional elements (e.g., the Downtown, Station District, and Tillicum-Woodbrook Subarea Plans) and Background Reports in Appendices.

The Preferred Alternative proposes specific land uses and planning policies consistent with the GMA as well as related recent state legislation and regional policies focused on planning for housing affordable to all. See Exhibit 1-5 for transit proximate areas where parking standards may be reduced for middle housing as well as multifamily and housing for seniors, disabled, and income-restricted units.



Exhibit 1-5. Future Land Use Plan and Transit Proximity



Source: City of Lakewood, 2024.

Based on the proposed changes to the Future Land Use Plan and Zoning to allow more “middle housing” as defined in the GMA and accessory dwelling units (ADUs), there would be an increased capacity for housing. Also, the proposed changes would allow the City to meet its affordable housing targets for all economic segments. See Exhibit 1-6 and Exhibit 1-7.

**Exhibit 1-6. Growth Targets and Capacity – Action Alternative**

	2020	2044	Growth 2020-2044	Action Alternative Growth Capacity
Population	63,612	86,792	23,180	40,922*
Jobs	29,872	39,735	9,863	15,238
Housing	26,999	36,377	9,378	17,488
Emergency Housing	8	582	574	N/A**

Note: \*Housing capacity x 2.34 persons per household (US Census 2018-2022)

\*\* Capacity is not required if a jurisdiction allows emergency housing where hotels are allowed (met in Title 18.A in Lakewood’s Municipal Code) or in a majority of zones within one-mile of transit per HB 1220 Sections 3 and 4, and if the jurisdiction has no regulations that limit the occupancy, spacing or intensity of emergency housing. However, local governments may set restrictions in relation to health, safety and fire codes, so long as the restrictions do not prevent the siting of a sufficient number of emergency housing units to meet the allocated need. Lakewood sets a 1,000 foot separation currently but proposed code changes would limit the spacing to 880 feet per RCWs 9.94A.030 and 9.94A.703, which create community protection zones of 880 feet from incompatible uses that have a clear connection to public safety. (See: <https://deptofcommerce.app.box.com/s/1d9d517g509r389f0mjpgowh8isjpirlh>).

Sources: (Pierce County, 2022-2023); US Census Quick Facts, 2023

**Exhibit 1-7. Affordable Housing Targets and Capacity by Action Alternative**

Income	Projected Housing Need	Zoning Categories Serving Needs	Aggregated Housing Needs	Total Capacity	Capacity Surplus/Deficit
0-30% Non-PSH	1,212	Low-Rise Multifamily + ADUs	5,963	9,064	3,101
0-30% PSH	1,637				
>30-50%	1,739				
>50-80%	1,375				
>80-100%	592	Moderate Density*	1,128	2,969	1,841
>100-120%	536				
>120%	2,287	Low Density**	2,287	5,455	3,168
<b>Total</b>	<b>9,378</b>		<b>9,378</b>	<b>17,488</b>	<b>8,110</b>

\*Includes six (6) ADUs.

\*\*Includes 310 ADUs.

Sources: BERK 2024.

While the Action Alternative has housing capacity above the 2044 targets, for the purposes of this FSEIS, the 2044 targets are used to evaluate the transportation and other needs since the targets encompass a 20-year period while capacity represents a reasonable build out under proposed regulations that may take longer than 20-years.

The Action Alternative addresses code changes to address housing allowances and related permit procedures:

- Housing use allowances in LMC Titles 18A, 18B, and/or 18C
- Short Term Rental (STR) Regulations: the options for the maximum number of short term rentals per permittee ranges from 1 to 5 (lower as originally proposed; higher under considering by City Council);
- Unit lot subdivisions (Title 17);
- Public Noticing Regulations (HB 1105);
- Add “recycling facility” to conditional uses allowed in the AC1 zone; and
- Other related regulations are addressed.

As a result of the engagement process and comments received, Exhibit 1-8 describes the updates and changes made to the Comprehensive Plan goals and policies. Policies were updated in order to:

- Align with regional plans (e.g., PSRC VISION 2050) and comply with state / regional mandates.
- Address co-housing, offering alternative forms of home ownership.
- Incorporate climate resilience and address the disproportionate impact of climate change on vulnerable populations in the community.
- Include climate resilient solutions in public infrastructure.

**Exhibit 1-8. Changes to the Action Alternative (Preferred)**

Original Goal / Policy	Changes	Final Goal / Policy
<b>LAND USE</b>		
LU-3.1 Adopt and administer land use development regulations consistent with the Future Land Use Map (FLUM) and its designations.	LU-3.1 Adopt and administer land use development regulations consistent with the Land Use Designations Map <del>Future Land Use Map (FLUM) and its designations.</del>	LU-3.1 Adopt and administer land use development regulations consistent with the Land Use Designations Map.
<b>ENERGY AND CLIMATE CHANGE</b>		
[New]	[New Policy – added to address goals under the VISION 2050 plan]	EC-1.4 <b>Achieve Regional Greenhouse Gas Emissions Goals:</b> Work to achieve regional goals of reducing the emissions of greenhouse gases that contribute to climate change consistent with the goals of VISION 2050 and the Puget Sound Clean Air Agency. These goals are set at reductions of 50% below 1990 levels by 2030 and 80% below 1990 levels by 2050.

Original Goal / Policy	Changes	Final Goal / Policy
<p><b>EC-5 Develop a Hazards Management Plan and a climate resilient community.</b></p>	<p><b>EC-5 Develop a Hazards Management Plan and a climate resilient community. Climate Resilient Community.</b> Ensure that the long-term effects of climate change and other hazards are minimized on the community.</p>	<p><b>EC-5 Develop a Climate Resilient Community.</b> Ensure that the long-term effects of climate change and other hazards are minimized on the community.</p>
<p><b>EC-5.2 Prepare a Hazard Management Plan:</b> Develop a comprehensive approach to hazards management planning to include possible climate change scenarios and includes both pre-incident and post-incident responses.</p> <ul style="list-style-type: none"> <li>▪ Develop post-disaster redevelopment plans.</li> <li>▪ Expand federal and state support for climate-related hazards management.</li> <li>▪ Continue to coordinate and cooperate with the hazards-management community.</li> </ul>	<p><b>EC-5.2 Prepare a Hazard Management Plan:</b> Develop a comprehensive approach to hazards management planning to include possible climate change scenarios and includes both pre-incident and post-incident responses.</p> <ul style="list-style-type: none"> <li>▪ Ensure that emergency response plans are in place to minimize impacts of future events.</li> <li>▪ Address the needs of vulnerable populations during emergency conditions such as extreme heat or smoke events.</li> <li>▪ Develop post-disaster redevelopment plans.</li> <li>▪ Expand federal and state support for climate-related hazards management.</li> <li>▪ Continue to coordinate and cooperate with the hazards-management community.</li> </ul>	<p><b>EC-5.2 Prepare a Hazard Management Plan:</b> Develop a comprehensive approach to hazards management planning to include possible climate change scenarios and includes both pre-incident and post-incident responses.</p> <ul style="list-style-type: none"> <li>▪ Ensure that emergency response plans are in place to minimize impacts of future events.</li> <li>▪ Address the needs of vulnerable populations during emergency conditions such as extreme heat or smoke events.</li> <li>▪ Develop post-disaster redevelopment plans.</li> <li>▪ Expand federal and state support for climate-related hazards management.</li> <li>▪ Continue to coordinate and cooperate with the hazards-management community.</li> </ul>
<p>[NEW]</p>	<p>[New Policy – added to consider the need for discussions of resilience to comply with state/regional mandates.]</p>	<p><b>EC-5.4 Plan for Flood Risks.</b> Consider flood risks in the development and management of city infrastructure and facilities.</p>
<p>[NEW]</p>	<p>[New Policy – Added to consider the need for discussions of resilience to comply with state/regional mandates.]</p>	<p><b>EC-5.5 Improve the Urban Tree Canopy.</b> Enhance the quality and sustainability of the urban forest and urban tree canopy to mitigate urban heat island effects, address stormwater drainage concerns, and meet environmental quality goals.</p>
<p><b>EC-5.4 Promote Climate Resiliency:</b> Develop a resilience strategy for the purposes of maintaining strong city finances and livable places, thereby allowing the city to more easily adapt to emergent climate-related disasters.</p>	<p><b>EC-5.46 Promote Plan for Climate Resiliency with Public Facilities:</b> Develop a resilience strategy for the purposes of maintaining strong city finances and livable places, thereby allowing the city to more easily adapt to emergent climate-related disasters. As part of this strategy, incorporate climate-resilient designs in public infrastructure, especially city parks, recreation facilities, and buildings.</p>	<p><b>EC-5.6 Plan for Climate Resiliency with Public Facilities:</b> Develop a resilience strategy for the purposes of maintaining strong city finances and livable places, thereby allowing the city to more easily adapt to emergent climate-related disasters. As part of this strategy, incorporate climate-resilient designs in public infrastructure, especially city parks, recreation facilities, and buildings.</p>

Original Goal / Policy	Changes	Final Goal / Policy
[NEW]	[New Policy – Added to consider the need for discussions of resilience to comply with state/regional mandates]	EC-5.7 <b>Encourage Local Resiliency Efforts:</b> Promote efforts by local businesses to utilize and market climate-resistant features, renewable energy, and other sustainable practices.
[NEW]	[New Policy – Added to consider the need for discussions of resilience to comply with state/regional mandates]	EC-5.8 <b>Address Disproportionate Impacts of Hazards:</b> Improve the resilience of overburdened communities to the impacts of climate change through outreach and investment.
[NEW]	[New Policy – Added to consider the need for discussions of resilience to comply with state/regional mandates]	EC-5.9 <b>Provide Information About Local Resiliency:</b> Build awareness in the community about the risks from natural disasters and other emergencies and the public programs intended to address these impacts.
<b>HOUSING</b>		
[NEW]	[New Policy – Added provisions for alternative ownership models to align with new state requirements.]	HO-4.6 Encourage alternative ownership models such as cohousing to support housing access.
<b>NATURAL ENVIRONMENT</b>		
NE-6.7 Work towards a citywide goal of 40% tree canopy cover by the year 2050. Consider opportunities to increase canopy and environmental equity when evaluating tree canopy distribution.	NE-6.7 Work towards a citywide goal of 40% tree canopy cover by the year 2050. <del>Consider opportunities to increase canopy and environmental equity when evaluating tree canopy distribution.</del>	NE-6.7 Work towards a citywide goal of 40% tree canopy cover by the year 2050.
[NEW]	[New Policy – Split the policy in LU-60.4.]	NE-6.8 Consider opportunities to increase canopy and environmental equity when evaluating tree canopy distribution.
NE-8.1 Protect against seismic hazards to reduce risks to public safety and property.	NE-8.1 Reduce risks to public safety and property from landslides, slope failures, erosion, seismic events, volcanic eruptions, or flooding hazards. <del>Protect against seismic hazards to reduce risks to public safety and property.</del>	NE-8.1 Reduce risks to public safety and property from landslides, slope failures, erosion, seismic events, volcanic eruptions, or flooding hazards.

Source: City of Lakewood, 2024.

The City Council is considering adding policies to the Natural Environment Element of the Comprehensive Plan to emphasize retention of existing or future City ownership of shorelines and shorelands.

- NE-3.4 Retain current and future City ownership of shorelines and shorelands

- NE-7.2 Manage water resources to support diverse uses including habitat, recreation, flood control, water supply, and open spaces, including through retaining current and future City ownership of shorelines and shorelands.

Additionally, critical area buffers are proposed to be amended to address more recent state guidance on riparian area protection, as well as other aspects of code application. See Appendices for a memo regarding stream buffers.

The proposals include adding a new LMC Title 16 to incorporate the City’s Shoreline Master Program and Shoreline Restoration Plan into the municipal code. In the future, the City anticipates that:

- The rules and buffer widths for Remodeling and New Construction will be increasing around: 1) Boyles Lake, Lost Lake, Carp Lake, Emerson Lake, Flett Creek, Ponce de Leon Creek, and other unnamed fish-bearing streams (called “Type F” streams) in the City; and 2) the Tributaries for Waughop Lake, Lost Lake, Gravelly Lake, Chambers Creek, Clover Creek, and other unnamed non-fish bearing streams (called “Type Np/Ns” and “Type X” waters).
- The buffers for remodeling and new development are staying the same around: American Lake, Gravelly Lake, Lake Louise, Steilacoom Lake, Waughop Lake, Clover Creek and Chambers Creek.

The shoreline buffers and any other policy or regulatory changes will be processed according to RCW 90.58 and WAC 173-26 and is subject to Washington State Department of Ecology review and approval as well as local government approval.

### 1.5.4 Comparison of Alternatives

This FSEIS evaluates the No Action and Action Alternative, compared in Exhibit 1-9 below.

**Exhibit 1-9. Comparison of Alternatives**

Component	No Action Alternative	Action Alternative
Comprehensive Plan Elements	Current Plan is retained (2023).	Plan is updated to meet recent legislation (HB 1220, HB 1110, HB 1337).
General Concept	<ul style="list-style-type: none"> <li>- Incorporates VISION 2040 Policies</li> <li>- Includes zoning requirements for special needs housing (PSH, RRH, TH, Emergency Shelters).<sup>1</sup></li> <li>- Housing Element does not fully reflect HB 1220 zoning and policy requirements as summarized for Preferred Alternative.</li> <li>- Does not reflect HB 1110 or HB 1337 requirements to allow middle housing and ADU housing in single family areas.</li> <li>- Does not incorporate information from analysis of impacts to residential areas parking due to HB 1110 and HB 1337 densification requirements.</li> </ul>	<ul style="list-style-type: none"> <li>- Incorporates VISION 2050 Policies</li> <li>- Includes zoning requirements for special needs housing (PSH, RRH, TH, Emergency Shelters).</li> <li>- Housing Element fully reflects “HB 1220” (2021 law) zoning and policy requirements:                             <ul style="list-style-type: none"> <li>- Planning for sufficient land capacity for housing needs, including all economic segments of the population (moderate, low, very low and extremely low income, as well as emergency housing and permanent supportive housing);</li> <li>- Providing for moderate density housing options within Urban Growth Areas</li> </ul> </li> </ul>

<sup>1</sup> PSH – Permanent Supportive Housing, RRH - Rapid Re-housing, TH – Transitional Housing

Component	No Action Alternative	Action Alternative
	<ul style="list-style-type: none"> <li>- Does not incorporate analysis of Regional Urban Growth Center per PSRC Centers Framework.</li> <li>- Does not incorporate initial compliance policies with HB 1181 (2023 Climate Change &amp; Resiliency Law).</li> </ul>	<p>(UGAs), including but not limited to duplexes, triplexes and townhomes;</p> <ul style="list-style-type: none"> <li>- Making adequate provisions for housing for existing and projected needs for all economic segments of the community, including documenting programs and actions needed to achieve housing availability; and</li> <li>- Identifying racially disparate impacts, displacement and exclusion in housing policies and regulations, and beginning to undo those impacts; and identifying areas at higher risk of displacement and establishing anti-displacement policies.</li> <li>- Reflects HB 1110 and HB 1337, 2023 laws requiring allowance of middle housing and ADU housing in single family areas.</li> <li>- Incorporates information from analysis of impacts to residential areas parking due to HB 1110 and HB 1337 densification requirements.</li> <li>- Incorporates analysis of Regional Urban Growth Center per PSRC Centers Framework.</li> <li>- Incorporates initial compliance policies with HB 1181 (2023 Climate Change &amp; Resiliency Law).</li> </ul>
<b>Key Features</b>	<ul style="list-style-type: none"> <li>- Maintains current residential zoning scheme and policies that pre-date HB 1220, HB 1110, and HB 1337.</li> <li>- Includes 2021 Energy &amp; Climate Change Chapter that pre-dates HB 1181</li> <li>- Includes 2011 Tillicum Neighborhood Plan and 2022 Addendum.</li> <li>- Retains past data and analyses about the Regional Urban Growth Center that was drafted prior to the adoption of the PSRC 2018 Centers Framework.</li> <li>- Retains transportation level of service (LOS) focused on road congestion.</li> <li>- Maintains content organization used since first adopted Comprehensive Plan. Contains outdated and obsolete narrative and policy language. No clear references to original or more recent Background Reports.</li> </ul>	<ul style="list-style-type: none"> <li>- Updated residential zoning scheme and policies in response to HB 1220, HB 1110, and HB 1337.</li> <li>- Updated Energy &amp; Climate Change Chapter including initial compliance with HB 1181.</li> <li>- 2024 Tillicum-Woodbrook Subarea Plan.</li> <li>- Adds multimodal LOS and plans.</li> <li>- Verified data regarding Lakewood Regional Urban Growth Center in relation to pending PSRC Center Review.</li> <li>- Reorganized Plan content to better reflect GMA organization and requirements.</li> <li>- Streamlined Plan language (i.e., goals and policies), Optional Elements (e.g., subarea plans), expanded technical and detailed Appendices, and collection of Background Reports.</li> </ul>
Future Land Use Map and Zoning	Current Future Land Use Plan and Zoning Map is retained.	Future Land Use Plan and Zoning Map and text are amended to allow for middle housing and ADUs. Unit lot subdivisions regulations are addressed allowing for more ownership opportunities.

Component	No Action Alternative	Action Alternative
		<p>The 2024 Planning Commission’s recommendation that STRs be allowed in Accessory Dwelling Units.</p> <p>The CBD zone would be extended between the current boundary and the Clover Park High School.</p> <p>Consistency amendments are proposed to reconcile inconsistencies between use allowances for group homes in the Downtown/CBD and other Station District zones.</p> <p>Draft amendments to LMC Title 18B would update allowed locations and minimum acreage for master planned developments in the Downtown Subarea and updating references to the Lakewood Planning &amp; Public Works Department.</p> <p>The plan and planned action would include updated estimates for Downtown Subarea transportation project costs.</p> <p>Text changes would remove the Lakewood Landing from the Station District Plan and redistribute residential growth elsewhere in the study area.</p> <p>Update the monitoring of the Lakewood Station District Subarea Plan to be monitored every five years rather than every two years to match the Comprehensive Plan monitoring.</p>
Other Development Regulations	No changes to critical areas regulations. No changes to parking regulations.	<p>Update critical areas regulations to address gap analysis.</p> <p>Shoreline master program and restoration plan in the code. Future changes to buffers for shoreline lakes and streams would be amended in the future upon state review to address riparian buffers based on science similar to critical area regulations.</p> <p>Parking regulations would be modified to reduce parking in proximity to high frequency transit or major transit stops.</p>
Growth Targets and Capacity	Meets population, housing, and job targets on the whole. Does not meet housing targets by affordability band. Code allows emergency housing where hotels are allowed. Spacing requirements and other standards are applied.	<p>Meets all growth targets including targets by affordability band.</p> <p>Code allows emergency housing where hotels are allowed. Spacing requirements and other standards are applied but adjusted based on health and safety standards per HB 1220, Sections 2 and 3.</p>

Source: City of Lakewood, 2024; BERK Consulting, 2024.



## 1.6 SEPA Process

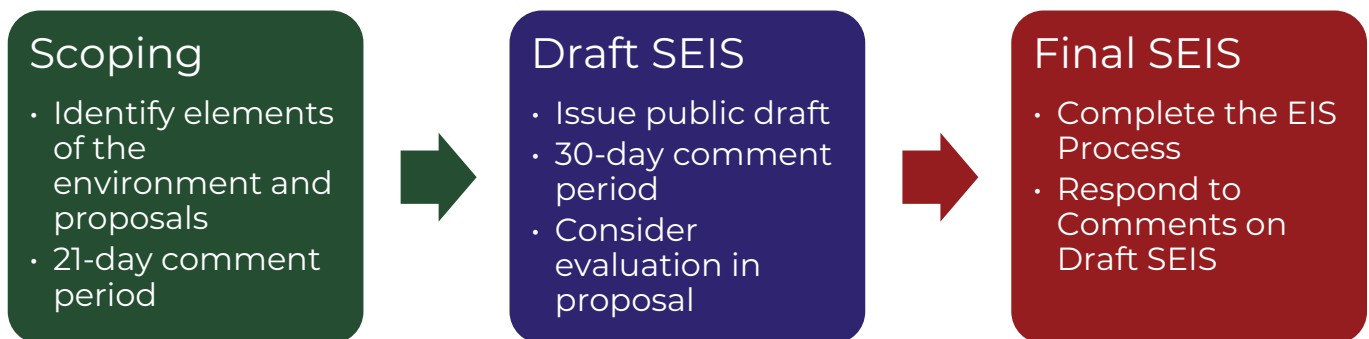
### 1.6.1 Overview

Under SEPA, an environmental impact statement (EIS) or Supplemental EIS (SEIS) is an informational document that provides the City, public, and other agencies with environmental information to be considered in the decision-making process. It also allows the public and government agencies to comment on proposals and alternatives. This DSEIS process has been integrated with the 2024 Comprehensive Plan periodic update planning process to inform the development of the City of Lakewood Comprehensive Plan growth concept, goals, and policies. See Exhibit 1-101-11.

The DSEIS points of public comment included:

- Scoping that took place in 2023 to identify the proposals and potential environmental topics; scoping is optional for a SEIS. See Appendix A.
- Since September 2022, public engagement and outreach has included:
  - Outreach to the public via City and 24CPPR websites, social media, the *Connections* newsletter, an electronic newsletter, and 4 citywide direct mailings;
  - 2023 Citizen Committee convened to provide recommendations to update Housing Element and Energy & Climate Change Element;
  - Convening of a 24CPPR Steering Committee and Tillicum-Woodbrook Subarea Plan (TWSP) Committee;
  - 5 Open Houses; and
  - 20+ Planning Commission meetings and 10+ City Council meetings
- This DSEIS offers analysis of the alternatives under review with the periodic update
- A Final SEIS (FSEIS) will complete the process and respond to comments on the DSEIS.

#### Exhibit 1-101-11. City of Lakewood Supplemental EIS Process



## 1.7 Key Issues and Options

The key issues facing decision makers include:

- Creating a growth concept carried forward in plans and regulations that:
  - Offers more affordable housing opportunities and places to retain and grow businesses.
  - Promotes a healthy environment and climate resilience strategies and avoids displacement of overburdened households and businesses.
- Approval of a Comprehensive Plan including a vision, goals, and policies that fulfills Lakewood's vision and meets state and regional requirements.
- Identifies transportation investments and public service and utility investments.
- Approval of development regulations that implement the Comprehensive Plan goals and land use plan, resulting in quality housing choices, and integrating the best available science to protect critical areas.
- Consider environmental information (impacts, alternatives, and mitigation) before committing to a particular course of action.

## 1.8 Summary of Impacts and Mitigation Measures

This section summarizes the results of the Alternatives' evaluation in Chapter 3. For details of the evaluation, please see Chapter 3.

### 1.8.1 Natural Environment

#### How did we analyze the Natural Environment?

##### Critical Areas

We reviewed prior SEPA documents and studies such as watershed and shoreline plans. We also conducted a desktop analysis of existing information sources on critical areas, including : wetlands; aquifer recharge areas; fish and wildlife habitat areas; flood-prone areas; geologically hazardous areas; and creeks, streams, lakes, and their shorelines. Using existing information, we identified the potential impacts that could occur from each alternative and impacts citywide and to the Tillicum-Woodbrook subarea. Impact analysis looked at exposure to hazards, direct impacts to critical areas, and indirect impacts to water quality and quantity. Mitigation measures were determined based on city, state, and federal regulations, codes, plans, and policies.

##### Climate Change

We conducted an analysis using existing information sources to support analysis of existing greenhouse gas (GHG) emissions sources and trends, as well as areas with increased climate vulnerability. Sources of GHG emissions include building and transportation emissions and changes to the tree canopy. Climate

vulnerability analyzed potential impacts to vulnerable populations, urban heat islands and its tree canopy, and the city's floodplain. We then evaluated and determine possible impacts that could occur from each alternative considering thresholds. Mitigation measures were determined based on city, regional, state, and federal codes, plans, and policies.

## **What impacts did we identify?**

### Critical Areas

Impacts could result from redevelopment and new development, depending on its location and proximity to the critical areas. These impacts could include increased flood hazard exposure, increased risk of erosion due to construction and development, potential groundwater contamination, stream or wetland buffer loss, potential impacts to critical fish and wildlife habitats, and possible changes to water quality and quantity of downstream water bodies in the Chambers-Clover Creek Watershed.

Impacts in the Tillicum-Woodbrook Subarea area are similar to citywide impacts.

### Climate Change

Impacts could result from the increase in planned population growth. GHG emissions are likely to decline at a per capita level. In the centers, like Downtown and the Station District. Impacts include high or moderately high exposure to adverse air quality or noise.

## **What is different between the alternatives?**

### Critical Areas

The Action Alternative would allow for more growth in single family zones, which tend to have more tree canopy. The growth could impact existing vegetation, including trees. It would also implement enhanced critical area and shoreline regulations. Regarding the Tillicum-Woodbrook Subarea, its Plan would encourage more housing growth and improvements related to civic and transportation access.

### Climate Change

The No Action Alternative has a higher amount of overall vehicle miles traveled (VMT) in the city than the Action Alternative. However, the Action Alternative has a higher amount of VMT in the Downtown and Station District Subareas, due to the concentration of growth in these areas.

The No Action Alternative would require additional regulations to meet the City's Climate Element goals and policies that support regional GHG emission reduction goals. It would protect and enhance the city's tree canopy, but it does not implement improved critical area regulations reflecting best available science (BAS.) In comparison, the Action Alternative would result in higher density and a more compact urban form, resulting in greater per capita GHG emission reduction. It would include updated middle housing regulations and critical areas and shorelines regulations that provide additional habitat and

stream protective measures, such as wider stream buffers and recognition of other habitats for protection.

The Action Alternative would adopt the 2024 Tillicum-Woodbrook Subarea Plan, includes policies and strategies that support a higher quality of life in the subarea despite exposure to air and noise pollution. These policies and strategies would apply improved critical area regulations, which aim to improve natural environment protection, reduce exposure to air pollution, and improve climate change resilience.

## **What are some solutions or mitigation for impacts?**

### **Critical Areas**

The City is adopting an updated Natural Environment Element, which will include updated goals and policies that intend to promote protection, conservation, and enhancement of fish and wildlife habitats, streams, and wetlands, as well as protection of groundwater quality and quantity. These updated goals and policies also intend to address protection from floodplain and geological hazards. Updated critical area regulations (in LMC Title 14 Environmental Protection) would strengthen aquifer protection, stream standards, and other habitat protection. Integrating the SMP into the municipal code is proposed; the City anticipates addressing stream and lake buffers in shoreline jurisdiction similar to critical area riparian buffer adjustments.

New development and future redevelopment would also be required to meet building, land use, and critical areas regulations and provide building designs that minimize risk to these critical areas. Development would need to comply with adopted stormwater manuals (LMC Chapter 12A.11) to decrease the potential for groundwater contamination, as well as habitat and wetland protections where appropriate.

Potential mitigation measures include a regulatory structure, like a conservation easement, to support stream daylighting; landscaping with native species; educational signage regarding aboveground stormwater facilities; evaluation and update of the City's stormwater regulations; and prepared housing plans for ADUs and small attached dwellings that have a minimized footprint that can help retain and protect tree canopy where feasible.

### **Climate Change**

Future development under both alternatives would benefit from ongoing improvements in vehicle emissions, fuel economy, and regulatory improvements. The City: has adopted policies and commitments through the Energy and Climate Change Chapter in the Comprehensive Plan; is launching an urban forestry program to preserve significant trees and expand tree canopy throughout the city, and critical area and SM) shoreline regulations to promote conservation and protection of wetlands and riparian areas. The regional Puget Sound Clean Air Agency Board also has adopted regional GHG emission reduction. Furthermore, the Action Alternative would include updated critical area regulations to expand buffers and habitat protection.

To further mitigate the impact of GHG emissions, the City could explore its solar potential and provide incentives to increase its solar panel capacity on commercial and industrial buildings. It could also

improve its carbon sequestration by increasing its urban tree canopy and protecting its wetlands. Other methods include encouraging multimodal transportation that have reduced GHG emissions, promoting mixed-use development, integrating neighborhood commercial uses within residential neighborhoods, and prioritizing the use of green and sustainable development standards. On a regional level, the City could coordinate with regional transit efforts to expand public transit service throughout the city and region.

Action Alternative goals and policies would recognize regional GHG emission reduction goals. Policies would also incorporate climate resilience and address the disproportionate impact of climate change on vulnerable populations in the community. Policies would also promote climate resilient solutions in public infrastructure.

To further mitigate climate vulnerability impacts, the City could develop a Hazards Management Plan, develop and implement an urban heat resilience strategy, increase green infrastructure to cool stormwater runoff, and consider project-specific mitigation measures to limit emission exposures.

## **With mitigation, what is the ultimate outcome?**

### **Critical Areas**

Unregulated wildlife and native vegetation could be lost due to population growth and development. Redevelopment would require stormwater best management practices, resulting in an improvement to stormwater runoff and a benefit to the natural environment. No direct impacts to critical areas are assumed. The Action Alternative would improve the application of critical area and shoreline regulations based on BAS with improved evaluations and standards for mitigation.

### **Climate Change**

No significant unavoidable adverse impacts to air quality and GHG emissions are anticipated. Both alternatives would result in a mitigated less-than-significant impact. With mitigation implementation, as well as local, regional, and state climate actions, the alternatives may result in lower GHG emissions on a per capita basis compared to existing conditions. Neither alternative would prevent or deter state, regional, or local efforts to reduce GHG emissions. While each alternative sees increased growth and development, the development is channeled to targeted areas instead of the peripheral areas, which would offset the growth impacts.

## **1.8.2 Land Use Patterns and Policies**

### **How did we analyze Land Use Patterns and Policies?**

This FSEIS uses an inventory of existing land uses based on parcel land GIS data provided by the City. In addition, we anticipated the type and character of development that would be likely under the existing and proposed zoning. We analyzed potential impacts of the expected land use composition under each of the studied alternatives based on the following categories: changes in land use patterns and development intensities, differences in activity levels at boundaries of uses, and impacts to designated

shorelines. These impacts were analyzed for the entire city as well as within the Tillicum-Woodbrook subarea boundary. Mitigation measures were determined based on city, state, and federal regulations, codes, plans, and policies.

### **What impacts did we identify?**

Under both alternatives, additional growth and development is anticipated, leading to increases in land use intensity. Both alternatives allow for housing and job growth capacity that exceed the 2044 growth targets. The alternatives are largely consistent with GMA goals and VISION 2050 goals and multi-county planning policies. In both alternatives, housing would be emphasized in mixed use and multifamily zones, such as in the Downtown and Station District Subareas. Properties could redevelop and replace existing dwellings. It would be reasonable to amend the Downtown Planned Action Ordinance.

Both alternatives anticipate higher population and job numbers, creating more economic activity in the community. The increased activity levels would create increased demand for services and infrastructure.

Under the Action Alternative, the potential residential capacity in the TOC (Transit-Oriented Commercial) zone in the Station District Subarea is reduced due to non-residential uses currently in the “permit pipeline.” By increasing the TOC zone density limit from 54 to 80 units per acre and other land use zone capacities, the City can provide capacity for housing in the Station District matching the Planned Action level of growth for 2035. The City may wish to apply similar form-based zone standards in the TOC zone that are in the Downtown Subarea code (LMC Title 18B).

No changes to the shoreline environment designations would be made. The City is reviewing updates to the SMP to be consistent with the required critical areas updates.

### **What is different between the alternatives?**

The alternatives differ in consistency with goals and policies, as well as in the patterns and amount of growth, with the modeled growth for the Action Alternative set slightly higher than the No Action Alternative. The Action Alternative includes a residential pattern with more middle housing opportunities across the R1-R4 zones and in the “Transit” overlay. It would comply with the recent state legislation (HB 1337, HB 1110) that require development and design standards treat accessory dwelling units and other middle housing similar to single family dwellings. In comparison, the No Action Alternative allows fewer housing types in the Residential zones. Much of its growth would be focused on the Downtown and Station District Subareas.

The No Action Alternative is less consistent with goals and policies on providing for a range of affordable housing choices; the Action Alternative provides updated policies and zoning codes to increase housing types to meet targets for each affordability bands per the GMA. The Action Alternative provides updated Natural Environment policies and codes and reinforces climate mitigation and resilience and assumes some middle housing would occur in shoreline areas where housing types are allowed in the SMP. However, there will likely be lesser units developed in SMP areas due to the presence of critical areas or narrower roads where on-street parking is unavailable.

In the Tillicum-Woodbrook Subarea, the Action Alternative includes a cohesive plan for an expanded subarea that includes acreage on both sides of I-5 with the incorporation of the Woodbrook neighborhood. The TWSP emphasize increased investment in community needs and infrastructure, diversified housing options, improved multimodal connectivity, increased economic development opportunities, and protection of the natural environment. The No Action Alternative would retain the Tillicum-Subarea Plan created in 2011 without recognizing the action items completed since 2011 or the implementation gaps identified in 2022 (e.g., additional housing types and investment in infrastructure, parks, and community facilities.)

### **What are some solutions or mitigation for impacts?**

The City adopts regulations of land uses and development standards for consistent compatible development. In the Downtown and the Station District Subareas, hybrid form-based codes apply. In addition, the City intends to amend the Downtown Planned Action Ordinance (PAO) to add the parcels rezoned in 2023 to CBD on the southern border of the subarea. The inclusion of these properties makes for a logical subarea boundary line and cohesive land use pattern.

Under the Action Alternative, the Comprehensive Plan is updated for greater consistency with the 2044 job and housing growth targets, including the affordable housing targets now required under the GMA. It includes updated and new policies consistent with recent GMA updates as well as create a more streamlined and up to date document. Development regulation amendments would be adopted and implemented to meet recent legislative requirements for ADUs and middle housing in historically single family areas. In addition, critical area regulations would be amended to meet the latest State guidance and the urban conditions in the city.

### **With mitigation, what is the ultimate outcome?**

While both alternatives plan for additional growth and development resulting in increased land use intensity, these are not considered significant or adverse impacts since the growth is focused within an urban area. Much of the job and housing growth is in the Downtown, a designated regional urban growth center, and the Station District, a mixed use and multifamily transit-oriented subarea. The Action Alternative's inclusion of middle housing in historically single family areas is accompanied by development and design standards similar to those governing single family development.

Future growth is likely to create temporary or localized land use compatibility issues as development occurs. The potential impacts related to these changes may differ in intensity and location under each alternatives; however, with existing and new development regulations, zoning requirements, and design guidelines, no significant adverse impacts are anticipated.

## 1.8.3 Housing

### How did we analyze Housing?

The EIS evaluates changes to the capacity for new housing development that can accommodate Lakewood's housing targets by income level. It also evaluates housing diversity and supply, housing affordability, and potential increased risk for involuntary residential displacement, particularly for vulnerable populations. We used the PSRC Displacement Risk Index and compared it with the Commerce Displacement Risk Map to evaluate the level of displacement anticipated.

### What impacts did we identify?

The City's housing capacity will increase under both alternatives, with most middle housing and ADU increases locating in western Lakewood and higher density growth planned in northeast and east Lakewood. Most zoning districts would stay the same under both alternatives. The density of land uses will be similar.

Displacement risk in Lakewood is rated moderate to high, depending on the tool used. High displacement risk is identified in areas along the north and east side of Lakewood where there is more multifamily and mixed use zoning, as well as in the Station District Subarea. The north and east side of American Lake are rated at higher risk as well.

The land use designations and zones in the Tillicum-Woodbrook Subarea would remain unchanged. The PSRC displacement map rates the subarea's displacement risk as moderate, while the Commerce displacement map rates the risk as high.

### What is different between the alternatives?

While the No Action Alternative provides housing that meets the overall City targets for the year 2044, it does not meet housing needs at all income levels. In comparison, the Action Alternative meets housing capacity at all income levels, due to its added middle housing opportunities and reinforcement of growth in the City's Downtown and Station District Subareas.

Under the No Action Alternative, new development could replace existing housing in east/northeast Lakewood, leading to physical displacement. The Action Alternative would allow for moderate density housing integrated in historically single family areas, which may displace existing units, but could also add to existing properties without replacing the primary unit. The Action Alternative's "lower density zones" would allow for moderate density and be implemented through design and development regulations that treat middle housing and ADUs similar to single family housing. There would be reasonable transitions between areas of differing density.

. Under the No Action Alternative, Tillicum-Woodbrook Subarea single family and multifamily housing could be developed based on existing regulations. However, middle housing would not be allowed in the Residential zones on the north and east sides of the subarea. Under the Action Alternative, the Subarea Plan boundary would extend to include Woodbrook south of I-5 and match the TWSP Subarea Study



Area. The TWSP's goals and policies would protect existing affordable housing and support adding additional affordable housing. It would also promote infill housing and ADUs through the extension of middle housing opportunities on the north and east sides of the subarea.

### **What are some solutions or mitigation for impacts?**

The City's current development code includes housing allowances and standards for a full range of housing types. The City has also adopted and implemented a Housing Incentive Code, property tax exemptions for multifamily housing, a rental housing safety program (RHSP), and a housing services program to support maintenance and general home upgrades. The City also has a coordinated consolidated Housing and Community Development Plan with the City of Tacoma, which uses Community Development Block Grant and HOME funds to develop affordable housing.

The Action Alternative includes a new Housing Element with changes to the Future Land Use Map and Zoning Districts to incorporate middle housing. It also includes a new Tillicum-Woodbrook Subarea Plan with goals, policies, and actions regarding housing development and preservation.

Other mitigation measures include potential amendments to some zones to support the development of middle housing and ADUs. Some adjustments to the Arterial Residential Corridor (ARC) and the Low-Impact Mixed-Use Roads District within the Central Business District zone in the Downtown may be needed. Amendments to reconcile the Special Needs Housing Allowances for some types of group homes in the Downtown and Station District Subareas are needed (see Lakewood Municipal Code (LMC) Titles 18B and 18C.)

### **With mitigation, what is the ultimate outcome?**

Under both alternatives, housing growth is anticipated, which could result in impacts to current residents, including residential displacement in parts of the city. The No Action Alternative does not provide enough capacity to accommodate housing targets at all income bands, as is now required under the GMA.

## **1.8.4 Transportation and Parking**

### **How did we analyze Transportation and Parking?**

We gathered existing transportation conditions throughout the city and findings related to current transportation and circulation. Data was also gathered using GIS data layers. The FSEIS evaluates changes to land use patterns, activity levels, or development intensities and considers whether proposed land use changes would worsen transportation system performance. Impact analyses looked at travel forecasts, vehicle miles traveled (VMT), and level of service (LOS) analysis.

To analyze transportation impacts, we conducted a travel demand model (TDM) comparison between each alternative, which was derived from a previous model and recently adopted subarea plans. It forecasts travel demand based on the City's 2044 housing and job growth targets, with assumptions

consistent with the Land Use Plan. Traffic volumes, roadway volume-to-capacity (v/c) ratios, and LOS were then calculated for mid-block arterial roadway segments throughout the City of Lakewood.

To analyze parking impacts, we applied a methodology for evaluating significant safety issues and applied that consistently to all roadway segments in the city. It assumes that significant safety issues could arise from increased on-street parking on roadways not originally designed for on-street parking. These roadways include narrow local roads without curbs, and safety issues include reduced sight distances, increased risk of dooring collisions with cyclists, and inadequate space for two-way travel and EMS access.

### **What impacts did we identify?**

By 2044, traffic volumes would increase due to the land use growth in the city as well as the region. Regarding parking impacts, the Interlaken and Harts Idyllwild/Lake Holme developments have a high concentration of parcels with potentially significant on-street parking safety issues due to the narrow streets and automobile-focused street design that does not adequately accommodate higher residential densities or on-street parking.

The LOS results in the Tillicum-Woodbrook Subarea are similar under both alternatives with no exceedances of levels of service (LOS).

### **What is different between the alternatives?**

The No Action Alternative has a slightly higher overall VMT, with lower performance at certain intersections. However, it would have lower impact in some locations along Pacific Highway SW and South Tacoma Way. It would retain current parking ratios and parking incentives. However, it would not allow middle housing at the same level as the Action Alternative; its parking impacts could therefore be lower.

The Action Alternative scenario concentrates job and housing growth within the Downtown and Station District Subareas, but also allows significant housing growth over time in the historically single family areas due to middle housing and ADUs. The intersections at Pacific Highway SW and South Tacoma Way would see greater volumes than under the No Action Alternative. The capacity of the Action Alternative to provide middle housing is greater than the No Action Alternative, which could increase parking impacts. Parking in areas with reduced road rights of way may limit the production of middle housing in some locations.

These land use changes are intended to increase density in areas of the city with greater access to transit and other active transportation modes such as walking and biking. The Action Alternative has a lower citywide VMT due to its concentrated growth in the Downtown and Station District Subareas and distribution of middle housing growth in historically single family areas.

Results for Tillicum-Woodbrook are similar to the citywide impacts; the Action Alternative would have slightly lower volumes of traffic than the No Action Alternative.

## What are some solutions or mitigation for impacts?

The City is updating its land use plans and associated transportation policies to address multimodal transportation needs. It also adopted a Non-Motorized Transportation Plan (NMTP) in 2023, which includes funding needs and recommendations to implement non-motorized transportation improvements. The City currently manages transportation facilities, has a Commute Trip Reduction (CTR) program, and a Complete Street Policy. It also regulates parking in the Downtown and Station District Subareas.

The City and region focus on enhancing sustainable and efficient transportation options. In 2024, the Sound Transit Board of Directors approved funding a series of access improvements within the Station District to encourage multimodal transportation and decrease the demand for single occupancy vehicle driving. The City could also consider adjusting the LOS threshold for deficient roadway segments, which would further emphasize the City's focus on improving transit access, walking, and biking within the Station District and surrounding area.

## With mitigation, what is the ultimate outcome?

Transportation infrastructure is required to keep pace with development associated with expected demographic and economic growth. The City's focus on strengthening sustainable and efficient transportation options will help manage environmental impact and improve quality of life for the community. Mitigation measures through continual monitoring and capital investments at specific locations can help reduce transportation impacts.

The City plans to conduct ongoing monitoring related to middle housing development, limiting parking near transit per state requirements. Through code allowances, applicants can request changes in parking using project-level information. No significant unavoidable adverse impacts are anticipated.

## 1.8.5 Public Services

### How did we analyze Public Services?

This section addresses potential impacts identified under both alternatives on: fire and emergency medical services (EMS); police; schools; and parks, recreation, and open space areas that serve Lakewood. These services are provided by the City of Lakewood for police and parks, by West Pierce Fire and Rescue (WPFR) for fire, and by the Clover Park School District (CPSD) for schools. We considered available capital and operational plans and data from service providers such as calls for service, response times, and usage. The methodology for impacts is based on analyzing data available in the Comprehensive Plan, functional plans, provider annual reports, budgets, and other data sources, as necessary. Impacts are quantified by population and employment-based summaries and projections.

Thresholds of significance include:

- Negative affected LOS for **police and/or fire and emergency medical services;**

- Increased demand for **special emergency services** beyond current operational capabilities of service providers;
- Increases in **students** and lack of facilities; and
- Reduced access to **park and open space facilities**.

## What impacts did we identify?

Under both alternatives, increased population and employment growth in the city would generate additional demand for emergency services, parks, and schools. Additional firefighters, police officers, park and recreation facilities, and classrooms or schools would be needed to maintain or meet current LOS over time.

### Fire & EMS

Under both alternatives, growth and development in the Lakewood area would create more demand for fire and emergency medical services, placing increased pressure on WPFR to meet response times and maintain its WSRB rating of ISO Class 3 or better.

With targeted growth in the Downtown and Station District Subareas, the fire stations that serve these areas may see increased growth. WPFR would attempt to maintain response times consistent with or better than current performance levels as the demand for service increases. Over time, additional staffing, equipment, or facilities may be required in order to maintain or improve performance levels. Adopted LOS standards and effective LOS calculations for emergency services are citywide, so WPFR would continue to evaluate where demand is greatest and distribute resources accordingly.

### Police

Both alternatives would increase the demand for police service. The population and job growth is anticipated to result in higher calls for service, increased staffing to respond to these calls, and increased need for infrastructure and equipment throughout the city. There may also be an increase of calls in the Downtown and Station District Subareas due to the anticipated population and employment concentration.

Road infrastructure that effectively facilitates the flow of traffic will impact response times, which may have a greater impact in the Tillicum-Woodbrook Subarea than other areas in the city, particularly given that the LPD headquarters is located outside of the subarea. A reduction in traffic flow standards could reduce the reliability of police response to the subarea during peak hours.

### Schools

Added residential growth throughout the city would increase households and the number of students, requiring an increased need for teachers and classrooms. However, the anticipated moderate density and multifamily housing may have a lower student-per-household ratio, resulting in a lower-than-anticipated need for teachers. The School District will need to study student growth to anticipate the appropriate distribution of its teachers.

## Parks, Recreation and Open Space

Both alternatives will see increased use of parks and open space, resulting in an increased need for maintenance, amenities, and park acreage. Both alternatives plan for increased housing density in the Downtown and Station District Subareas but acknowledge lack parks located within a 10-minute walkshed. Therefore, existing parks like Ft. Steilacoom Park, may see increased usage.

## **What is different between the alternatives?**

### Fire & EMS

The Action Alternative has an increased amount of moderate housing and ADUs in historically single family areas, which have narrow streets that may make it more challenging for fire engines to respond to calls and increase response times in these areas.

### Police

With the increase in moderate housing throughout the city, there may be an increase in calls to service for the police department, particularly in neighborhoods and areas that are historically single family. There may also be an increase of the proportion of calls in the Downtown and Station District Subareas due to the anticipated population and employment concentration.

### Schools

With the increased moderate housing and ADUs in historically single family areas, the school district may see increased student demand throughout the city, although these housing types may have lower student-to-housing units ratio than single family units.

## Parks, Recreation and Open Space

There will be an overall increase in park demand throughout the city with the increase in population. The City could prioritize areas that have a lack of park space within a 10-minute walk shed, have a low diversity of amenities, and/or have a low-quality park score. These areas of the city include the north-central area, the central-east area, the central-west area near Idlewild Elementary School.

## **What are some solutions or mitigation for impacts?**

### Fire & EMS

The areas where growth is being directed (Downtown, Station District, and infill residential areas) are all currently served by WPFR. Concentrated growth can help promote efficient and effective service delivery. The fire district can also leverage property tax levies and request facility bonds and updates to the maintenance and operations levies to support costs associated with growth. The District is developing a capital facilities plan to address capital replacement and new facilities as of 2022.

## Police

The Capital Facilities Plan Element is updated periodically and would help ensure that proposed growth could be served. The areas where growth is being directed (Downtown, Station District, and infill residential areas) are all currently served by the LPD. Further concentrated growth can help promote efficient and effective service delivery. The City could implement Crime Prevention through Environmental Design (CPTED) principles to allow for appropriate lighting, landscaping, and visibility.

## Schools

The Comprehensive Plan includes policies encouraging City-school district coordination. The school district could explore participating in an impact fee program to support financing of its schools' construction, improvements, and maintenance. School districts that participate in this program would need to update their Capital Facilities Plans every two years to project future enrollment and assess facility need.

## Parks, Recreation and Open Space

The Comprehensive Plan includes a Park, Recreation, and Open Space (PROS) Element. The City also requires private open space and recreation for new multifamily and commercial development as part of its Specific Uses and Design Standards. In addition, the Downtown Subarea Plan anticipates a 2- to 4-acre park and additional greenspace to create a linear park concept, which would increase pedestrian connections to parks.

Additional mitigation strategies include pursuing grant and bond financing for parks and trail projects, which would help add additional parks and improve the current parks' quality and diversity ratings. The City could adopt a LOS for urban parks. It could expand its existing partnerships with public and private entities with existing open space facilities, such as schools, to expand park opportunities. It could partner with the State of Washington to expand access to large tracts of land for park access.

## **With mitigation, what is the ultimate outcome?**

While future population growth and demand will increase the need for public services under both alternatives, regular planning for future capital facility and staffing needs can minimize impacts and meet future demand. No significant unavoidable adverse impacts are expected.

## **1.8.6 Utilities**

### **How did we analyze Utilities?**

Utilities evaluated in this FSEIS include the public water system, sewer system, stormwater management system, and power system. These services are provided by: the Lakewood Water District (LWD); Pierce County Sewer Utility; the municipal stormwater utility; and Lakeview Light and Power, Tacoma Power, and Puget Sound Energy, respectively. The analyses started with a review of existing

service provider plans and spatial data. Impacts were considered significant if the alternatives would result in an inconsistency with planned growth and capital plans in the utility system plans.

## **What impacts did we identify?**

New growth and development under both alternatives would result in an increase in demand for utility services citywide. Both alternatives could have potentially significant adverse impacts to utilities if demand exceeds the utilities' ability to provide service at the desired LOS. However, the development would be incremental, allowing the City and the utilities to accommodate growth and maintain utilities as it regularly updates its plans.

The impacts to utilities in the Tillicum-Woodbrook Subarea would be similar under both alternatives.

### **Water**

Demand for water will increase under both alternatives. While the distribution of growth and the location of increased water demand will vary under the No Action Alternative versus Action Alternative, the net volume of the water increase will be proportional to the total increase in population citywide. While both alternatives would result in an increase in water demand, use of higher efficiency and low-flow fixtures could reduce per-capita demand. The LWD need to update its plans to address the City's 2044 growth targets, which are not included in the current Water System Plan that is updated every six years to address aging infrastructure, expansion to accommodate new development, and recommended improvements. These improvements and developer investment in higher efficiency water fixtures could decrease overall water demand to meet incremental increases in water demand.

### **Sewer**

Sewer impacts are similar to water impacts. As growth occurs in the city, sewer usage will increase under both alternatives. While the distribution of growth and the location of increased sewer usage will vary between the two alternatives the net volume of the sewer increase will be proportional to the total increase in population.

### **Stormwater**

Both alternatives would increase growth and could add impervious area, but would also be subject to landscaping, tree protection, and critical area protection regulations. Most employment growth and much housing growth would occur in the Downtown zone.

### **Power**

Both alternatives would increase the annual loads on power. The three power providers have identified different growth rates ranging from 0.3-1.3%, all with planned capacity to meet the City's growth plan.

## What is different between the alternatives?

### Water

The LWD would need to update its plan to address new growth targets, as its current plan does not address the new target. The No Action Alternative has capacity to meet the 2044 growth target.

In comparison, the Action Alternative has a targeted growth pattern that exceeds the LWD's projections, with more growth distributed in historically single family residential neighborhoods and the centers. The LWD has water capacity to address the target growth of the Action Alternative; but it may need to change the amount of wholesale or partner agreements to accommodate this increased demand.

### Sewer

The No Action Alternative will see the volume of sewer usage increase in the Downtown and Station District Subareas and less in historically single family neighborhoods. In comparison, the Action Alternative would see increased volume of sewer usage in historically single family neighborhoods as well as in the Downtown and Station District Subareas. With most planned growth in multifamily and attached single-family dwellings, the LOS is lower per person than for those in single family.

The Pierce County Sewer Division is preparing a Unified Sewer Plan update by 2029, and the City is providing information regarding planned 2044 growth target patterns as the USP is drafted.

### Stormwater

The No Action Alternative would apply most growth in the Downtown and Station District Subareas and would require stormwater standards of new development. The Action Alternative would apply much growth in the Downtown and Station District Subareas, but also in historically single family residential areas. Lakewood's stormwater standards would apply and require stormwater standards of new development.

### Power

Anticipated growth under the No Action Alternative will result in increased power usage, with job growth more focused in the Downtown and Station District Subareas. LLP has planned capacity to meet the City's growth plan within its service area, including the complete electrification of the Pierce Transit bus and vanpool fleet, replacement of its substations, and the construction of a fifth substation to support Sound Transit electrification.

The development of the 2044 growth targets under the Action Alternative will result in increased power usage, with growth focused in the Downtown and Station District Subareas and historically single family neighborhoods. All power providers would see an increase in demand and would need to update plans and capacity in their service areas to meet the City's growth plan.



## Tillicum-Woodbrook Subarea

Under the No Action Alternative, policies and investments would be based on the 2011 Tillicum Neighborhood Plan whereas under the Action Alternative, the 2024 TWSP policies and investments would reflect community input and create greater community connectivity and housing options. Utilities and investments would improve the quality of life for the community, such as stormwater improvements and American Lake water quality, and water system improvements for fire flow and other replacement needs.

### **What are some solutions or mitigation for impacts?**

The Lakewood Municipal Code (LMC) includes standards for water, sewer, and stormwater infrastructure for water, sewer, and stormwater infrastructure for development. The LMC also requires application of the international energy code as required by the State of Washington.

The Action Alternative would update the Capital Facilities and Utilities Element policies and incorporate current utility provider plans.

## Water and Sewer

Ongoing updates to the Comprehensive Water System Plan by the LWD and the Unified Sewer Plan by Pierce County would address the increases in density in the city and ensure these services are in place to meet the growing demand. In addition, new developments may reduce water demand by using new technologies that would reduce per-capita water use (and therefore wastewater service demand) by using newer, low- or no-flow plumbing fixtures and equipment.

## Stormwater

Mitigation is through the City's current regulations and commitments. The City implements the Ecology Stormwater Manual, Stormwater Management Action Plan, and Engineering Standards addressing stormwater management and promoting low impact development. The Zoning Code sets forth impervious surface limits and standards for landscaping, tree protection, and critical area protection.

## Power

Power service providers conduct integrated resource planning to address service demand and conservation. These plans are regularly updated to adopt to changing growth patterns and ensure adequate and reliable services.

Other mitigation measures the City could pursue include the implementation of sustainable requirements on new development, such as the construction and operation of LEED-compliant (or similar ranking system) buildings. These efforts could reduce the increase otherwise required for power systems. Another potential mitigation measure is the implementation of conservation efforts and renewable energy sources to conserve electricity in new developments, including energy efficient equipment (e.g., light bulbs, appliances, and heating and air conditioning). These efforts could help reduce energy consumption by both residential and non-residential development.

## With mitigation, what is the ultimate outcome?

Additional population, employment, and industrial/commercial growth throughout the City's service area would result in increased demands on water services, sanitary sewer facilities, stormwater, and power. The growth planned for the city would be incremental. Advance planning for sewer/water system and capital facility improvements should minimize the possibility of unavoidable impacts, ensuring the utilities can accommodate growth. No significant unavoidable adverse impacts are expected for utilities.

## 1.9 Summary Alternative Comparison

Exhibit 1-12 includes a summary of Section 1.8, reviewing the anticipated impacts common to all alternatives and by each alternative.

**Exhibit 1-12. Summary of Comparison of Alternatives**

Element	Impacts Common to All Alternatives	Impacts of the No Action Alternative	Impacts of the Preferred Action Alternative
<b>Natural Environment</b>			
<b>Critical Areas</b>	Increased redevelopment and new development could result in potential increased flood hazard exposure, increased risk of erosion, potential groundwater contamination, stream or water buffer loss, potential impacts to critical and wildlife habitats, and possible changes to water quality and quantity of downstream water bodies	Similar to Impacts Common to All Alternatives	Similar to Impacts Common to All Alternatives  More growth in the single-family zones could result in increased impacts to existing vegetation, such as the tree canopy.  Implementation of enhanced critical area and shoreline regulations.
<b>Climate Change Mitigation and Adaptation</b>	Overall increases in GHG emissions due to growth but decline in GHG emissions per capita.  Increased climate vulnerability in the Downtown and Station District Subareas, with high or moderately high exposure to adverse air quality or noise and higher exposure to urban heat islands.	Higher amount of overall vehicle miles traveled (VMT) compared to the Action Alternative.  It would need to meet additional regulations to meet the City's Climate Element goals and policies that support GHG emission reduction goals.	Higher amount of VMT in the Downtown and Station District Subareas due to increased growth in these areas.  Greater GHG emission reduction per capita  Implementation of updated middle housing regulations and critical area and shoreline regulations to improve climate change resilience.

Element	Impacts Common to All Alternatives	Impacts of the No Action Alternative	Impacts of the Preferred Action Alternative
<b>Land Use Patterns and Policies</b>			
<b>Current Land Use</b>	<p>Increases in land use intensity due to additional growth and development. Housing emphasized in the Downtown and Station District Subareas.</p> <p>Higher activity levels by population and jobs, leading to increased demand for services and infrastructure.</p> <p>Consistent with GMA goals, VISION 2050 goals, and multi-county planning policies.</p>	<p>Similar to Impacts Common to All Alternatives.</p> <p>Maintains the current land use patterns and development intensities.</p> <p>Lower total growth targets than the Action Alternative.</p>	<p>Reduced residential capacity in the TOC zone but increased density in the Station District, up to 80 units per acre.</p> <p>Greater range of housing types in the Downtown and Station District Subareas and residential areas with more moderate density. Greater density along transit corridors and in the Downtown and Station District Subareas.</p> <p>Creation of “lower density zones” instead of single-family zones to allow for gentle and moderate density with ADUs, townhouses, and small attached apartments.</p> <p>Reasonable transitions between areas of differing density with similar design and development regulations.</p>
<b>Housing</b>			
<b>Housing</b>	<p>Increased housing capacity, with most higher density growth planned in northeast and east Lakewood.</p> <p>Moderate to high displacement risk, particularly along the north and east side of Lakewood where there is more multifamily and mixed use zoning.</p>	<p>Housing meets overall City targets for 2044 but does not meet housing needs at all income levels.</p> <p>Does not alter the Future Land Use Map or Zoning Districts or regulations.</p> <p>New development could replace existing housing in the east and northeast parts of the city. Increased single family and multifamily housing in Tillicum-Woodbrook Subarea.</p>	<p>Meets housing needs at all income levels.</p> <p>Potential displacement with moderate density housing integrated in historically single family areas.</p> <p>Extension of the Tillicum-Woodbrook Subarea boundary, with development of infill housing and protection of affordable housing.</p>
<b>Transportation and Parking</b>			
<b>Transportation</b>	<p>Increased overall transportation volumes and total VMT due to local and regional growth.</p>	<p>Higher overall VMT and higher traffic volumes per capita.</p>	<p>Increased access to transit and other active transportation modes</p> <p>Lower citywide VMT</p>
<b>Parking</b>	<p>High concentration of parcels in the Interlaken and Harts Idyllwild/Lake</p>	<p>Potentially lower parking impacts. Retention of current</p>	<p>Increased parking impacts due to increased capacity for middle housing in lower-</p>

Element	Impacts Common to All Alternatives	Impacts of the No Action Alternative	Impacts of the Preferred Action Alternative
	Holme developments with potentially significant on-street parking safety issues due to narrow streets.	parking ratios and parking incentives.	density neighborhoods. Parking in areas with reduced road rights of way may limit middle housing production.
<b>Public Services</b>			
<b>Fire</b>	<p>Increase in calls to services throughout the city, particularly in the Downtown and Station District Subareas.</p> <p>Increased demand for facilities, staffing, and equipment.</p>	Same as Impacts Common to All Alternatives.	<p>Same as No Action Alternative.</p> <p>Increased calls to service in historically single family areas due to an increase in moderate density housing infill. Increase in response times due to narrower streets in these low-density neighborhoods.</p> <p>The City is considering focusing most middle housing in proximity to transit. Off street parking is likely to remain on the narrower streets to keep access for emergency vehicles.</p>
<b>Police</b>	<p>Increased calls to services, including in more populated districts such as Downtown and Station District.</p> <p>Increased demand for facilities, staffing, and equipment.</p>	Same as Impacts Common to All Alternatives.	<p>Same as Impacts Common to All Alternatives.</p> <p>Increased calls to service in historically single family areas due to an increase in moderate density housing infill. Increase in response times due to narrower streets in these low-density neighborhoods.</p>
<b>Schools</b>	Potential increase in student growth, resulting in increased demand for teachers, facilities, and equipment.	Same as Impacts Common to All Alternatives.	Same as Impacts Common to All Alternatives.
<b>Parks, Recreation, and Open Space</b>	<p>Increased usage of current parks, resulting in increased demand for park acquisition and investment in quality and amenity factors in parks.</p> <p>Increased need for parks in the Downtown and Station District Subareas.</p>	Same as Impacts Common to All Alternatives.	<p>Same as Impacts Common to All Alternatives.</p> <p>Increased need for parks in low-density residential areas.</p>
<b>Utilities</b>			

Element	Impacts Common to All Alternatives	Impacts of the No Action Alternative	Impacts of the Preferred Action Alternative
<b>Water</b>	<p>LWD has planned for about 7,882 more population between 2019-2039. This would be net 5,380 people 2020-2039. This is 23% of the 2044 growth target.</p> <p>The current plan does not address the new target. However, the District has additional water rights.</p>	<p>The No Action Alternative has capacity to meet the 2044 growth target for population. LWD needs to update its plans to address 2044 growth targets. Most growth is in the Downtown and Station District Subareas, and less in historically single family neighborhoods.</p>	<p>The Action Alternative has much greater capacity for growth that would occur beyond the 20-year target. In the 20-year period, the target growth would exceed LWD projections. There would be more growth distributed in historically single family neighborhoods as well as in the Downtown and Station District Subareas.</p>
<b>Sewer</b>	<p>The Pierce County Sewer Division is preparing a sewer plan update after the Comprehensive Plan periodic update. The current 2010 sewer plan assumes net 8,388 people, 2020-2044. This is a lower population than the 2044 population.</p>	<p>Similar to Water above.</p>	<p>Similar to Water above.</p>
<b>Stormwater</b>	<p>All alternatives will add growth in a largely urban area. New development and infrastructure projects may add new impervious surfaces and improve stormwater management of existing impervious areas.</p>	<p>The No Action Alternative would apply most growth in the Downtown and Station District Subareas and would require stormwater standards of new development.</p>	<p>The Action Alternative would apply most growth in the Downtown and Station District Subareas but also result in growth in historically single family residential areas, which may increase impervious areas. Lakewood's stormwater standards would apply.</p>
<b>Power</b>	<p>All alternatives would allow for growth and an increase in demand for power. The power providers would all work toward new state requirements under the Clean Energy Transformation Act.</p>	<p>The No Action Alternative would focus growth in the Downtown and Station District Subareas; greater power demand is expected in Lakeview Light and Power's service area in these subareas.</p>	<p>The Action Alternative would focus growth in the Downtown and Station District Subareas as well as in historically single family areas, and all power providers would see an increase in demand.</p>

# 2 Alternatives

## 2.1 Introduction

This chapter describes the proposal to update Lakewood's Comprehensive Plan and studied alternatives.

The Washington Growth Management Act (GMA) and the Washington State Environmental Policy Act (SEPA) direct how Lakewood must develop its Comprehensive Plan and conduct its environmental review. Under the GMA, jurisdictions are required to protect critical environmental areas and conserve natural resource lands, such as farms and forests, as well as plan for land use and population and job growth. 2024 required Plan elements include:

- Land Use;
- Housing;
- Capital Facilities;
- Utilities;
- Transportation;
- Economic Development;
- Park and Recreation (once state funding is available); and
- Climate Change & Resiliency

The GMA also allows optional Plan elements; Lakewood has adopted four such elements over time, including the:

- 2011 Tillicum Neighborhood Plan;
- 2018 Downtown Subarea Plan;
- 2021 Station District Subarea Plan; and
- 2021 Energy & Climate Change Element

The 2011 Tillicum Neighborhood Plan and the 2021 Energy & Climate Change Element are being renamed and updated in the proposed Comprehensive Plan.

The GMA calls for communities to review and, if necessary, revise their comprehensive plans and regulations every ten (10) years to ensure they remain up-to-date. The GMA is located at Chapter RCW 36.70A. SEPA is intended to ensure that environmental values are considered during decision-making by state and local agencies. The environmental review process in SEPA is designed to work with other regulations to provide a comprehensive review of a proposal. Most regulations focus on particular aspects of a proposal, while SEPA requires the identification and evaluation of probable impacts for all elements of the environment. Combining the review processes of SEPA and the GMA reduces duplication and delay by combining study needs, combining comment periods and public notices, and

allowing agencies, applicants, and the public to consider all aspects of a proposal at the same time. This Final Supplemental Environmental Impact Statement (FSEIS) is required by the State Environmental Policy Act (SEPA) (RCW 43.21C.030 (2)(c)). The adoption of the Lakewood Comprehensive Plan by the Lakewood City Council constitutes the action requiring SEPA compliance. SEPA is located at Chapter RCW 43.21C. SEPA rules can be found at WAC Chapter 197-11; SEPA procedures are located at WAC Chapter 173-802.

Within this planning framework, this FSEIS studies two alternatives – the current plan and the action alternative that responds to GMA legislation:

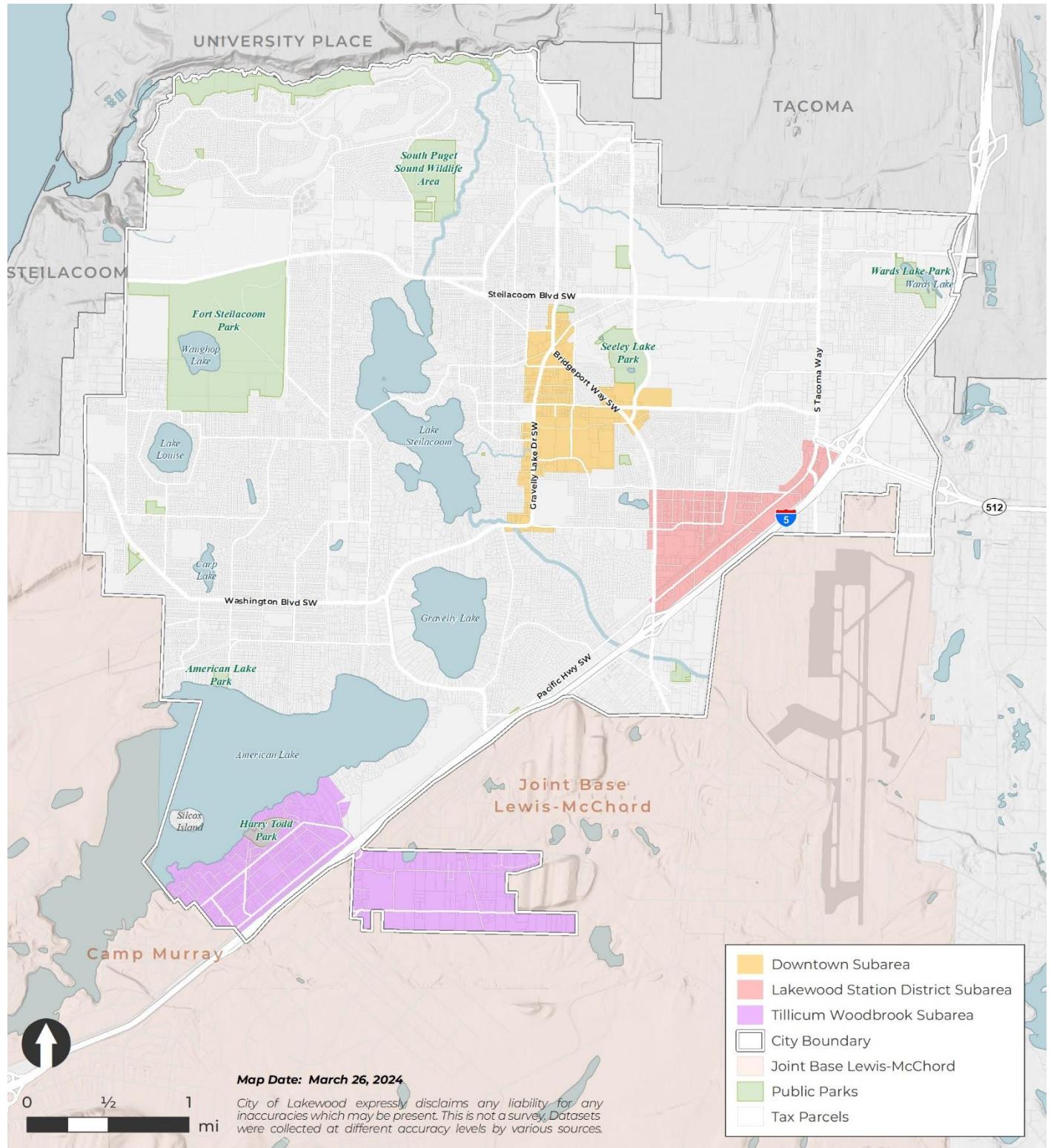
- **No Action:** The No Action Alternative is required under SEPA. This alternative retains the current Comprehensive Plan and associated subarea plans and development regulations. It provides capacity for about 10,242 dwelling units. The No Action Alternative meets the housing target of 9,378 dwellings, but it does not provide capacity for moderate density housing for households earning 80%-120% of the area median income. The No Action Alternative has capacity for 12,212 jobs, 2,834 above the 2020-2044 target of 9,378.
- **Action Alternative:** The Action Alternative consists of the 2024 Periodic Update of the Comprehensive Plan, including all Elements, the Tillicum Woodbrook Subarea Plan Update, and implementing development regulations including amendments to such, particularly middle housing and critical areas regulations amendments. The Action Alternative has capacity for 17,488 dwelling units, and can provide housing at all income levels for the 2020-2044 planning period. It has capacity for 15,238 jobs, which is 5,860 jobs above the 2020-2044 target. As a result of public engagement and input the Draft Periodic Update was proposed for amendment in policies and code changes. These changes are considered in the Final SEIS.

### 2.1.1 Study Area

The Lakewood city limits, equaling approximately 17.06 square miles (about 10,920 acres), is the primary study area. See Exhibit 2-1. Particular subareas identified in the FSEIS include:

- **Tillicum-Woodbrook Subarea:** The Tillicum-Woodbrook Subarea Plan (TWSP) boundary is approximately 710 acres. Located in southeast Lakewood, the area is bounded by I-5 and the former Burlington Northern Santa Fe (BNSF) (now owned by Sound Transit) railroad to the southeast, Camp Murray to the southwest, the American Lake shoreline to the northwest, and private gated communities to the northeast.
- **Downtown:** The Downtown Plan was approved in 2018 to celebrate and invest in Downtown as the heart of Lakewood with places for shopping, gathering and celebrating, recreating, and living. The Downtown Subarea Plan includes the Towne Center, Colonial, and East Commercial Districts. The study area is over 300 acres.
- **Lakewood Station District:** The district is over 340 acres, and is the subject of a 2021 subarea plan that promotes a multi-modal commuter hub and amenity-rich, transit-oriented development node surrounding the Lakewood Station.

Exhibit 2-1. Lakewood Planning Area



Source: City of Lakewood, BERK 2024.



## 2.1.2 Objectives of the Proposal

SEPA requires a statement of project objectives highlighting the purpose of a proposal. The primary objective and need for this proposal is to complete the 2024 periodic update of the Lakewood Comprehensive Plan to meet Growth Management Act requirements, multicounty planning policies (MPPs) and the regional growth strategy in VISION 2050, and countywide planning policies (CPPs) and 2044 growth targets in the Pierce County Countywide Planning Policies. The periodic update is also designed to meet a vision statement developed by the City Council in 2021. (See text box below.)

### Vision Statement

Lakewood is a thriving, urban, South Puget Sound City, possessing the core values of family, community, education, economic prosperity, and the equitable delivery of municipal services. We will advance these values by recognizing our past, taking action in the present, and pursuing a dynamic future.

The City Council's vision for Lakewood at its 30-Year Anniversary is a community:

- Inspired by its own sense of history and progress;
- Known for its safe and attractive neighborhoods, vibrant downtown, active arts and cultural communities;
- Sustained by robust economic growth and job creation;
- Recognized for the excellence of its public and private schools, and its community and technical colleges;
- Characterized by the beauty of its lakes, parks and natural environment;
- Acknowledged for excellence in the delivery of municipal services;
- That actively cultivates, embraces, and continually strives to create a more inclusive community with the equitable delivery of City services; and
- Supportive of Joint Base Lewis McChord (JBLM), Camp Murray, service members and their families.

Lakewood City Council, Adopted June 21, 2021

## 2.2 Public Outreach

The City of Lakewood conducted engagement with members of the public through:

- City and 2024 Comprehensive Plan Periodic Review websites, social media, Connections newsletter, electronic newsletter, and four citywide direct mailings;
- 2023 Citizen Committee provided recommendations to update Housing Element and Energy & Climate Change Element;
- 2024 Comprehensive Plan Periodic Review Steering Committee;
- Tillicum-Woodbrook Subarea Plan (TWSP) Committee;
- Five Open Houses; and,
- 25+ Planning Commission meetings and 20+ City Council meetings.

All meeting recordings and materials are available at <https://cityoflakewood.us/24periodicreview/>.

In addition, the City conducted a scoping period in 2023 to allow opportunities to comment on the scope of the SEIS. See Appendix A for the Scoping Notice. No comments were received at that time. With the issuance of the FSEIS the City offered a 30-day comment period. This FSEIS responds to comments on the DSEIS. See the Fact Sheet for information on how to provide public comments.

## 2.3 Legal Framework

The **Growth Management Act (GMA)** was enacted in 1990 and amended substantially in 1991 and most years thereafter. The act is meant to guide faster growing counties and their cities to prepare Comprehensive Plans centered around a land use plan designed to meet growth targets for a 20-year period. The 20-year plan also addresses goals and policies regarding land use, housing, economic development, capital facilities, utilities, parks and recreation, and transportation. A new required element addresses climate change fully due by 2029 for central Puget Sound counties.

The GMA goals include the following 15 goals which guide the preparation of the comprehensive plan and implementing development regulations such as zoning and critical areas protection:

- (1) Urban growth. Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.*
- (2) Reduce sprawl. Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.*
- (3) Transportation. Encourage efficient multimodal transportation systems that will reduce greenhouse gas emissions and per capita vehicle miles traveled, and are based on regional priorities and coordinated with county and city comprehensive plans.*
- (4) Housing. Plan for and accommodate housing affordable to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.*
- (5) Economic development. Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.*
- (6) Property rights. Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.*
- (7) Permits. Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.*
- (8) Natural resource industries. Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forestlands and productive agricultural lands, and discourage incompatible uses.*

*(9) Open space and recreation. Retain open space and green space, enhance recreational opportunities, enhance fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.*

*(10) Environment. Protect and enhance the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.*

*(11) Citizen participation and coordination. Encourage the involvement of citizens in the planning process, including the participation of vulnerable populations and overburdened communities, and ensure coordination between communities and jurisdictions to reconcile conflicts.*

*(12) Public facilities and services. Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.*

*(13) Historic preservation. Identify and encourage the preservation of lands, sites, and structures, that have historical or archaeological significance.*

*(14) Climate change and resiliency. Ensure that comprehensive plans, development regulations, and regional policies, plans, and strategies under RCW 36.70A.210 and chapter 47.80 RCW adapt to and mitigate the effects of a changing climate; support reductions in greenhouse gas emissions and per capita vehicle miles traveled; prepare for climate impact scenarios; foster resiliency to climate impacts and natural hazards; protect and enhance environmental, economic, and human health and safety; and advance environmental justice.*

*(15) Shorelines of the state. For shorelines of the state, the goals and policies of the shoreline management act as set forth in RCW 90.58.020 shall be considered an element of the county's or city's comprehensive plan.*

The most significant recent legislation addresses housing and climate change.

**HB 1220** requires counties and cities to plan for projected housing needs by income band and removal of regulatory barriers. Each county and city must address policies, programs and zoning that may have a racially disparate or exclusionary effect and address patterns of disinvestment. Local governments must also identify displacement risk and establish policies to prevent displacement or reduce the hardships caused by displacement. HB 1220 requires accommodation of emergency shelters and permanent supportive targets and removal of regulatory barriers.

- This SEIS summarizes the City of Lakewood's evaluation of Racially Disparate Impacts and Affordable Housing Targets. It compares the No Action and Action Alternatives for their ability to remove barriers to housing affordable to all incomes.

**HB 1110** increases middle housing in areas traditionally dedicated to single-family detached housing. Requires cities to: allow at least six of nine middle housing types in predominantly single-family zones; allow only administrative design review of objective standards; require between two and six middle housing units on each lot depending on city and county population thresholds; provide process and criteria for extensions of implementation; and the bill directs Commerce to provide technical assistance including rulemaking and certification authority. It also amends RCW 43.21C to exempt certain actions from environmental review. Permit review procures are to be similar to single-family detached residences. Parking standards vary based on unit numbers, proximity to transit, and lot sizes.

- This SEIS considers how Lakewood can accommodate middle housing with more units in proximity to transit, and less units per lot elsewhere. Middle housing would not be allowed on lots designated with critical areas or buffers per HB 1110. This SEIS provides an empirical evaluation of access and parking developed by Transpo and BERK. It considers existing street conditions in different parts of the city and where off-street parking requirements may be retained to address multimodal safety concerns.

**HB 1337** requires the adoption or amendment of municipal zoning regulations to allow for at least two accessory dwelling units (ADUs) on all lots located in all zoning districts within an urban growth area that allows for single family homes. It also limits parking requirements based on distance from transit and lot size and removes barriers to separate sale and ownership of ADUs.

- Lakewood currently allows one ADU on each property accessory to any type of housing unit in all single family and multifamily residential districts and the Transit Oriented Commercial district. This SEIS identifies the proposed amendments to address HB 1337 with the Action Alternative.

**HB 1181.** This law requires counties and cities update their transportation, land use, parks, utilities, and capital facilities elements, as well as add a climate element that is comprised of a greenhouse gas emissions reduction sub-element (if within 11 more populous counties) and a resilience sub-element (all jurisdictions). The greenhouse gas emissions sub-element must include goals and policies to reduce emissions and vehicle miles traveled. The resilience sub-element must include goals and policies to improve climate preparedness, response and recovery efforts. Climate elements must maximize economic, environmental, and social co-benefits and prioritize environmental justice in order to avoid worsening environmental health disparities.

- The City has used two Commerce grants to conduct public engagement and develop goals and policies in an Energy and Climate Change Element adopted in 2023. The City has until 2029 to fully implement HB 1181.

## 2.4 EIS Alternatives

### 2.4.1 No Action Alternative

If the City Council takes no action adopting the 2024 Lakewood Comprehensive Plan, the City's 2023 Comprehensive Plan as adopted would remain in effect until a new plan is adopted. The No Action Alternative as addressed in this FSEIS is therefore the 2023 Comprehensive Plan. Features and land capacity are described below.

### Current Comprehensive Plan

The No Action Alternative continues use of the current Comprehensive Plan last amended August 2023 and which had a horizon year of 2030/2035. Plan chapters include:

- **Introduction:** Describes the purpose and contents of the Comprehensive Plan, visioning, and plan themes including controlling sprawl, creating place, and protecting the environment.

- **Official Land Use Maps:** Describes Lakewood's land use designations, population densities and housing types, subarea planning boundaries, and the urban growth area abutting city limits.
- **Land Use:** Describes growth targets, and goals and policies for housing, commerce, neighborhood business and commercial corridors, industrial uses, JBLM and military planning, public and institutional lands, critical areas and shorelines, noise, and nonconforming uses. The element also addresses Downtown, Station District, and Tillicum subareas.
- **Economic Development:** Describes strategies, goals, and policies to transform Lakewood from a largely bedroom-community of the City of Tacoma and Joint Base Lewis-McChord (JBLM) into a diversified, full-service, and self-contained city.
- **Transportation:** Addresses goals and policies regarding streets and all modes of transportation, and provides a technical appendix.
- **Utilities:** Provides goals and policies addressing stormwater, sanitary sewer, water, electricity, communications, solid waste, and natural gas.
- **Public Services:** Address goals and policies for police, fire and emergency services, schools, and libraries.
- **Capital Facilities and Improvements:** The Capital Facilities Element contains the 20 year goals and policies for capital facilities and essential public facilities. A 6- year Plan/Program supports the Element in a separate document, and provides inventories of existing and proposed capital facilities, identifies both regular and special maintenance requirements, forecasts future needs for facilities for six years, identifies deficiencies in capital facilities and the actions necessary to address such deficiencies, and contains a six-year financing plan and budget.
- **Energy and Climate Change:** This recently adopted element describes potential climate change impacts, energy use and greenhouse gas emissions; describes potential climate change impacts, energy use and greenhouse gas emissions; defines goals for energy and climate change; identifies policies and implementing tasks to address energy and climate change needs; and provides a summary table identifying lead responsibilities for each implementing task.
- **Implementation:** Describes implementation strategies for each element.

## Future Land Use Map and Zoning

Land Use Designations are used in conjunction with the Comprehensive Plan's written goals and policies, which reflect how the community wishes to implement its vision for the City, its goals and objectives for land use, and other related elements of the Plan. See Exhibit 2-2.

Descriptions of the City's land use zones and the allowed uses within each zone are included in Lakewood Municipal Code (LMC) Section 18A.10.120, LMC Title 18B (for the Downtown Subarea), and LMC Title 18C (for the Station District Subarea), all of which are available online at <https://lakewood.municipal.codes/>.

**Exhibit 2-2. Land Use Designations and Zoning – Current Plan and Code (No Action)**

Land Use Designation	Land Use Zoning District
Air Corridor 1 (AC1) Air Corridor 2 (AC2)	Clear Zone (CZ) Air Corridor 1 (AC1) Air Corridor 2 (AC2)
Arterial Corridor (ARC) Corridor Commercial (CC)	Arterial Residential/Commercial (ARC) Transit-Oriented Commercial (TOC) (within Lakewood Station District) Commercial 1 (C1) Commercial 2 (C2) Commercial 3 (C3)
Downtown	Central Business District (CBD)
High-Density Multifamily (HD)	Multifamily 2 (MF2) Multifamily 3 (MF3)
Industrial (I)	Industrial Business Park (IBP) Industrial 1 (I1) Industrial 2 (I2) Industrial 2 (I2)
Public and Semi-Public Institutional (PI) Multifamily (MF)	Public Institutional (PI) Multifamily 1 (MF1)
Military Lands (ML)	Military Lands (ML)
Mixed Residential (MR)	Mixed Residential 1 (MR1) Mixed Residential 2 (MR2)
Neighborhood Business District (NBD)	Neighborhood Commercial 1 (NC1) Neighborhood Commercial 2 (NC2)
Open Space and Recreation (OSR)	Open Space and Recreation 1 (OSR1) Open Space and Recreation 2 (OSR2)
Residential Estate (RE)	Residential 1 (R1) Residential 2 (R2)
Single-Family (SF)	Residential 3 (R3) Residential 4 (R4)

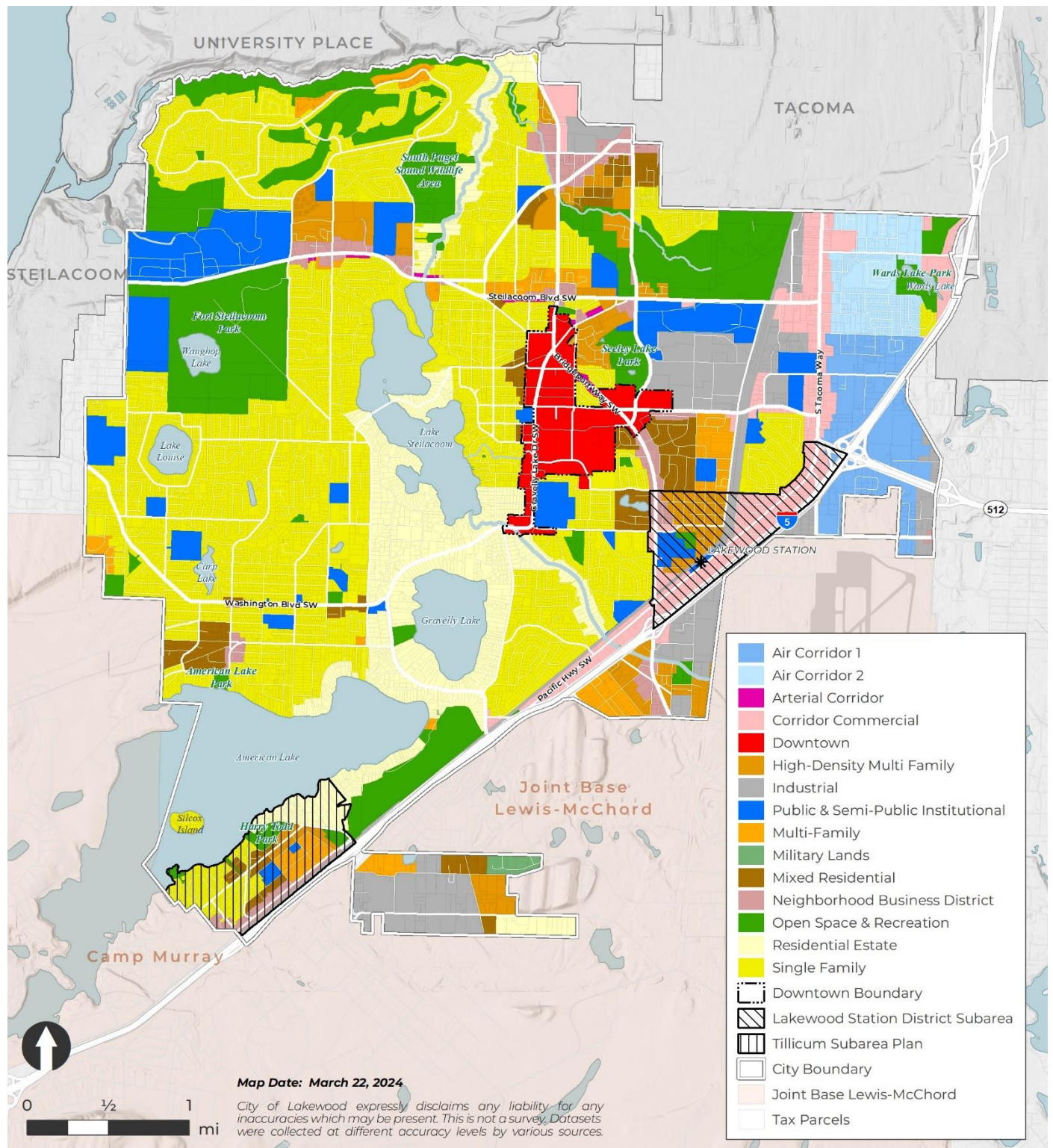
Source: City of Lakewood, BERK 2024.

The City has maintained a Future Land Use Map that identifies commercial and industrial uses to the east, multifamily uses to the north, east, and south, and single family uses largely to the west and north of Lakewood. See Exhibit 2-3. A Zoning Map implements the Future Land Use Map. See Exhibit 2-4.

## Other Development Regulations

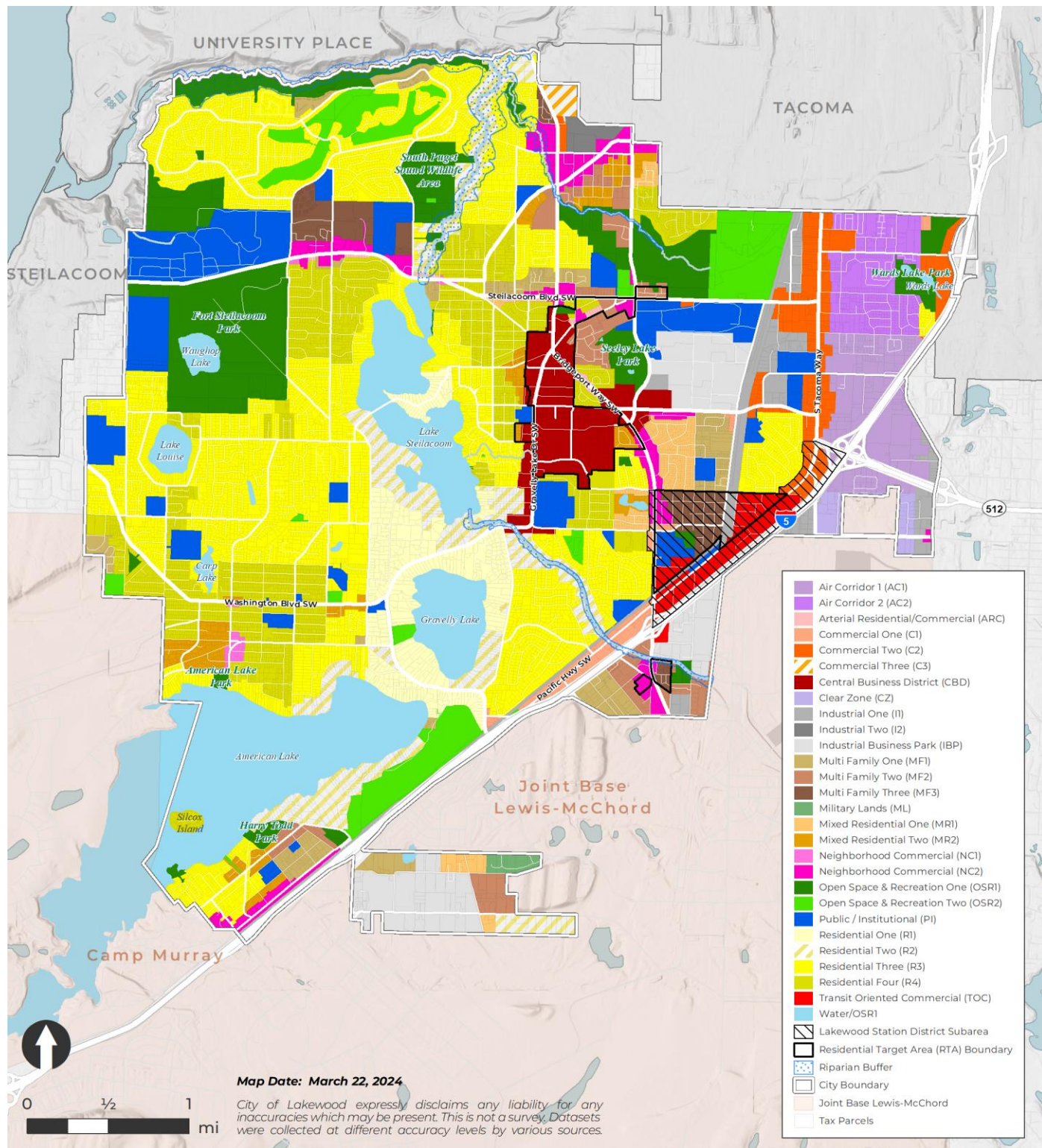
GMA requires that a city or county review its critical areas regulations and other development standards and update them. Additionally, HB 1220 requires identification and removal of barriers to affordable housing. No other development regulations would be amended under the No Action Alternative.

Exhibit 2-3. Future Land Use Map, 2023.



Source: City of Lakewood, 2023.

Exhibit 2-4. Zoning Map, 2023



Source: City of Lakewood, 2023.



## Growth Targets and Capacity

The current Comprehensive Plan and implementing zoning provides capacity that meets the 2044 jobs target and its overall housing target but not the affordable housing targets required per HB 1220. See Exhibit 2-5 and Exhibit 2-6. See also Appendix B.

**Exhibit 2-5. Growth Targets and Capacity – No Action Alternative**

	2020	2044	Growth 2020-2044	No Action Growth Capacity
Population	63,612	86,792	23,180	23,966*
Jobs	29,872	39,735	9,863	12,212
Housing	26,999	36,377	9,378	10,242
Emergency Housing	8	582	574	N/A

Note: \*Housing capacity x 2.34 persons per household (US Census 2018-2022)

Sources: (Pierce County, 2022-2023); US Census Quick Facts, 2023

**Exhibit 2-6. Affordable Housing Targets and Capacity by No Action Alternative**

Income	Projected Housing Need	Zoning Categories Serving Needs	Aggregated Housing Needs	Total Capacity	Capacity Surplus/Deficit
0-30% Non-PSH	1,212	Low-Rise Multifamily + ADUs	5,963	8,136	2,173
0-30% PSH	1,637				
>30-50%	1,739				
>50-80%	1,375				
>80-100%	592	Moderate Density	1,128	776	(352)
>100-120%	536				
>120%	2,287	Low Density	2,287	1,330	(957)
<b>Total</b>	<b>9,378</b>		<b>9,378</b>	<b>10,242</b>	<b>864</b>

Sources: (Pierce County, 2022-2023), BERK 2024.

Based on the results of the No Action Alternative affordable housing targets as well as the need to respond to HB 1110 and HB 1337, the Action Alternative provides more capacity and housing types in the moderate density and low density zoning categories.

**While the No Action Alternative capacity meets targets, the studied growth is reflective of the current assumptions in the Comprehensive Plan and transportation model as amended by the Downtown Plan and Station District Subarea Plan:**

- 2017 Comprehensive Plan
  - Households: 31,884
  - Jobs: 33,441
- Comprehensive Plan plus Downtown (2018) and Station Area (2021) Plans:
  - Households by 2035: 34,440
  - Jobs by 2035: 39,159

### 2.4.2 Action Alternative (Preferred)

#### Comprehensive Plan Periodic Update

**Summary:** The Action Alternative would fulfill new GMA requirements for the periodic update and recent state legislation. In addition, the Comprehensive Plan would meet the Puget Sound Regional Council's VISION 2050 multicounty planning policies (MPPs) and growth strategy, and Pierce County Countywide Planning Policies (CPPs.) That includes new Housing Element requirements, middle housing and accessory dwelling unit (ADU) legislation, and regional policies regarding housing, equity, climate, employment, and transportation as well as environmental justice and airport land use compatible land uses. All elements would be updated. Given the focus on housing legislation, the Land Use and Housing Elements would receive the most intensive updates. Additionally, the Tillicum-Woodbrook Subarea Plan would be updated and expanded and referenced in a specific Subarea Plan Element, along with the Downtown Subarea Plan and Lakewood Station District Subarea Plan.

**Key Concepts:** The Preferred Alternative is the adoption of a significantly reorganized Lakewood Comprehensive Plan that reflects:

- Land development capacity consistent with Lakewood's 2044 growth targets:
  - 9,378 new housing units;
  - 23,180 in new population; and
  - 9,863 new jobs.
- Planning for sufficient housing land capacity for all economic segments of the population (moderate, low, very low and extremely low income, as well as emergency housing and permanent supportive housing);
- Making adequate provisions for housing for existing and projected needs for all economic segments of the community, including documenting programs and actions needed to achieve housing availability;
- Providing for moderate density housing options, including but not limited to duplexes, triplexes and townhomes;
- Updating plans and zoning to allow the densification of housing in historically single family areas;

- Identifying racially disparate impacts, displacement and exclusion in housing policies and regulations, and beginning to undo those impacts;
- Identifying areas at higher risk of displacement and establishing anti-displacement policies;
- Updating energy and climate change related policies;
- Coordinating planning with utility providers;
- Promoting civilian-military compatibility;
- Expanding geographic boundaries for the 2024 Tillicum-Woodbrook Subarea Plan to include Woodbrook;
- Providing consistency with the PSRC Centers Framework Policy as it applies to the Lakewood Regional Urban Growth Center; and
- Incorporating optional elements (e.g., the Downtown, Station District, and Tillicum-Woodbrook Subarea Plans) and Background Reports in Appendices.

### Element Reorganization – Periodic Review

1	Introduction
2	Land Use and Maps
3	Capital Facilities & Essential Public Facilities
4	Economic Development
5	Energy and Climate Change
6	Housing
7	Military Compatibility
8	Natural Environment
9	Parks, Recreation, and Open Space
10	Public Services
11	Subarea Plans
12	Transportation
13	Urban Design and Community Character
14	Utilities
15	Implementation

## Land Use Plan and Zoning

The Preferred Alternative proposes specific land uses and planning policies consistent with the GMA as well as related recent state legislation and regional policies focused on planning for housing affordable to all. The Preferred Alternative is consistent with the Central Puget Sound multicounty planning policies (MPPs) and Regional Growth Strategy, as adopted in the Puget Sound Regional Council’s (PSRC’s) VISION 2050, and the PSRC-adopted Regional Transportation Plan. The Plan is also consistent with the Pierce County Countywide Planning Policies (CPPs.)

A major consideration in the update is the densification of housing in historically single-family areas per state legislation (HB 1110 and 1337) and the needs to address housing ownership and rental housing opportunities for all incomes (HB 1220). See Exhibit 2-7.

**Exhibit 2-7. Housing Types Allowed in Historically Single-Family Areas**

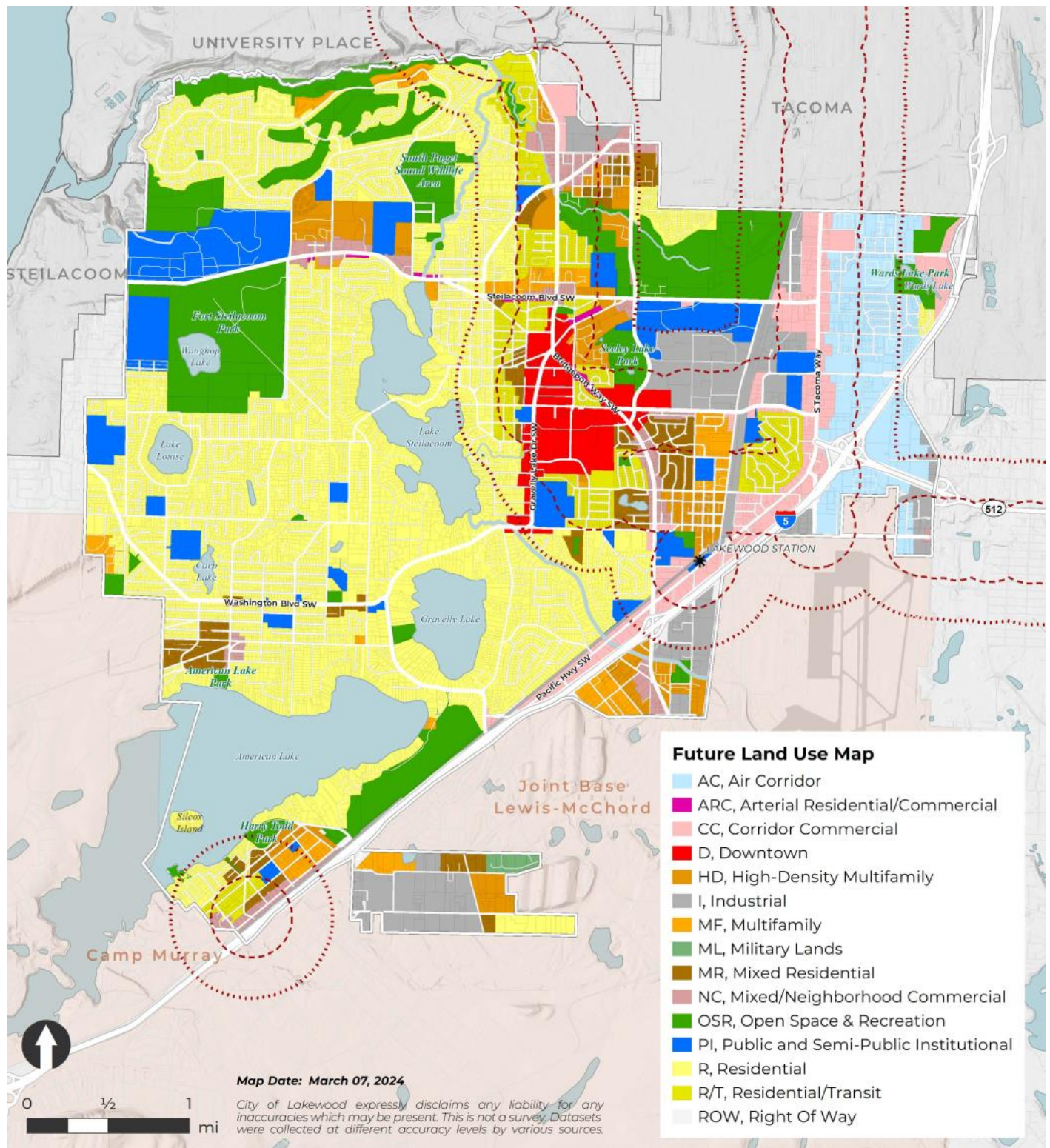
Housing Unit Types	Variations of Unit Types	Minimum units per lot?
<p>Middle Housing</p> <p>“Buildings that contain two or more attached, stacked, or clustered homes including duplexes, triplexes, fourplexes, fiveplexes, sixplexes, townhouses, stacked flats, courtyard apartments, and cottage housing” in single family areas.</p>	<p>Middle Housing Basic Rule</p>	<p>2 units/lot in <u>SF areas</u> (R1-R4 zones unless density already higher than 2 units per lot.)</p>
	<p>Middle Housing w/in ¼ Mile from Major Transit Stop</p>	<p>4 units/lot in <u>SF areas</u></p>
	<p>Middle Housing if 1+ unit affordable</p>	<p>4 units/lot wherever base rule applies in <u>SF areas</u></p>
	<p>Middle Housing in non-sewered areas</p>	<p>2 units/lot in <u>SF areas</u> until demonstrated that a sewer system will serve the development at the time of construction.</p>
<p>Accessory Dwelling Units (ADUs)</p> <p>2 attached accessory dwelling units (ADUs) such as unit in a basement, attic, or garage.</p> <p>1 attached ADU and 1 detached ADU, <u>or</u> 2 detached ADUs that may be comprised of either 1 or 2 detached structures.</p> <p>A conversion of an existing structure, such as a detached garage.</p>	<p>At least 2 ADUs on all lots that meet the minimum lot size in <u>each zone that allows for single-family homes</u>. (R1-R4, MR1, MR2, and ARC zones)</p>	
	<p>City may limit to 2 ADUs, <u>in addition to</u> the principal unit, on a residential lot of 2,000 square feet or less.</p>	
	<p>ADUs located in non-sewered areas, not connected to public sewer, or in areas of 1 dua or less that are wetlands, fish and wildlife habitats, flood plains, or geologically hazardous areas may be prohibited.</p>	

Source: Summary of HB 1110 and 1337.

The City of Lakewood will be adopting new zoning regulations regarding how many units can be built on a single residential lot in 2024 in its R1, R2, R3, R4, and ARC zones. The new rules will go into effect early 2025. Lakewood must allow at least 2 middle housing units per lot in single family areas, and 4 middle housing units per lot in single family areas within 1/4 mile of major transit stops. Lakewood must also allow up to 2 ADUs in single family areas.

The City is anticipating a new land use designation Residential/Transit and underlying zones also would be R2/Transit, R3/Transit, and R4/Transit. See Exhibit 2-8.

Exhibit 2-8. Future Land Use Plan and Transit Proximity



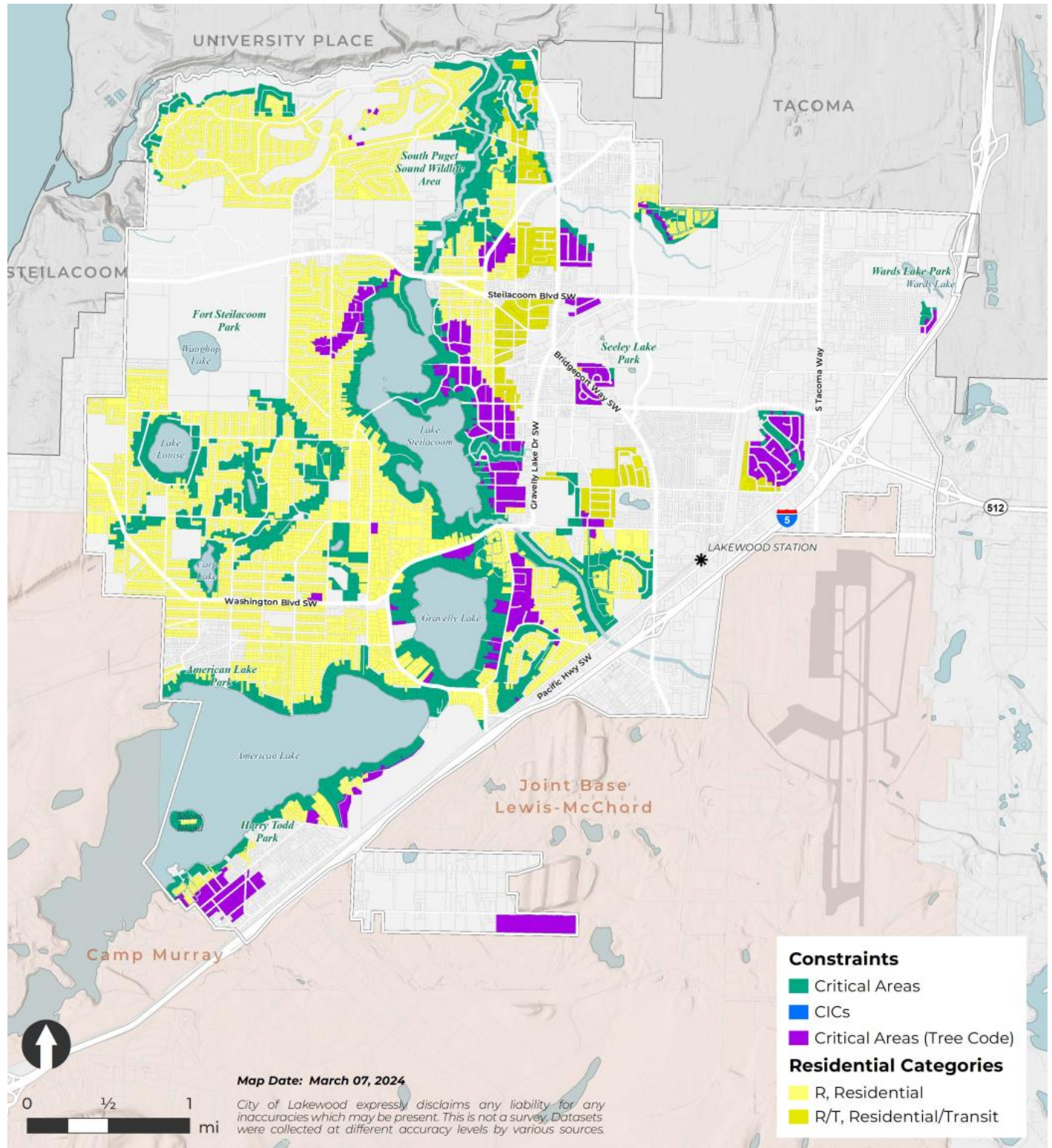
Source: City of Lakewood, 2024.

In the areas eligible for middle housing, the City must allow six of the nine identified types of middle housing: duplexes, triplexes, fourplexes, fiveplexes, sixplexes, townhouses, stacked flats, courtyard apartments, and cottage housing.

The City may allow 25% of eligible single-family lots to be excused from middle housing allowances such as lots designated with critical areas or buffers, and any areas subject to sea level rise/flooding, wildfires, or geological hazards. See Exhibit 2-9. The lots that may be excluded from middle housing may not be those with covenants that excluded racial minorities from owning properties.

The City is adjusting its development regulations including adjusting uses like middle housing, and density standards to help meet housing targets at all affordability levels. For example, the City may adjust the maximum density of the TOC (Transit-Oriented Commercial) zone from 54 units per acre up to 80 units per acre.

Exhibit 2-9. Lots with Critical Areas



CIC = Common Interest Communities, RCW 64.90.010(10)  
 Source: City of Lakewood, 2024.

## Subarea Plan Updates and Evaluation

Consistency amendments would be needed regarding some of the zones inside the Downtown and Station District to address middle housing, ADUs and emergency and permanent supportive housing:

### Downtown

- Draft amendments to LMC Title 18B would update allowed locations and minimum acreage for master planned developments in the Downtown Subarea and updating references to the Lakewood Planning & Public Works Department.
- The plan and planned action would include updated estimates for Downtown Subarea transportation project costs.
- Emergency and permanent supportive housing is allowed in Downtown in LMC 18A.40.120, Special Needs Housing. While Group Homes 4 and 5 are prohibited in the Downtown regulations but LMC 18A.40.120 indicates Group Home 5 (for secure community transition facilities) is allowed by Conditional Use Permit in the CBD zone. This difference should be addressed in housekeeping code amendments.
- The CBD zone does not allow single-family dwellings, and middle housing or ADUs are not required in HB 1110. However, per the Downtown Plan and implementing regulations, the Low-Impact Mixed-Use Roads District allows duplex and triplex homes. The City could review and amend regulations regarding the as needed in the Low-Impact Mixed-Use Roads District to address middle housing and ADUs.
- The Downtown subarea boundary and CBD zone abuts a row of single family lots and the Clover Park High School. A rezone was completed in 2023 to extend the CBD zone to abut the high school. This would allow for a variety of housing types in that area. The City will amend the Downtown Planned Action Ordinance to add the parcels as they are in the City's multifamily tax exemption area, and property owners intend to develop housing similar to that identified for the Downtown Plan. The inclusion of the properties make for a logical boundary and cohesive land use pattern.

### Lakewood Station District

- LMC 18A.40.120, Special Needs Housing: Group homes types 4 and 5 are prohibited in LMC 18C.200.220 in the C1 zone but are allowed by Conditional Use Permit in LMC 18A.40.120. Amendments to reconcile the conflict should be addressed.
- The City could consider adding allowances for ADUs in zones in the Station District that allow duplex, triplex, or townhome units.
- Updates to Station District Subarea Plan would remove Lakewood Landing, recognize employment uses, and distribute housing growth to other areas of the subarea identified for housing.

### Tillicum-Woodbrook Subarea Plan

The Tillicum Neighborhood Plan (TNP) was originally adopted in 2011. In 2022, the City of Lakewood produced a status report of the Tillicum Neighborhood Plan's implementation and adopted an Addendum to the TNP explaining progress to date to make the Plan's vision a reality. While much has



been accomplished to realize the visions and priorities discussed in the original Tillicum Neighborhood Plan, many of the plan's Action Items are not yet complete.

In 2011, the Tillicum Neighborhood was identified as an activity node and focal point for businesses, Maple Street as a safe connector street, installation of pedestrian infrastructure, mixed uses, gateway to the American Lake waterfront, and market rate and affordable housing.

In September 2022, the City announced that the Tillicum Neighborhood Plan would be replaced with a Tillicum-Woodbrook Subarea Plan (TWSP) as part of the 2024 Comprehensive Plan Periodic Review (24CPPR) process. While the 2011 Plan boundaries were reserved to the Tillicum neighborhood north of I-5, the 2024 update incorporated the Woodbrook area south of I-5 due to the historical community connection between the two areas. Goals, policies, and actions are being developed based on the engagement efforts with the communities and evaluation of existing conditions.

Six goals of the proposed subarea plans and actions are shared below.

- Goal #1: Celebrate the Tillicum-Woodbrook Community Center, Tillicum Elementary School, Harry Todd Park, and Pierce County Library branch as the heart of the Tillicum-Woodbrook Subarea.
- Goal #2: Increase visibility of Tillicum's and Woodbrook's diverse community by investing in leadership development and the neighborhood's ability to advocate for community needs.
- Goal #3: Diversify Tillicum's and Woodbrook's housing options to support current residents in Lakewood.
- Goal #4: Connect Tillicum and Woodbrook to Lakewood and Pierce County through a multi-modal transportation network to increase access to employment and social activities.
- Goal #5: Increase economic development opportunities within Tillicum and Woodbrook.
- Goal #6: Protect Tillicum and Woodbrook's natural environment and increase adaptability and resiliency for Tillicum and Woodbrook as communities significantly impacted by air quality and climate change.

## Housing and Job Capacity and Allowances

Based on the proposed changes to the Future Land Use Plan and Zoning to allow more “middle housing” as defined in the GMA and accessory dwelling units (ADUs), there would be an increased capacity for housing. Also, the proposed changes would allow the City to meet its affordable housing targets for all economic segments. See Exhibit 2-10 and Exhibit 2-11.

**Exhibit 2-10. Growth Targets and Capacity – Action Alternative**

	2020	2044	Growth 2020-2044	Action Alternative Growth Capacity
Population	63,612	86,792	23,180	40,922*
Jobs	29,872	39,735	9,863	15,238
Housing	26,999	36,377	9,378	17,488
Emergency Housing	8	582	574	N/A**

Note: \*Housing capacity x 2.34 persons per household (US Census 2018-2022)

\*\* Capacity is not required if a jurisdiction allows emergency housing where hotels are allowed (met in Title 18.A in Lakewood’s Municipal Code) or in a majority of zones within one-mile of transit per HB 1220 Sections 3 and 4, and if the jurisdiction has no regulations that limit the occupancy, spacing or intensity of emergency housing. However, local governments may set restrictions in relation to health, safety and fire codes, so long as the restrictions do not prevent the siting of a sufficient number of emergency housing units to meet the allocated need. Lakewood sets a 1,000 foot separation currently but proposed code changes would limit the spacing to 880 feet per RCWs 9.94A.030 and 9.94A.703, which create community protection zones of 880 feet from incompatible uses that have a clear connection to public safety. (See: <https://deptofcommerce.app.box.com/s/1d9d517g509r389f0mjpgowh8isjpirlh>).

Sources: (Pierce County, 2022-2023); US Census Quick Facts, 2023

**Exhibit 2-11. Affordable Housing Targets and Capacity by Action Alternative**

Income	Projected Housing Need	Zoning Categories Serving Needs	Aggregated Housing Needs	Total Capacity	Capacity Surplus/Deficit
0-30% Non-PSH	1,212	Low-Rise Multifamily + ADUs	5,963	9,064	3,101
0-30% PSH	1,637				
>30-50%	1,739				
>50-80%	1,375				
>80-100%	592	Moderate Density	1,128	2,969	1,841
>100-120%	536	Low Density	2,287	5,455	3,168
>120%	2,287				
<b>Total</b>	<b>9,378</b>		<b>9,378</b>	<b>17,488</b>	<b>8,110</b>

Sources: BERK 2024.

While the Action Alternative has housing capacity above the 2044 targets, for the purposes of this FSEIS, the 2044 **targets are used to evaluate the transportation and other needs since the targets**

**encompass a 20-year period** while capacity represents a reasonable build out under proposed regulations that may take a longer time than 20-years.

The regulations are permissive towards more housing types, but property owners would determine their interest in providing such units on their properties:

- Homeowners who wish to build ADUs or middle housing units on their own property will have more opportunities to do so.
- Homeowners who do not want to build more units on their property are not required to build units.

The Action Alternative addresses code changes to address housing allowances and related permit procedures:

- Housing use allowances in LMC Titles 18A, 18B, and/or 18C
- Short Term Rental (STR) Regulations: Short Term Rental (STR) Regulations: the options for the maximum number of short term rentals per permittee ranges from 1 to 5 (lower as originally proposed; higher under considering by City Council);
- Unit lot subdivisions (Title 17);
- Public Noticing Regulations (HB 1105);
- Add “recycling facility” to conditional uses allowed in the AC1 zone; and
- Other related regulations are addressed.

## Other Development Regulations

### Critical Areas and Shorelines Regulations

An ongoing requirement of the GMA is for local jurisdictions to periodically review and evaluate their adopted critical areas policies and regulations. The City commissioned a gap analysis of critical area regulations that are contained in Title 14. The City proposes targeted amendments to address the gaps as part of the Periodic Update. See Exhibit 2-12.

#### **Exhibit 2-12. Critical Areas Ordinance Gap Analysis**

Provisions	Summary of Changes
General Provisions	Code sections 14.142.010 through 14.142.200 contain general provisions that are applicable to all types of critical areas. While overall the general provisions contained in these sections are strong, some refinements could be made to further align these sections with the GMA and BAS.
Geologically Hazardous Areas	Geologically hazardous areas addressed in the Code include erosion and landslide hazard areas and seismic hazard areas. The Code does not designate mine, volcanic or tsunami hazard areas as geologically hazardous areas. Definitions and classification criteria and mapping are recommended for update.

Provisions	Summary of Changes
Critical Aquifer Recharge Areas	The current regulations appear generally consistent with the CARA guidance provided by the Department of Ecology. The following subsections are suggestions for improving the level of aquifer protection and general clarification of regulations to implement the plan including adding maps and creating an inventory of potential contaminant sources.
Fish and Wildlife Habitat Areas	The City's habitat conservation areas regulations require some modifications to align with BAS and to clarify applicability and facilitate ease of use. Update identification and mapping of fish and wildlife habitat conservation areas. Updating buffer standards.
Flood Hazard Areas	Existing regulations could be enhanced by providing specific critical area special study and/or habitat assessment requirements

Source: DCG/Watershed, 2023.

Additionally, critical area buffers are proposed to be amended to address more recent state guidance on riparian area protection, as well as other aspects of code application. See Appendices for a memo regarding stream buffers.

The proposals include adding a new LMC Title 16 to incorporate the City's Shoreline Master Program and Shoreline Restoration Plan into the municipal code. In the future, the City anticipates that:

- The rules and buffer widths for Remodeling and New Construction will be increasing around: 1) Boyles Lake, Lost Lake, Carp Lake, Emerson Lake, Flett Creek, Ponce de Leon Creek, and other unnamed fish-bearing streams (called "Type F" streams) in the City; and 2) the Tributaries for Waughop Lake, Lost Lake, Gravelly Lake, Chambers Creek, Clover Creek, and other unnamed non-fishbearing streams (called "Type Np/Ns" and "Type X" waters).
- The buffers for remodeling and new development are staying the same around: American Lake, Gravelly Lake, Lake Louise, Steilacoom Lake, Waughop Lake, Clover Creek and Chambers Creek.

The shoreline buffers and any other policy or regulatory changes will be processed according to RCW 90.58 and WAC 173-26 and is subject to Washington State Department of Ecology review and approval as well as local government approval.

## **Parking Regulations**

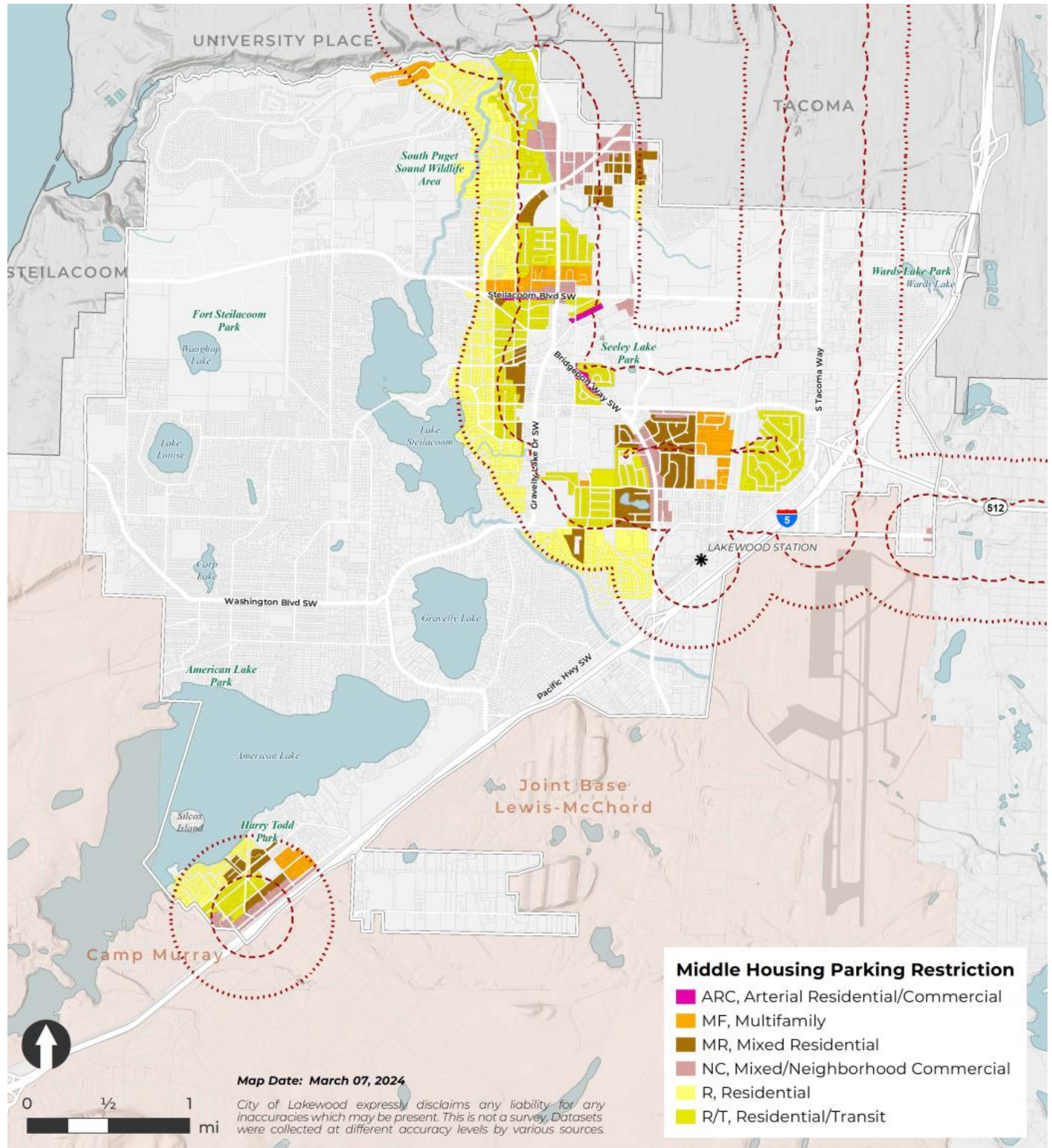
*Except on streets where multimodal safety is a concern*, the Action Alternative would amend parking as follows:

- No off-street parking is required for accessory dwelling units, multifamily housing or housing for seniors or persons with disabilities within ½ mile walking distance of a major transit stop. See Exhibit 2-13.
- No more than 0.5 parking space is required for duplex middle housing, or zero if in a half mile of frequent transit service.
- No more than two off-street parking space is required for middle housing of three to six units.

This SEIS provides an empirical evaluation of access and parking developed by Transpo and BERK. It considers existing street conditions in different parts of the city and where off-street parking requirements may be retained to address multimodal safety concerns.

For middle housing types, housing units that are within one-half (1/2) mile of a major transit stop, defined as a stop for commuter rail or bus rapid transit, are not required to provide on-site parking if adequate provision of on-street parking facilities is available as determined by the Director.

Exhibit 2-13. Applicable Parking Reductions in Half Mile of Transit



Source: City of Lakewood, 2024.

### 2.4.3 Comparison of Alternatives

This SEIS evaluates the No Action and Action Alternatives, compared in Exhibit 2-14 below.

**Exhibit 2-14. Comparison of Alternatives**

Component	No Action Alternative	Action Alternative
Comprehensive Plan Elements	Current Plan is retained (2023).	Plan is updated to meet recent legislation (HB 1220, HB 1110, HB 1337).
General Concept	<ul style="list-style-type: none"> <li>- Incorporates VISION 2040 Policies</li> <li>- Includes zoning requirements for special needs housing (PSH, RRH, TH, Emergency Shelters)</li> <li>- Housing Element does not fully reflect HB 1220 zoning and policy requirements as summarized for Preferred Alternative</li> <li>- Does not reflect HB 1110 or HB 1337 requirements to allow middle housing and ADU housing in single family areas</li> <li>- Does not incorporate information from analysis of impacts to residential areas parking due to HB 1110 and HB 1337 densification requirements</li> <li>- Does not incorporate analysis of Regional Urban Growth Center per PSRC Centers Framework</li> <li>- Does not incorporate initial compliance policies with HB 1181 (2023 Climate Change &amp; Resiliency Law)</li> </ul>	<ul style="list-style-type: none"> <li>Incorporates VISION 2050 Policies</li> <li>- Includes zoning requirements for special needs housing (PSH, RRH, TH, Emergency Shelters)</li> <li>- Housing Element fully reflects “HB 1220” (2021 law) zoning and policy requirements:</li> <li>- Planning for sufficient land capacity for housing needs, including all economic segments of the population (moderate, low, very low and extremely low income, as well as emergency housing and permanent supportive housing);</li> <li>- Providing for moderate density housing options within Urban Growth Areas (UGAs), including but not limited to duplexes, triplexes and townhomes;</li> <li>- Making adequate provisions for housing for existing and projected needs for all economic segments of the community, including documenting programs and actions needed to achieve housing availability; and</li> <li>- Identifying racially disparate impacts, displacement and exclusion in housing policies and regulations, and beginning to undo those impacts; and identifying areas at higher risk of displacement and establishing anti-displacement policies.</li> <li>- Reflects HB 1110 and HB 1337, 2023 laws requiring allowance of middle housing and ADU housing in single family areas</li> <li>- Incorporates information from analysis of impacts to residential</li> </ul>

Component	No Action Alternative	Action Alternative
		areas parking due to HB 1110 and HB 1337 densification requirements - Incorporates analysis of Regional Urban Growth Center per PSRC Centers Framework - Incorporates initial compliance policies with HB 1181 (2023 Climate Change & Resiliency Law)
<b>Key Features</b>	<ul style="list-style-type: none"> <li>- Maintains current residential zoning scheme and policies that pre-date HB 1220, HB 1110, and HB 1337</li> <li>- Includes 2021 Energy &amp; Climate Change Chapter that pre-dates HB 1181</li> <li>- Includes 2011 Tillicum Neighborhood Plan and 2022 Addendum</li> <li>- Retains past data and analyses about the Regional Urban Growth Center that was drafted prior to the adoption of the PSRC 2018 Centers Framework</li> <li>- Retains transportation level of service (LOS) focused on road congestion</li> <li>- Maintains content organization used since first adopted Comprehensive Plan. Contains outdated and obsolete narrative and policy language. No clear references to original or more recent Background Reports.</li> </ul>	<ul style="list-style-type: none"> <li>- Updated residential zoning scheme and policies in response to HB 1220, HB 1110, and HB 1337</li> <li>- Updated Energy &amp; Climate Change Chapter including initial compliance with HB 1181</li> <li>- 2024 Tillicum-Woodbrook Subarea Plan</li> <li>- Adds multimodal LOS and plans.</li> <li>- Verified data regarding Lakewood Regional Urban Growth Center in relation to pending PSRC Center Review</li> <li>- Reorganized Plan content to better reflect GMA organization and requirements. Streamlined Plan language (i.e., goals and policies), Optional Elements (e.g., subarea plans), expanded technical and detailed Appendices, and collection of Background Reports.</li> </ul>



Component	No Action Alternative	Action Alternative
Future Land Use Map and Zoning	Current Future Land Use Plan and Zoning Map is retained.	<p>Future Land Use Plan and Zoning Map and text are amended to allow for middle housing and ADUs. Unit lot subdivisions regulations are addressed allowing for more ownership opportunities. The 2024 Planning Commission’s recommendation that short-term rentals be allowed in Accessory Dwelling Units. The CBD zone would be extended between the current boundary and the Clover Park High School. Consistency amendments are proposed to reconcile inconsistencies between use allowances for group homes in the Downtown/CBD and other Station District zones. Draft amendments to LMC Title 18B would update allowed locations and minimum acreage for master planned developments in the Downtown Subarea and updating references to the Lakewood Planning &amp; Public Works Department. The plan and planned action would include updated estimates for Downtown Subarea transportation project costs. Text changes would remove the Lakewood Landing from the Station District Plan and redistribute residential growth elsewhere in the study area. Update the monitoring of the Lakewood Station District Subarea Plan to be monitored every five years rather than every two years to match the Comprehensive Plan monitoring.</p>
Other Development Regulations	<p>No changes to critical areas regulations.</p> <p>No changes to parking regulations.</p>	<p>Update critical areas regulations to address gap analysis.</p> <p>Shoreline master program and restoration plan in the code. Future changes to buffers for shoreline lakes and streams would be amended in the future upon state review to address riparian buffers based on science similar to critical area regulations.</p>

Component	No Action Alternative	Action Alternative
Growth Targets and Capacity	Meetings population, housing, and job targets on the whole. Does not meet housing targets by affordability band. Code allows emergency housing where hotels are allowed. Spacing requirements and other standards are applied.	<p>Parking regulations would be modified to reduce parking in proximity to high frequency transit or major transit stops.</p> <p>Meets all growth targets including targets by affordability band.</p> <p>Code allows emergency housing where hotels are allowed. Spacing requirements and other standards are applied but adjusted based on health and safety standards per HB 1220, Sections 2 and 3.</p>

Source: City of Lakewood, 2024; BERK Consulting, 2024.

## 2.4.4 Future Alternatives

As a result of this FSEIS and public engagement, the City may adjust the Action Alternative. A revised action alternative may be considered that is similar to or in the range of the studied alternatives. The Final SEIS will respond to public comments and identify and evaluate changes to the Action Alternative.

## 2.5 SEPA Process

### 2.5.1 Non-project EIS

The purpose of this FSEIS is to assist the public and local government decision makers in considering future growth and land use patterns as well as goals, policies, and development regulations as part of the Lakewood Comprehensive Plan Periodic Update. These broad decisions will provide direction and support for more specific actions by the City, such as capital improvements.

This FSEIS provides a qualitative and quantitative analysis of environmental impacts as appropriate to the general nature of a comprehensive plan update. The adoption of comprehensive plans or other long-range planning approvals is classified by SEPA as a non-project (i.e., programmatic) action. A non-project action is defined as an action that is broader than a single site-specific project and involves decisions on policies, plans, and programs. The FSEIS discusses impacts and alternatives appropriate to the scope of the non-project proposal and to the level of planning for the proposal ([Washington Administrative Code \[WAC\] 197-11-442](#)).

### 2.5.2 Integrated SEPA/GMA Process

Preparation of this FSEIS took place concurrently with development of the 2024 Comprehensive Plan, as is consistent with the purpose of SEPA/GMA integration (see Washington Administrative Code (WAC) 197-11-210 through 197-11-235.) The concurrent development was intended to ensure that environmental analyses under SEPA would be an integral part of the planning and decision-making process under

GMA. As a result, many goals, policies, and other provisions serve as SEPA mitigation measures in this SEIS, and where the SEIS has found potential mitigation measures they are likewise opportunities to address policy and code updates.

One of the purposes of SEPA is to incorporate public input into environmental review. This objective was accomplished through a public scoping period that took place during February and March, 2023. The scoping allowed agencies, affected tribes, and members of the public to comment on the scope of analysis. This FSEIS was released in June 2024 for review and comment by agencies, affected tribes, and members of the public. Comments on the FSEIS will be published along with the response to each in the Final SEIS (FSEIS).

### 2.5.3 Prior SEPA Documents

SEPA allows use of prior environmental documents ([WAC 197-11-600](#)). The City may rely on part or all prior documents and update past information through an addendum (if minor differences from prior EIS) or through a SEIS (address new alternatives and new information). The City determined that a SEIS was appropriate. Scoping is not required for a SEIS. However, this FSEIS is subject to a 30-day comment period.

This FSEIS supplements the following previously issued SEPA documents:

- City of Lakewood, Comprehensive Plan, Final EIS, June 2000
- City of Lakewood, 2015 Comprehensive Plan Amendments and Update, Determination of Non-Significance and associated SEPA Checklist, July 30, 2015
- City of Lakewood, Downtown Lakewood Plan and Planned Action Final EIS, July 20, 2018, and associated Addenda, September 10, 2018 and September 26, 2018
- City of Lakewood, Lakewood Station District Subarea Plan, Form-Based Code, and Planned Action, Revised Determination of Non-Significance, November 12, 2020, March 30, 2021, and April 29, 2021
- Puget Sound Regional Council, VISION 2050 Final SEIS, March 2020

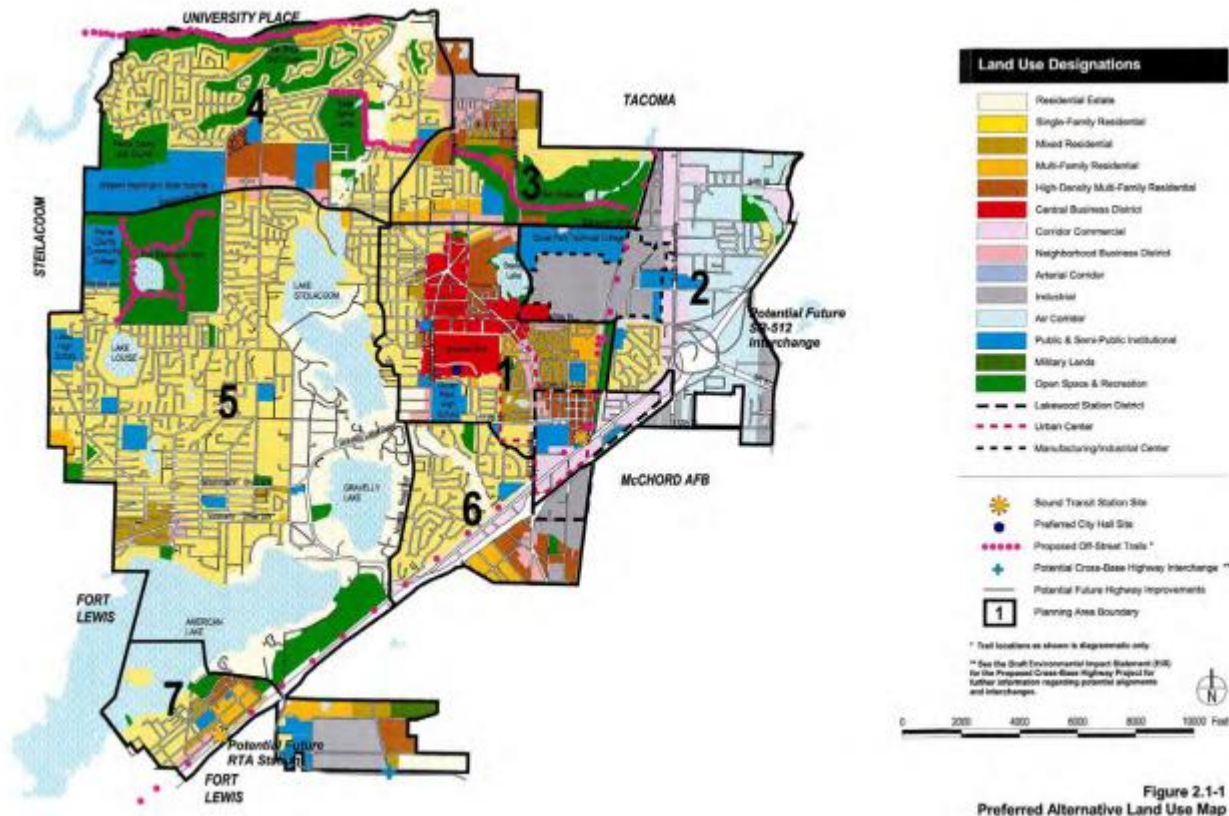
The City has identified and adopted these documents as being appropriate for this proposal after independent review, and they will accompany the proposal to the decision makers. This FSEIS builds on these documents and meets the City's environmental review needs for the current proposal.

The 2000 EIS set forth much of the current Future Land Use Plan in Lakewood. See Exhibit 2-15.

The Year 2000 EIS planned for growth greater than that achieved as of 2020, though less than that planned for Year 2044. This FSEIS for the 2024 Comprehensive Plan Periodic Update extends the environmental analysis to 2044.

- 1997: 55,466
- 2000: 58,293
- Projected 20-Year population in Year 2000 EIS: net 17,500 from 1997 = 72,966
- Year 2020 Population US Census: 63,612.
- Year 2044 Population: 86,792

Exhibit 2-15. Year 2000 Lakewood Comprehensive Plan EIS, Preferred Land Use Plan



Note: Year 2000 Preferred Alternative provides development capacity for an estimated 17,500 new residents and 12,275 new jobs by the year 2017.

## 2.6 Benefits and Disadvantages of Delaying the Proposed Action

Delay of the proposal would retain current policies, zoning, and parking standards. Retention of the No Action Alternative would result in slightly lower transportation congestion though higher vehicle miles travelled.

Delaying the Proposed Action would also delay the improved housing variety and affordable housing under the Action Alternative. It would delay the slightly higher transportation congestion (but lower vehicle miles travelled) compared to the 2015 Comprehensive Plan and No Action transportation evaluation conducted in 2018 with the Downtown Planned Action. Delay of the Action Alternative would also delay the improved critical areas regulations and associated improved conservation of critical areas as well as shoreline stream and lake buffers.

# 3 Environment, Impacts & Mitigation Measures

## 3.1 Natural Environment

### 3.1.1 Critical Areas

#### Affected Environment

Under the GMA, Lakewood is required to review its critical area regulations when adopting its comprehensive plan. The primary purpose of this subsection is to evaluate consistency between existing goals and objectives governing critical areas and each of the two alternatives under consideration. An additional function is to compare the impact of each alternative on resource lands.

Critical areas in the City of Lakewood include wetlands, aquifer recharge areas, fish and wildlife habitat, flood hazard areas, geologically hazardous areas. Creeks, streams, and lakes are part of fish and wildlife habitat. Chambers Creek and the many lakes in Lakewood are shorelines of the state.

- Wetlands are areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. They include swamps, marshes, bogs, and similar areas.
- Aquifer recharge areas are areas where the prevailing geologic conditions allow infiltration rates which create a high potential for contamination of groundwater resources or contribute significantly to the replenishment of groundwater with potential to be used for potable water.
- Fish and wildlife habitat areas are habitats considered to be critically important to the maintenance of fish, wildlife, and plant species, including: areas with which endangered, threatened, and sensitive species have a primary association; habitats and species of local importance lakes, ponds, stream, rivers, state natural area preserves and natural resource conservation areas. Priority Oregon White Oak Woodland are a habitat and species of local importance (LMC 14A.154.020.B.1).
- Flood hazard areas are lands located in floodplains which are subject to a one percent or greater chance of flooding in any given year.
- Geologically hazardous areas are areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, may pose a risk to the siting commercial, residential, or industrial development consistent with public health or safety concerns.

Each of these is described in the Lakewood Municipal Code Title 14. Wetlands, flood-prone areas, lakes, shorelines, and streams are illustrated in exhibits associated with each critical area below.

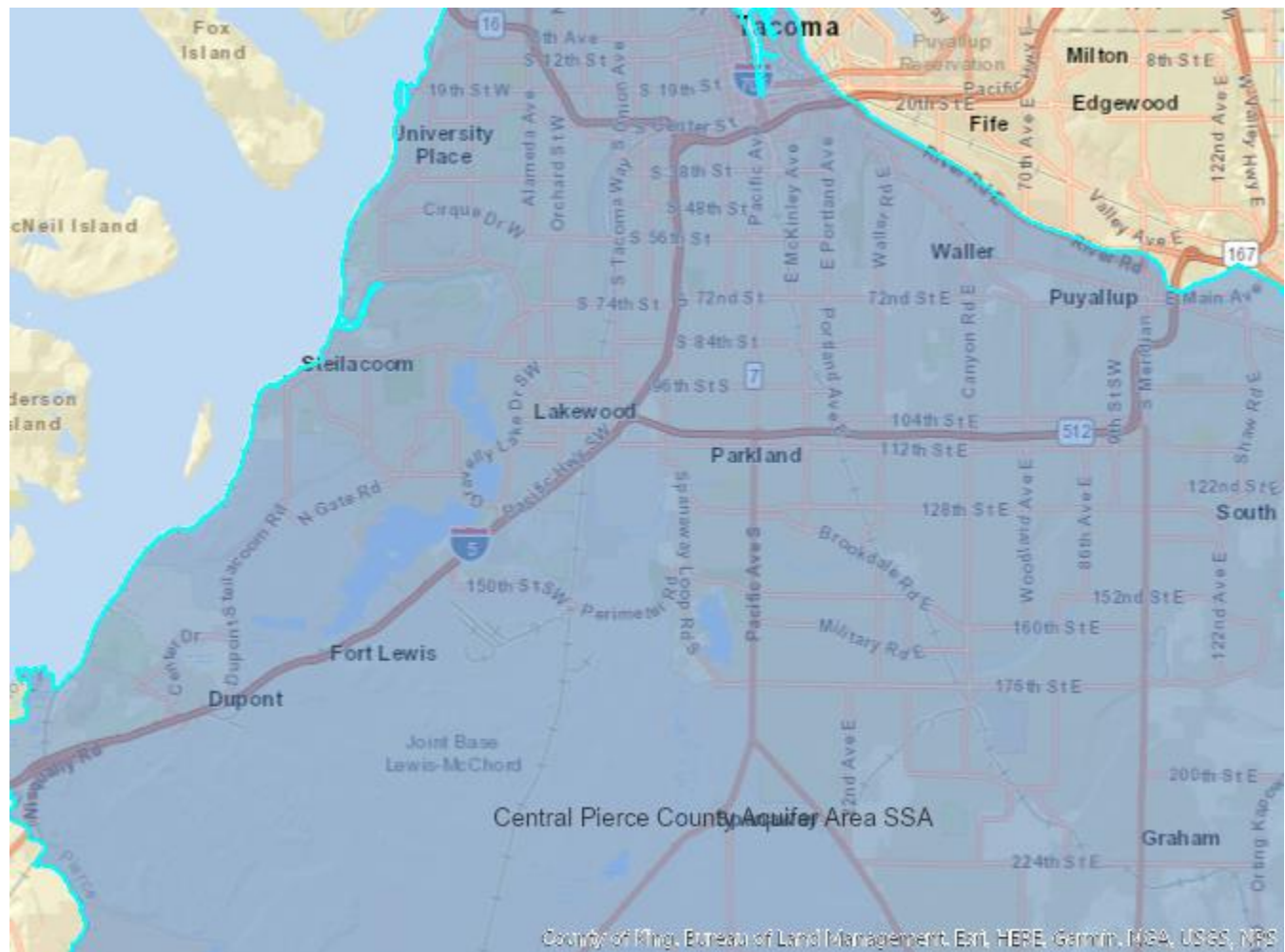
### Wetlands

Lakewood has over 155 acres of wetlands in addition to seven lakes totaling nearly two miles of water area. (City of Lakewood, 2023). The largest non-lacustrine wetland is the 140-acre Flett Creek floodplain in northeast Lakewood, extending into Tacoma. The second largest wetland is the 38.7-acre Crawford Marsh comprising much of Seeley Lake Park. Both contain peatbogs and waterfowl and animal habitat. Other wetlands are scattered throughout Lakewood on both public and private property along stream corridors and in isolated depressions. (US Fish and Wildlife Service, Accessed 2024)

### Aquifer Recharge Areas

Lakewood and much of the county is in the Central Pierce County Sole Source Aquifer. See Exhibit 3-1.

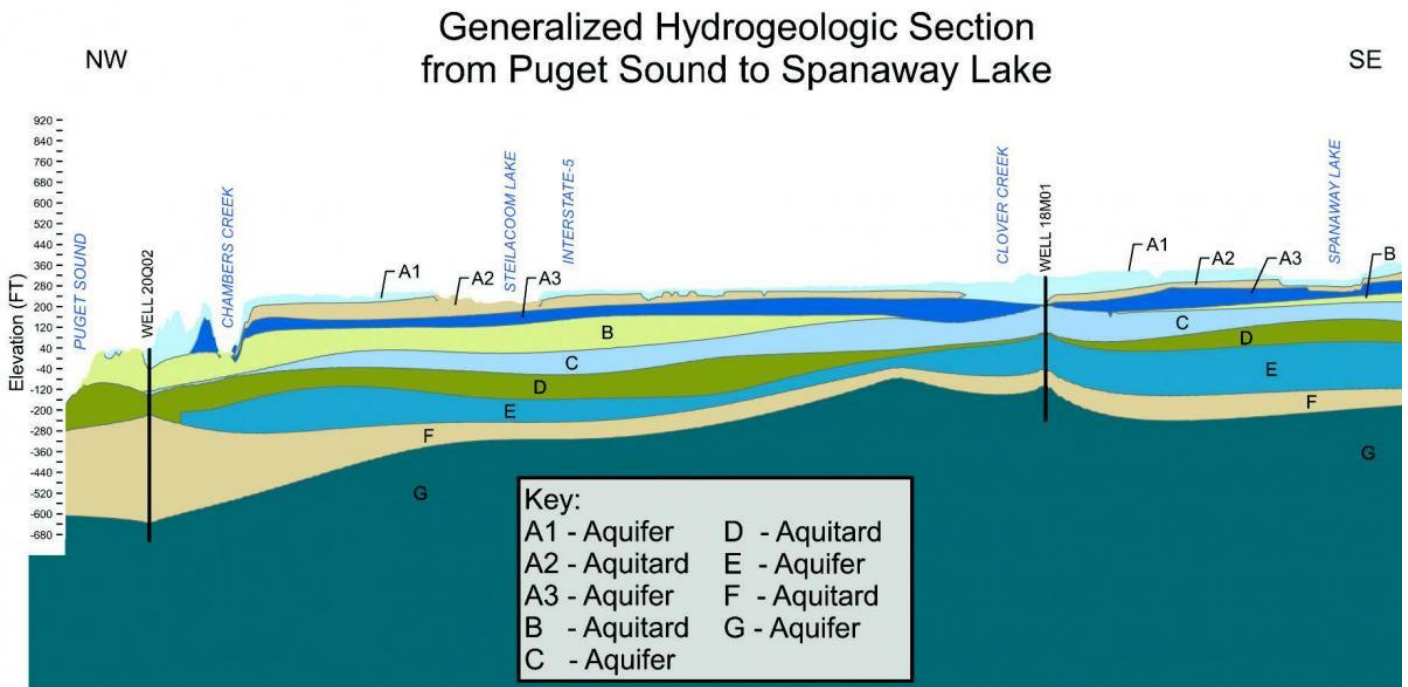
**Exhibit 3-1. Central Pierce County Sole Source Aquifer Area Lakewood Vicinity**



Source: US EPA, 2024.

The Lakewood Water District's (LWD's) sole source of water is from underground aquifers, water-bearing strata of permeable rock, sand, or gravel. Most of Lakewood is built above a series of four underground aquifer systems that supply the LWD with well water, serving Lakewood with water for domestic and industrial uses. See Exhibit 3-2.

**Exhibit 3-2. Aquifers from Puget Sound to Spanaway Lake**



Source: (Lakewood Water District, 2024)

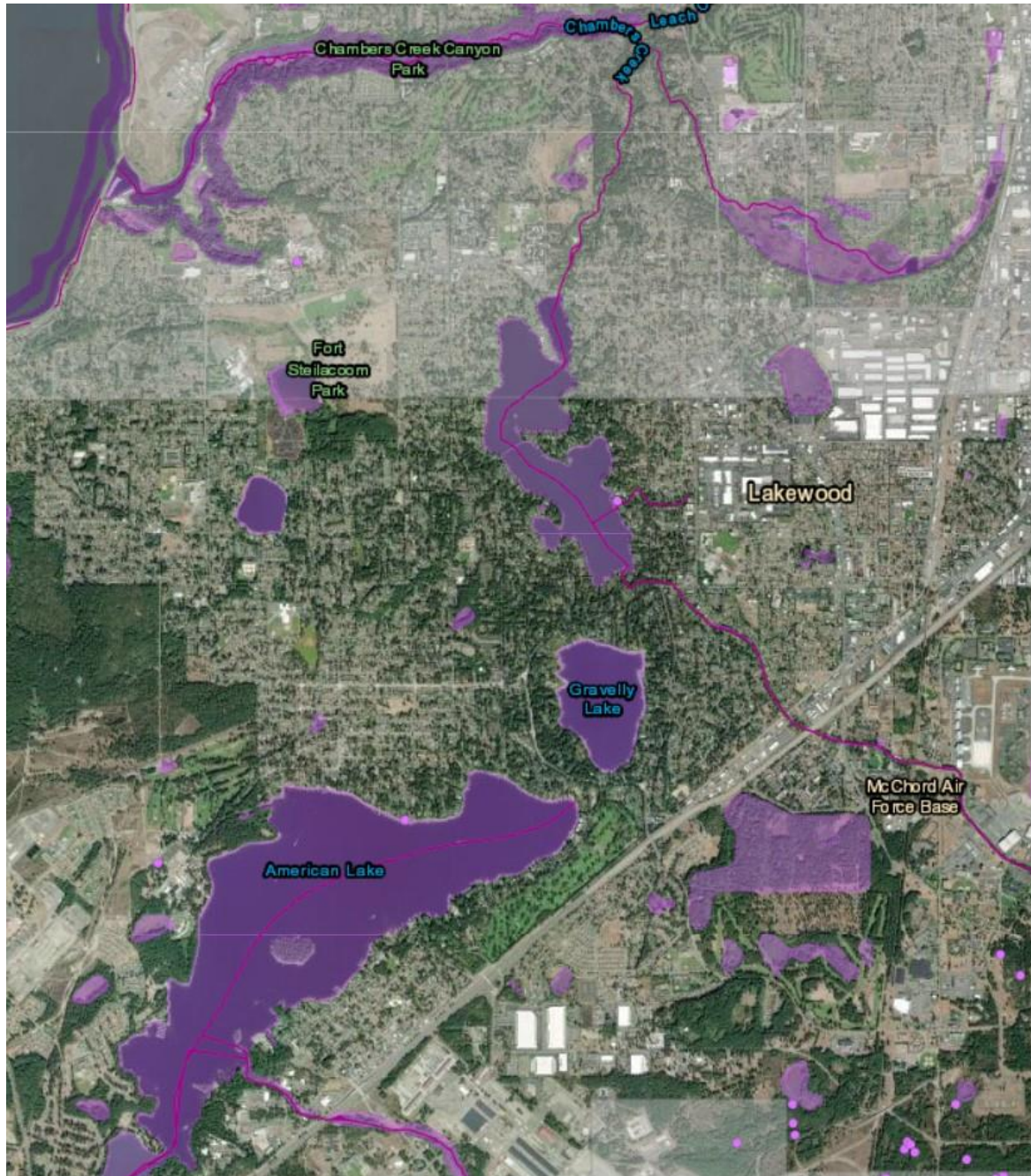
The District's 30 active wells provide a maximum production capacity of approximately 30 million gallons per day (mgd), with a total water-right capacity to pump up to over 60+ mgd. Recharge (replenishing) of the aquifers comes from local rainfall in the Clover/Chambers drainage basin.

The District adheres to a wellhead protection program. The Wellhead Protection Plan identifies Aquifer A as the shallowest aquifer with the most direct hydrologic relation to the surface. In addition, it is composed of highly permeable glacial deposits resulting in hydrologic conductivity values averaging approximately 1,650 feet per day (Economic and Engineering Services, Inc. and Robinson & Noble, Inc. 1997). Because of these factors, Aquifer A is the shallowest and most vulnerable of Lakewood's aquifer systems. This aquifer is generally located along the I-5 corridor in eastern Lakewood with water contribution flowing west from McChord AFB and Spanaway. American Lake is believed to have a direct hydrologic connection to the aquifer. This shallow aquifer also includes a smaller area in western Lakewood that includes Waughop Lake and Lake Louise, both of which are believed to contribute directly to three wells south of Fort Steilacoom Park.

## Fish and Wildlife Habitat

In the present era, most of Lakewood is composed of suburban and urban development, with remnant areas of native vegetation found in a patchy mosaic throughout the city. Significant remaining intact stands of native vegetation include the Flett wetlands, the Chambers Creek canyon, and Seeley Lake Park. The mapped priority habitats and species reflect these major areas of habitat. See Exhibit 3-3.

### **Exhibit 3-3. Priority Habitats and Species in Lakewood Vicinity**



Source: WDFW, 2024



Wildlife habitat has been greatly reduced as a consequence of development, with little suitable habitat for large mammals remaining. Information provided by the Washington Department of Fish and Wildlife (WDFW) regarding lands meeting the criteria as priority wildlife habitats indicates a number of those habitats are present in the city, including wetlands, riparian zones, and other biodiversity areas. The remaining habitat can support a variety of smaller mammals, reptiles, amphibians, and birds. Standing water in the form of lakes accounts for 1,098 acres, or 9% of Lakewood's surface area. These lakes support a variety of water and shorebirds, as well as aquatic fauna.

The Clover Creek watershed is the principal watershed in the city. Clover Creek empties into Lake Steilacoom. The lake then flows into Chambers Creek, which empties into Puget Sound immediately west of the city limits. Chambers Creek forms the boundary between the cities of Lakewood and University Place. Major tributaries of Chambers Creek include Leach Creek and Flett Creek. Chambers Creek has been dammed to form Steilacoom Lake. Two streams flow into Steilacoom Lake, Clover Creek and Ponce de Leon Creek. Chambers Creek, Leach Creek, Flett Creek, and Clover Creek are all identified by the WDFW as having anadromous fish runs. In addition, there is a critical spawning habitat identified near the mouth of Chambers Creek.

Because of the presence of endangered salmonids in the watershed, land use activity must conform to ESA regulations for Lakewood to receive protection under Section 4(d) of the ESA. These are identified in the National Marine Fisheries Service 4(d) rules, which identify the elements that must be present in an approved stormwater management plan. The Chambers/Clover Creek watershed forms Water Resource Inventory Area (WRIA) 12, as defined by the Washington Department of Ecology. The Chambers/Clover Creek Watershed Action Plan is the watershed-wide document under development to manage non-point source pollution within WRIA 12. This Action Plan contains a number of recommendations with regards to habitat, water quality, and related issues of importance to salmon recovery efforts, and has been approved by Lakewood as well as most other jurisdictions within WRIA 12.

Although Lakewood is generally a disturbed landscape, some federal or state plant and animal species of concern are known to occur. Lakewood's critical areas regulations (LMC 14.154.020) identify Critical Fish and Wildlife Habitat Areas as including federal and state listed species and their associated habitats. The Lakewood Shoreline Restoration Plan (AHBL, Otak, Herrera, 2019) has identified the following listed species:

*Steelhead of the Puget Sound Distinct Population Segment (DPS) (U.S. Federal Register, 11 May 2007) is the only federally listed salmonid species that occurs in the City of Lakewood. Steelhead presence is documented in Chambers Creek and their presence is assumed in Lake Steilacoom and Clover Creek Page 6 (StreamNet 2010). Additionally, Puget Sound-Strait of Georgia coho salmon (a PHS Species) also occur in the basin and are listed as a Species of Concern (U.S. Federal Register, 15 April 2004), indicating that they are under less active consideration for formal listing. Coho spawn in Chambers and Clover Creeks and their presence is documented in Lake Steilacoom (StreamNet 2010). Critical habitat for Puget Sound steelhead within the City of Lakewood was finalized in 2016 (Federal Register 2016). The Chambers Bay estuary fish ladder traps are used at certain times to capture upstream adult migrants, mainly Chinook, as part of a segregated hatchery and estuary fishery program. The fish ladders are left open during the remainder of the year to allow passage of*

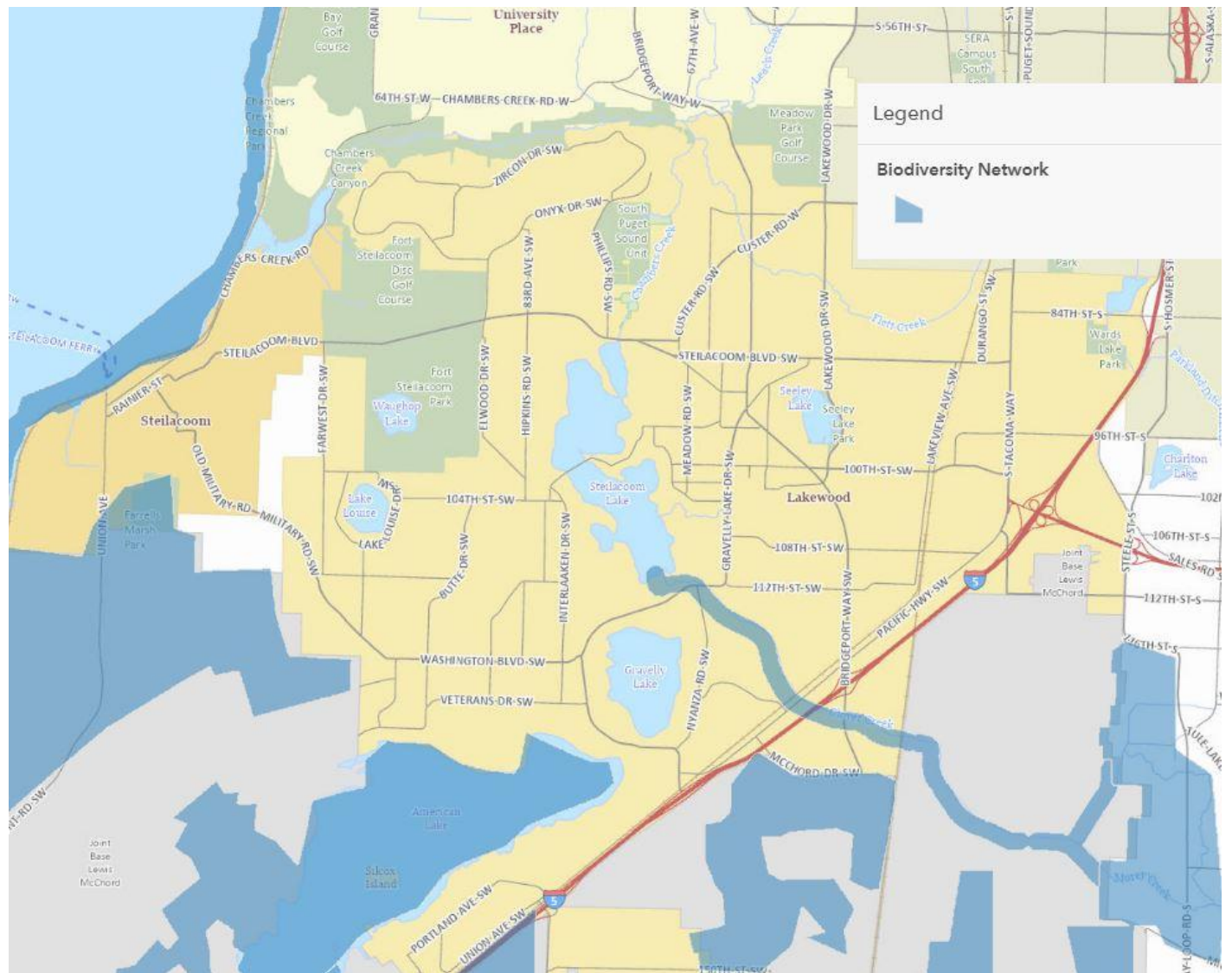
*other diadromous species (e.g., chum, coho, steelhead and cutthroat trout). Chinook salmon are usually not released upstream, but spawn are taken to Garrison Springs Hatchery for rearing. The Garrison Springs Hatchery is located in the City of Lakewood near Chambers Creek. (AHBL, Otak, Herrera, 2019)*

The Lakewood Municipal Code (LMC 14.154.020) also lists the following as habitats and species of local importance as part of critical fish and wildlife habitat areas:

- Priority Oregon white oak woodlands.
- Prairies.
- Old growth forests.
- Caves.
- Cliffs.
- Snag-rich areas.
- Rivers and streams with critical fisheries.
- Naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat.
- Waters of the state, including all water bodies classified by the Washington Department of Natural Resources (DNR) water typing classification system as detailed in WAC 222-16-030, together with associated riparian areas.
- Lakes, ponds, streams, and rivers planted with game fish by a governmental entity or tribal entity.
- State natural area preserves and natural resource conservation areas.

Some lakes and streams noted as habitats of local importance have been mapped as biodiversity corridors by the state WDFW and Pierce County. See Exhibit 3-4.

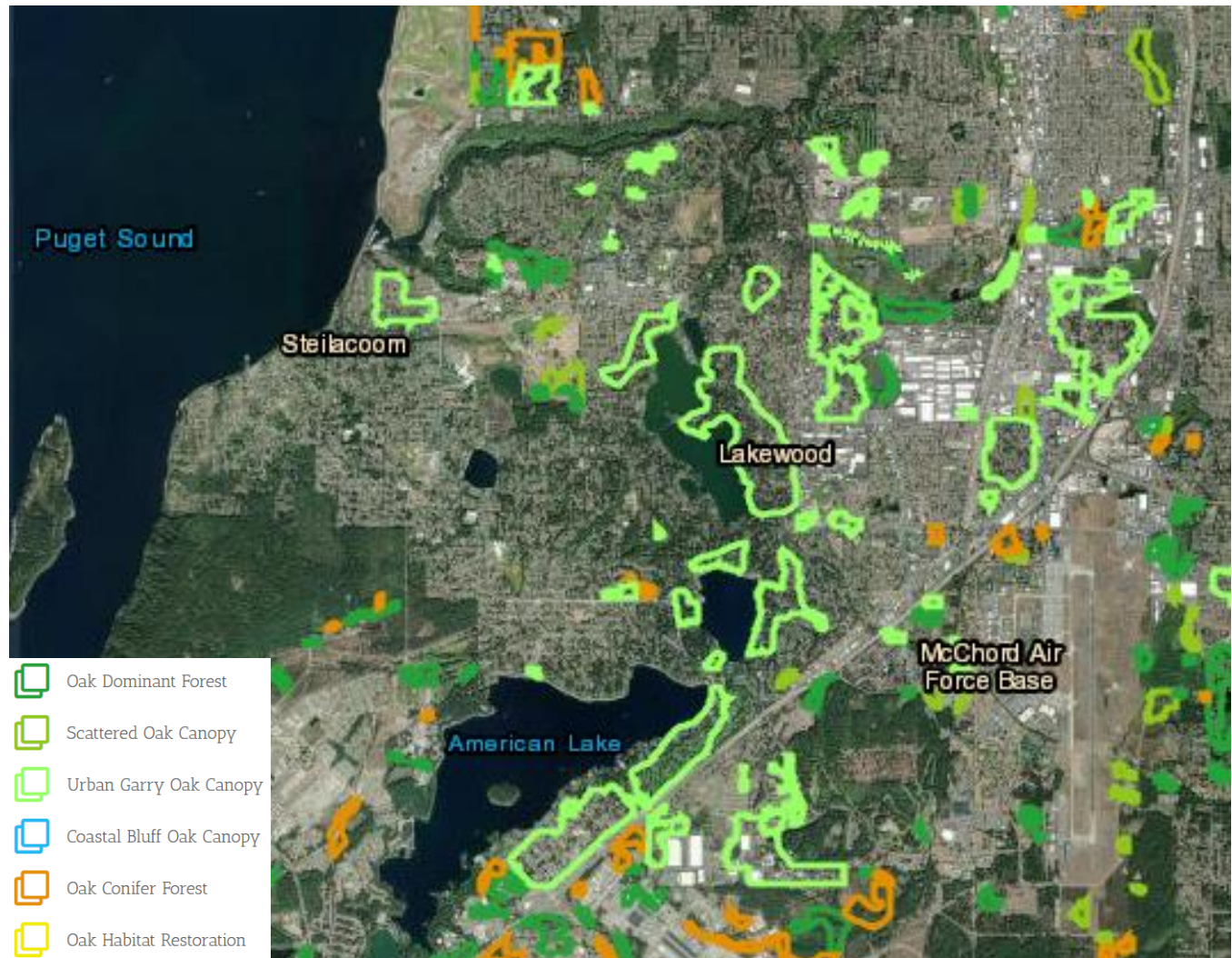
**Exhibit 3-4. Biodiversity Areas Lakewood Vicinity**



Source: Pierce County GIS, 2017

Regulated by the City’s critical area regulations and tree preservation regulations (LMC 18A.70 Article III), Oregon white oak woodlands, are found in portions of the city in parks and private lands. See Exhibit 3-5.

**Exhibit 3-5. Oregon White Oak Woodlands**

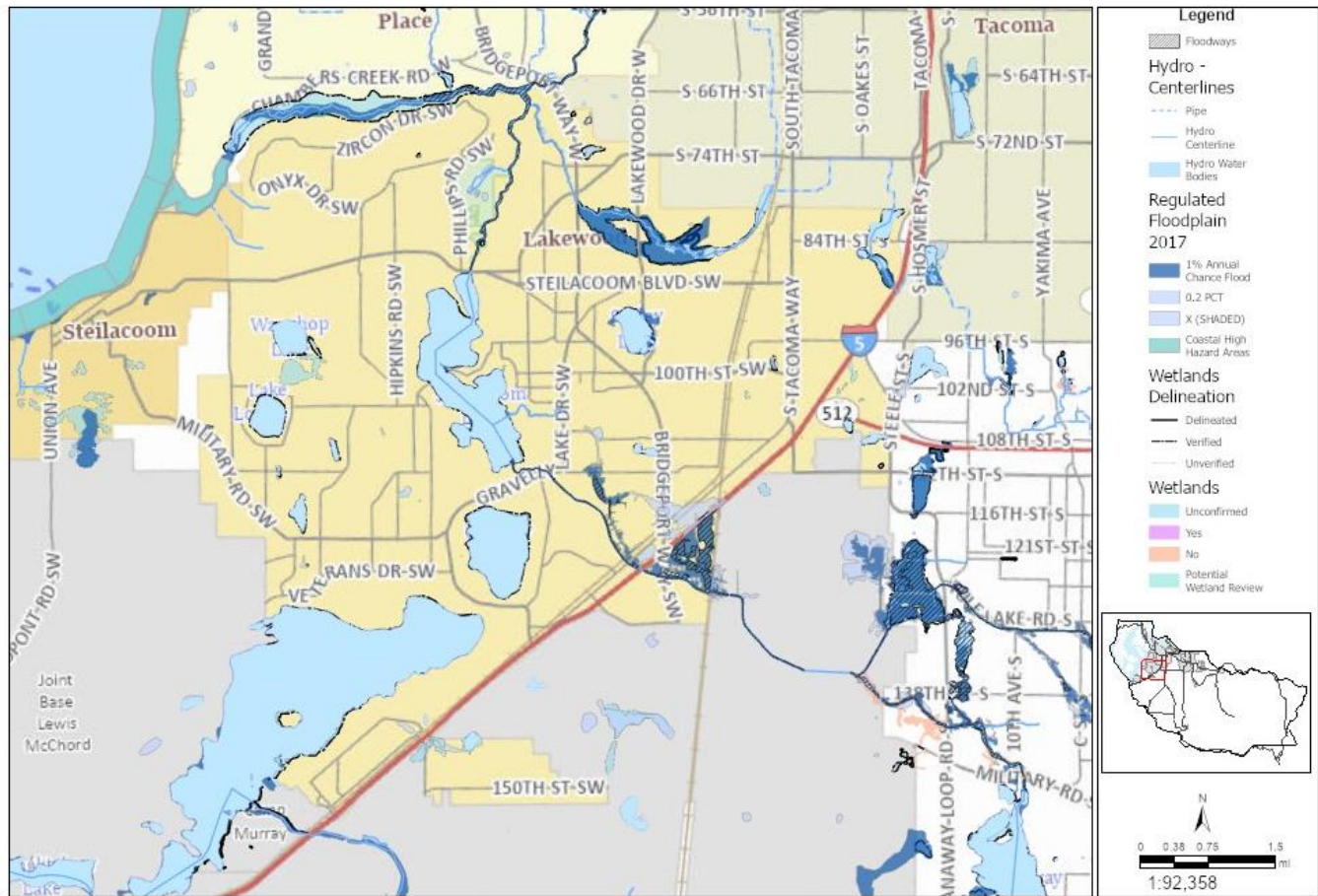


Source: Department of Natural Resources, 2017-2022; Sound Oaks Initiative, 2024

Flood-Prone Areas

Flooding is the most common natural hazard in Lakewood due to the area’s hydrologic conditions, topography, and development patterns. Portions of northeast and east Lakewood, especially in the Clover and Flett Creek drainage area, are susceptible to flooding. Other areas prone to flooding include wetlands and adjacent low-lying upland areas. See Exhibit 3-6 for a citywide view of floodplains and wetlands.

**Exhibit 3-6. Lakewood Floodplains and Wetlands**



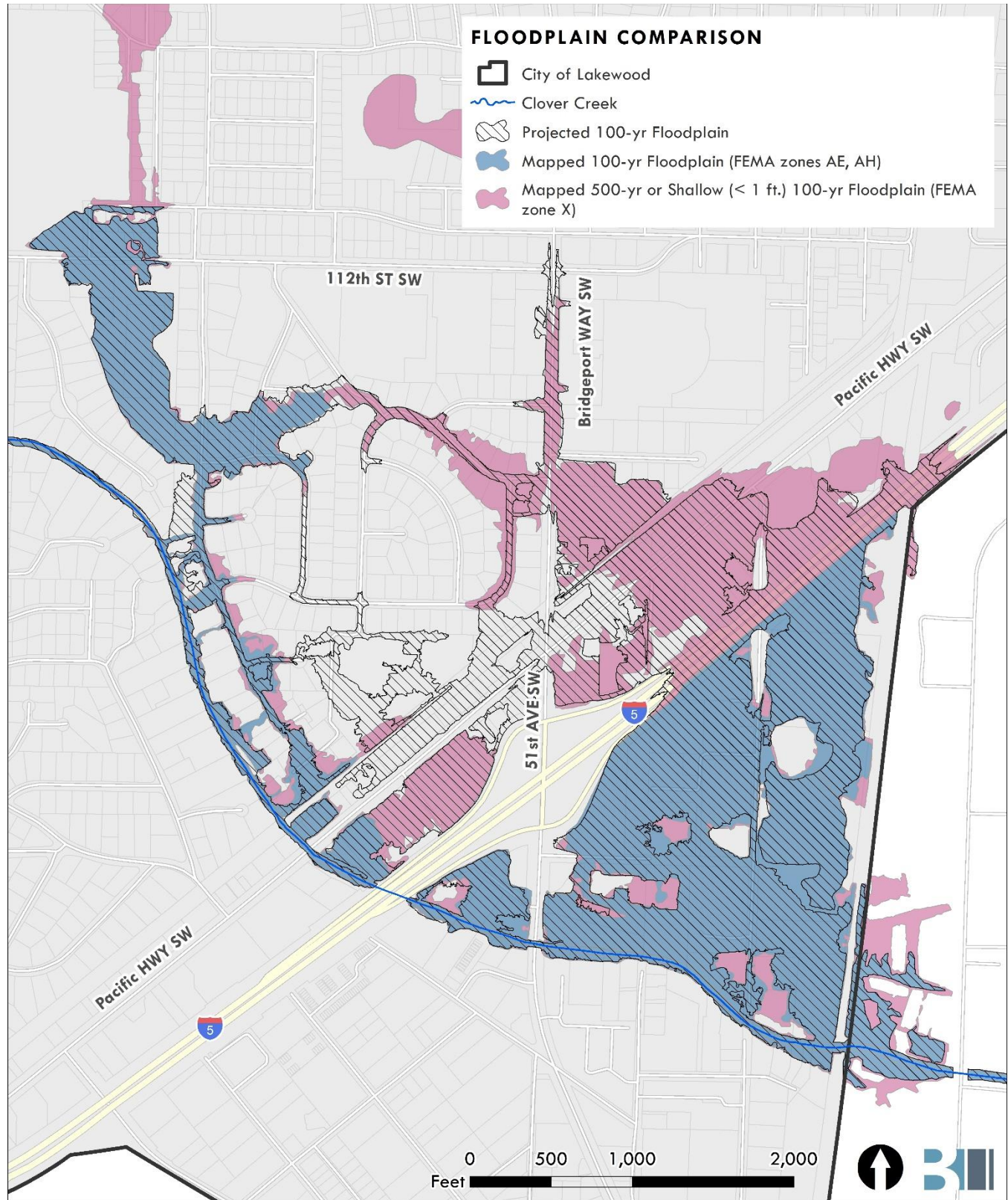
Sources: Pierce County GIS, 2024; FEMA, 2017

The City of Lakewood evaluated a portion of Clover Creek through the Clover Creek Flood Mitigation Study in 2022-2023. Points along the Clover Creek alignment have experienced flooding during large storm events, particularly in the area between Joint Base Lewis-McCord and I-5, as well as northwest of I-5 along Pacific Highway. The City proactively developed a study (Brown and Caldwell, 2023), which:

- Developed conceptual alternatives and flood mitigation strategies,
- Evaluated flood mitigation concepts,
- Engaged stakeholders throughout the study, and
- Provided funding alternatives.

The floodplain areas reviewed are shown on Exhibit 3-7.

Exhibit 3-7. Clover Creek FEMA Floodplain Comparison



Sources: FEMA, 2017

Flooding threatens lives and damages property. Its frequency and severity tend to increase as a result of development, specifically as permeable forest cover is replaced by impervious surfaces such as rooftops or concrete or even by semi-permeable ground covers such as lawns. The most effective way to limit increasing urbanization-related flood risk is to limit changes to natural hydrologic functions. Accordingly, natural drainage channels need to be preserved whenever possible, and permeable surfaces should be protected. Changes to these system functions should be compensated by engineered systems such as retention/detention basins, swales, and other approaches designed to simulate natural flood control mechanisms by allowing stormwater to slowly seep into the ground or gradually drain downstream.

### Geologically Hazardous Areas

Geologically hazardous areas typically include areas subject to structural failure, usually as a result of mass wasting or seismic incident. Most of Lakewood is located on relatively flat lands sloping 8% or less. The steepest significant land area in Lakewood, and consequently the area most vulnerable to landslide, is the southern rim of the Chambers Creek canyon, which is the northwestern boundary of the city. (Washington Department of Natural Resources, 2024) Other sloping areas include hillsides with moderate slopes scattered in primarily residential areas and some former gravel quarries with slopes over 30% grade.

Each shoreline water body's shoreline contains a small amount of steep slope areas, with the exception of Clover Creek, which contains no documented geologic hazards. (AHBL, Otak, Herrera, 2019)

Most of the city is mapped as having very low risk of seismic liquefaction except in the Chambers Creek Canyon area, or around the rim of lakes and wetlands. (Washington Department of Natural Resources, 2024)

### Creeks, Streams, and Lakes and their Shorelines

Much of Lakewood lies within the Chambers Creek drainage basin. Chambers Creek flows into Puget Sound between Steilacoom and University Place and forms Lakewood's northern boundary. Chambers Creek is joined by Leach and Flett Creeks near Lakewood's boundary with University Place and Tacoma. Flett Creek originates in southern Tacoma and drains the largest palustrine wetland system in the city, Flett wetlands.

As previously mentioned, there are numerous lakes in Lakewood. Most of these lakes, including American, Gravelly, Waughop, and Seeley lakes and Lake Louise, are of glacial origin. Steilacoom Lake was formed as the result of damming Clover Creek to create a millpond. Chambers Creek flows from the south and drains Lake Steilacoom, which is impounded by the dam at Steilacoom Boulevard. The largest stream feeding Lake Steilacoom is Clover Creek, which flows from the southeast through Ponders Corner and Springbrook. A smaller stream, Ponce de Leon Creek, drains the Lakewood Mall site flowing past the current City Hall, emptying into Lake Steilacoom.

Many of Lakewood's lakes are fed by groundwater flow. The water table underlying the city is very shallow and moves rather freely through the permeable glacially deposited sandy and gravelly soils. Where the depressions in local topography go deep enough, they intercept the water table and form lakes. Lake levels fluctuate seasonally with local water tables.

Waterbodies with water quality impairments include:

- American Lake - Phosphorus
- Spanaway Lake - Bacteria
- Clover Creek - Bacteria, Temperature
- Steilacoom Lake - Phosphorus
- Chambers Creek - Bacteria, Copper
- Leach Creek - Mercury

Stormwater runoff is one of the major causes of pollution. State and county watershed assessments have identified mitigation approaches. (Chambers-Clover Creek Watershed Council, ND)

#### Tillicum-Woodbrook Subarea

The Tillicum-Woodbrook Subarea lies along American Lake, considered part of Pierce County biodiversity corridors, and mapped as a priority habitat and containing cutthroat trout and waterfowl concentrations. Wetlands are mapped in the Woodbrook portion of the subarea. Urban Oak Canopy is mapped in the Tillicum and Woodbrook portions of the subarea.

#### Impacts

For the purposes of this EIS, a significant impact is defined as:

- Increase the exposure of people to risk of injury or substantial damage to structures and infrastructure due to a geologic or flood hazard;
- Direct impacts to critical areas from groundwater contamination, wetland fill, stream or wetland buffer loss, or net loss to critical fish and wildlife habitat; or
- Indirect impacts include changes to water quality and quantity of downstream water bodies.

#### Impacts Common to All Alternatives

##### *Exposure to Hazards*

New development will occur under all alternatives. New development would be exposed to flood hazards in some locations of the city such as the Clover Creek floodplain. Development in floodplains would need to meet flood hazard regulations and provide building designs that minimize risk. The City has planned mitigation in the form of levees to protect I-5, a critical route, as well as channel and floodplain enhancements to benefit water quality and flood reduction. (Brown and Caldwell, 2023)

There are limited locations of mapped geologic hazards, primarily in the Chambers Creek vicinity and limited development is anticipated there. Construction and development activities can increase the risk of erosion with the exposure of soils and removal of trees and shrubs. Future developments would need to comply with building, land use and critical areas regulations.



### *Direct Impacts to Critical Areas*

The study area is urban in character and there is a potential for direct impacts to critical areas from groundwater contamination, wetland fill, or stream or wetland buffer loss. In areas where development is older and has not undergone redevelopment, and thus does not have stormwater treatment, there is a greater potential to affect groundwater quality. Newer (existing development) and future redevelopment will comply with adopted stormwater manuals at the time development occurs; “Storm drainage provisions are covered in LMC Chapter 12A.11 – Stormwater Management. The City adopted the Ecology stormwater manual as the primary manual but also allows the use of the Pierce County 8-2 Stormwater Management and Site Development Manual and the WSDOT Highway Runoff Manual (current editions). LMC Chapter 12A.11 was revised in 2016 to incorporate Low Impact Development principles and standards.” (City of Lakewood, 2022)

These manuals outline stormwater requirements for construction and operation of development projects, including permanent stormwater control plans, construction stormwater pollution prevention plans, and groundwater (wellhead) protection plans. As a result, infiltration, stormwater, and surface water runoff would include appropriate treatment measures to decrease the potential for groundwater contamination.

If development were proposed in the vicinity of wetlands and streams such as Ponce De Leon Creek, Clover Creek, or other streams, wildlife habitat conservation area (stream) and wetland regulations would apply and require avoidance and/or minimization of impacts as appropriate.

With greater development in centers and in residential neighborhoods, there could be potential impacts to critical fish and wildlife habitat, such as oak woodlands. However, the City requires protection and mitigation (LMC 14.154.080 and 18A.70.330)

### *Indirect Impacts to Water Quality and Quantity*

As a result of redevelopment and installation of stormwater treatment, potential indirect impacts include changes to water quality and quantity of downstream water bodies in the Chambers-Clover Creek Watershed.

### *Tillicum-Woodbrook Subarea*

Impacts are similar to those identified for the citywide evaluation above.

## No Action Alternative

The No Action Alternative would allow for growth capacity that meets total 2044 job and housing targets but its modeled growth retains current assumptions to the year 2035. It would focus most growth in centers like Downtown and the Station District. Less infill housing may occur compared to the Proposed Action. The lesser growth may avoid potential impacts; however, the current critical area regulations would be retained.

### *Tillicum-Woodbrook Subarea*

Similar to the citywide analysis.

### Action Alternative

The Action Alternative would allow for more growth in single family zones where there tends to be more tree canopy. Infill and middle housing development have the potential to impact existing vegetation including trees. However, at the same time the critical areas regulations are being updated and would strengthen regulations such as aquifer protection, and stream and other habitat protection. These regulations should further avoid direct impacts to critical areas.

### *Tillicum-Woodbrook Subarea*

The Subarea Plan would be updated and more housing growth and civic and transportation access improvements would be encouraged. Similar to the citywide alternative, enhanced critical areas regulations would be implemented.

## **Mitigation Measures**

### Incorporated Plan Features

Lakewood is adopting an updated Natural Environment Element with goals and policies meant to promote protection, conservation, and enhancement of fish and wildlife habitat, streams, and wetlands, and protection of groundwater quality and quantity. Policies also address protection from floodplain and geological hazards.

Critical area regulation amendments address use of best available science (BAS), avoidance of impacts with exempt or allowed activities, and general mitigation requirements. Improvements to critical area specific regulations include:

- Seismic hazard standards,
- Mine hazard protections,
- Requirement for a hydrogeological assessment in aquifer areas, and updated mapping references, and updated protection standards,
- Additions of the following habitats as habitats of species of local importance:
  - Aspen stands
  - Biodiversity areas and corridors
  - Herbaceous balds
  - Riparian habitats.
  - Freshwater wetlands

- Riparian buffers considering urban nature of the city and guidance regarding site potential tree height.
- Special provisions for streams including standards for stream crossing, utilities, stormwater facilities and others.
- Adjustment of wetland buffers in relation to habitat score. Measures to minimize wetland impacts, and methods of compensatory mitigation.

The proposals include adding a new LMC Title 16 to incorporate the City's Shoreline Master Program and Shoreline Restoration Plan into the municipal code. In the future, the City anticipates that shoreline lake and stream buffer widths could increase on some water bodies and retained on others considering science, local conditions, and practical application of rules. The Department of Ecology would review and authorize changes as well as the City of Lakewood.

## Regulations and Commitments

State rules address critical areas classification and standards, including WAC 365-190.

The following would apply to all alternatives:

- City of Lakewood Title 14 Environmental Protection contains critical area regulations, which includes protection of:
  - Aquifer recharge areas;
  - Fish and wildlife habitat areas (including streams) and their buffers;
  - Flood hazard areas;
  - Wetlands and their buffers;

LMC Chapter 12A.11 – Stormwater Management. The City adopted the Ecology stormwater manual as the primary manual but also allows the use of the Pierce County 8-2 Stormwater Management and Site Development Manual and the WSDOT Highway Runoff Manual (current editions). LMC Chapter 12A.11 was revised in 2016 to incorporate Low Impact Development principles and standards.” (City of Lakewood, 2022)

## Other Potential Mitigation Measures

The following measures can be applied to all alternatives, including No Action:

- The City could require a conservation easement or other regulatory structure for piped streams to ensure that the possibility of creek daylighting is not precluded by future redevelopment. For example in the Downtown Subarea, the ecological benefits of daylighting a portion of Ponce de Leon Creek could be evaluated by the City. An evaluation could include leaving the stream piped but identifying its historic location, as well as considering water quality treatments that benefit the nearby open channel stream, and serve as landscape amenities.
- Landscaping could consist of native species or species with low water requirements.

- The City could develop pre-prepared housing plans for ADUs and other small, attached dwellings that minimize footprints and retain tree canopy to the extent feasible.
- The City could require educational signage for aboveground stormwater facilities and/or added natural features.
- The City can continue to evaluate and update its stormwater regulations as the State Department of Ecology addresses emerging issues. For example, chemicals released from automotive tires (6PPD pollution) creates road dust that can affect salmon and other species. (Washington Department of Ecology, 2023) A second example includes per- and polyfluoroalkyl substances (known as PFAS) which are “forever chemicals” in waterproof clothes, nonstick cookware, and many other products. (Washington Department of Ecology, 2023)
- The City could amend its critical areas regulations by adding a reference to WAC 365-190-120 geologically hazardous areas for definitions. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.
- The City could amend its critical areas regulations by adding a reference to the WGS Geologic Information Portal.
- The City could encourage invasive plant species education and removal such as collection and disposal of problematic species like English Ivy, Scots Broom, and Himalayan Blackberry.

## **Significant Unavoidable Adverse Impacts**

Unregulated wildlife and native vegetation could be lost as a result of population growth and development associated with all alternatives. Regarding critical areas, the City’s critical areas ordinance regulations would apply.

There would be no significant unavoidable adverse impacts with any of the alternatives. Redevelopment would require stormwater best management practices, which would result in an improvement to stormwater runoff and a benefit to the natural environment. The City’s critical areas ordinance regulations would apply, and no direct impacts to critical areas are assumed. The Action Alternative in particular would improve the application of critical area regulations on the basis of BAS with improved evaluations and standards for mitigation.

### **3.1.2 Climate Change Mitigation and Adaptation**

Under the Growth Management Act (GMA), local governments must prepare climate mitigation and resilience goals and policies, and develop reduction goals for greenhouse gas and vehicle miles traveled.

The section describes existing greenhouse gas (GHG) emissions, regional and City goals, and related regulations. It assesses the sources and potential changes in greenhouse gas (GHG) emissions based on the growth under the alternatives. Existing conditions were developed through regional and local GHG emission inventories; existing guidance documents, regulations, goals, and associated forecast data. In addition to addressing GHG emissions, this section addresses the potential for climate hazard exposure to the community including overburdened populations and potential for adaptation.

Exhibit 3-8 lists guiding document analyzed to help guide this analysis.

**Exhibit 3-8. Climate Change Documents Included in this Supplemental Environmental Impact Statement**

Topic Area	Provider	Guiding Document
Climate Change and Vulnerability	City of Lakewood	Comprehensive Plan Energy & Climate Change Chapter (ECCC) (2021)
GHG Emissions	Pierce County	Pierce County Communitywide Geographic Greenhouse Gas Emissions (August 2022)
		Pierce County Comprehensive Plan Periodic Review and Draft EIS (2024)
GHG Emissions	Google	Environmental Insights Explorer (EIE); Lakewood city limits
Vehicle Miles Traveled	The Transpo Group	Regional Travel Demand Model and proposed Land Use. See Section 3.4.
Urban Forestry Program	City of Lakewood	2022 City Tree Code and Urban Forestry Program
Climate Change and Vulnerability	Pierce County	Pierce County Climate Vulnerability Assessment (2023)

**Affected Environment**

This section describes GHG emissions and trends in the City of Lakewood. It also describes areas with climate vulnerability. These metrics provide a basis for comparing the alternatives and describing how the alternatives may affect the current trends.

**GHG Emissions**

Greenhouse gases include carbon dioxide, methane, nitrous oxide, and certain synthetic chemicals that trap some of the Earth's outgoing energy, thus retaining heat in the atmosphere. Larger emissions of greenhouse gases lead to higher concentrations in the atmosphere (US Environmental Protection Agency, 2024).

Climate change is an urgent environmental, economic, and equity threat being addressed at the local, regional, state, and federal level. Reducing GHG emissions involves reducing fossil fuel consumption, using other sources of renewable energy, and conserving energy associated with homes, businesses, industry, and transportation.

*Sources*

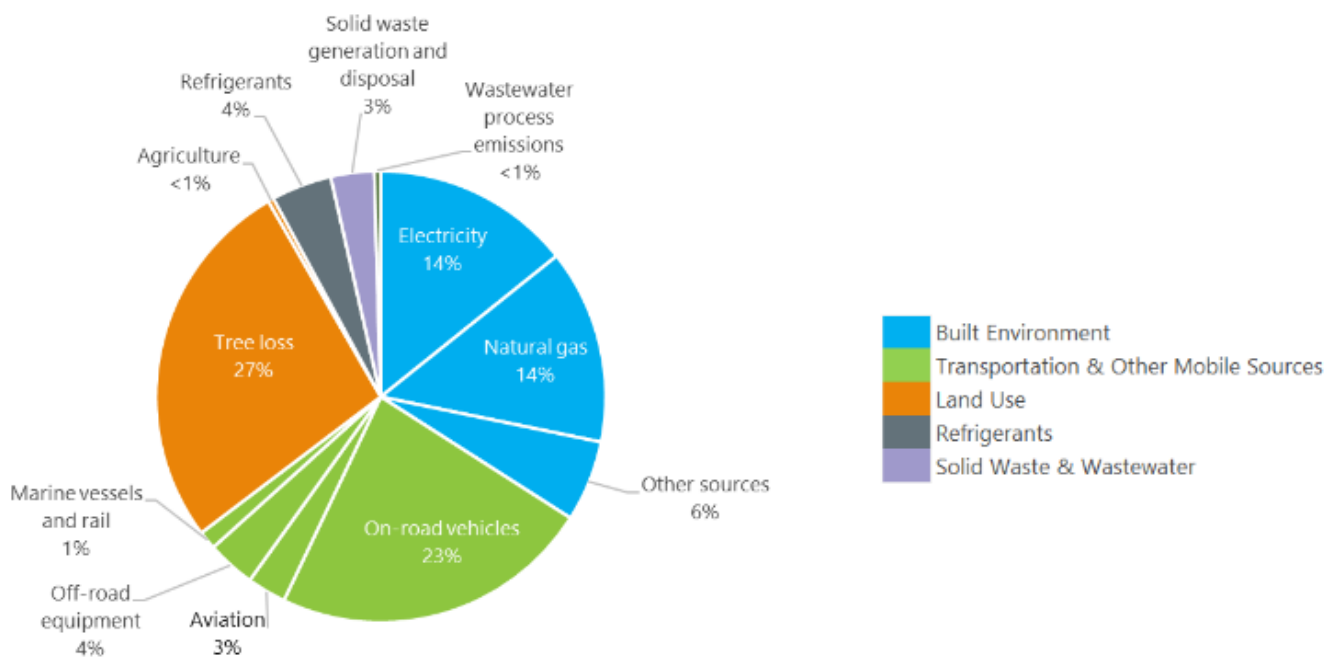
**Building and Transportation Emissions**

The primary sources of GHG emissions in cities are from building emissions and transportation emissions. Building emissions are estimated from heating, cooling, and powering residential and non-residential buildings. Transportation emissions are from fuel-powered vehicles and can be measured by

VMT (vehicle miles traveled). Other drivers of GHG emission increases include tree canopy loss, changes in the electricity fuel mix, and overall population growth.

In 2022, the County produced a GHG emission inventory that summarizes the status of emissions in 2019 across five sectors: the built environment, land use, refrigerants, solid waste and wastewater, and transportation and other mobile sources (Cascadia Consulting Group, 2022). In 2019, Pierce County’s residents, businesses, employees, and visitors produced 10.8 million metric tons of GHG emissions. Exhibit 3-9 displays the primary sources of GHG emissions in Pierce County in 2019. The largest GHG emissions sources in Pierce County are tree loss (~27%), on-road transportation (~23%), building electricity (~14%), and building natural gas (~14%).

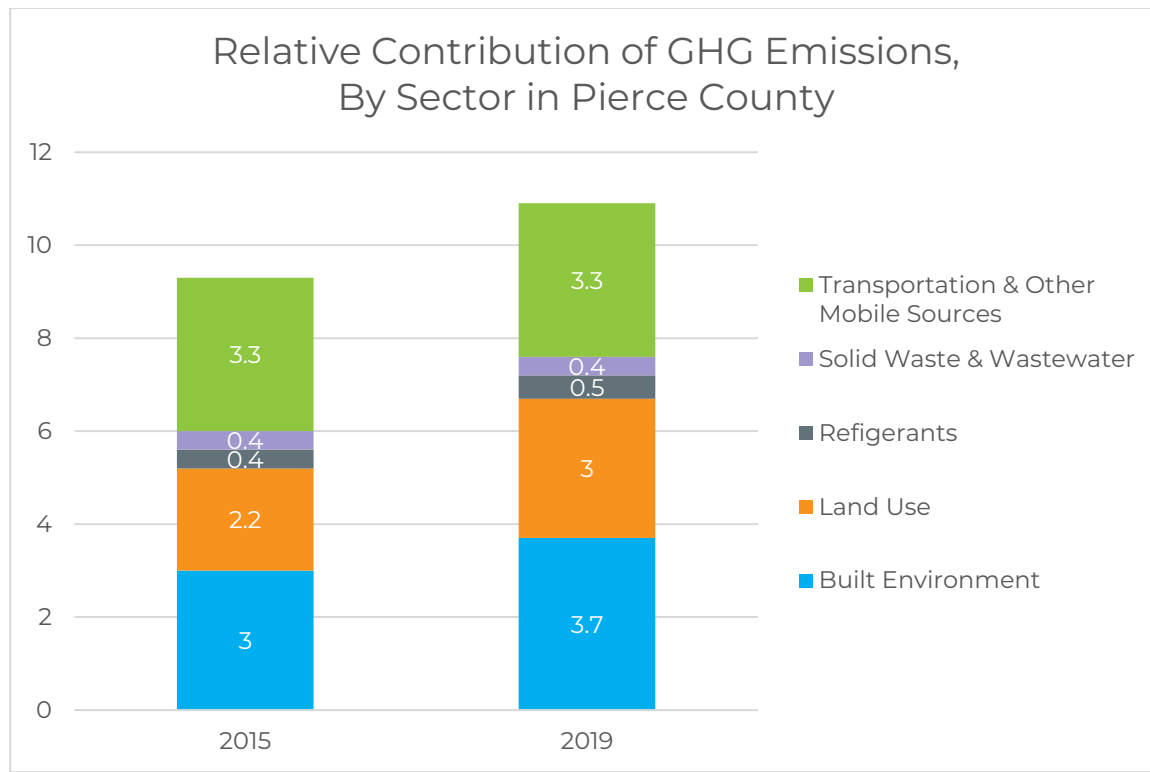
**Exhibit 3-9. Sources of GHG Emissions in Pierce County in 2019**



Source: Cascadia Consulting Group, 2022

Exhibit 3-10 depicts how GHG emissions in Pierce County have changed over time. From 2015 to 2019, there was an increase in overall GHG emissions (16%), along with a 7% population increase and a 9% increase in per capita emissions.

**Exhibit 3-10. GHG Comparison between Inventories for Pierce County**

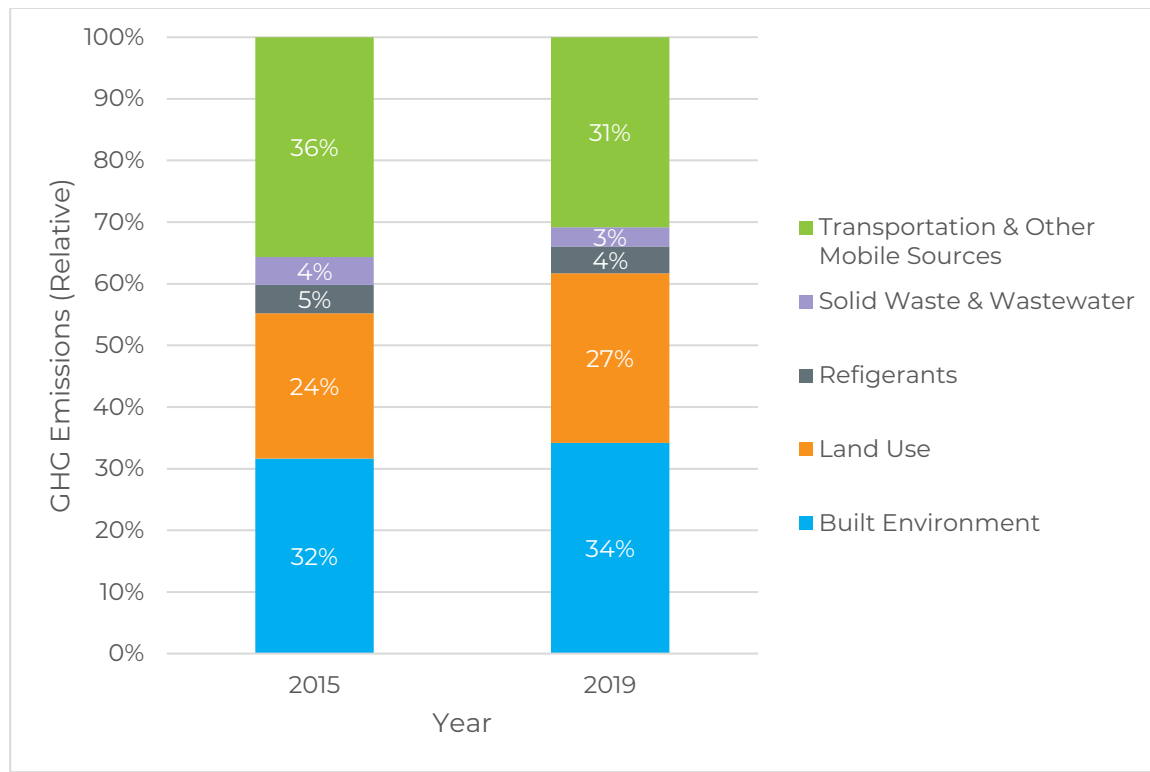


Source: Cascadia Consulting Group, 2022.

Exhibit 3-11 depicts the relative contribution of GHG emissions by sector over time in Pierce County. The relative contribution of GHG emissions from the built environment increased by 2% from 2015 to 2019; GHG emissions from land use increased by 3% in that same time period. However, the relative contribution of GHG emissions from transportation and other mobile sources decreased by 5% in that same time period.

The increased efficiency and decreased emissions per mile of passenger vehicles are the greatest contributor to decreasing transportation emissions. Other ways that emissions have decreased include efficient electricity use in the commercial and residential sectors in the built environment, and a reduction in per-capita solid waste generation.

**Exhibit 3-11. Relative Contribution of GHG Emissions by Sector**



Source: Cascadia Consulting Group, 2022.

In the City of Lakewood, GHG emissions are primarily generated by motor vehicles and buildings. Lakewood is bisected by Interstate-5, which is a significant source of GHG emissions caused by transportation emissions. Other sources of emissions are generated by buildings through the direct combustion of fossil fuels for heating or indirectly through electricity consumption needed to support residents and businesses. The heating and cooling technologies deployed, the carbon intensity of utility's fuel mix used to support Lakewood's electricity grid, the sources of electricity, the quantity of electricity used by residents and businesses, and the energy efficiency of buildings can all contribute to increased GHG emissions produced in the built environment.

Exhibit 3-12 compares how emission types have changed from 2019 to 2022 in the City. Overall, GHG emissions have decreased from 2019 to 2022. While transportation emissions represent the greatest contributor to GHG emissions in the City, its overall percentage decreased by 4% from 2019 to 2022, possibly due to increased fuel efficiency among motor vehicles and buses and potentially due to reduced commuting during the pandemic. Overall residential emissions decreased from 2019 to 2022; however, there was a marked increase due to the measurement of residential diesel emissions in the total residential emissions.



Exhibit 3-12. Comparison of Lakewood GHG Emissions in 2019 and 2022

Emission-Type	2019 Emissions (MgCO <sub>2</sub> e)	Percent of Total	2022 Emissions (MgCO <sub>2</sub> e)	Percent of Total	Difference
<b>Residential</b>					
Residential Electricity	72,121	11%	68,800	11%	(3,321)
Residential Natural Gas	59,071	9%	46,400	7%	(12,671)
Residential Diesel	N/A	N/A	44,800	7%	44,800
Sub-Total	131,192	21%	160,000	26%	28,802
<b>Commercial/Industrial</b>					
Non-Residential Electricity	110,746	17%	95,040	15%	(15,706)
Non-Residential Natural Gas	35,629	6%	18,480	3%	(17,149)
Non-Residential Diesel	N/A	N/A	18,480	3%	18,480
Sub-Total	146,375	23%	132,000	21%	-14,375
<b>Transportation</b>					
On-road vehicles – cross boundary inbound	156,997	25%	148,607	24%	(8,390)
On-road vehicles – cross boundary outbound	158,353	25%	150,197	24%	(8,156)
On-road vehicles – in boundary	34,216	5%	28,187	5%	(6,029)
Bus VMT – Cross boundary inbound	5,274	<1%	2,586	<1%	(2,687)
Bus VMT – Cross boundary outbound	5,955	<1%	2,929	<1%	(3,025)
Bus VMT – In boundary	1,048	<1%	606	<1%	(442)
Sub-Total	361,843	57%	333,114	53%	-28,729
<b>Total Emissions</b>	<b>639,410</b>		<b>625,112</b>		<b>-14,296</b>

Notes:

- Transportation emissions are overstated since it includes I-5 and Highway 512 emissions, but it is difficult to determine emissions using the Google EIE model.
- Residential & non-residential emissions are also overstated since Google uses a 50/50 mix of electricity to carbon fuels. In actuality, the mix is closer to 80/20. If the 80/20 split is used, MgCO<sub>2</sub>e emissions are calculated at 194,297 for both residential and non-residential.

Source: City of Lakewood Energy and Climate Change Chapter, 2021; Google Environmental Insights Explorer 2024; BERK 2024

Tree Canopy Changes

Deforestation and tree cover loss are a significant contributor to GHG emissions. In Pierce County, it accounted for 27% of the total communitywide GHG emissions in 2019 (Cascadia Consulting Group, 2022). See Exhibit 3-9. In 2019, the amount of tree-cover loss is estimated to have resulted in a 36% increase in GHG emissions compared to 2015. The City of Lakewood conducted a tree canopy assessment in 2022, and the tree cover citywide was 26.3%. The assessment found that between 2011 and 2019, the urban tree canopy change was a gain of 53.5 acres or 0.5%. The City developed tree preservation code amendments in 2022 to reduce tree removal in residential areas and established an Urban Forest Program in 2023.

#### *Policies*

Policies at the local, regional, state, and federal level contribute to aiming to reduce GHG emissions in the City and surrounding area. The state's Clean Energy Transformation Act (CETA) produces the greatest reduction in emissions, along with the state's Internal Combustion Engine Ban.

#### Federal

**Federal Vehicle Regulations (CAFE):** The Corporate Average Fuel economy (CAFE) standards, regulated by the DOT and supported by the EPA, require an average of approximately 49 mpg for passenger cars and light trucks by 2026. This results in a fuel efficiency increase of 8-10% annually.

#### State

**WA Clean Buildings Act (HB 1257):** This state bill requires all new commercial buildings over 50,000 square feet to reduce their energy use intensity by 15%, compared to the 2009-2018 average. The compliance date is staggered based on building size, with buildings greater than 220,000 square feet required to comply by June 1, 2026, and buildings greater than 50,000 square feet required to comply by June 1, 2028.

**WA Clean Fuel Standard (HB 1091):** This state bill sets a Clean Fuel Standard that requires a 20% reduction in the carbon intensity of transportation fuels by 2038, compared to a 2017 baseline. This reduction can be achieved through cleaner fuels or through the purchasing of clean fuel credits from cleaner producers.

**WA Internal Combustion Engine Ban (SB 5974)** This state bill establishes a target that all passenger and light duty vehicles of model year 2030 and later must be electric vehicles. Washington would ban the sale of gasoline/diesel passenger vehicles by 2030.

**WA Clean Energy Transformation Act (CETA):** CETA applies to electric utilities serving Washington customers. By 2025, utilities must eliminate coal-fired electricity from their portfolios. By 2030, these utilities must be greenhouse gas neutral, with flexibility to use some natural gas for electricity if offset by other actions. By 2045, utilities must supply Washington customers with 100% renewable or non-emitting electricity.

**WA Climate Commitment Act (E2SSB 5126):** The Climate Commitment Act places an economy-wide cap on carbon to meet the state GHG reduction targets. This applies to polluting facilities in the built environment. 35-40% of investments must be made in overburdened communities to reduce health disparities and create environmental benefits.

**WA Growth Management Act Climate Element (HB 1181):** HB 1181 requires local governments to incorporate climate change into comprehensive plans. It makes changes to the mandatory land use and transportation elements and adds a new climate change element.

#### Regional

**PSRC Vision 2050:** The Puget Sound Regional Council (PSRC) Vision 2050 includes 12 goals related to climate change, including reducing greenhouse gas emissions to 80% below 1990 levels. PSRC also incorporates a four-part Greenhouse Gas strategy that aims to reduce GHG emissions to 80% below 1990 levels. Methods to accomplish this reduction include compact growth patterns within land use, low-carbon travel choices, and forest and open space protection.

**PSRC Regional Transportation Plan VMT Reductions:** PSRC Regional Transportation Plan (RTP) is a long-term transportation plan for the region and outlines investments being made in multi-modal transportation options, including transit, rail, ferry, roads, freight, and bicycle and pedestrian facilities.

#### Local

**Energy and Climate Change Chapter:** In 2021, the City of Lakewood adopted a new Comprehensive Plan Energy and Climate Change Chapter (ECCC), based on low- or no-cost International Council for Local Environmental Initiatives (ICLEI) and Google Environmental Impact Explorer (EIE) data collection tools. By adopting this chapter, the City intends to proactively develop policies, incentives, and voluntary actions, and potentially regulations prior to the development of state mandates.

**City Tree Code and Urban Forestry:** In 2022, the City adopted a new tree regulation that went into effect on March 1, 2023. The regulations promote tree preservation and protect some of the City's most significant trees, including the White Oak. Tree removal permits and new tree protection and mitigation standards were proposed. On May 22, 2023, the City Council accepted a report from the UW Evans School of Public Policy & Governance regarding establishing an urban forestry program over a 5-year period. On May 31, the Council obligated \$340,000 of ARPA funds to help fund the report's recommendations for a certified arborist, tree assessment, and public outreach efforts through 2026. (City of Lakewood, 2022)

**Ordinance No. 776:** In 2022, the City adopted Ordinance No.776 to establish a three-year climate change work plan. It included fourteen items to make progress towards responding to the impacts of climate change and relevant future goals and policies. These goals include a five-year plan in partnership with PSE, Tacoma Power, Lakeview Light & Power, and the Pierce County Sustainability Collaborative to support GHG emission reduction; this five-year action plan is anticipated to be adopted in 2024. Another relevant goal is the update to the City's non-motorized transportation plan, which was completed in June 2023.

#### Vulnerability and Climate Change Adaptation

Climate change is expected to have wide-ranging impacts to the region's environment, infrastructure, and communities. In the near future, these impacts and changes are expected to become more significant to a jurisdiction's resources, critical assets, and its residents and community. Some of the impacts of climate change to the city include more frequent peak storm events, rising Puget Sound water levels, changes in intermittent lakes, increased landslides due to heavy rainfall along areas with steep slopes, increased flood risk in the Clover Creek watershed, additional pollutant loading from peak

storm events, and increased potential for wildfires in Steilacoom Park and other areas with significant open space and vacant land near the city.

The extent to which resources (e.g., assets, sectors, communities) are susceptible to and at risk from the impacts of climate change is described as vulnerability (Pierce County, 2023). Elements of vulnerability include exposure, sensitivity, and adaptive capacity. When combined, exposure and sensitivity summarize the potential impact posed by climate change to a resource, while adaptive capacity can either moderate or exacerbate potential impacts. A resource or community is more likely to be vulnerable to climate change if it is exposed to changes (e.g., sea level rise, extreme heat), if it is sensitive to those changes (e.g., plants that cannot survive prolonged periods of heat, individuals with existing respiratory or cardiovascular diseases), and if it has low adaptive capacity (e.g., unable to cope with or recover from changes such as flooding and heat). By identifying how and why a particular resource is vulnerable to climate change, decision makers can more effectively identify and implement strategies to reduce vulnerability—an effort known as adaptation. Adaptation strategies reflect efforts to prepare for, respond to, and recover from the impacts of climate change by reducing potential impacts and increasing adaptive capacity.

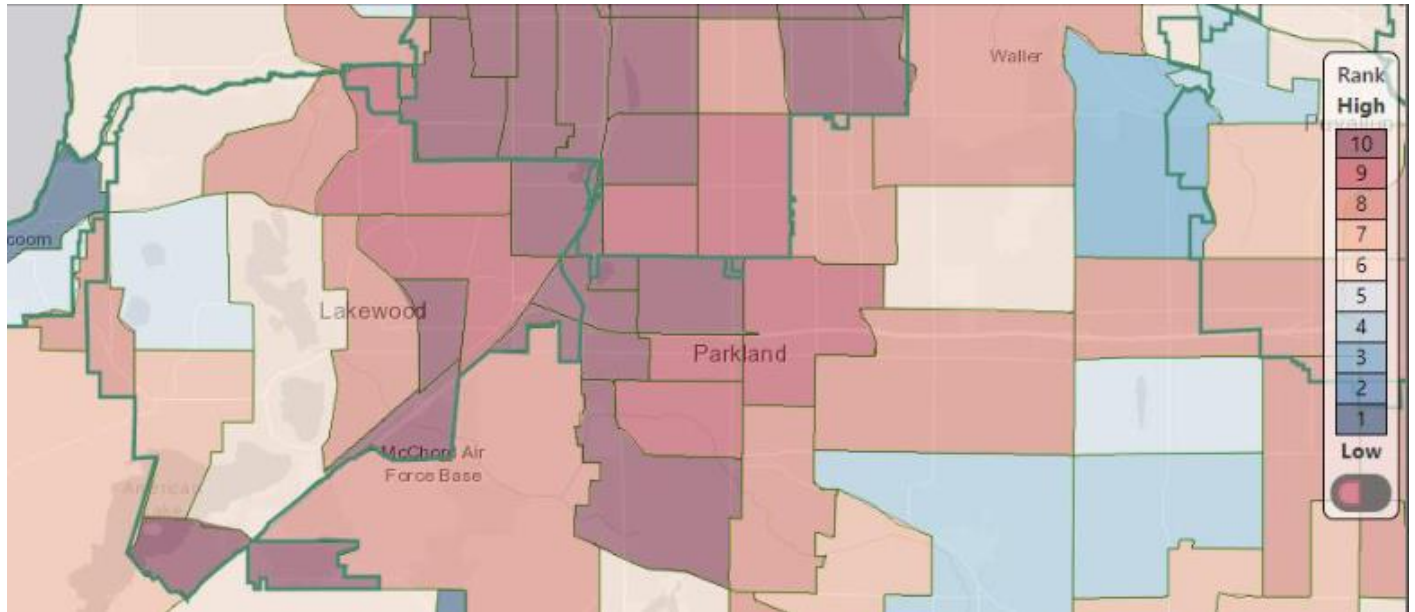
In the City of Lakewood, there are specific elements of vulnerability including vulnerable populations within the community, urban heat islands and its tree canopy, and the city's floodplain.

#### *Vulnerable Populations and Environmental Justice*

An individual's race and ethnicity may impact the level of climate change impact they are likely to experience at home and in employment. Racially discriminatory practices have created disproportionate environmental health and climate change exposure for people of color and tribal members. Historical practices and events such as redlining (Nelson et al. 2023) and dispossession of land or non-fulfillment of treaty rights (Norton-Smith 2016; Whyte 2013) have contributed to the built environments of today including where people live and what resources they have available to them (UW CIG et al. 2018). Currently, more people of color reside in South Pierce County near Lakewood, Parkland, and JBLM than in other regions of the county (Pierce County, 2023).

Exhibit 3-13 shows the environmental health disparities map for the city. The level of disparities is fairly high (rank of 7-10) for large sections of the city. These high levels of disparities and exposures include northeast Lakewood (the Air Corridor zones), central Lakewood, Springbrook, Tillicum, and Woodbrook. In addition, the city has two sites on the Superfund National Priority List, one in Woodbrook and the other in Springbrook near Pacific Highway SW

**Exhibit 3-13. City of Lakewood Environmental Health Disparities**



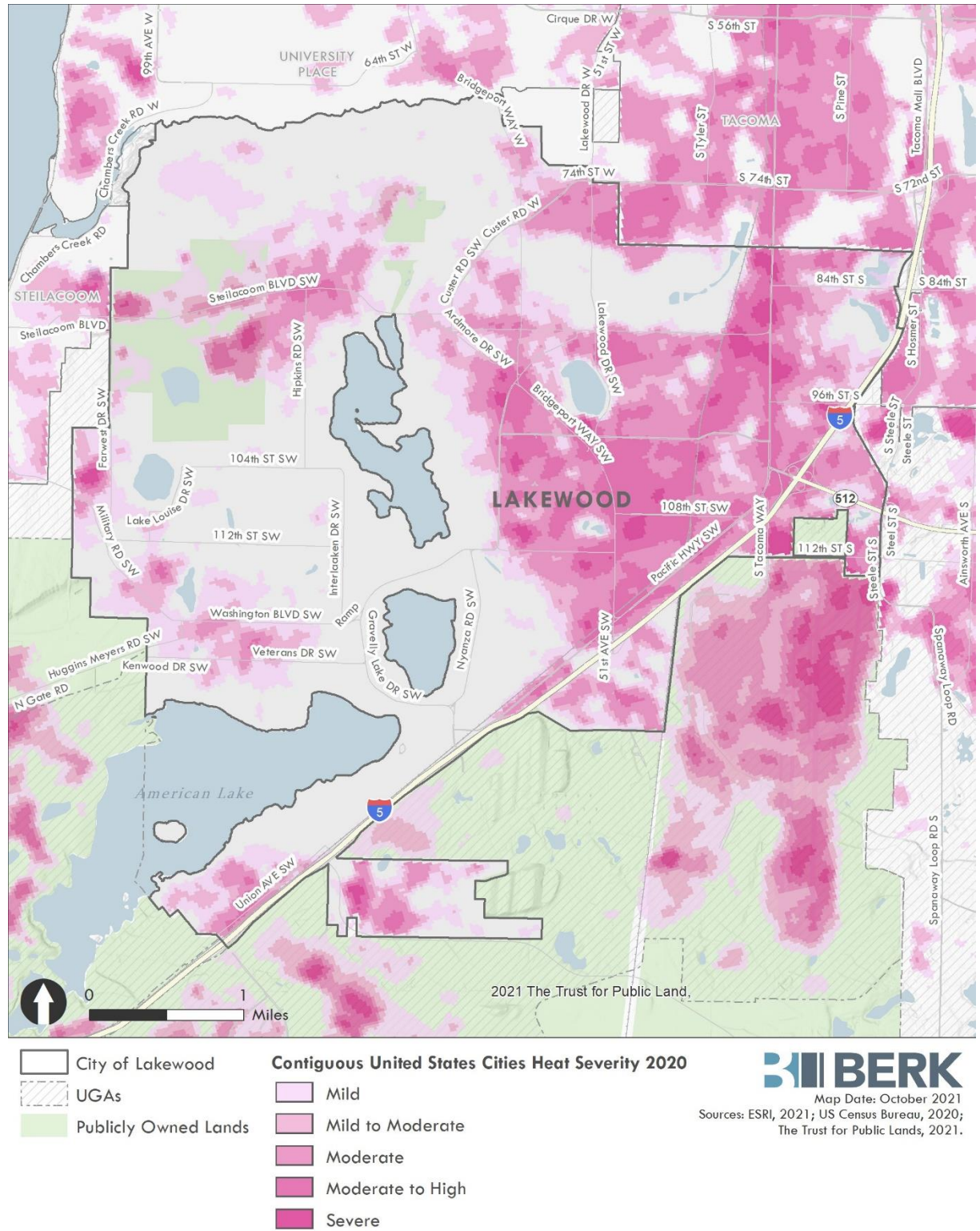
Source: City of Lakewood Energy and Climate Change Chapter, 2021; Washington State DOH

*Urban Heat Islands & Tree Canopy*

Heat islands are defined as urbanized areas that experience higher temperatures than surrounding rural areas (U.S. Environmental Protection Agency (EPA), 2024). Structures in urban environments, such as buildings, roads, and infrastructure, absorb and re-emit heat from the sun at a greater level than the natural environment. With decreased greenery and high concentration of structures, it produces urban heat islands, particularly in summer months. The impacts of urban heat islands include increased energy and electricity consumption to cool buildings, and increased GHG emissions due to increased electricity demand. Urban heat islands and excessive heat events pose increased risk to vulnerable populations that include older adults, young children, low-income populations, people in poor health, and people who spend their working hours outdoors. Urban heat islands can also negatively affect water quality due to warmed stormwater runoff increasing the water temperature in streams, rivers, ponds, and lakes. This water temperature warming can stress aquatic life. Urban heat islands can be mitigated by expanding the tree canopy within a city.

Exhibit 3-14 depicts the level of heat severity in the city, highlighting areas with urban heat islands. Urban heat islands with high to severe heat severity are located in the eastern part of the city, near the City Center and the developed commercial, industrial, and multifamily areas.

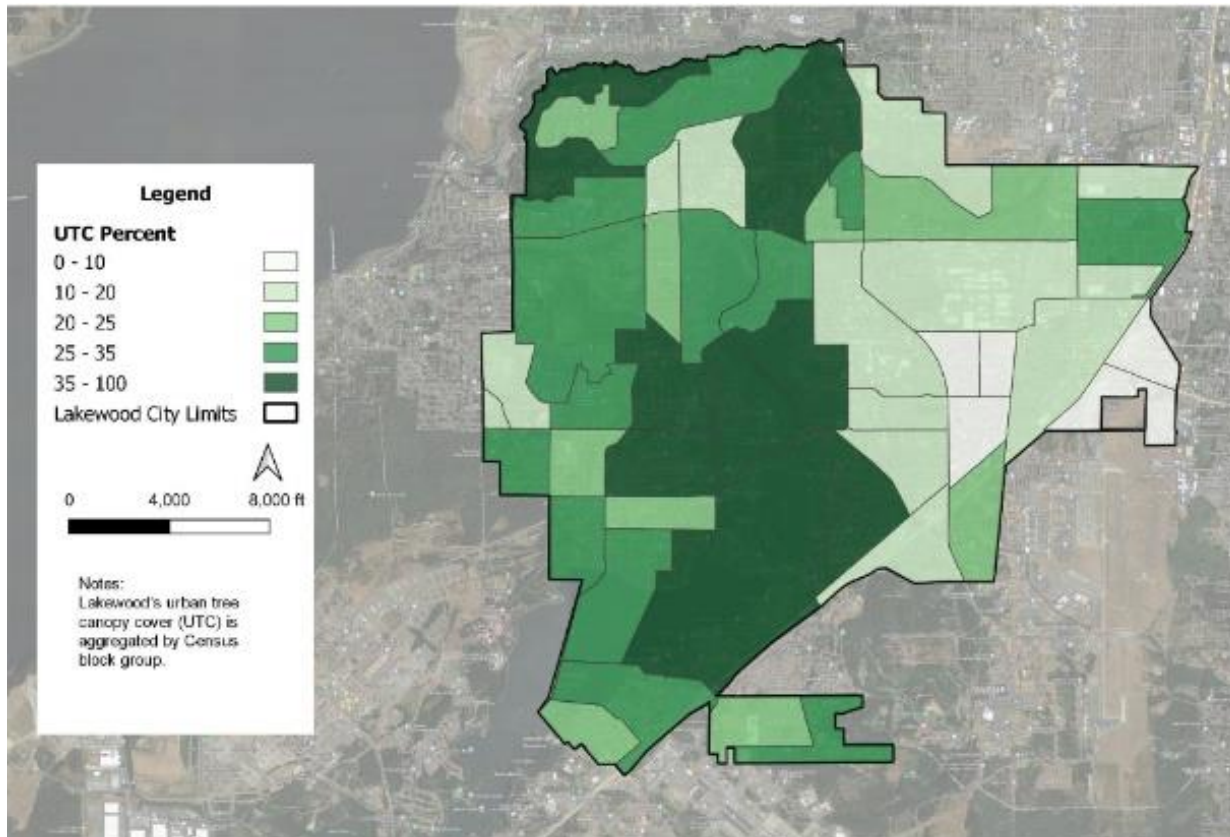
Exhibit 3-14. Lakewood Heat Severity (2020)



Sources: ESRI, 2021; US Census Bureau, 2020; Trust for Public Lands, 2021

Exhibit 3-15 shows the current tree canopy coverage in the city. The tree canopy is 29%, with 13 square kilometers of tree canopy coverage. Tree canopy is highest in neighborhoods in the northwestern and central areas of the city. Areas with low amounts of tree canopy coverage include the northeastern and mid-western parts of the city.

**Exhibit 3-15. Tree Canopy Coverage in the City of Lakewood**

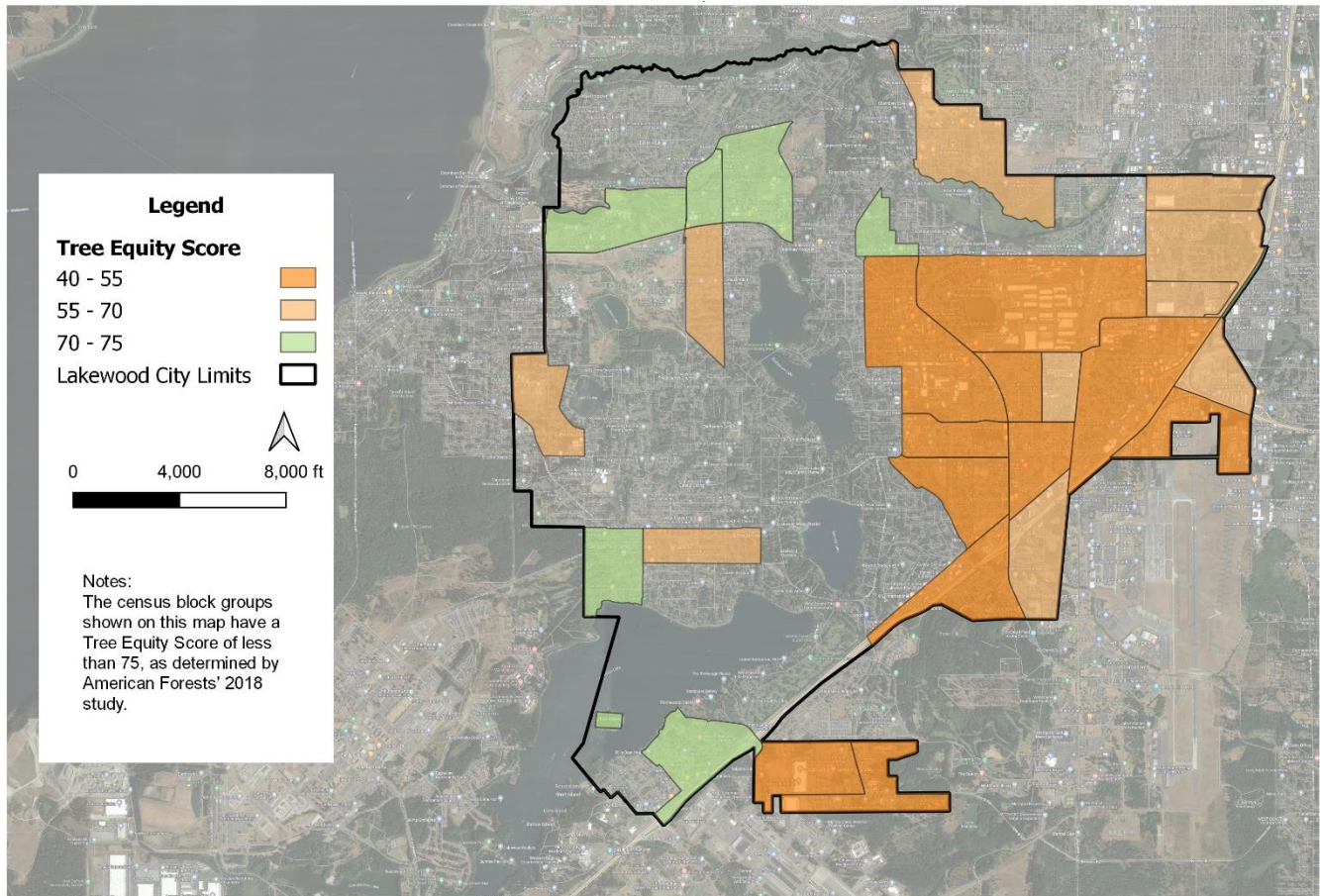


Source: Plan-it GEO, prepared for City of Lakewood 2022

A lack of adequate tree canopy coverage contributes to an increased urban heat island effect, particularly for vulnerable populations. An increase in tree canopy coverage can contribute to carbon sequestration and improve air quality, improve community health and well-being, cool the air, and manage stormwater (MSRC, 2023).

Exhibit 3-16 identifies areas with less tree canopy and a greater share of overburdened communities (lower incomes, unemployment, persons of color) indicates areas with less equity in tree canopy. These areas are largely in the greater developed commercial, industrial, and multifamily areas.

**Exhibit 3-16. Tree Equity Score Less than 75, American Forest 2018**



Lakewood, WA Tree Preservation Code Update 2022

Source: American Forest, Tree Equity.org, Plan-it Geo, 2022

*Floodplain (lakes, wetlands, streams)*

Lakewood has several lakes, wetlands, creeks, and streams. Approximately 9% of Lakewood's 12,127 acres, or 1,098 acres, are covered by lakes. In addition, the city has a significant number of creeks and wetlands. Potential related climate change impacts include rising flood waters, which could impact I-5 between Highway 512 and Bridgeport Way. In addition, additional pollutant loading may worsen existing water quality issues in the city's numerous lakes and streams. Furthermore, the city may be impacted by more frequent peak storm events, which potentially increases the likelihood of flooding and the impact of flooding events. (Environmental Science Associates and BERK Consulting, 2023)

Climate change impacts that require relocation or rebuilding (floods, fires) will be more impactful for those with limited resources (Green et al. 2007; Zoraster 2010). Parkland and Midland, Lakewood, Spanaway, and JBLM are home to the highest concentrations of low-income households in Pierce County and areas of high disparity. (Pierce County, 2023).



The Clover Creek watershed is the main watershed in the city limits. In 2019, FEMA updated the Clover Creek 100-year floodplain map, revealing a significant increase in the area impacted by floodwater compared to the previous floodplain map. Rising flood waters from a Clover Creek 100-year flood showed expanded impact to the floodwaters to the city, affecting the Springbrook neighborhood, I-5, and areas within the Hillside and Downtown neighborhoods. See Exhibit 3-6 and Exhibit 3-7.

## Impacts

The metrics assessed to understand climate change impacts include the following:

- Actions would prevent or deter statewide, regional, or local efforts to reduce GHG emissions.
- Increase in per capita vehicle miles traveled (VMT).
- Growth concentrated in areas with high exposure to air pollution, noise pollution, or environmental hazards. Increases exposure of vulnerable populations to climate stressors or reduces adaptive capacity to respond.

## Impacts Common to All Alternatives

GHG emissions associated with each alternative would likely decline at a per capita level even with planned growth due to the federal, state, and regional regulations. This includes but is not limited to:

- Fuel economy standards.
- Energy codes and standards.
- GHG and VMT reduction goals and new climate elements.
- Land use patterns promoting transit oriented development and infill development.
- Tree canopy protection and enhancement.

Growth consistent with regional growth strategies such as growth targets, land use patterns, multimodal transportation investments, retention of environmental and natural resource lands and other strategies are anticipated to help achieve reductions in regional air pollutant emissions. (Puget Sound Regional Council, 2020)

With transportation and on-road vehicles representing a significant contributor to GHG emissions, a measure of VMT helps measure the alternatives' impact on GHG emission reduction. Exhibit 3-17 shows how VMT compares by alternative. Based on future estimated VMT, the No Action alternative has a higher amount of VMT in the city overall. However, the Action Alternative has a higher amount of VMT in the CBD and Station area, due to the concentration of growth in these areas. However, the remaining area in the city is much lower under the Proposed Alternative compared to the No Action Alternative.

**Exhibit 3-17. VMT Comparison by Alternatives**

Alternative	Estimated Vehicle Miles Traveled (VMT)			
	Lakewood Overall	CBD (District 1)	Station Area (District 2)	Remaining Lakewood Area (District 3)
<b>No Action Alternative</b>	75,412	11,630	8,539	55,243
<b>Proposed Alternative</b>	74,496	12,339	9,489	52,668
<b>Difference</b>	(916)	709	950	(2,575)
<b>Percentage Difference</b>	-1.2%	6.1%	11.1%	-4.7%

Source: The Transpo Group, 2024

Both alternatives concentrate growth in the Downtown and the Station District Subareas. Both alternatives include a tree canopy goal of 40% and implementation of an Urban Forestry Program and recent tree code amendments.

The Downtown and Station District Subareas and higher density employment and multifamily areas have high or moderately high exposure to adverse air quality or noise. These areas also show a lower tree equity score and more exposure to urban heat islands. Both alternatives would apply the City's tree code and urban forest program and development in these locations, such as housing and mixed uses. Development represent opportunities to integrate green infrastructure and to place transit oriented development with amenities at all income levels. These activities would help the community adapt to climate change and realize greater climate resilience.

*Tillicum-Woodbrook Subarea*

The Subarea is part of the cumulative consideration of GHG reduction and VMT reduction above. It is a subarea where the population is exposed to air and noise pollution. It in part has a lower tree equity score. The alternatives address the subarea differently and climate adaptation is addressed under each below.

No Action Alternative

The No Action Alternative would retain the existing policies that the City has in place (e.g., land use, transportation, environment planning). Without a change in policies on development, growth, and other environmental considerations, the GHG emissions associated with the alternative would likely decline due to the federal, state, and regional regulations in place. However, the alternative is less consistent with county housing targets by income band and its modeled growth for transportation reflects a 2035 horizon rather than the full planning period. Thus, it does not fully support the regional GHG evaluation in VISION 2050 that showed a reduction with a coordinated regionwide growth strategy.

The No Action Alternative includes the City's recently created Climate element (2023), but additional regulations are needed for the City to achieve the element goals and policies and support regional GHG emission goals.

The No Action Alternative that models the City's 2035 growth targets for housing and jobs, even though lower than 2044 targets, results in higher VMT than the Action Alternative. The No Action Alternative does not implement middle housing in more locations in the city, which is shown to reduce VMT in areas outside of the mixed use areas.

The No Action Alternative includes policies and regulations meant to protect and enhance the city's tree canopy, but it does not implement improved critical area regulations.

#### *Tillicum-Woodbrook Subarea*

The No Action Alternative would allow for development consistent with existing plans in proximity to I-5 and American Lake. It would not update the Tillicum-Woodbrook Subarea Plan. It would not create new housing opportunities or civic and infrastructure investments. It would not contribute effectively to the City's climate goals and policies.

#### Action Alternative

The Action Alternative is expected to encourage growth near the city center, with middle housing densification throughout residential areas, resulting in a potential for a greater reduction of VMT than the No Action Alternative despite modeling greater growth that is consistent with the 2044 growth targets. Changes in multimodal transportation are expected due to densification, leading to a decrease in car usage and a decrease in expected transportation-generated GHGs, one of the main contributors to overall GHGs.

The Action Alternative is expected to result in higher density and more compact urban form, which results in less energy use for heating and cooling buildings, and therefore a reduction in GHG emissions created by the built environment. The Proposed Action includes updated middle housing regulations and critical areas regulations that provide additional habitat and stream protective measures (Washington Department of Commerce, 2023)

Highly effective measures for GHG reduction include:

- Increase tree canopy cover to boost carbon sequestration, reduce heat islands, and improve air quality, prioritizing overburdened communities.
- Increase housing diversity and supply within urban growth areas to reduce greenhouse gas emissions and support environmental justice. Allow middle housing types, such as duplexes, triplexes, and ADUs, on all residential lots.
- Foster higher-intensity land uses in mixed-use urban villages and transit corridors.

The infill development would extend into single-family residential areas and would generally be located away from air quality and noise exposure areas. City regulations for middle housing would limit the form and location of buildings in areas with critical areas. While the middle housing units would densify areas with more tree canopy relative to other areas in the city, the companion tree code that limits tree

removal and requires mitigation along with a more robust urban forestry program and enhanced critical area regulations should avoid impacts.

#### *Tillicum-Woodbrook Subarea*

The Subarea Plan would be updated and expanded for this subarea. Policies and strategies are intended to improve the housing and access multimodal transportation strategies. Improved critical area regulations would also apply in the Tillicum-Woodbrook Subarea. These policies and strategies support a higher quality of life despite exposure to air and noise pollution.

## **Mitigation Measures**

### Incorporated Plan Features

The Action Alternative includes updated critical area regulations that would set wider stream buffers and recognize other habitats for protection. The Action Alternative would also update middle housing regulations that would allow for moderate densities in single-family areas. This can improve VMT results and contribute to the reduction of GHG emissions. Action Alternative goals and policies would recognize regional GHG emission reduction goals. Policies would also incorporate climate resilience and address the disproportionate impact of climate change on vulnerable populations in the community. Policies would also promote climate resilient solutions in public infrastructure.

### Regulations and Commitments

- Lakewood Energy and Climate Change Chapter in the Comprehensive Plan.
- The Puget Sound Clean Air Agency Board's regional targets for reducing GHG emissions are 50% below 1990 levels by 2030 and 80% below 1990 levels by 2050.
- The City adopted an urban forestry program to preserve significant trees, promote healthy and safe trees, and expand tree coverage throughout the city. It is working towards a citywide goal of 40% tree canopy coverage by the year 2050.
- Lakewood's critical area and shoreline master program regulations promote conserving and protecting wetlands and riparian areas within the city and surrounding region.

### Other Potential Mitigation Measures

#### *Methods to Offset GHG Emissions*

#### City Solar Potential

The city has the rooftop solar potential to reduce GHG emissions by 223,000 MgCO<sub>2</sub>e on an annual basis. Assuming solar panels receive 75% of the maximum annual sun in the city, this represents an approximate 35% reduction in total annual GHG emissions produced within the city using 2022 GHG emission totals. See Exhibit 3-18. In the city, the existing solar arrays are 57, which represent less than 1%

of the total solar potential. Specific locations for potential solar panel placement are shown in Exhibit 3-19.

**Exhibit 3-18. City's Total Solar Potential**

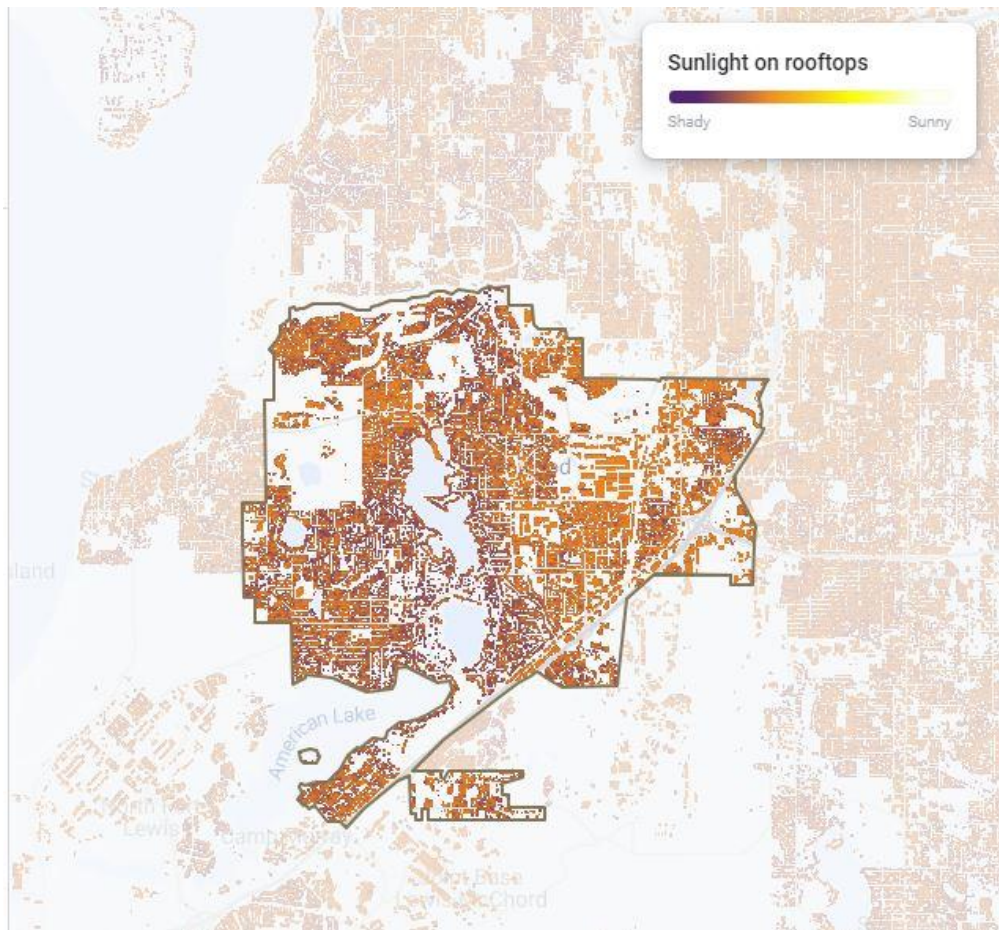
Carbon Offset Metric Tons	(Property) Count Qualified	KW Median	KW Total	Percent Covered	Percent Qualified
223,314	14,589	11.75	331,290	97.5%	80.3%

Notes: Google’s definition of “technical potential” requires solar installation to meet the following criteria:

- Sunlight: every included panel receives at least 75% of the maximum annual sun in the area
- Installation size: Every included roof has a total potential installation size of at least 2kW.
- Space and Obstacles: Includes only areas with roofs that have space to install four adjacent solar panels.

Source: City of Lakewood Energy and Climate Change Chapter, 2021; Google EIE, 2024.

**Exhibit 3-19. Concentration of Sunlight on Rooftops in Lakewood**



Source: Google EIE, 2024

#### Carbon Sequestration

To remove carbon emissions, the city analyzed how to improve carbon sequestration, which is the process of utilizing forested areas and tree canopy in designated open space areas, lawns/fields, and wetlands to remove carbon emissions from the atmosphere and store them back into the earth. Wetlands, such as the Fleet Creek Complex, can store a significant amount of carbon.

The city's forested areas and freshwater inland wetlands are protected or preserved through the City's open space policies, its shoreline master program, and its development regulations, including the tree preservation ordinance. However, the City does not yet consider the benefit of carbon sequestration within these resources and does not have an estimate of the amount of carbon removed from the atmosphere through these resources.

A variety of GHG mitigation measures could be implemented to reduce the exposure to residents and work towards goals. The following measures could be applied to reduce GHG emissions:

#### *GHG Emissions Reduction*

- Reduce exposure to traffic through the implementation of mitigation strategies, such as reducing VMT, land use buffers, improved urban design, building design strategies, and decking / lids over highways and high-capacity roadways
- Develop and implement strategies to reduce vehicle trips, improve vehicle fuel efficiency, and facilitate rapid adoption of zero-emissions alternative fuel vehicles.
- Apply transit oriented development to include more walkable communities.
- Promote the integration of neighborhood commercial uses in residential areas.
- Coordinate with and support local and regional transit efforts with Pierce County, Sound Transit and WSDOT (Washington Department of Transportation) towards expanding public transit service to improve mobility and reduce reliance on the private automobile.
- Promote walking and bicycling as safe and convenient modes of transportation, improving bicycling, pedestrian, and transit access through support for safe routes and infrastructure investment.
- Work with energy providers (Puget Sound Energy, Lakeview Light & Power, and Tacoma Power) to develop strategies that reduce energy demand and promote energy conservation.
- Increase the amount of locally forested areas and tree canopy in the City's designated open space areas, lawns/fields, and wetlands to increase the removal of carbon emissions from the atmosphere, otherwise known as carbon sequestration.
- Provide incentives to add solar panel capacity on commercial and industrial buildings.
- Promote mixed-use and infill development in the Downtown and other major activity centers, along key commercial corridors and on vacant and underutilized parcels.
- Prioritize the use of green and sustainable development standards and practices in planning, design, construction, and renovation of buildings and infrastructure.
- Ensure that buildings use renewable energy, conservation, and efficiency technologies and practices to reduce greenhouse gas emissions.

- Use urban design to enhance open space and urban tree canopy, and incorporate strategic building placement.
- The City could develop pre-prepared housing plans for ADUs and other small, attached dwellings that minimize footprints and retain tree canopy to the extent feasible.

#### *Adaptation Measures*

- Develop a Hazards Management Plan that works toward developing a climate-resilient community.
- Increase green infrastructure to cool stormwater runoff and work to mitigate urban heat island effects. Examples include rain gardens, planter boxes, bioswales, permeable pavements, green streets and alleys, green parking, and green roofs. (U.S. Environmental Protection Agency (EPA), 2024)
- Develop and implement an urban heat resilience strategy that includes land use, urban design, urban greening and tree canopy expansion, and waste heat reduction actions.
- Consider project-specific mitigation measures to limit exposures to emissions sources, such as high-capacity roadways. Land use buffers or building design (e.g., air filtration, thicker sound transmission classes, other) could be included near high-impact areas such as industrial and other nonresidential zones.

### **Significant Unavoidable Adverse Impacts**

No significant unavoidable adverse impacts to air quality and greenhouse gas emissions are anticipated. Both the No Action Alternative and the Action Alternative would **result in a mitigated less-than-significant GHG impact**. Through mitigation implementation, local and state climate actions, and expected continued regulatory changes, the alternatives may result in lower GHG emissions on a per capita basis compared to existing conditions. The alternatives would not prevent or deter statewide, regional, or local efforts to reduce GHG emissions. While each alternative would generate GHG emissions from growth and development within the city, the benefit of channeling development to targeted areas that might otherwise occur in peripheral areas of the city or region could serve to offset these impacts.

## 3.2 Land Use Patterns and Policies

### 3.2.1 Affected Environment

#### Current Land Use Patterns

Lakewood is a largely single-family residential community. There are sizeable acres used by institutions (schools, fire stations, medical, nursing homes), commercial, industrial/manufacturing, multifamily, recreational, and other uses. See land uses by parcel acres in Exhibit 3-20.

**Exhibit 3-20. Current Land Uses on Parcels (2019)**

Parcel Uses	Acres	Percent
Single Family Residential	3,988.6	44.0%
Public/Private Institutional & Services	1,002.9	11.1%
Commercial	687.1	7.6%
Industrial/Manufacturing	577.1	6.4%
Multifamily	574.9	6.3%
Recreational	542.8	6.0%
Vacant	540.1	6.0%
Open Space/Environmental	358.7	4.0%
Unknown	234.4	2.6%
Utilities/Transportation	226.4	2.5%
Middle Housing (Duplex, Triplex, Townhouse)	142.0	1.6%
Manufactured Home Park	133.0	1.5%
Manufactured Housing	32.0	0.4%
Military	23.3	0.3%
<b>Sum</b>	<b>9,063.4</b>	<b>100%</b>

Source: (Pierce County, 2022)

Future Land Use designations and Zoning districts generally match the existing uses as shown in the maps in Chapter 2, Exhibit 2-3 and Exhibit 2-4.

Acres by zone are shared in Exhibit 3-21. Single family residential is encompassed in Residential 1 through 4 zones and equals over 3,755 acres.

**Exhibit 3-21. Zoning Districts – Parcel Acres (2019)**

Zones	Gross Acres	Critical Area Acres	Net Acres
Air Corridor 1	262	27	235
Air Corridor 2	196	2	194
Arterial Residential/Commercial	17	0	17
Central Business District	266	1	264
Clear Zone	43	1	42

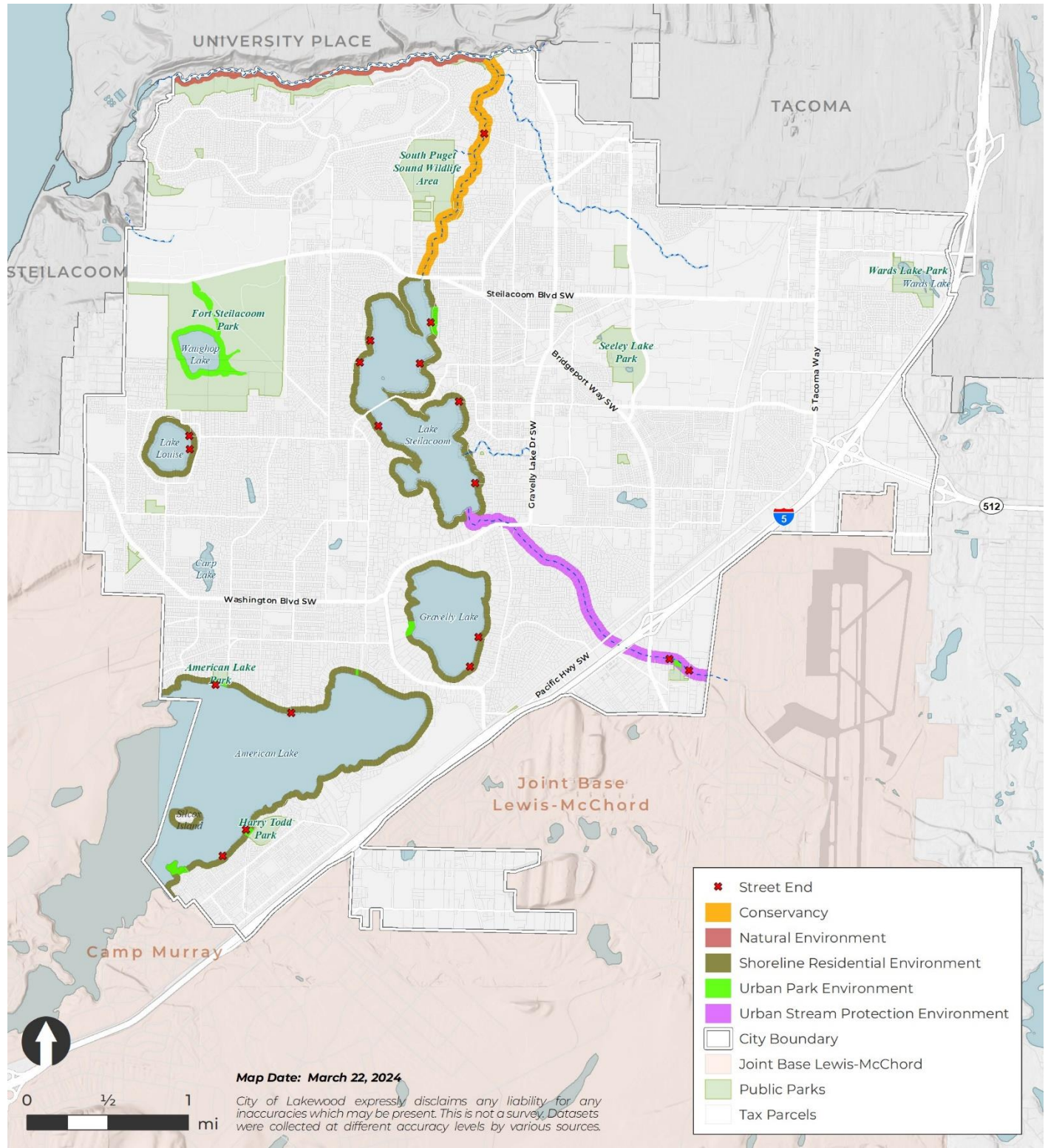


Zones	Gross Acres	Critical Area Acres	Net Acres
Commercial 1	57	9	48
Commercial 2	210	6	205
Commercial 3	25	8	17
Industrial 1	250	18	232
Industrial 2	32	9	23
Industrial Business Park	332	59	273
Military Lands	23	-	23
Mixed Residential 1	115	7	108
Mixed Residential 2	157	14	142
Multifamily 1	232	24	208
Multifamily 2	211	25	186
Multifamily 3	154	2	152
Neighborhood Commercial 1	12	-	12
Neighborhood Commercial 2	204	6	198
Open Space & Recreation 1	894	350	544
Open Space & Recreation 2	457	37	421
Public Institutional	717	49	667
Residential 1	402	36	366
Residential 2	543	98	447
Residential 3	2,300	212	2,088
Residential 4	870	36	833
Right Of Way	0	-	0
Transit Oriented Commercial	83	27	55
<b>Grand Total</b>	<b>9,063</b>	<b>1,062</b>	<b>8,002</b>

Source: (Pierce County, 2022)

Lakewood’s Shoreline Master Program (SMP) provides a set of shoreline environment designations that function to manage land uses, public access, and environmental protection with policies and regulations. The designations are illustrated on Exhibit 3-22.

Exhibit 3-22. Lakewood Shoreline Environment Designations



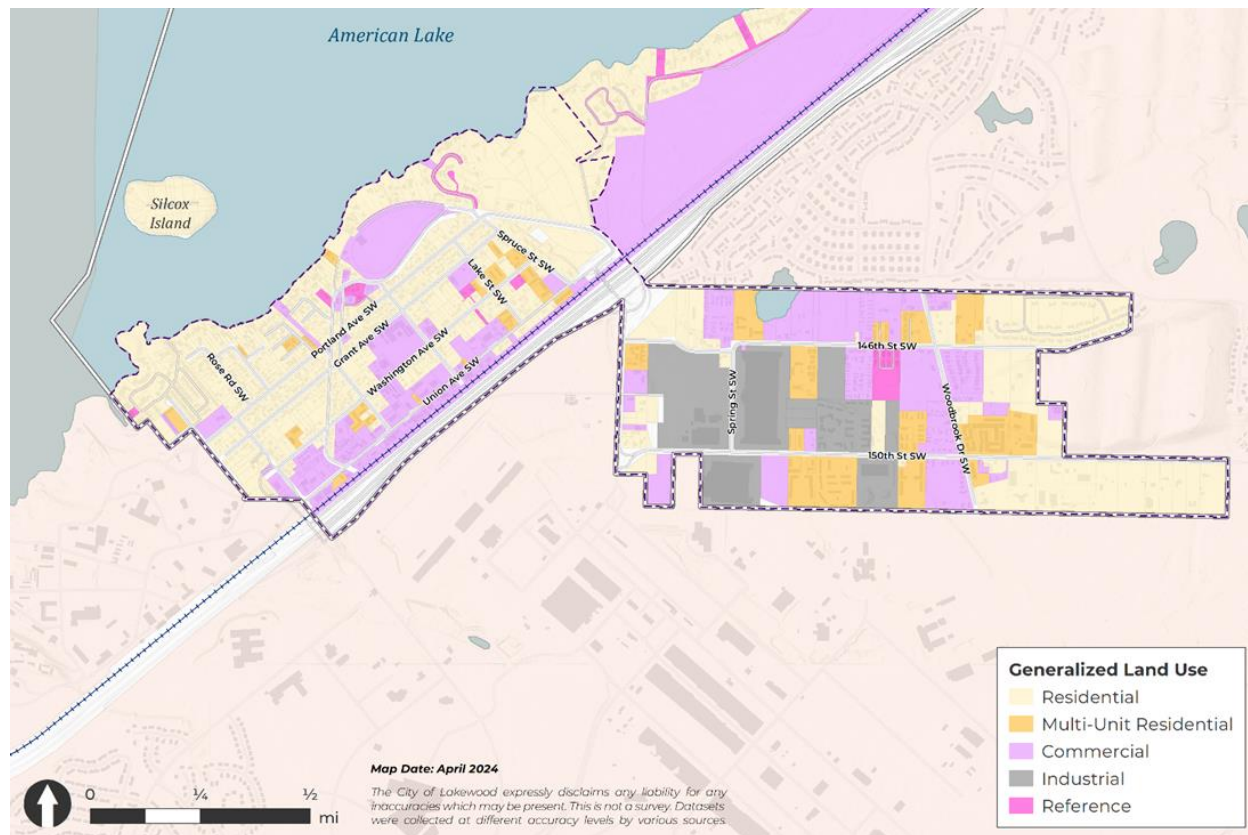
Source: City of Lakewood, 2024.

The City's greatest acres are in Residential zones but its greatest planned density is in the Central Business District (CBD). The City created a subarea plan and planned action ordinance in 2018 to facilitate growth and development in that area which also contains the City's primary commercial center as well as a transit center. In 2023, the City made a small expansion of the CBD.

### Tillicum-Woodbrook Subarea

The western portion of Tillicum largely includes single-family residential development with a few multi-unit residential buildings. Commercial development is largely concentrated between Washington Avenue SW and Union Avenue SW, though there are small pockets of commercial uses in the residential areas. There is one park, Harry Todd Park, in the northwest corner of Tillicum. Woodbrook, across I-5 from Tillicum, contains industrial uses, as well as some commercial and multi-unit residential development. The City rezoned many parcels in Woodbrook in the 2010's to reflect the vision of the City that it would be an area for industrial and warehouse uses. The general land uses for the Tillicum-Woodbrook Planning Area are depicted on Exhibit 3-23.

**Exhibit 3-23. General Land Use – Tillicum-Woodbrook Planning Area**



Source: BERK, 2023; City of Lakewood, 2023.

## State, Regional, and Local Plans

### Growth Management Act

Comprehensive plans and development regulations within Pierce County must be consistent with the provisions of the GMA. The GMA was adopted in 1990 to address concerns about the impacts of uncoordinated growth on Washington communities and the environment and provides a framework for land use planning and development regulations in the state. The GMA directs coordinated regional and countywide planning, which then informs the locally adopted comprehensive plans and development regulations of individual cities and counties. Key provisions of the GMA include:

- Planning Goals
- Land Designations: Urban, Resource, and Rural Lands
- Consistency with Multicounty Planning Policies (MPPs)
- Buildable Lands Program
- Consistency with Countywide Planning Policies (CPPs)
- Local Comprehensive Planning

The GMA is primarily codified under [Chapter 36.70A RCW](#), although it has been amended and added to in several other parts of the RCW and WAC. In 2021, GMA goals and element requirements regarding housing were amended to require jurisdictions to plan for and accommodate housing that is affordable to all economic segments of the population (see Chapter 4, *Population, Housing, and Employment*). The Washington State Department of Commerce (Commerce) published a summary of amendments to the GMA from 1995 through 2022 (Commerce 2023).

#### Goals

The GMA includes 15 planning goals, in no particular order, to guide the development and adoption of local comprehensive plans and development regulations. See Exhibit 3-24.

Jurisdictions planning under the GMA are required to balance these goals in the development and adoption of their comprehensive plans and development regulations. Counties and cities in most parts of the state—including Central Puget Sound—must prepare comprehensive plans that include objectives, principles, standards, and a future land use map. Required elements of a comprehensive plan include land use, housing, capital facilities plan, utilities, rural (for counties), transportation, economic



Relationship between the GMA, VISION 2050 and MPPs, CPPs, and local comprehensive plans.  
SOURCE: [PSRC](#) 2022

development, and parks and recreation. Local governments may include other elements if they wish. Development regulations, such as zoning, must be consistent with the local government’s comprehensive plan. Counties and cities must be up to date with the requirements of the GMA, including the periodic update requirements, to be eligible for grants and loans from certain state infrastructure programs.

**Exhibit 3-24. GMA Goals**

GMA Goal	Text
(1) Urban growth	Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
(2) Reduce sprawl	Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.
(3) Transportation	Encourage efficient multi-modal transportation systems that will reduce greenhouse gas emissions and per capita vehicle miles traveled and are based on regional priorities and coordinated with county and city comprehensive plans.
(4) Housing	Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.
(5) Economic development	Encourage economic development throughout the state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.
(6) Property rights	Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.
(7) Permits	Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.
(8) Natural resource industries	Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forestlands and productive agricultural lands and discourage incompatible uses.
(9) Open space and recreation	Retain open space and green space, enhance recreational opportunities, enhance fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.
(10) Environment	Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.

GMA Goal	Text
(11) Citizen participation and coordination	Encourage the involvement of citizens in the planning process, including the participation of vulnerable populations and overburdened communities, and ensure coordination between communities and jurisdictions to reconcile conflicts.
(12) Public facilities and services	Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.
(13) Historic preservation	Identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance.
(14) Climate change and resiliency	Ensure that comprehensive plans, development regulations, and regional policies, plans, and strategies under RCW 36.70A.210 and Chapter 47.80 RCW adapt to and mitigate the effects of a changing climate; support reductions in greenhouse gas emissions and per capita vehicle miles traveled; prepare for climate impact scenarios; foster resiliency to climate impacts and natural hazards; protect and enhance environmental, economic, and human health and safety; and advance environmental justice.
(15) Shorelines	For shorelines of the state, the goals and policies of the Shoreline Management Act as set forth in RCW 90.58.020 shall be considered an element of the county's or city's comprehensive plan.

SOURCES: [RCW 36.70A.020](#) and [RCW 36.70A.480 \(1\)](#), 2023; Engrossed Second Substitute House Bill 1181, 2023

PSRC develops policies and coordinates decisions about regional growth, transportation, and economic development planning within Pierce, King, Snohomish, and Kitsap counties. [VISION 2050](#) is the long-range growth management, environmental, economic, and transportation strategy for the four-county Puget Sound region. It was adopted by PSRC in October 2020 and is endorsed by more than 100 member cities, counties, ports, state and local transportation agencies, and tribal governments within the region.

VISION 2050 includes the GMA-required MPPs for the King/Pierce/Snohomish Counties and voluntarily applied to Kitsap County. VISION 2050 also includes a regional strategy for accommodating growth through 2050. The MPPs provide direction for more efficient use of public and private investments and inform updates to countywide planning policies and local comprehensive plan updates. VISION 2050 includes 216 MPPs, organized by the topic area goals in Exhibit 3-25.

The Regional Growth Strategy in VISION 2050 calls for focusing new housing, jobs, and development within regional growth centers and near high-capacity transit. The strategy also aims to keep rural areas, farmland, and forests healthy and thriving.

**Exhibit 3-25. VISION 2050 Topic Area Goals**

Topic Area	VISION 2050 Goal
<b>Regional Collaboration</b>	The region plans collaboratively for a healthy environment, thriving communities, and opportunities for all.

Topic Area	VISION 2050 Goal
15 MPPs	
<b>Regional Growth Strategy</b> 16 MPPs	The region accommodates growth in urban areas, focused in designated centers and near transit stations, to create healthy, equitable, vibrant communities well-served by infrastructure and services. Rural and resource lands continue to be vital parts of the region that retain important cultural, economic, and rural lifestyle opportunities over the long term.
<b>Environment</b> 22 MPPs	The region cares for the natural environment by protecting and restoring natural systems, conserving habitat, improving water quality, and reducing air pollutants. The health of all residents and the economy is connected to the health of the environment. Planning at all levels considers the impacts of land use, development, and transportation on the ecosystem.
<b>Climate Change</b> 12 MPPs	The region substantially reduces emissions of greenhouse gases that contribute to climate change in accordance with the goals of the Puget Sound Clean Air Agency (50% below 1990 levels by 2030 and 80% below 1990 levels by 2050) and prepares for climate change impacts.
<b>Development Patterns</b> 54 MPPs	The region creates healthy, walkable, compact, and equitable transit oriented communities that maintain unique character and local culture, while conserving rural areas and creating and preserving open space and natural areas.
<b>Housing</b> 12 MPPs	The region preserves, improves, and expands its housing stock to provide a range of affordable, accessible, healthy, and safe housing choices to every resident. The region continues to promote fair and equal access to housing for all people.
<b>Economy</b> 23 MPPs	The region has a prospering and sustainable regional economy by supporting businesses and job creation, investing in all people and their health, sustaining environmental quality, and creating great central places, diverse communities, and high quality of life.
<b>Transportation</b> 32 MPPs	The region has a sustainable, equitable, affordable, safe, and efficient multi-modal transportation system, with specific emphasis on an integrated regional transit network that supports the Regional Growth Strategy and promotes vitality of the economy, environment, and health.
<b>Public Services</b> 30 MPPs	The region supports development with adequate public facilities and services in a timely, coordinated, efficient, and cost-effective manner that supports local and regional growth planning objectives.

SOURCE: [VISION 2050 \(PSRC 2020\)](#)

Regional growth centers have been a central strategy of regional planning for decades, although centers have been designated through different procedures depending on when they were first designated. Pierce County has six regional growth centers (RGCs) and three manufacturing industrial centers (M/ICs) designated in VISION 2050, all located within UGAs. One of the designated centers is Lakewood’s Downtown. See Exhibit 3-26.

**Exhibit 3-26. PSRC Regional Growth Centers in Pierce County**

Center	VISION 2050 Center Designation
Tacoma	Regional Growth Center—Metro
Tacoma Mall	Regional Growth Center—Urban
University Place	Regional Growth Center—Urban
Lakewood (Downtown)	Regional Growth Center—Urban
Downtown Puyallup	Regional Growth Center—Urban
Puyallup/South Hill	Regional Growth Center—Urban
Port of Tacoma	Manufacturing Industrial Center—Growth
Frederickson	Manufacturing Industrial Center—Growth
Sumner-Pacific	Manufacturing Industrial Center—Employment

SOURCE: [VISION 2050](#) (PSRC 2020)

VISION 2050 includes updated regional geographies and modified classifications for cities and unincorporated urban areas. HCT communities are a new geography in VISION 2050 compared to VISION 2040. The updated regional geographies are:

- Metropolitan cities
- Core cities
- HCT communities (includes both incorporated and unincorporated areas)
- Cities and towns
- Urban unincorporated areas
- Rural and Natural Resource Lands
- Other Planning Areas: Major military installations and Indian reservation lands

VISION 2050 incorporates a renewed focus on locating growth near current and future HCT facilities and includes a goal for 65% of the region’s population growth and 75% of the region’s employment growth to be in regional growth centers and within walking distance of HCT.<sup>2</sup>

Lakewood is considered a “Core City,” one of 16 in the region that have designated regional centers, and that contain “key hubs for the region’s long-range multimodal transportation system and are major civic, cultural, and employment centers within their counties. The Regional Growth Strategy envisions a major role for these cities in accommodating growth while providing a significant share of the region’s housing.”

Major military installations and tribal lands are not subject to the state and regional planning framework—these areas plan differently than local governments, but VISION 2050 recognizes their important roles in the region and their influence on regional growth patterns. Major military installations

<sup>2</sup> *High-capacity transit* is defined as existing or planned light rail, commuter rail, ferry, streetcar, and/or bus rapid transit. HCT communities are cities and unincorporated areas that are connected to the regional HCT system. HCT areas and UUAs are planned for annexation or incorporation.



and tribal lands are both recognized as regional geographies by PSRC. In Pierce County, this includes Joint Base Lewis-McChord (JBLM), Camp Murray, most of the Puyallup Indian Reservation, and portions of the Nisqually Indian Reservation and Muckleshoot Indian Reservation. The Squaxin Island Reservation is located in Mason County, but some tribal natural resource areas are within Pierce County.

#### *Countywide Planning Policies*

Cities and counties fully planning under [RCW 36.70A.040](#) must complete a periodic review every 10 years for their entire comprehensive plan and development regulations, including those related to critical areas and natural resource lands.<sup>3</sup> Pierce County and the cities and towns within are fully planning communities under GMA.

The periodic review of the Lakewood Comprehensive Plan and implementing development regulations and any necessary revisions will be undertaken to comply with the updated requirements of the GMA, including the VISION 2050 MPPs and recently amended Pierce County CPPs. The next periodic update of the Comprehensive Plan for Pierce County and the cities and towns within must be completed on or before December 31, 2024. Pierce County and the cities and towns within must be up to date with the requirements of the GMA—including the periodic update requirements—to be eligible for grants and loans from certain state infrastructure programs.

Lakewood's current Comprehensive Plan applies to the year 2035. The Comprehensive Plan was adopted in 1995 with major updates in 2005 and 2015. Individual requests for changes to the Comprehensive Plan are allowed every 2 years during a separate process, known as the Amendment Cycle.

Each city and town in Pierce County adopt a comprehensive plan consistent with the same legislative framework applicable to Pierce County. Consistency with the MPPs and CPPs helps ensure all of these comprehensive plans are compatible.

#### Military Planning

Lakewood is abutted on the east and south by military land uses. The U.S. Army founded Fort Lewis in 1917 and McChord Air Force Base two decades later. Today, Joint Base Lewis-McChord hosts roughly 50,000 military service members and civilian employees and is the 3<sup>rd</sup> largest employer in the State of Washington. Most major entrances into JBLM are through Lakewood, and many of the military personnel and their families live and shop in the city. The presence of the military has had a noticeable impact on Lakewood's demographics and, consequently, its economy and land use patterns.

#### Tillicum-Woodbrook Subarea

The Tillicum Neighborhood Plan (TNP) was originally adopted in 2011. In 2022, the City of Lakewood produced a status report of the Tillicum Neighborhood Plan's implementation and adopted an Addendum to the TNP explaining progress to date to make the Plan's vision a reality. While much has

---

<sup>3</sup> In 2022, approval of House Bill 1241 by the Washington State Legislature changed the periodic update cycle occurrence from 8 years to 10 years after the 2024–2027 update cycle ([RCW 26.70A.130\(5\)](#)).

been accomplished to realize the visions and priorities discussed in the original Tillicum Neighborhood Plan, many of the plan's Action Items are not yet complete.

In September 2022, the City announced that the Tillicum Neighborhood Plan would be replaced with a Tillicum-Woodbrook Subarea Plan (TWSP) as part of the 2024 Comprehensive Plan Periodic Review (24CPPR) process. While the 2011 Plan boundaries were reserved to the Tillicum neighborhood north of I-5, the 2024 update incorporated the Woodbrook area south of I-5 due to the historical community connection between the two areas.

### 3.2.2 Impacts

Thresholds of significance utilized in this land use pattern impact analysis include:

- Change to land use patterns or development intensities that preclude reasonable transitions between areas of less intensive zoning and more intensive zoning.
- Differences in activity levels at boundaries of uses likely to result in incompatibilities.
- Impacts to designated shorelines.

According to WAC 365-196-210(8), consistency means “that no feature of a plan or regulation is incompatible with any other feature of a plan or regulation. Consistency is indicative of a capacity for orderly integration or operation with other elements in a system.” For the purposes of this analysis, consistency means that the alternative can occur and be implemented together with the selected goal or policy without contradiction. In this section, a finding of inconsistency or contradiction with plans and policies would be considered to result in a significant adverse impact.

#### Impacts Common to All Alternatives

##### Land Use Patterns/Development Intensities

The alternatives continue zoning that emphasizes residential uses. Both alternatives continue to emphasize housing in mixed use and multifamily zones such as in Downtown and the Station District. Using the density allowances, form-based code, and master planning approach, properties could redevelop and replace existing dwellings. There is an opportunity to increase the affordable housing available in the subareas, and the City may condition development to meet the vision of the plan as well as proposed Action Alternative policies that are intended to provide housing affordable to all incomes and to mitigate displacement.

Under either alternative, it would be appropriate to amend the Downtown Planned Action Ordinance to add the parcels rezoned in 2023 to CBD on the south along Main Street SW<sup>4</sup> towards the high school, since they are in the City's multifamily tax exemption area, and property owners intend to develop housing similar to that identified for the Downtown Plan. The inclusion of the properties make for a logical boundary and cohesive land use pattern. They contribute to the potential for mixed use and affordable housing that were contemplated in the Downtown Plan.

---

<sup>4</sup> See: <https://cityoflakewood.us/wp-content/uploads/2022/09/092122-23CPAs-PIComm-Staff-Report.pdf>.

Outside of the Downtown and Station District Subareas, the No Action Alternative allows fewer housing types in Residential zones. The Action Alternative also emphasizes a low density residential pattern, but with more middle housing opportunities across R1-R4 zones, and in the “Transit” overlay, which is about 420 acres and has less than 10% of the total Residential zones’ capacity. The Action Alternative will comply with recent state legislation (HB 1337, HB 1110) that provides development and design standards that treat accessory dwelling units and other middle housing similar to single family dwellings. See Exhibit 3-27.

**Exhibit 3-27. Zone Capacity by Alternative**

Zone	No Action Capacity	Action Capacity	Difference
ARC	127	151	24
CBD	2,590	3,580	990
MF1	1,181	1,294	113
MF2	1,514	1,602	88
MF3	1,131	1,314	183
MR1	117	760	643
MR2	532	1,523	991
NC1	54	18	-36
NC2	421	477	56
R1	45	306	261
R2	148	570	422
R2T		16	16
R3	850	3,431	2581
R3T		302	302
R4	287	1,148	861
R4T		218	218
TOC	1,283	779	-504
<b>Total in Residential / Mixed Use Zones</b>	<b>10,280</b>	<b>17,488</b>	<b>7,209</b>
Housing in Commercial / Industrial Zones	-38	-38	0
<b>Total Residential and Commercial Zones</b>	<b>10,242</b>	<b>17, 450</b>	<b>7,209</b>

Source: BERK, 2024.

### Activity Levels

Higher activity levels by population and jobs can create more economic activity in the community and support goals for prosperity. Activity levels created by population and jobs including demand for services and infrastructure would likely vary under the alternative based on planned growth.

Both alternatives allow for housing and job growth capacity that more than meet the 2044 growth targets. During the 20-year planning period, which does not assume buildout, modeled growth for the Action Alternative is slightly higher than the No Action Alternative. See Exhibit 3-28.

**Exhibit 3-28. Targets, Capacity, Modeled Growth by Alternative**

	Jobs	Housing
2020	29,872	26,999
Growth Target 2020-2044	9,863	9,378
No Action Growth Modeled 2020-2035	9,287 (94% of Target)	7,441 (79% of Target)
No Action Capacity	12,212	10,242
No Action Meets 2044 Targets?	Yes, total	Yes, total, not affordability
Proposed Action Capacity	15,238	17,488
Proposed Action Meets 2044 Targets?	Yes, total	Yes, total + affordability
Proposed Action Growth Modeled 2020-2044	9,863	9,378

Source: Pierce County, 2022. BERK, 2024.

### Shorelines

Under all alternatives, no changes to the shoreline environment designations would be made. The City is reviewing whether any updates to SMP are required in 2024 to be consistent with the required critical areas updates; otherwise, the City would address the shorelines under the next SMP periodic update in 2029.

The Action Alternative assumes some middle housing in shoreline areas where the housing types are allowed in the SMP, but likely lesser units in these areas due to the presence of either critical areas, or narrower roads where on-street parking is not available. See Exhibit 2-9. For more information on parking impacts, see Chapter 3.4. Transportation and Parking.

### Policy Evaluation

The alternatives are largely consistent with GMA goals and VISION 2050 goals and multi-county planning policies. The No Action Alternative is less consistent with goals and policies on providing for a range of affordable housing choices whereas the Action Alternative provides updated policies and zoning codes to increase housing types to meet targets for each affordability bands. The Action Alternative provides updated Natural Environment policies and codes and reinforces Climate mitigation and resilience. Even though modeled growth (transportation, and other infrastructure) for the Action Alternative matches the 2044 growth targets and the No Action Alternative is modeled at a lower growth level to originally meet a 2035 horizon, the Proposed Action produces less vehicle miles traveled (VMT). See Exhibit 3-29.

**Exhibit 3-29. Growth Management Act and VISION 2050 Goal Consistency**

GMA Goal	VISION 2050 Goals	No Action	Action Alternative	Discussion
(1) Urban growth	Regional Growth Strategy 16 MPPs	√	√+	Both alternatives focus growth in urban areas, including in the Downtown Center and Station District. The Action Alternative allows middle housing in more locations and advances build out of the City's subareas near existing or planned transit resources.
(2) Reduce sprawl	Development Patterns 54 MPPs	√	√	Both alternatives focus growth in urban areas, and alternatives have capacity for growth targets, consistent with Countywide Planning Policies and VISION 2050, which can help avoid rural sprawl.
(3) Transportation	Transportation 32 MPPs	√	√+	Both alternatives increase the demand for multimodal transportation. The Proposed Action, even with higher modeled growth, produces less vehicle miles traveled (VMT) due to the focus of growth in the Downtown and Station District Subareas as well as the middle housing opportunities.
(4) Housing	Housing 12 MPPs	√-	√+	The Proposed Action includes an updated Housing Element that meets newer state laws for affordable housing targets, removal of barriers to housing, and addition of new housing types at moderate/middle densities. The No Action Alternative does not meet affordable housing bands.
(5) Economic development	Economy 23 MPPs	√	√	Both alternatives allow for job growth and capacity above targets.
(6) Property rights		√	√	Both alternatives provide for a reasonable use of properties with allowances for residential, commercial, or institutional uses.
(7) Permits		√	√+	Both alternatives provide for policies and codes meant to facilitate permits that meet the Comprehensive Plan. Code changes are proposed under the Action Alternative to allow for greater housing types, as well as remove barriers to housing, and to address some critical area regulations.
(8) Natural resource industries		√	√	See (2). By providing growth capacity to meet targets consistent with Countywide Planning Policies and VISION 2050 the rural and resource lands would be formatted.
(9) Open space and recreation		√	√	Both alternatives provide a Parks Element and protect critical areas that are protected and provide open space.
(10) Environment	Environment 22 MPPs	√-	√+	Both alternatives provide for critical area regulations, but the Action alternative provides proposed regulatory edits based on a gap and opportunity analysis. See Exhibit 2-12.
(11) Citizen participation & coordination		√	√+	The No Action Comprehensive Plan was based on community participation and coordination. More recently, the City has conducted an extensive public participation

GMA Goal	VISION 2050 Goals	No Action	Action Alternative	Discussion
				program on housing, climate change, and the Tillicum Woodbrook Subarea Plan.
(12) Public facilities and services	Public Services 30 MPPs	√	√	Both Alternatives will increase demand for public services with growth, with the Action alternative modeled to meet growth targets by 2044 but the No Action Alternative is modeled at growth to the year 2035 and would have slightly less demand.
(13) Historic preservation		√	√	Both alternatives including historic preservation and cultural resources protection policies and codes.
(14) Climate change and resiliency	Climate Change 12 MPPs	√	√+	Both alternatives include climate mitigation and resilience policies with the Proposed Alternative modifying the growth strategy and reducing VMT. The Action Alternative further addresses GHG mitigation strategies through the land use and zoning amendments.
(15) Shorelines		√	√+	Both alternatives maintain Lakewood’s Shoreline Master Program. The Action Alternative would amend shoreline buffers.
	Regional Collaboration 15 MPPs	√-	√+	The Action Alternative provides updated climate change policies and critical areas regulations that are meant to address a healthy environment, and more housing opportunities for all persons at all income levels.

**Legend:** √- lesser consistency | √ general consistency | √+ greater consistency

Source: [RCW 36.70A.020](#) and [RCW 36.70A.480 \(1\)](#).

### No Action Alternative

The No Action Alternative maintains the current planned land use patterns and development intensities which separate single family and multifamily units, with different design standards. Rather than allowing gentler middle housing densities, the differences in activity levels and scales of development would remain in the policies and code.

The No Action Alternative provides capacity that exceeds total growth targets, but growth is modeled consistent with past plans to the year 2035, which is slightly lower than the Action Alternative, and thus could have slightly less activity levels.

No changes are proposed to designated shorelines under the No Action Alternative. There would be no changes made to address more recent State rules on critical areas and responding to gaps and opportunities in critical areas regulations.

### Tillicum-Woodbrook Subarea

The Tillicum Subarea Plan created in 2011 would be retained without addressing the gaps in implementation identified in 2022 in Ordinance 772 such as additional housing types, infrastructure investments, and park and community facility investments.

## Action Alternative

The Action Alternative offers capacity for housing and jobs that meets growth targets, including growth targets by affordable housing band. It provides a greater range of housing types in the Downtown and Station District Subareas and in residential areas that offer more moderate density and ownership housing choices. It allows for greater density along transit corridors and in the Downtown and Station District Subareas. That allows for a reduced VMT.

As a result of the attention to middle housing as well as the retention and enhancement of the Downtown Plan master planning opportunity to more locations, as well as other housing related changes, the housing units in proximity to transit would improve. See Exhibit 3-30 and Exhibit 3-31. About 77% of multifamily housing capacity and 82% of the allocated multifamily housing units would be in proximity to transit. Middle housing would be newly added low density areas and based on existing and planned transit, 9% of middle housing would be near transit. Over 82% of job capacity and 89% of job targets are in proximity to transit.

**Exhibit 3-30. Proximity to Transit – Growth Capacity**

GROWTH CAPACITY	1/4 MI	TOTAL	PERCENT
Employment	13,605	16,521	82%
Housing	7,934	17,786	45%
Single-family	(433)	(414)	-
Middle housing	743	8,046	9%
Multifamily	7,618	9,838	77%
ADUs	6	316	2%

Source: BERK 2024.

**Exhibit 3-31. Proximity to Transit – Growth Target Allocation**

TARGET ALLOCATION	1/4 MI	TOTAL	PERCENT
Employment	8,822	9,915	89%
Housing	5,005	9,376	53%
Single-family	(177)	(149)	-
Middle housing	315	3,429	9%
Multifamily	4,865	5,963	82%
ADUs	3	132	2%

Source: BERK 2024.

Rather than largely single family areas, there would be instead “lower density zones” allowing for gentle and moderate density with accessory dwelling units, townhouses, and small attached apartments. The Action Alternative would include development regulations treating accessory dwelling units and middle housing similar to single family in terms of design and development regulations. Reasonable transitions between areas of differing density are anticipated with similar design and development regulations. In some areas with narrower roadways, parking standards would not be reduced for middle housing otherwise required by state legislation. See Section 3.4 for additional information.

Under the Action Alternative, the potential residential capacity in the TOC (Transit-Oriented Commercial) zone in the Station District Subarea is reduced due to non-residential uses currently in the “permit pipeline.” By increasing the TOC zone density limit from 54 to 80 units per acre and other land use zone capacities, the City can provide capacity for housing in the Station District matching the Planned Action level of growth for 2035. The City may wish to apply similar form-based zone standards in the TOC zone that are in the Downtown Subarea code (LMC Title 18B).

Under proposals considered by City Council, the ACI zone could be amended to allow for recycling facilities. That use is similar to the scale and intensity of commercial and industrial facilities allowed presently by conditional use permit in LMC 18A.40.130.

No impacts to designated shorelines are anticipated since the Shoreline Master Program (SMP) would be retained to regulate shoreline uses, public access, and environmental protection. The Action Alternative would also integrate the SMP into the municipal code. It would also be amended to address shoreline buffers similar to critical area regulations. SMP amendments would need to be approved following state review and authorization. It is anticipated that in the shoreline jurisdiction where there may be critical areas, less middle housing is anticipated. See Exhibit 2-9.

### Tillicum-Woodbrook Subarea

The Action Alternative includes an updated Tillicum-Woodbrook Subarea that responds to the 2022 plan audit and provides a cohesive plan for an expanded subarea that includes acreage on both sides of I-5 with the incorporation of the Woodbrook neighborhood. The TWSP goals and policies emphasize:

- Investing in unique landmarks, education, and library services.
- Increasing the capacity of the community to advocate for community needs.
- Diversifying housing options in the community.
- Improving connectivity and availability of multiple modes of travel.
- Increasing economic development opportunities.
- Protecting the natural environment and reducing exposure to air pollution and improving resilience to climate change.

## **3.2.3 Mitigation Measures**

### **Incorporated Plan Features**

The Action Alternative updates the Comprehensive Plan for greater consistency with the 2044 job and housing growth targets, including affordable housing targets. It refreshes policies to be consistent with a plan audit meant to meet recent GMA updates as well as create a more streamlined and up to date document. Development regulation amendments would be implemented to meet recent legislative requirements for accessory dwelling units and middle housing. In addition, critical area regulations would be amended to meet the latest State guidance and the urban conditions in Lakewood.



## **Regulations and Commitments**

The City provides regulations of land uses, and development standards for consistent compatible development. In Downtown and the Station District a form-based code applies:

- 18A Land Use and Development Code
- 18B Downtown Development Code
- 18C Station District Development Code

## **Other Potential Mitigation Measures**

The City intends to amend the Downtown Planned Action Ordinance (PAO) to add the parcels rezoned in 2023.<sup>5</sup> The inclusion of the properties make for a logical boundary and cohesive land use pattern.

### **3.2.4 Significant Unavoidable Adverse Impacts**

Under both alternatives, additional growth and development will occur, resulting in increased land use intensity. This transition is unavoidable, but it is not considered significant or adverse within an urban area where growth is focused under CPPs and VISION 2050. Most of the City's planned job and much of the planned housing growth is in Downtown, a designated regional urban growth center. Other growth is planned in mixed use and multifamily zones such as in the Station District. The Action Alternative's inclusion of middle housing in historically single family areas is accompanied by development and design standards similar to those governing single family development.

Future growth is likely to create temporary or localized land use compatibility issues as development occurs. The potential impacts related to these changes may differ in intensity and location under each alternative; however, with existing and new development regulations, zoning requirements, and design guidelines, no significant adverse impacts are anticipated.

---

<sup>5</sup> See: <https://cityoflakewood.us/wp-content/uploads/2022/09/092122-23CPAs-PIComm-Staff-Report.pdf>.

## 3.3 Housing

### 3.3.1 Affected Environment

#### Housing Policy Framework

Housing in Lakewood is influenced by the current policy and regulatory framework, including the Washington State Growth Management Act (GMA), Puget Sound Regional Council (PSRC) VISION 2050, Countywide Planning Policies (CPPs), and Lakewood’s plans and regulations per Section 3.2.

The GMA includes a goal promoting housing variety and affordability:

*(4) Housing. Plan for and accommodate housing affordable to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.*

The GMA also requires a Comprehensive Plan housing element. House Bill (HB) 1220 added requirements for the housing element. Lakewood and other jurisdictions planning under the GMA are now required to:

- Include a statement of goals, policies, objectives, and provisions for “middle housing” or moderate-density housing (for example, duplexes, triplexes, and townhomes)
- Identify policies that result in racially disparate impacts, displacement, and exclusion in housing, and implement policies that address and begin to undo these impacts.
- Allow permanent supportive housing, transitional housing, emergency housing, and emergency shelters with limited restrictions.
- Plan for and accommodate housing affordable to all income bands. The City must determine whether zoning and available land can accommodate 2044 housing growth targets for all income levels, adjust accordingly, and reduce barriers to housing production and affordability.

Pierce County adopted housing targets in 2023, including the target for the Lakewood. See Exhibit 3-32.

#### **Exhibit 3-32. Housing Targets by Area Median Income (AMI)**

<b>Income</b>	<b>Projected Housing Need</b>
0-30% Non-PSH	1,212
0-30% PSH	1,637
>30-50%	1,739
>50-80%	1,375
>80-100%	592
>100-120%	536
>120%	2,287
<b>Total</b>	<b>9,378</b>

PSH – Permanent Supportive Housing  
Source: Pierce County, 2023.

Lakewood completed a Housing Needs Assessment and an evaluation of Racially Disparate Impacts in 2023 per a state grant intended to address HB 1220 requirements.

#### Middle Housing Units and Accessory Dwelling Units

Other recent changes to state housing requirements include House Bill 1110 and House Bill 1337 to expand housing types allowed in single-family areas. See a description of requirements for Lakewood in Exhibit 2-7.

HB 1110 passed in 2023 with the intent to increase middle housing in areas traditionally dedicated to single-family detached housing and address regional housing challenges. HB 1110 also dictates that standards for middle housing, such as permit processes and development regulations, may not be more restrictive than those for single-family homes. Two middle housing units would be allowed per lot, or four units per lot within a quarter mile of a frequent transit route.

Key provisions of HB 1110 include:

- Middle housing regulations must be same as for single family
- Design review must be administrative
- Limits to SEPA and appeals
- Cannot require parking if within 1/2 mile walk of a major transit stop, except through a professional transportation and land use evaluation as noted in Chapter 2 and evaluated in Section 3.4.
- Exceptions for critical areas

An alternative approach to middle housing is allowed where such units are allowed on at least 75% of single family lots.

25% excluded lots may include:

- Risk of displacement areas
- Areas with lack of infrastructure
- Critical areas, buffers or areas subject to sea level rise, flooding, wildfires or hazards

25% excluded lots must not:

- Result in racially disparate impacts
- Be within 1/2 mile of major transit stop
- Include areas with historic racial covenants

HB 1337 also passed in 2023 with the intent to expand housing units through accessory dwelling units (ADUs). HB 1337 requires allowing 2 accessory dwelling units in all single-family zoning districts. Some limitations can be placed where there are critical areas or a lack of sewer facilities. Cities need to allow 2 accessory dwelling units in all single-family zoning districts, and address development standards as follows:

- Must allow detached units.
- Must allow at least 1,000 SF size of units.
- Roof height allowed must be at least 24 feet.

- Setbacks, etc., must not be more restrictive than for principal residence.
- May not require street improvements.
- Impact fees limited to 50% of the principal unit.
- May not require owner occupancy.
- Must allow sale as condominiums.

In terms of the current use allowances for ADUs, Lakewood allows them in all zones allowing single family dwellings except in the Arterial Residential/Commercial (ARC) zone. The ARC zone allows for all types of middle housing.

The Residential 1 to Residential 4 zones do not allow for middle housing, though they allow ADUs. In some zones middle housing is allowed but not with the same permit types (e.g., R4, MR1, and MR2 zones.) Per 18B.200.220, in the CBD zone, detached single-family dwellings, duplexes and triplexes are prohibited except along one street in the southeast called the Low-Impact Mixed-Use Roads District. See Exhibit 3-33.

**Exhibit 3-33. Housing Types Allowed in Different Zones, LMC 18A.40.110**

Residential Uses	R1	R2	R3	R4	MR1	MR2	MF1	MF2	MF3	ARC	NC1	NC2	TOC	CBD
Accessory dwelling unit	P	P	P	P	P	P	P	P	-	-	-	-	P	-
Cottage housing	P	P	P	P	-	-	-	-	-	-	-	-	-	-
Detached single-family	P	P	P	P	P	P	-	-	-	P	-	-	-	-
Two-family residential	-	-	-	C	P	P	P	-	-	P	P	P	-	-
Three-family residential	-	-	-	-	C	C	P	-	-	P	P	P	-	-
Multifamily, four + units	-	-	-	-	-	-	P	P	P	P	P	P	P	P
Mixed use	-	-	-	-	-	-	-	-	-	-	P	P	P	P

P: Permitted Use C: Conditional Use “-”: Not allowed

  Zones allowing single family dwelling units and that do not allow either ADUs or Middle Housing that could be amended to meet HB 1110 and HB 1337.

  Zones need to allow middle housing with a similar permit type and standards.

  The CBD zone is not dedicated to single-family dwellings. Single family, duplex, and triplex homes are also not allowed except in the Low-Impact Mixed-Use Roads District. In the Low-Impact Mixed-Use Roads District the City could review and amend regulations as needed to address middle housing.

The City has provisions that address HB 1337 parameters such as allowing sizes of 1,000 square feet, and both detached and attached units. The ADU height, setbacks, and design are to match those for the single family homes. Parking is required except in proximity to transit routes. Ownership is not referenced in regulations.

**LMC 18A.40.110 (B)1. Accessory dwelling units** (ADUs) are permitted when added to, created within, or detached from a principal dwelling unit subject to the following restrictions:

- a. One (1) ADU shall be allowed as an accessory use in conjunction with any detached single-family structure, duplex, triplex, townhome, or other housing unit. ADUs shall not be included in the density calculations. A lot shall contain no more than one (1) ADU.
- b. An ADU may be established by creating the unit within or in addition to the new or existing principal dwelling, or as a detached unit from the principal dwelling.
- c. The ADU, as well as the main dwelling unit, must meet all applicable setbacks, lot coverage, and building height requirements.
- d. The size of an ADU contained within or attached to an existing single-family structure shall be limited by the existing structure's applicable zoning requirements. An attached ADU incorporated into a single-family house shall be limited to one thousand (1,000) square feet, excluding garage area. The size of a living space of a detached ADU shall be a maximum of one thousand (1,000) square feet excluding garage.
- e. An ADU shall be designed to maintain the appearance of the principal dwelling as a single-family residence.
- f. Wherever practicable, a principal dwelling shall have one (1) entrance on the front, with additional entrances permitted on the side and rear. On corner lots, it is permissible to locate the entry door to the accessory dwelling unit on a street side of the structure other than the street side with the entry door for the principal dwelling unit. The entrance to an attached accessory dwelling unit may be on the front of the house only if (i) it is located in such a manner as to be clearly secondary to the main entrance to the principal dwelling unit; or (ii) it is screened from the street.
- g. The design of an attached ADU, including the facade, roof pitch and siding, shall be complementary to the principal dwelling unit, so as not to be obvious from the outside appearance that it is a separate unit from the principal dwelling unit.
- h. A minimum of one (1) off-street parking space shall be required for the ADU, in addition to the off-street parking required for the principal dwelling, pursuant to LMC 18A.80.030(F). Such parking shall consist of a driveway, carport, garage, or a combination thereof, located on the lot they are intended to serve.
- i. For lots located within one-quarter (1/4) mile of a Pierce Transit bus route, the Sound Transit Lakewood Station, or other major transit stop, and also zoned R1, R2, R3, R4, MR1, MR2, MF1, MF2, or TOC, off-street parking may not be required provided there is adequate street capacity, and there is curb, gutter, and sidewalk, constructed to City standards, adjoining the lot where an ADU is proposed. Parking may be required if the ADU is in an area with a lack of access to street parking capacity, physical space impediments, or other reasons to support that on-street parking is infeasible for the ADU.
- j. Any legally constructed accessory building existing prior to the effective date of the ordinance codified in this title may be converted to an accessory dwelling unit, provided the living area created within the structure does not exceed one thousand (1,000) square feet, excluding garage area.
- k. Where the residential accessory building is detached from an existing single-family structure, the building height shall be limited to twenty-four (24) feet.
- l. If a structure containing an ADU was created without a building permit that was finalized, the City shall require a building inspection to determine if the structure is sound, will not pose a hazard

to people or property, and meets the requirements of this section and building code. The ADU application fee will cover the building inspection of the ADU.

Under state laws passed in 2019 (RCW 35.21.689) and 2021 (HB 1220), the City must allow for permanent supportive housing (PSH) wherever residential dwellings or hotels are allowed.

- A city shall not prohibit transitional housing or permanent supportive housing in any zones in which residential dwelling units or hotels are allowed.
- A city shall not prohibit indoor emergency shelters and indoor emergency housing in any zones in which hotels are allowed, except in such cities that have adopted an ordinance authorizing indoor emergency shelters and indoor emergency housing in a majority of zones within a one-mile proximity to transit.
- Reasonable occupancy, spacing, and intensity of use requirements may be imposed by ordinance on permanent supportive housing, transitional housing, indoor emergency housing, and indoor emergency shelters to protect public health and safety.

Lakewood allows a wide range of special housing needs. See Exhibit 3-34. In all zones allowing hotels, there are allowances for permanent supportive housing and transitional housing. Emergency housing and emergency shelters are allowed where hotels are allowed.

**Exhibit 3-34. Special Housing Needs (LMC 18A.40.120)**

Description(s)	R1, R2, R3, R4	MR1, MR2	MF1, MF2, MF3	ARC, NC1, NC2	TOC, CBD	C1, C2, C3	PI
Assisted Living Facility	-	C	P	P	P	P	-
Confidential Shelter	P	P	P	P	P	-	P
Continuing Care Retirement Community	-	C	P	P	P	P	-
Emergency Housing	-	-	-	-	P	P	-
Emergency Shelter	-	-	-	-	P	P	-
Enhanced Services Facility	-	-	-	C	C	C*	-
Hospice Care Center	C	C	P	-	-	-	-
Nursing Home	-	C	P	P	P	P	-
Permanent Supportive Housing	P	P	P	P	P	P	C
Rapid Re-Housing	P	P	P	P	P	-	C
Transitional Housing	P	P	P	P	P	P	C
Type 1 Group Home, adult family home	P	P	P	P	P	-	C
Type 2 Group Home	P	P	P	P	P	-	C
Type 3 Group Home	-	C	C	C	C	-	C
Type 4 Group Home	-	-	-	-	-	C**	-
Type 5 Group Home	-	-	-	C***	C	C*	-
Hotels and Motels					P	C/P****	
Residential Uses LMC 18A.40.110	Y	Y	Y	Y	Y	N	N

P: Permitted Use C: Conditional Use “-”: Not allowed | Y = Yes see 18A.40.110 for permit types

Notes: \*C2 zone only | \*\*C1 and C2 zones only | \*\*\*NC2 zone only | \*\*\*C1=C and C2 or C3 = P

The Downtown and Station District have their own form-based codes in Titles 18B and 18C, respectively. Some reconciliation between 18A.40.120 Special Housing Needs and these titles are needed:

- **Downtown:** Emergency and permanent supportive housing is allowed in Downtown in LMC 18A.40.120, Special Needs Housing. Group Homes 4 and 5 are prohibited in the Downtown regulations. but LMC 18A.40.120 indicates Group Home 5 (for secure community transition facilities) is allowed by Conditional Use Permit in the CBD zone. This difference should be addressed in housekeeping code amendments.
- **Station District:** LMC 18A.40.120, Special Needs Housing: Emergency housing is allowed in the TOC and C1 and C2 zones in the subarea. Permanent supportive housing is allowed in all residential, multifamily, commercial and mixed use zones in the study area, excluding the Air Corridor 1. Group home types 4 and 5 are prohibited in LMC 18C.200.220 in the C1 zone but are allowed by Conditional Use Permit in LMC 18A.40.120. Amendments to reconcile the conflict should be addressed.

#### **Permanent Supportive and Emergency Housing Definitions (RCW 36.70A.030)**

(14) "Emergency housing" means temporary indoor accommodations for individuals or families who are homeless or at imminent risk of becoming homeless that is intended to address the basic health, food, clothing, and personal hygiene needs of individuals or families. Emergency housing may or may not require occupants to enter into a lease or an occupancy agreement.

(15) "Emergency shelter" means a facility that provides a temporary shelter for individuals or families who are currently homeless. Emergency shelter may not require occupants to enter into a lease or an occupancy agreement. Emergency shelter facilities may include day and warming centers that do not provide overnight accommodations.

(31) "Permanent supportive housing" is subsidized, leased housing with no limit on length of stay that prioritizes people who need comprehensive support services to retain tenancy and utilizes admissions practices designed to use lower barriers to entry than would be typical for other subsidized or unsubsidized rental housing, especially related to rental history, criminal history, and personal behaviors. Permanent supportive housing is paired with on-site or off-site voluntary services designed to support a person living with a complex and disabling behavioral health or physical health condition who was experiencing homelessness or was at imminent risk of homelessness prior to moving into housing to retain their housing and be a successful tenant in a housing arrangement, improve the resident's health status, and connect the resident of the housing with community-based health care, treatment, or employment services. Permanent supportive housing is subject to all of the rights and responsibilities defined in chapter 59.18 RCW.

### **Citywide Housing Stock**

Lakewood possesses a diverse housing stock with a wide range of unit types and prices, most of which were constructed prior to incorporation in 1996. The inventory includes large residential estate properties, single-family homes of all sizes, some townhouses, semi-attached houses, low- and mid-rise apartments, and high-density apartments. See Exhibit 3-35 and Exhibit 3-36.

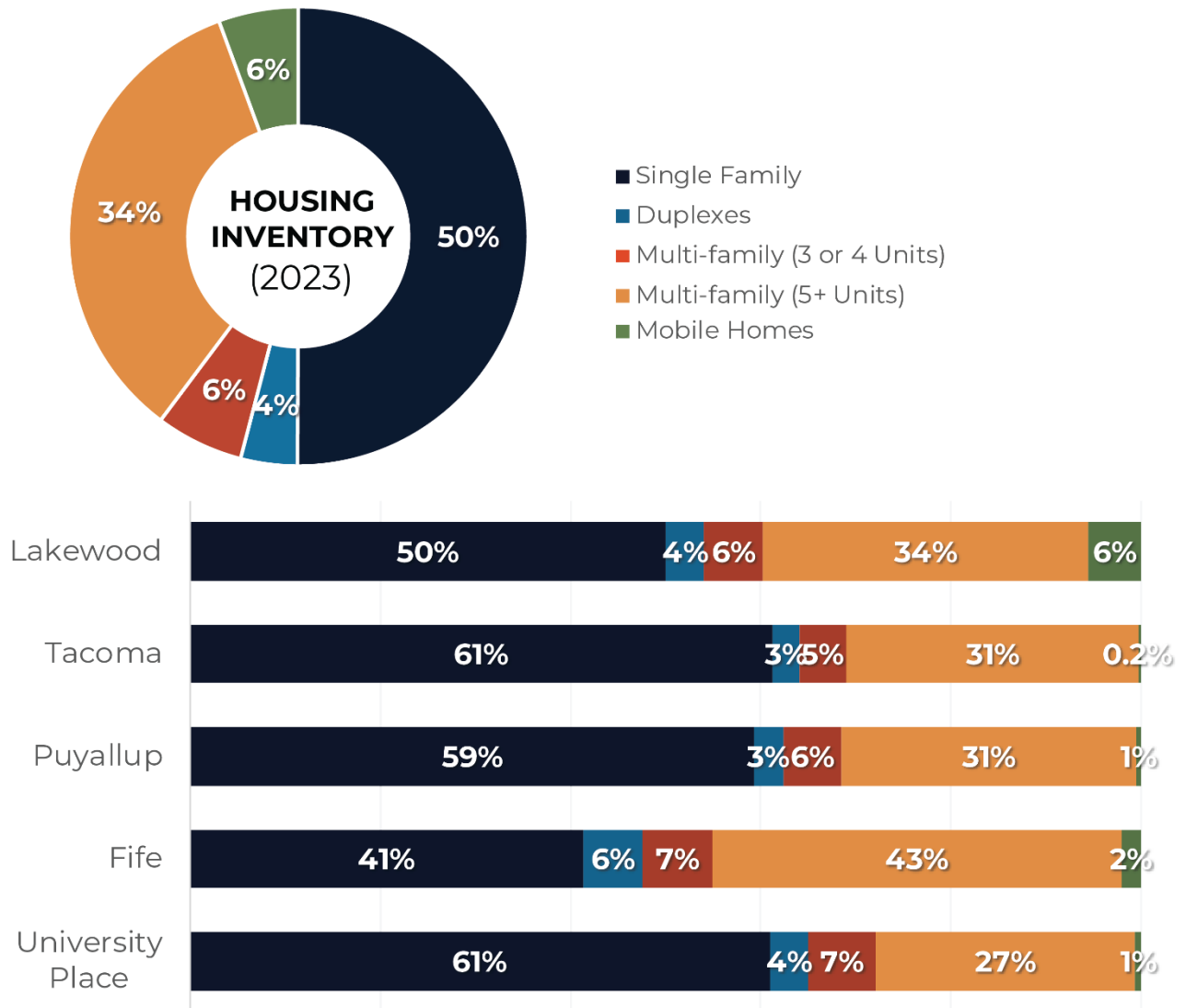
- **Lakewood has had a long history of single-family housing development.** While Lakewood has a smaller proportion of housing as single-family detached units than other communities in the area,

half of the housing available as of 2023 consists of these units. This housing type is dominant in the city, and future planning for growth needs to consider the prevalence of this development pattern.

- **Recent growth has been more dominated by multifamily housing, however.** While half of housing in Lakewood consists of single-family units, ongoing growth is more towards attached housing and multifamily housing types. Over half of housing completed since 2010 has been larger multifamily projects, and plex development has accounted for an additional 12% of growth.
- **Manufactured housing plays a greater role in the local housing market.** As opposed to other comparable communities in Pierce County, mobile and manufactured homes form about 6% of the local housing stock. While this is a small part of the total market, this housing type often provides options for lower-income households, and local housing policy should consider the management of manufactured home parks as part of an effort to retain affordable housing.
- **Available capacity for new housing development is enough to meet local needs.** Based on an assessment of the buildable lands in Lakewood, there is sufficient development capacity available to meet the long-term needs of the city over the next 20 years. This includes both the overall growth in housing that is assumed under the Pierce County CPPs, as well as housing needs by income category.

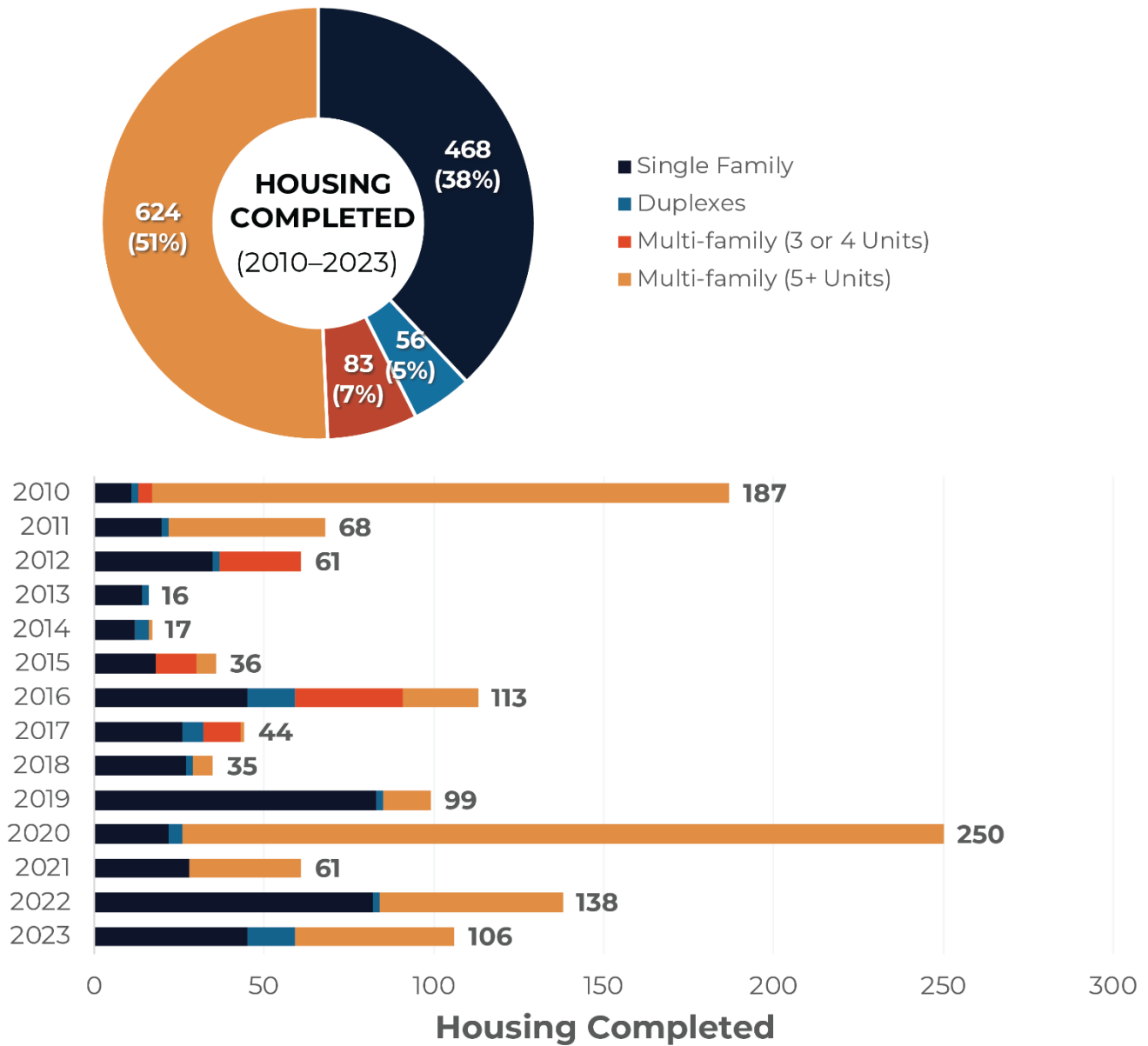


Exhibit 3-35. Proportion of Current Housing Types, Lakewood and Surrounding Communities, 2023.



Source: WA Office of Financial Management, 2024.

Exhibit 3-36. Housing Units Completed in Lakewood by Type, 2010–2023.



Source: WA Office of Financial Management, 2024.

The region is experiencing critical challenges with its housing supply not keeping pace with growth, resulting in significant impacts. These impacts are particularly felt by communities of color that do not have the resources available to respond to these trends. These communities often face higher costs, poorer housing quality, and reduced opportunities for homeownership due to longstanding discriminatory practices.

The 2024 updates to the Comprehensive Plan must address these disparities through various strategies, including identifying and amending policies that contribute to racial disparities and displacement, and implementing anti-displacement measures, particularly in areas prone to market-driven displacement.

Displacement in housing is increasingly problematic as rising costs and inadequate housing supply prevent many from securing suitable, affordable homes. Displacement types include:

- **Economic displacement**, when increases in rents and other costs result in people and businesses moving where these costs are lower;
- **Physical displacement**, when housing units and other buildings are demolished or renovated and no longer available; and
- **Cultural displacement**, when a local community changes due to economic and/or physical displacement, and other residents are driven away because of declining community cohesion and social bonds.

Displacement has broader implications for community dynamics and regional stability. It leads to longer commutes, fragmented community ties, and increased strain on social services, potentially escalating homelessness. Addressing these issues through local policies can help retain community integrity and support economic and social sustainability in the face of inevitable urban changes.

Comprehensive Plan updates for cities like Lakewood are encouraged to integrate racial equity in housing policies to mitigate displacement risks. These updates should include thorough assessments of existing housing policies that might perpetuate racial disparities and propose new strategies to prevent displacement. The focus will be on preserving community and cultural continuity while providing practical housing solutions to meet the diverse needs of the population.

The following exhibits highlight relevant statistics for the city regarding racial equity in housing:

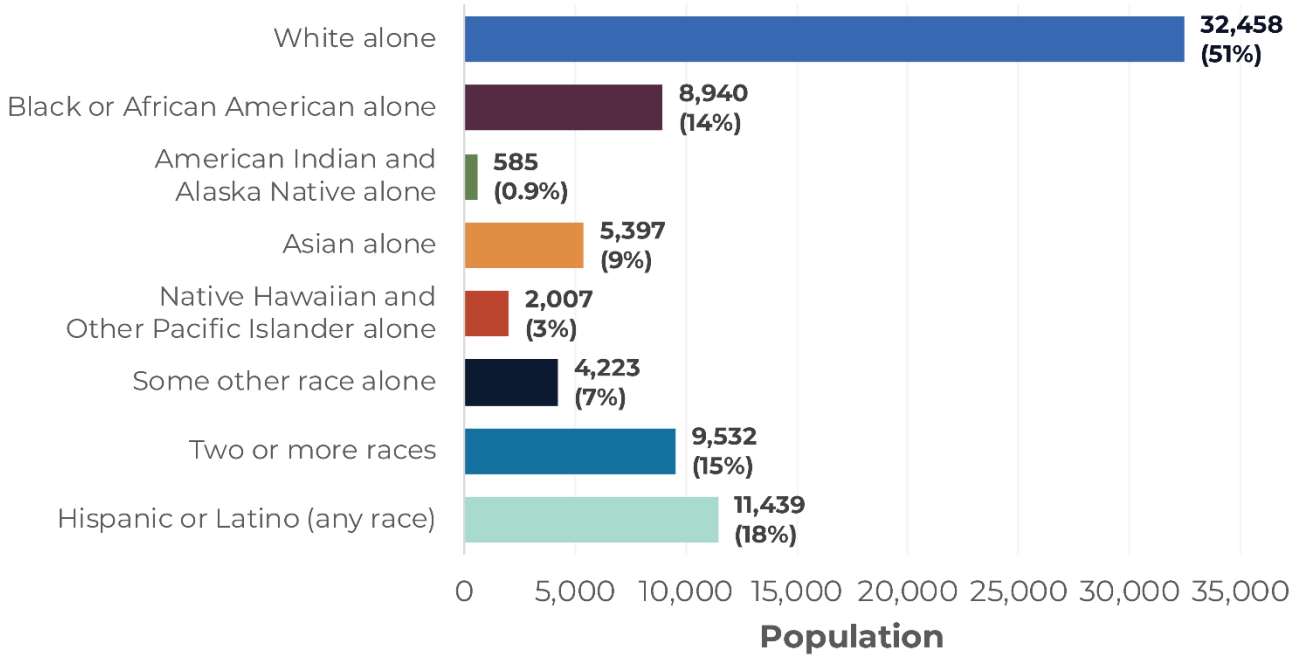
- Exhibit 3-37 provides a breakdown of the Lakewood population by race and ethnicity, based on 5-year American Community Survey data from 2022. (Note that these statistics do not separate Hispanic/Latino residents by race.)
- Exhibit 3-38 highlights the difference of tenure by race and ethnicity, indicating how many renters versus owners are found in each category.
- Exhibit 3-39 breaks down proportions of households by income categories, determined by percent of area median income (AMI).
- Exhibit 3-40 indicates housing cost burdens by race and ethnicity in Lakewood, highlighting cases where households are cost burdened (paying over 30% of their income on housing costs) or severely cost burdened (paying over half of their income on housing).

- Exhibit 3-41 provides a displacement risk index provided by the PSRC by US Census Bureau census tract. This is divided based on the regional distribution and indicates where the risks of displacement may be “higher,” “moderate,” or “lower” in the regional distribution.
- Exhibit 3-42 identifies displacement risk using a Commerce index, showing low, moderate, or high risk of displacement. It provides a change-over-time component that accounts for recent demographic and housing market changes that is not part of the PSRC displacement risk index.
- Exhibit 3-43 provides a distribution of residents by race at the Census block level, based on information from the 2020 US Decennial Census.

There are several high-level conclusions that can be reached from this information:

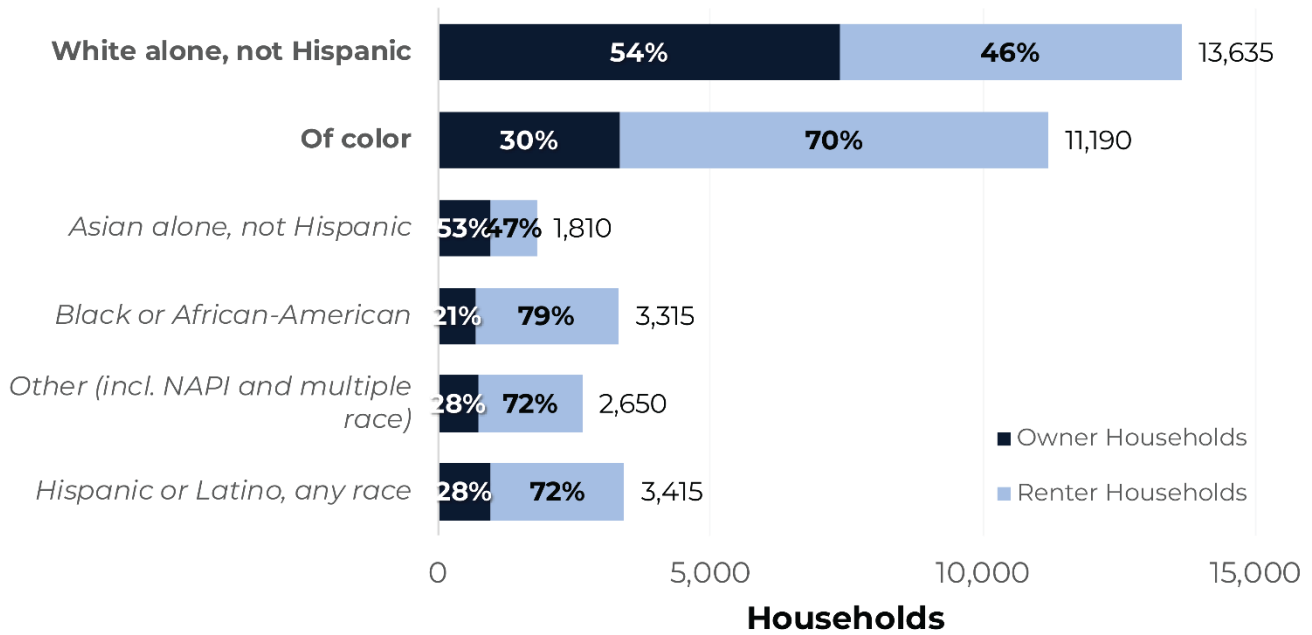
- **There are some income disparities by race/ethnicity in Lakewood that could lead to housing challenges.** The distribution of white households in the city generally includes greater representation at higher income levels, with only 16% households at extremely low-income and 38% above median income. In contrast, about 21% of households of color are extremely low-income, and only 24% surpass the median income threshold.
- **The distribution of households between renters and owners by race suggests some vulnerabilities to housing stability by race/ethnicity.** Households of color face significant challenges in homeownership and housing stability: about 54% of White households own homes compared to only 30% of BIPOC households. Particularly, about 79% of Black or African American and 72% of Hispanic/Latino households are renters, which indicates possible vulnerabilities to local rent increases.
- **On average, higher housing cost burdens are more common for Black households.** A substantial number of Black or African American households in Lakewood (58%) experience some type of housing cost burden, with 34% facing severe difficulties. These economic pressures suggest a critical need for targeted housing policies and community support.
- **There is a likely risk of displacement in key areas of the city.** The Lakewood Station District and the Lakeview/Kendrick area are identified as high-risk zones for displacement, especially among communities of color. These neighborhoods, along with the International District, face challenges that may also extend to local businesses, potentially necessitating protective measures and anti-displacement strategies.

**Exhibit 3-37. Lakewood Population by Race and Ethnicity, 2022.**



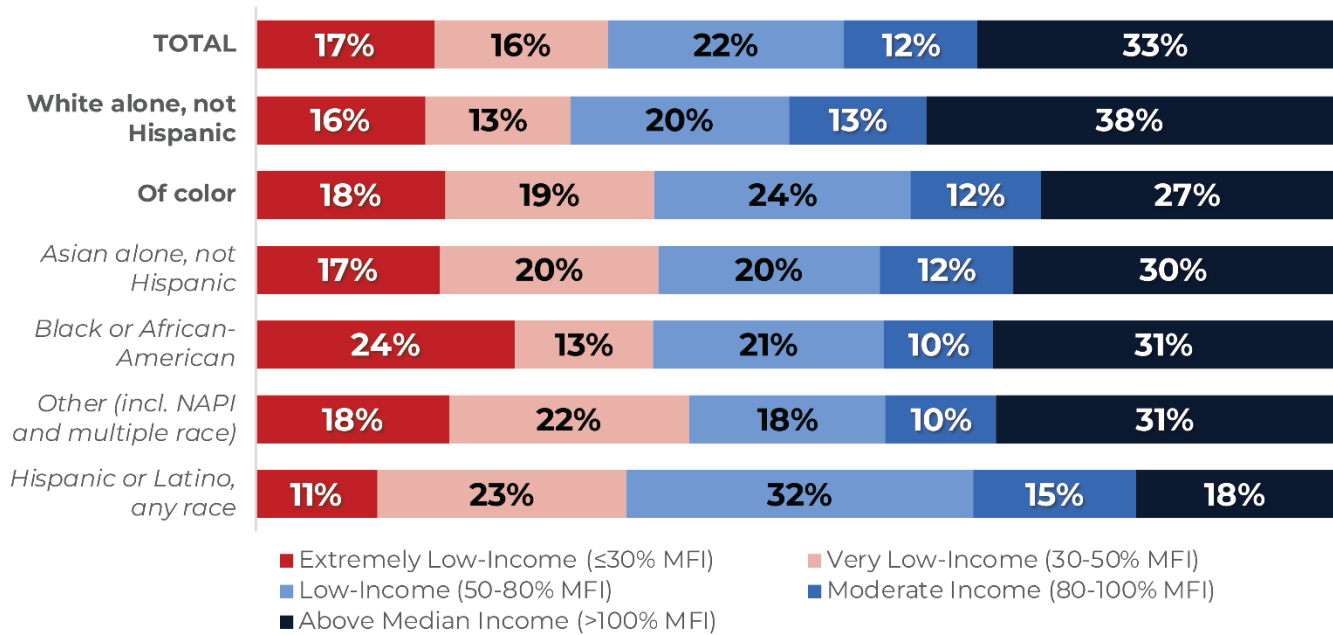
Source: US Census Bureau, 2018-2022 American Community Survey 5-Year Estimates, 2023.

**Exhibit 3-38. Lakewood Households by Race/Ethnicity and Tenure, 2020.**



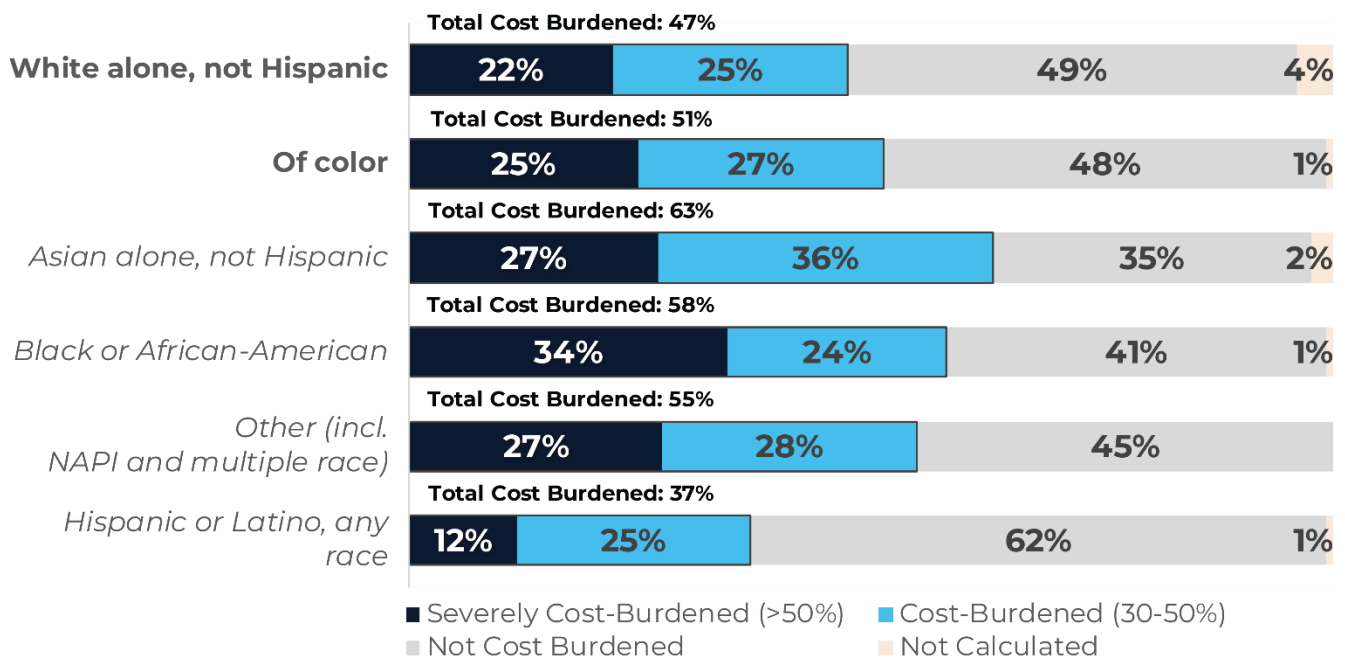
Source: US HUD Comprehensive Housing Affordability Strategy (CHAS) data, 2016–2020.

**Exhibit 3-39. Lakewood Households by Race/Ethnicity and Income Category, 2022.**



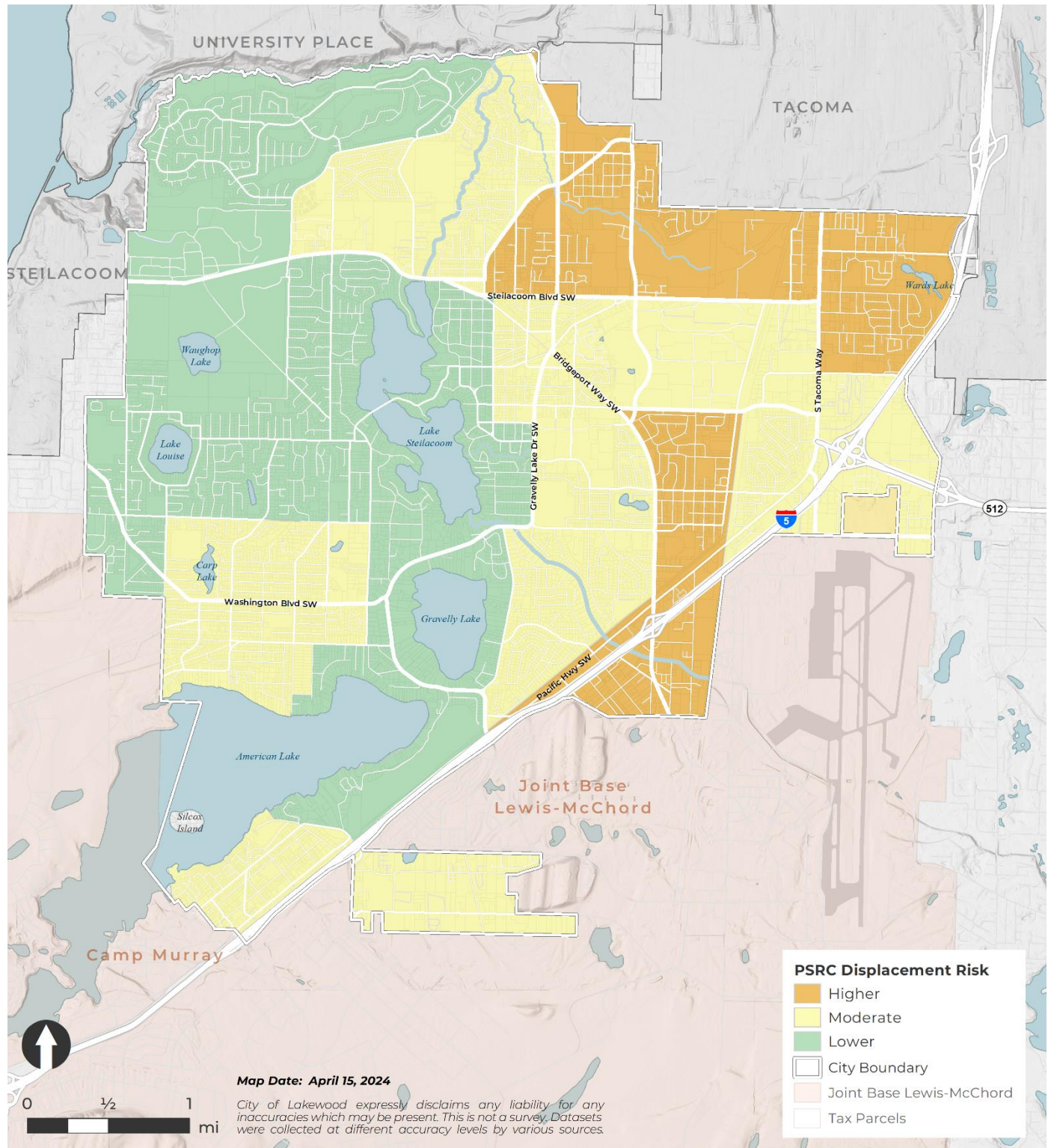
Source: US HUD Comprehensive Housing Affordability Strategy (CHAS) data, 2016–2020.

**Exhibit 3-40. Lakewood Households by Race/Ethnicity and Cost Burden, 2020.**



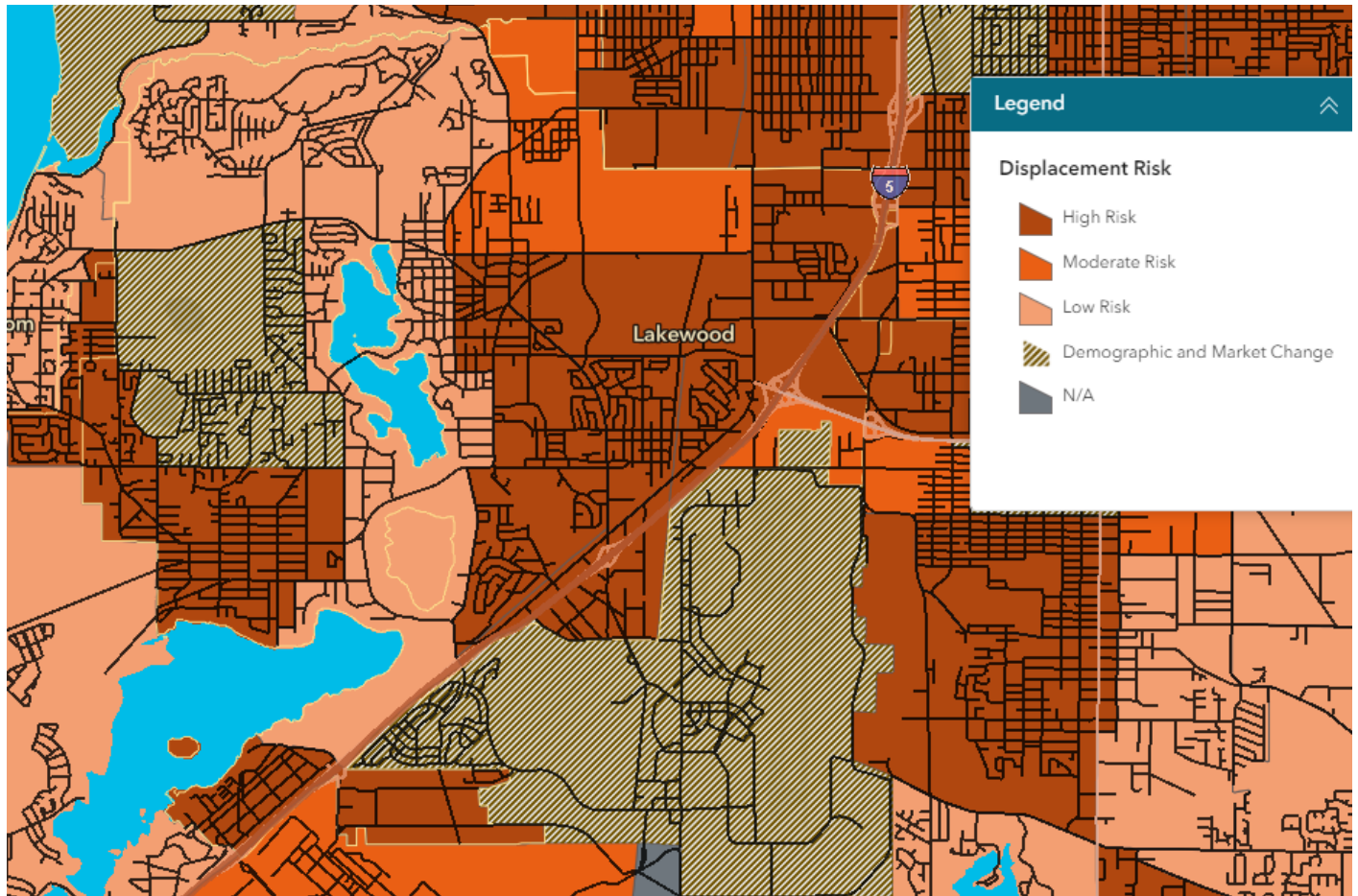
Source: US HUD Comprehensive Housing Affordability Strategy (CHAS) data, 2016–2020.

Exhibit 3-41. PSRC Displacement Risk Index for Lakewood.



Source: PSRC, 2024; City of Lakewood, 2024; Pierce County GIS, 2024.

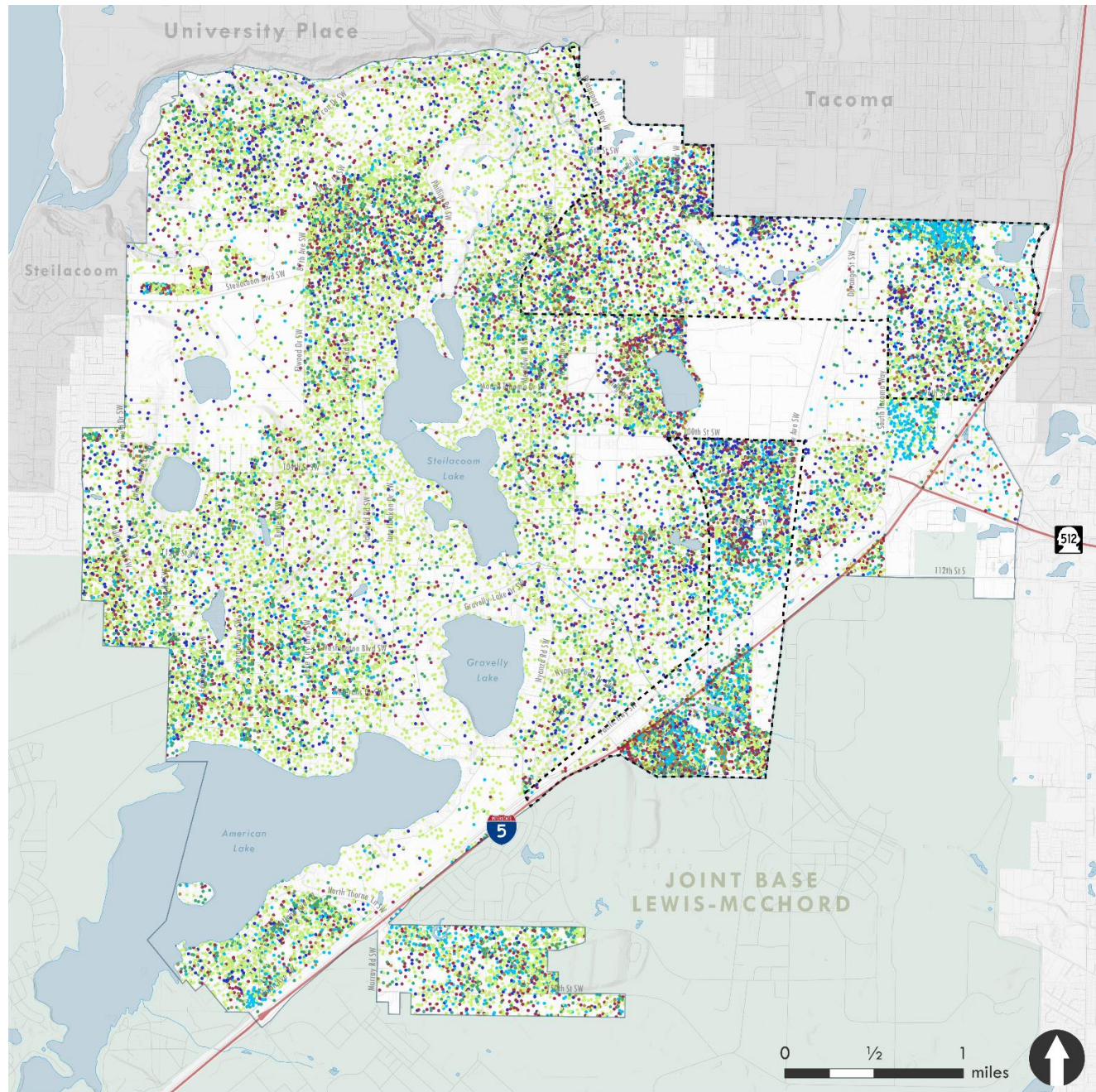
Exhibit 3-42. Commerce Displacement Risk Map (Draft 2023)



Note: Compared to the PSRC Displacement Risk Index, the Commerce map includes relatively fewer data measures, yet it adds a change-over-time component that accounts for recent demographic and housing market changes. The PSRC map, in contrast, relies on a snapshot-in-time approach by using a broader set of most recently available data to provide a relatively comprehensive picture of prevailing displacement risk factors. Local jurisdictions in the four-county central Puget Sound region may benefit from focusing their analysis of displacement risk on the PSRC map because it is the basis for PSRC's Regional Housing Strategy, and some jurisdictions have already used it in their recent housing work. Local jurisdictions may, however, use either or both maps in their analysis of displacement risk.  
 Source: Washington Department of Commerce, September 2023



Exhibit 3-43. Distribution of Population by Race in Lakewood, 2020.



**Legend**

- City of Lakewood
- Other cities
- Joint Base Lewis-McChord
- Water

**Distribution of Population by Race**

- White alone
  - Black or African American alone
  - American Indian and Alaska Native alone
  - Asian alone
  - Native Hawaiian and Other Pacific Islander alone
  - Some Other Race alone
  - Two or more races
- PSRC Displacement Index: Higher Risk

- Highways
- Arterials
- Roads



Map Date: January 2023

Sources: Pierce County GIS, 2022; ESRI, 2022; City of Lakewood, 2022; BERK, 2022.

## Tillicum-Woodbrook Subarea

The Subarea is largely included in Census Tract 720<sup>6</sup>, which is slightly smaller than the study area.

**Housing Occupancy:** As of 2020, Tract 720 had 2,189 total housing units. Tract 720’s number of units increased between 2000 and 2012 but decreased between 2010 and 2020. Of the total housing units in Tract 720 in 2020, 8.1% are vacant, which is greater than both the City of Lakewood and Pierce County (both at 5.5%). However, vacancy rates dropped for Tillicum from 2010 to match similar levels as Lakewood.

**Housing Tenure and Type:** Of the occupied housing units in Tract 720, 74% are occupied by renters and 26% are occupied by owners. The City of Lakewood is also majority renter-occupied (54%), but Tract 720 has a greater share of renters. The majority of Tract 720’s housing stock is multifamily, with 52% of housing units containing three or more units.

**Eviction Rates and Displacement:** Tillicum and Woodbrook have higher eviction rates and more cost-burdened households than Lakewood overall. See Exhibit 3-44. More Tillicum and Woodbrook families also rent, which puts them at a higher risk of displacement than homeowners.

**Exhibit 3-44. Eviction Rate – 2017**

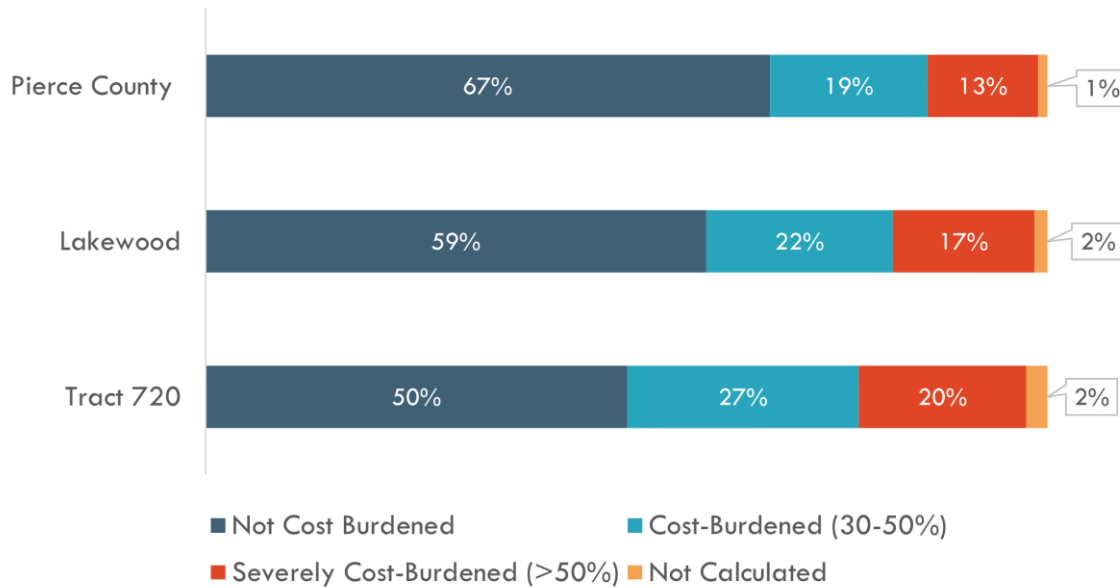
Jurisdiction	2017 Eviction Rate
Tract 720	7.8%
Lakewood	3.8%
Pierce County	2.7%

Source: The Evictions Study Map, University of Washington, 2017.

Half (50%) of Tract 720’s residents are cost-burdened. Of those that are cost-burdened, 20% are severely cost-burdened. It has a greater share of its population that are cost-burdened or severely cost-burdened (47%) than the City of Lakewood (39%) and Pierce County (32%). See Exhibit 3-45.

<sup>6</sup> See Lakewood’s Equity Index, available: <https://lakewood.caimaps.info/cailive?layer=EquityLayer&area=EquityCalcLakewood&tab=equity>.

Exhibit 3-45. Tillicum-Woodbrook, City, County Cost Burden – 2020



Source: CHAS, 2023.

### 3.3.2 Impacts

Impacts of the alternatives on housing are considered significant if they would:

- Fail to meet state requirements for middle housing (HB 1110), accessory dwelling units (HB 1337), or planning for and accommodating housing at all income levels (HB 1220), including permanent supportive housing (PSH) and emergency housing.
- Increase risk for involuntary residential displacement.

#### Impacts Common to All Alternatives

Each alternative provides total capacity that meets citywide housing growth targets. However, only the Action Alternative both meets capacity at all income levels, due largely to the added middle housing opportunities and the reinforcement of growth in Lakewood’s Downtown and Station District.

Exhibit 3-46. Projected Housing Needs and Capacity by Alternative

Income	2020-2044 Aggregated Housing Needs	No Action Capacity	No Action Capacity Surplus/ Deficit	Proposed Action Capacity	Action Alternative Capacity Surplus/ Deficit
0-80%	5,963	8,136	2,173	9,064	3,101
>80-120%	1,128	776	(352)	2,969	1,841
>120%	2,287	1,330	(957)	5,455	3,168
<b>Total</b>	<b>9,378</b>	<b>10,242</b>	<b>864</b>	<b>17,488</b>	<b>8,110</b>

Sources: (Pierce County, 2022), BERK 2024.

Under both alternatives, most higher density growth is planned in northeast and east Lakewood. Single family areas are largely located west of Bridgeport Way and Downtown.

High displacement risk is identified in areas along the north and east side of Lakewood where there is more multifamily and mixed use zoning including in Station District. With the Commerce displacement risk evaluation there are areas that are considered at higher risk rather than moderate risk, such as on the north and east side of American Lake.

#### *Tillicum-Woodbrook Subarea*

Under both alternatives, the Future Land Use Map would be retained in the subarea except that the Subarea Plan boundary would extend under the Action Alternative to match the amended Subarea Study Area.

Most Zoning districts would stay the same under both Alternatives including several Residential, Multifamily, Mixed Residential, Neighborhood Commercial, and Industrial zones. Under the Proposed Action, some citywide proposals would apply to middle housing in the subarea, and Residential 2/Transit (R2T) would apply in some portions of the subarea to the north and east.

Under both alternatives, the density of land uses will be similar, except where the Action Alternative implements middle housing per recent legislation. The PSRC displacement map rates the subarea's displacement risk as moderate, while the Commerce displacement map rates the risk as high.

### **No Action Alternative**

The No Action Alternative provides housing that meets overall City targets for the year 2044 but does not meet housing needs at all income levels.

The No Action Alternative does not alter the Future Land Use Map or Zoning Districts or regulations. However, based on existing plans, it is possible that new development could replace existing housing in east/northeast Lakewood leading to physical displacement.

While identified as a high displacement risk, Downtown has limited housing now and most housing is planned on land identified for commercial mixed use development such as the Town Center. Some units that exist on the north side of the district may be redeveloped over time.

The Station District zoning standards were altered to allow for middle housing in 2021, and the density was not changed in multifamily zones. Between 2021 and 2023, the city has attracted growth on a variety of sites with non-residential uses to date. Other dwellings may infill or alter existing dwellings.

#### *Tillicum-Woodbrook Subarea*

No change in the Tillicum-Woodbrook Subarea is proposed in the Future Land Use Map and Zoning Districts. Housing could be developed based on existing regulations, which includes multifamily and single family units. However, middle housing would not be allowed in the Residential zones that are on the north and east sides of the subarea.

## **Action Alternative**

The Action Alternative provides for housing capacity at all income levels. It increases capacity primarily due to the allowance for middle housing. The unit lot subdivision would provide an alternate process for the subdivision of land into unit lots for the creation of townhouse, cottage housing, attached housing, and similar developments. It would facilitate the unit types and potentially the affordability of ownership housing for more persons.

It would also create short-term rental regulations to limit the number rented by any one permittee; the short-term rental regulations would manage the activity to ensure neighborhood stability and maintain a balance with permanent rental units.

Other attached housing is focused in Downtown and the Station District.

Middle housing would allow for moderate density housing meant to integrate into historically single family areas, with similar scale and increase housing ownership and rental opportunities. It may displace existing units, but it could also add to existing properties without replacing the primary unit.

Downtown and Station District development would continue to follow subarea plans and regulations and reflect the results of biennial reviews.

- The Downtown regulations in LMC 18B would allow for master plans of smaller sites than presently allowed that could facilitate affordable and attached housing in the CBD zone. The overall growth planned in the Subarea Plan would continue. The CBD zone would be modestly adjusted to account for lots to the southern extent. Capital project costs would be updated. Consistency between housing and group home use allowances would be addressed.
- The Station District Subarea Plan and Planned action would be amended to remove reference to Lakewood Landing, a mixed residential and employment concept plan no longer applicable as the site to the east of Pacific Highway South would be focused on employment uses. The Action Alternative considers moving residential growth allocations from the east side of the subarea to the west side while still respecting the overall growth planned in the Subarea Plan. The evaluation process would occur every five years instead of every two years to be consistent with the Comprehensive Plan evaluation.

### *Tillicum-Woodbrook Subarea*

Subarea goals and policies support adding affordable housing and protecting affordable housing including existing manufactured and mobile homes. Goals and policies also point to infill housing and ADUs. More middle housing opportunities would be added to the subarea in the Residential zones that are on the north and east sides of the subarea.

### 3.3.3 Mitigation Measures

#### Incorporated Plan Features

The Action Alternative includes a new Housing Element addressing citywide housing needs and opportunities. It includes amendments to the Future Land Use Map and Zoning Districts to incorporate middle housing. Regulations would allow co-housing, and unit lot subdivisions, offering alternative forms of home ownership. It also includes a new Tillicum-Woodbrook Subarea Plan with goals, policies, and actions regarding housing development and preservation.

#### Regulations and Commitments

Housing allowances and standards are found in:

- Title 18A Land Use and Development Code
- Title 18B Downtown Development Code
- Title 18C Station District Development Code

The codes include allowances for a full range of housing types including Special Needs Housing.

Chapter 18A.90 Housing Incentives Program provides a central location of housing incentives like density bonuses and development standard modifications.

Other incentives for housing, particularly in the Downtown and Station District Subareas include:

- Title 3.64 Property Tax Exemptions for Multifamily Housing

Lakewood has a Rental Housing Safety Program with goals including:

- Ensure Lakewood's rental housing meets specific life and fire safety standards;
- Promote compliance with these standards so that the health and safety of tenants are not jeopardized;
- Increase awareness and sharing of information related to rental housing standards among existing and future rental property owners, property managers, landlords, and tenants.

Lakewood has a Housing Program meant to assist with home repairs and general home upgrades.

In conjunction with Tacoma, Lakewood has a consolidated plan for Housing and Community Development which uses Community Development Block Grant and HOME funds to develop affordable housing.

#### Other Potential Mitigation Measures

Amendments to some zones are needed to ensure ADUs and middle housing are implemented. In addition to the changes to add middle housing in the R1 to R4 zones, some adjustments to the Arterial Residential Corridor (ARC) and the Low-Impact Mixed-Use Roads District within the Central Business District zone in the Downtown may be needed. Amendments to reconcile the Special Needs Housing

Allowances for some types of group homes in the Downtown and Station District Subareas are needed (see Lakewood Municipal Code (LMC Titles 18B and 18C.)

### **3.3.4 Significant Unavoidable Adverse Impacts**

Housing growth will occur under both alternatives, which could result in impacts to current residents, including residential displacement in parts of the city. The No Action Alternative, specifically, is inconsistent with state requirements, because it does not provide enough capacity to accommodate housing targets at all income bands, as is now required under GMA.

## 3.4 Transportation and Parking

This section addresses current conditions and compare alternatives regarding future transportation and parking impacts and mitigation measures addressing the impacts. It incorporates by reference the transportation evaluations in the following SEPA documents:

- City of Lakewood, Downtown Lakewood Plan and Planned Action Final EIS, July 20, 2018, and associated Addenda, September 10, 2018 and September 26, 2018
- City of Lakewood, Lakewood Station District Subarea Plan, Form-Based Code, and Planned Action, Revised Determination of Non-Significance, November 12, 2020, March 30, 2021, and April 29, 2021

In addition, this section incorporates by reference the Lakewood Non-Motorized Plan Update 2023. As a Supplemental EIS, this section focuses on roadways and parking.

### 3.4.1 Affected Environment

#### Citywide

##### Street Classifications

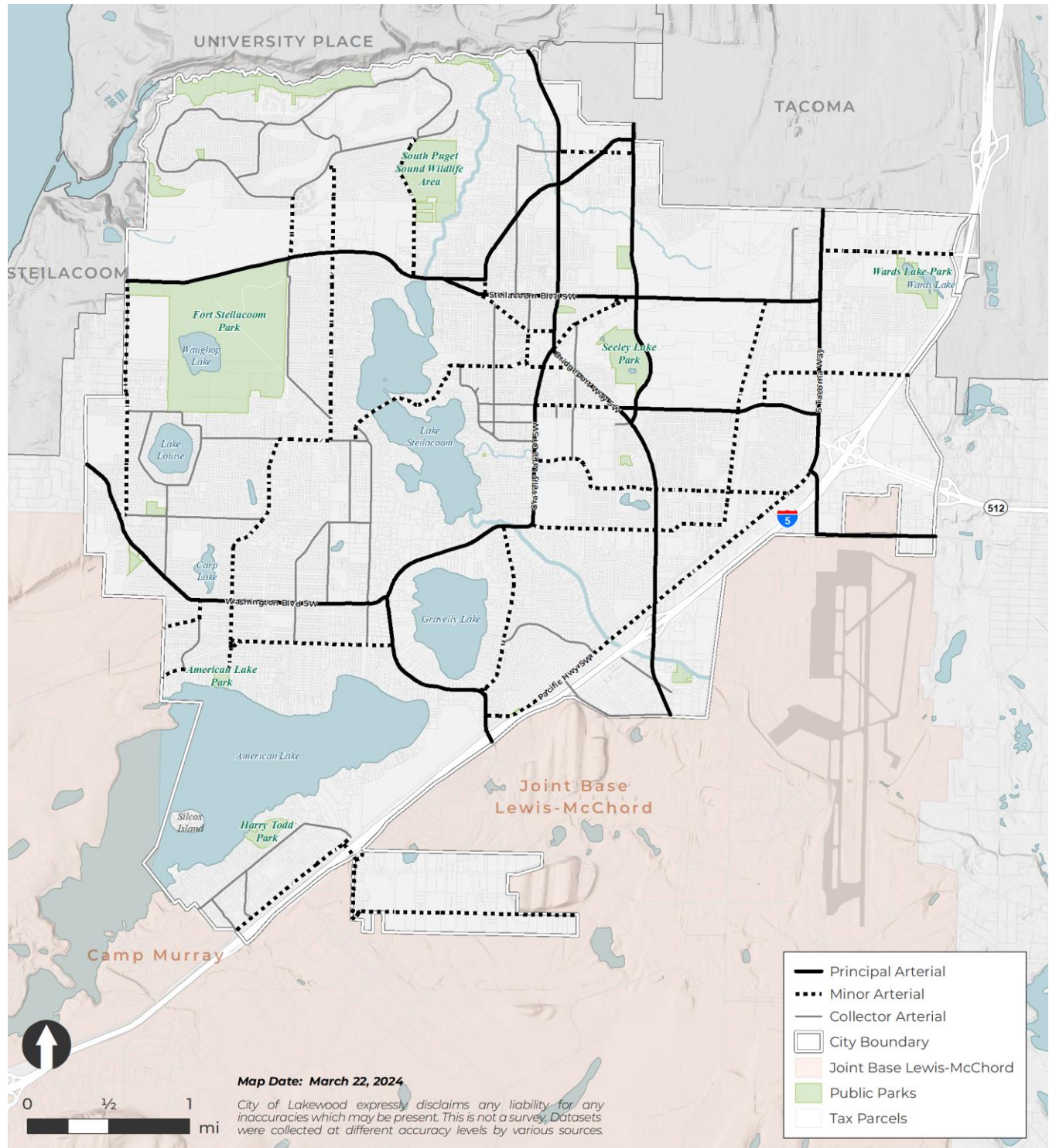
For the purposes of managing the city's street network, the streets in the city can be classified as follows:

- **Principal arterials** (major arterials) are roadways that provide access to principal centers of activity. These roadways serve as corridors between principal suburban centers, larger communities, and between major trip generators inside and outside the plan area. Service to abutting land is subordinate to travel service to major traffic movements. The principal transportation corridors within the City of Lakewood are principal arterials. These roadways typically have daily volumes of 15,000 vehicles or more.
- **Minor arterials** (minor arterials) are intra-community roadways connecting community centers with principal arterials. They provide service to medium-size trip generators, such as commercial developments, high schools and some junior high/grade schools, warehousing areas, active parks and ballfields, and other land uses with similar trip generation potential. These roadways place more emphasis on land access than do principal arterials and offer lower traffic mobility. In general, minor arterials serve trips of moderate length, and have volumes of 5,000 to 20,000 vehicles per day.
- **Collector arterials** (minor arterials) connect residential neighborhoods with smaller community centers and facilities as well as provide access to the minor and principal arterial system. These roadways provide both land access and traffic circulation within these neighborhoods and facilities. Collector arterials typically have volumes of 2,000 to 8,000 vehicles per day.
- **Local access roads** (access streets) include all non-arterial public city roads used for providing direct access to individual residential or commercial properties. Service to through traffic movement usually is deliberately discouraged. This also includes private access roads.

The definition of the streets in Lakewood as part of these categories is provided in Exhibit 3-47.



Exhibit 3-47. Lakewood Street Classifications.



Sources: City of Lakewood, 2024; Pierce County GIS, 2024.

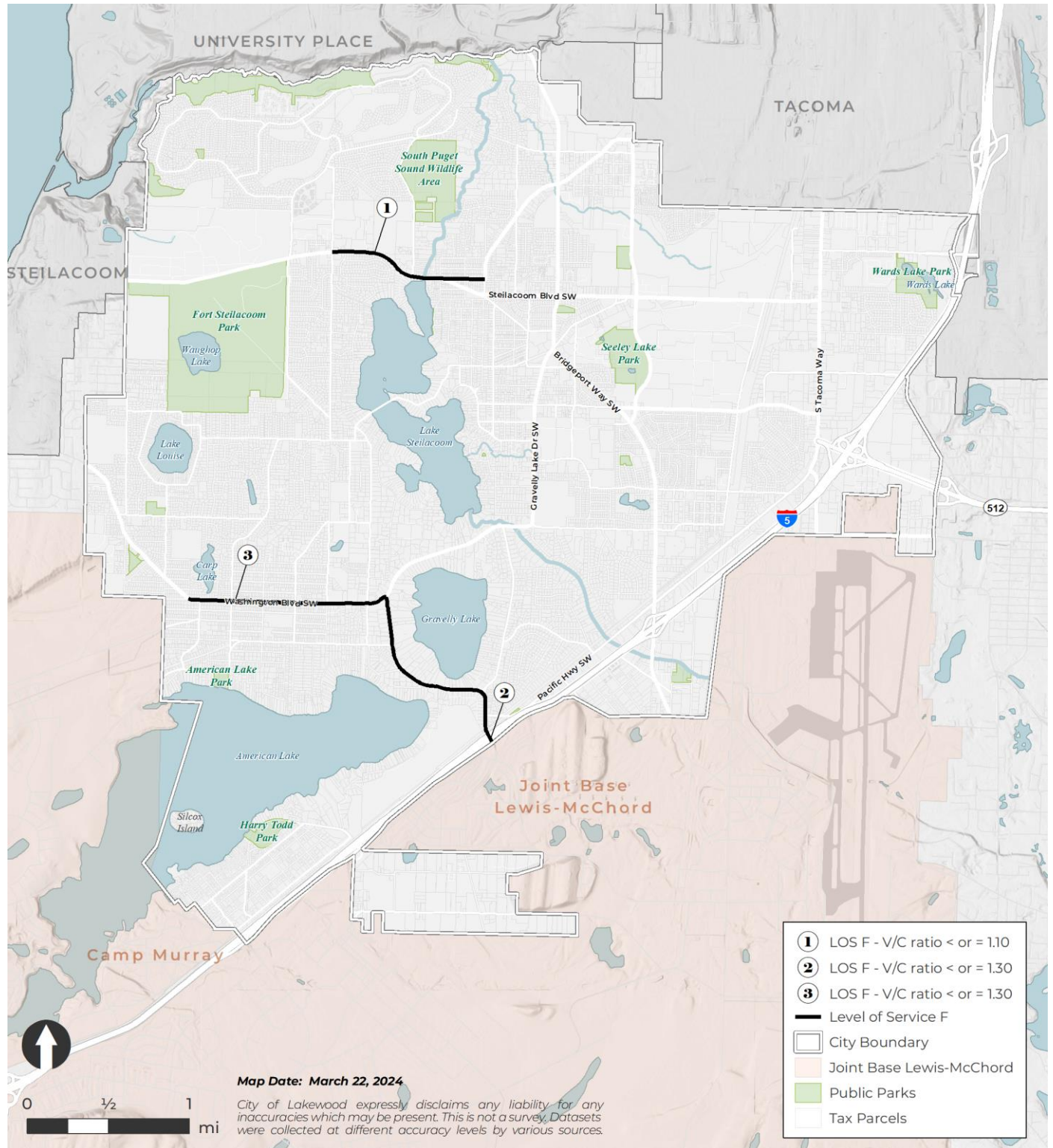
## Levels of Service

With respect to the transportation system in Lakewood, the target LOS thresholds for the system are established as shown in Exhibit 3-48. The specific corridors with thresholds of LOS F are also denoted in Exhibit 3-49. Note that the City may allow additional two-way and one-way stop-controlled intersections to operate worse than the LOS standards, but these instances should be thoroughly analyzed from an operational and safety perspective.

**Exhibit 3-48. LOS Standards for Lakewood Streets.**

Area/Facility	LOS Threshold	Volume/Capacity (VC Ratio)
All arterial streets and intersections in the city, including state highways of statewide significance except as otherwise identified	LOS D	0.90
<ul style="list-style-type: none"> <li>▪ Steilacoom Boulevard corridor between 88th Street SW and 83rd Avenue SW</li> </ul>	LOS F	1.10
<ul style="list-style-type: none"> <li>▪ Gravelly Lake Drive, between I-5 and Washington Boulevard SW</li> <li>▪ Washington Boulevard SW, west of Gravelly Lake Drive</li> </ul>	LOS F	1.30

Exhibit 3-49. Lakewood Arterials Allowing LOS F Thresholds.



Sources: City of Lakewood, 2024; Pierce County GIS, 2024.

## Recent Trends

Overall, historical traffic data analyzed from 2013 to 2022 also indicates a decline in traffic volumes on local streets, suggesting a shift in transportation preferences among Lakewood residents. This trend towards reduced vehicle usage, possibly accelerated by the adoption of remote work and digital services, suggests a potential for lower-than-anticipated future traffic growth rates. These findings reinforce the need for flexible, adaptive strategies in transportation planning to accommodate future shifts in travel behavior in Lakewood.

## Tillicum-Woodbrook Subarea

Streets in Tillicum include minor and collector arterials as well as local streets. See Exhibit 3-49. The level of service (LOS) for streets is LOS D per Exhibit 3-49.

### **3.4.2 Impacts**

#### Impacts Common to All Alternatives

##### Travel Forecasts

This section provides an overview of the potential roadway deficiencies of the Action Alternative scenario and any mitigation necessary to accommodate the City's housing and job growth targets. To do this, we conducted a travel demand model comparison between the No Action Alternative and Action Alternative land use scenarios.

The travel demand model used for this analysis was derived from the previous Lakewood Model that was prepared as part of the last Comprehensive Plan update and more recent Subarea Plans. This model can be utilized to forecast travel demand based on the City's housing and job growth targets. The land use assumptions included in this analysis are consistent with work being performed in updating the Land Use Plan and are intended for planning purposes only and in no way are meant to restrict or require specific land use actions.

##### *No Action Alternative Scenario*

The No Action Alternative scenario model builds upon the 2030 Plan scenario model used in the previous Transportation Element update and incorporates more recent land use planning efforts, such as the Downtown Plan and Station Area Plan. Additionally, the No Action Alternative scenario model includes one minor roadway improvement – the widening of Murray Road north of 146th SW to two lanes in each direction. This scenario is used as a future baseline to consider only approved land use capacity and roadway improvements.

##### *Action Alternative Scenario Model*

The Action Alternative scenario model builds upon the No Action Alternative scenario model by adding the City's housing and job growth targets through the year 2044. The two models are otherwise

identical, allowing for a measurement of the traffic volume effects of the additional housing and job growth.

*Land Use Changes*

Exhibit 3-50 shows a comparison of total occupied households and employees for the No Action Alternative and Action Alternative scenarios for the city overall and within specific districts. For reference, Exhibit 3-51 shows the analysis districts included in this analysis. Land uses outside of the City of Lakewood were assumed to be unchanged in both future scenarios in order to compare and contrast the transportation impacts of the land use changes internal to the city.

**Exhibit 3-50. Transportation Impacts by Land Use Assumption**

	<b>Downtown District</b>	<b>Station Area District</b>	<b>Other Lakewood District<sup>1</sup></b>	<b>City of Lakewood Total</b>
<b><u>Occupied Households</u></b>				
No Action Alternative	2,688	2,553	31,727	36,968
Action Alternative	2,915	2,564	30,151	35,630
<i>Difference</i>	227	11	(1,576)	(1,338)
% Difference	8.4%	0.4%	(5.0%)	(3.6%)
<b><u>Employees</u></b>				
No Action Alternative	13,498	3,145	24,407	41,050
Action Alternative	14,739	4,998	20,007	39,744
<i>Difference</i>	1,241	1,853	(4,400)	(1,306)
% Difference	9.2%	58.9%	(18.0%)	(3.2%)

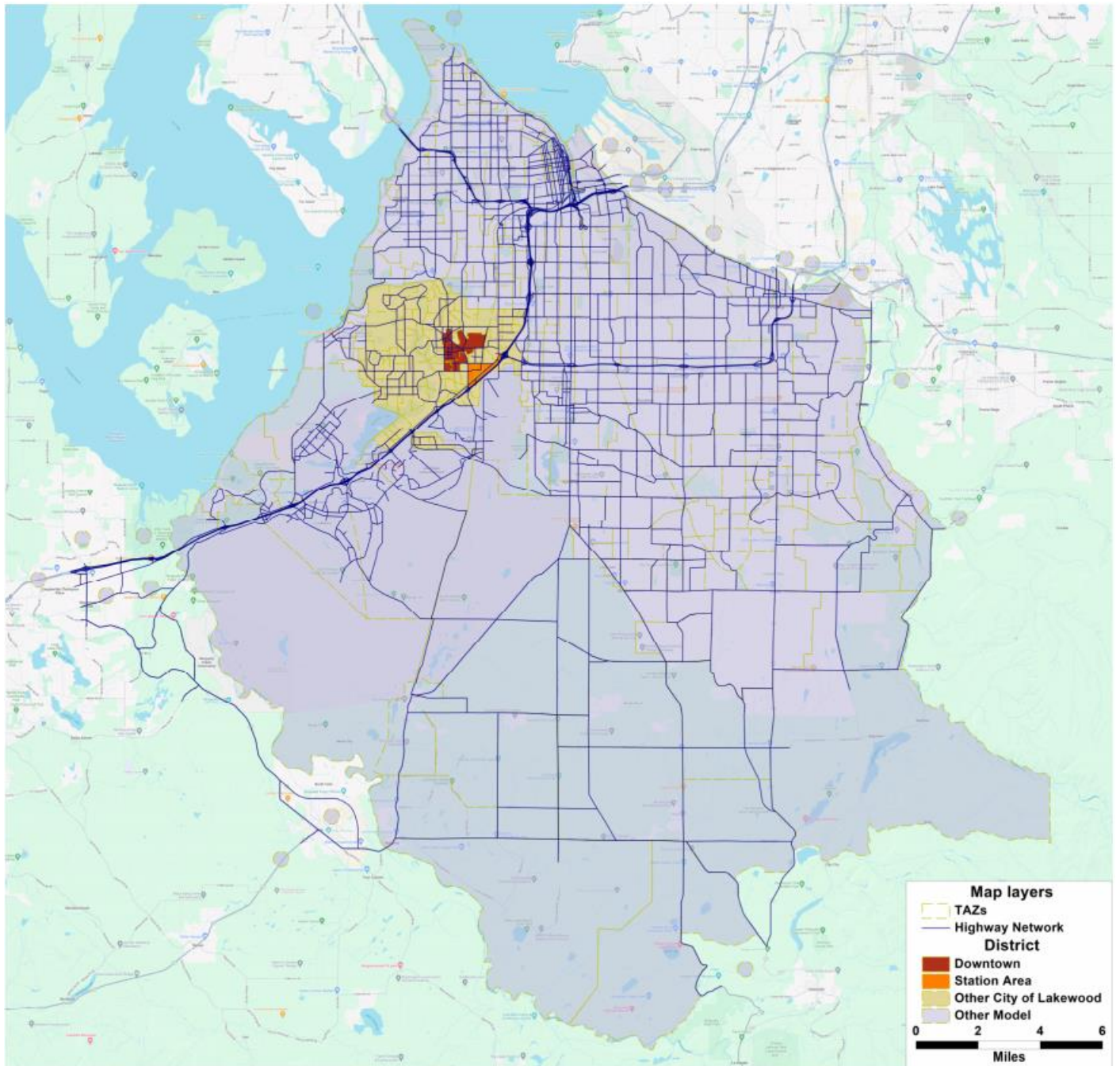
<sup>1</sup>All other areas in the city outside the Downtown and Station Area Districts.  
Source: Transpo, 2024

Under the Action Alternative scenario, there is a slight decrease in households and employees citywide compared to the No Action Alternative scenario.

The Action Alternative scenario shifts household growth to concentrate more within the Downtown (+227) and Station Area (+11) districts and less outside of these areas (-1,576). The Action Alternative scenario also shifts employee growth to concentrate more within the Downtown (+1,241) and Station Area (+1,853) districts and less outside of these areas (-4,400).

These land use changes for the Action Alternative scenario are intended to increase density in areas of the city with greater access to transit and other active transportation modes such as walking and biking.

**Exhibit 3-51. Analysis Districts**



Source: Transpo, 2024

Vehicle Miles Travelled

Vehicle Miles Travelled (VMT) measures the total number of miles travelled by all vehicles leaving, arriving, and/or passing through a geographic region. Exhibit 3-52 shows the VMT results for the two future scenarios overall and by analysis district.

**Exhibit 3-52. Vehicle Miles Travelled Analysis Results**

	Downtown District	Station Area District	Other Lakewood District <sup>1</sup>	City of Lakewood Total	Other Model
No Action Alternative	11,630	8,539	55,243	75,412	1,207,587
Action Alternative	12,339	9,489	52,668	74,496	1,218,125
<i>Difference</i>	709	950	(2,575)	(916)	10,538
% Difference	6.1%	11.1%	(4.7%)	(1.2%)	0.9%

Source: Transpo, 2024

Both the Downtown and Station Area districts show VMT increases of 6.1% and 11.1% respectively in the Action Alternative scenario. These increases are consistent with the changes in land use for this scenario. Other areas of the City of Lakewood are projected to produce less VMT (-4.7%) in the Action Alternative scenario, also consistent with the changes in land use for this scenario. VMT within the City of Lakewood overall is projected to decrease slightly (-1.2%) under the Action Alternative scenario. VMT outside of the City of Lakewood is projected to increase slightly (0.9%) under the Action Alternative scenario.

### Level of Service Analysis

The travel demand model was utilized to model both land use scenarios outlined previously. Traffic volumes, roadway volume-to-capacity (v/c) ratios, and LOS were then calculated for mid-block arterial roadway segments throughout the City of Lakewood. The v/c and LOS calculations are based on the Highway Capacity Manual (HCM) methodology and the PM peak hour traffic volumes from the two model scenarios. The LOS is consistent with the methodologies adopted in the existing Comprehensive Plan. Exhibit 3-53 shows the results from this analysis.

**Exhibit 3-53. 2044 Weekday PM Peak Hour Roadway Traffic Operations Summary**

Intersection	No Action Alternative			Action Alternative		
	LOS <sup>1,2</sup>	V/C (NB/EB)	VC (SB/WB)	LOS	V/C (NB/EB)	VC (SB/WB)
<b>Ardmore DR SW</b>						
Southeast of Steilacoom Blvd SW	D	0.74	0.83	C	0.68	0.71
Northwest of Whitman Ave SW	B	0.40	0.63	A	0.36	0.55
<b>Bridgeport Way W</b>						
North of 75th St W	C	0.79	0.69	C	0.80	0.66
North of Custer Rd W	B	0.66	0.62	B	0.69	0.60
South of Custer Rd W	C	0.71	0.63	C	0.76	0.62
North of Gravelly Lake Dr SW	A	0.56	0.54	A	0.59	0.51
South of Gravelly Lake Dr SW	A	0.39	0.43	A	0.42	0.40
North of 100th St SW	A	0.50	0.52	A	0.53	0.53
South of 100th St SW	A	0.26	0.23	A	0.30	0.25

Intersection	No Action Alternative			Action Alternative		
	LOS <sup>1,2</sup>	V/C (NB/EB)	VC (SB/WB)	LOS	V/C (NB/EB)	VC (SB/WB)
South of Lakewood Dr SW	A	0.51	0.56	A	0.58	0.60
North of 112th St SW	A	0.52	0.58	A	0.59	0.58
North of Pacific Highway SW	C	0.67	0.78	C	0.78	0.78
South of Pacific Highway SW	D	0.79	0.85	D	0.78	0.84
I-5 Overcrossing	B	0.58	0.62	B	0.54	0.65
At Clover Creek Bridge South of I-5	A	0.44	0.31	A	0.44	0.33
<b><u>Custer Rd SW/W</u></b>						
Northeast of Bridgeport Way SW	C	0.62	0.75	C	0.64	0.75
Southwest of Bridgeport Way SW	C	0.52	0.72	B	0.52	0.70
North of 88th St SW	B	0.47	0.66	B	0.47	0.64
South of 88th St SW	A	0.55	0.04	A	0.51	0.03
<b><u>Far West Dr SW</u></b>						
South of Steilacoom Blvd SW	A	0.12	0.16	A	0.25	0.18
<b><u>Gravelly Lake Dr SW</u></b>						
South of Steilacoom Blvd SW	A	0.30	0.56	A	0.34	0.59
Northeast of Bridgeport Way SW	A	0.15	0.37	A	0.19	0.39
Southwest of Bridgeport Way SW	A	0.25	0.29	A	0.26	0.29
South of Mount Tacoma Dr SW	A	0.26	0.19	A	0.29	0.22
South of 100th St SW	A	0.39	0.41	A	0.43	0.45
South of Alfaretta St SW	A	0.26	0.30	A	0.29	0.33
North of Wildaire Rd SW	A	0.48	0.50	A	0.45	0.49
North of 112th St SW	A	0.45	0.45	A	0.45	0.50
West of 112th St SW	B	0.50	0.65	B	0.48	0.62
West of Nyanza Rd SW/S	E	0.89	0.97	D	0.75	0.87
North of Pacific Highway SW	B	0.70	0.54	B	0.67	0.47
South of Pacific Highway SW	B	0.68	0.55	B	0.65	0.51
I-5 Overcrossing	A	0.47	0.33	A	0.45	0.32
<b><u>Hipkins Rd SW</u></b>						
South of Steilacoom Blvd SW	A	0.33	0.43	A	0.26	0.36
<b><u>Lakeview Ave SW</u></b>						
South of 100th St SW	A	0.24	0.39	A	0.27	0.43
South of Steilacoom Blvd SW	A	0.34	0.26	A	0.44	0.28
<b><u>Lakewood Dr SW</u></b>						
North of 74th St W	D	0.66	0.86	D	0.72	0.88
South of 74th St W	D	0.66	0.81	D	0.72	0.82
North of Steilacoom Blvd SW	C	0.67	0.79	C	0.74	0.80
South of Steilacoom Blvd SW	A	0.54	0.51	A	0.60	0.51
North of 100th St SW	A	0.40	0.48	A	0.48	0.54
<b><u>Military Rd SW</u></b>						
South of 112th St SW	A	0.39	0.34	A	0.37	0.39
Northwest of 112th St SW	A	0.19	0.16	A	0.17	0.14
<b><u>Mount Tacoma Dr SW</u></b>						



Intersection	No Action Alternative			Action Alternative		
	LOS <sup>1,2</sup>	V/C (NB/EB)	VC (SB/WB)	LOS	V/C (NB/EB)	VC (SB/WB)
West of Bridgeport Way	A	0.15	0.19	A	0.25	0.22
West of Gravelly Lake Dr	A	0.18	0.28	A	0.16	0.26
<b><u>Murray Rd SW</u></b>						
North of 146th St SW	A	0.58	0.50	A	0.55	0.45
<b><u>North Thorne Ln SW</u></b>						
Southeast of Union Ave SW	B	0.66	0.67	B	0.56	0.65
<b><u>Nyanza Rd SW</u></b>						
North of Gravelly Lake Dr SW	A	0.55	0.28	A	0.57	0.26
South of Gravelly Lake Dr SW	A	0.55	0.30	A	0.57	0.30
<b><u>Pacific Highway SW</u></b>						
North of 108th St SW	C	0.76	0.69	E	0.94	0.72
Southwest of 108th St SW	A	0.47	0.39	B	0.69	0.48
Northeast of Bridgeport Way SW	A	0.48	0.45	B	0.59	0.68
Southwest of Bridgeport Way SW	B	0.58	0.63	C	0.66	0.71
East of Gravelly Lake Dr SW	B	0.54	0.65	B	0.47	0.63
<b><u>Phillips Rd SW</u></b>						
North of Steilacoom Blvd SW	C	0.71	0.35	A	0.58	0.31
<b><u>South Tacoma Way</u></b>						
North of 84th St SW	D	0.64	0.89	D	0.65	0.90
North of Steilacoom Blvd SW	D	0.75	0.87	D	0.78	0.87
South of Steilacoom Blvd SW	C	0.72	0.77	D	0.72	0.83
North of 96th St S	C	0.65	0.75	C	0.68	0.80
North of 100th St SW	D	0.89	0.62	E	0.93	0.62
South of SR 512	C	0.79	0.67	E	0.92	0.67
Southeast of Pacific Highway SW	A	0.30	0.29	A	0.30	0.31
<b><u>Steilacoom Blvd SW</u></b>						
East of Farwest Dr SW	A	0.39	0.49	A	0.48	0.47
West of 87th Ave SW	A	0.56	0.52	A	0.48	0.47
West of 83rd Ave SW/Hipkins Rd SW	A	0.52	0.51	A	0.46	0.50
West of Phillips Rd SW	F	0.84	1.02	E	0.72	0.94
East of Phillips Rd SW	F	0.84	1.12	F	0.73	1.01
Southeast of 88th St SW	C	0.78	0.68	B	0.66	0.60
West of Bridgeport Way SW	B	0.38	0.62	A	0.31	0.57
East of Bridgeport Way SW	A	0.33	0.53	A	0.28	0.49
West of Gravelly Lake Dr SW	A	0.32	0.47	A	0.28	0.43
East of Lakewood Dr SW	A	0.35	0.47	A	0.34	0.44
West of Lakeview Ave SW	A	0.35	0.49	A	0.34	0.46
West of South Tacoma Way	A	0.48	0.54	A	0.55	0.53
<b><u>Union Ave SW</u></b>						
Northeast of Berkeley St SW	A	0.16	0.21	A	0.13	0.16
Southwest of North Thorne Ln SW	A	0.37	0.31	A	0.28	0.29

Intersection	No Action Alternative			Action Alternative		
	LOS <sup>1,2</sup>	V/C (NB/EB)	VC (SB/WB)	LOS	V/C (NB/EB)	VC (SB/WB)
<b>Washington Blvd SW</b>						
West of Gravelly Lake Dr SW	E	0.66	0.99	E	0.65	0.96
<b>Whitman Ave SW</b>						
South of Ardmore Dr SW	A	0.13	0.14	A	0.13	0.13
<b>40th Ave SW</b>						
North of 100th St SW	B	0.32	0.62	B	0.37	0.66
<b>74th St S</b>						
West of Lakewood Dr SW	C	0.56	0.71	A	0.57	0.71
<b>83rd Ave SW</b>						
North of Steilacoom Blvd SW	A	0.56	0.33	A	0.39	0.26
<b>84th St S</b>						
East of South Tacoma Way	A	0.39	0.25	A	0.41	0.26
<b>87th Ave SW</b>						
South of Steilacoom Blvd SW	A	0.09	0.09	A	0.03	0.03
North of Steilacoom Blvd SW	A	0.36	0.28	A	0.30	0.14
<b>88th St SW</b>						
East of Steilacoom Blvd SW	A	0.17	0.58	A	0.15	0.53
<b>93rd St SW</b>						
East of Whitman Ave SW	A	0.46	0.34	A	0.39	0.32
<b>96th St S</b>						
West of South Tacoma Way	C	0.61	0.77	C	0.52	0.73
East of South Tacoma Way	D	0.81	0.45	D	0.81	0.44
<b>100th St SW</b>						
West of South Tacoma Way	C	0.72	0.53	C	0.78	0.53
East of Lakeview Dr SW	D	0.83	0.82	D	0.90	0.83
West of Lakeview Dr SW	C	0.74	0.63	C	0.80	0.63
East of Lakewood Dr SW	C	0.73	0.68	C	0.75	0.67
East of Bridgeport Way SW	B	0.64	0.63	B	0.69	0.65
East of Gravelly Lake Dr SW	A	0.13	0.19	A	0.16	0.21
<b>108th St SW</b>						
West of Pacific Highway SW	C	0.71	0.74	D	0.82	0.80
East of Bridgeport Way SW	A	0.57	0.42	A	0.60	0.45
West of Bridgeport Way SW	A	0.45	0.31	A	0.46	0.28
East of Davisson Rd SW	A	0.48	0.34	A	0.47	0.30
<b>112th St SW/S</b>						
Between Military Rd SW & Farwest Dr S	A	0.25	0.35	A	0.26	0.48
East of Gravelly Lake Dr SW	B	0.31	0.61	A	0.32	0.49
East of Bridgeport Way SW	B	0.54	0.66	A	0.56	0.56
West of Bridgeport Way SW	B	0.49	0.68	B	0.57	0.61
<b>150th St SW</b>						
East of Woodbrook Rd SW	F	1.05	0.75	C	0.80	0.57

<sup>1</sup> Level of service, based on Highway Capacity Manual, 7<sup>th</sup> Edition methodology

<sup>2</sup> Level of service reported for worst performing direction of travel

Source: Transpo, 2024

## I-5 Volumes

GMA requires the City to assess the impact of land-use decisions on state-owned transportation facilities. Using the land use assumptions for each alternative and the travel demand model, volumes at ramps and mainline segments are compared in Exhibit 3-54 and Exhibit 3-55. The Action Alternative volumes are slightly lower in general compared to baseline or No Action though there are locations where Action Alternative volumes are greater.

**Exhibit 3-54. Northbound I-5 Volumes**

Interchange		No Action	Action	% Diff
Berkeley Ave	Mainline	15,590	15,370	-1.4%
	Off Ramp	920	830	-9.8%
	On Ramp	3,600	3,550	-1.4%
Thorne Lane	Mainline	18,270	18,090	-1.0%
	Off Ramp	880	1,040	18.2%
	On Ramp	3,370	3,180	-5.6%
Gravelly Lake Drive	Mainline	20,760	20,230	-2.6%
	Off Ramp	2,200	2,130	-3.2%
	On Ramp	1,430	1,370	-4.2%
Bridgeport Way	Mainline	19,990	19,470	-2.6%
	Off Ramp	1,930	1,930	0.0%
	On Ramp	2,660	3,040	14.3%
SR 512	Mainline	20,720	20,580	-0.7%
	Off Ramp	5,510	5,450	-1.1%
	On Ramp	5,230	5,300	1.3%
S. 84th St	Mainline	20,440	20,430	0.0%
	Off Ramp	1,930	1,820	-5.7%
	Mainline	18,510	18,610	0.5%
S. 74th Street	Off Ramp	1,840	1,780	-3.3%
	On Ramp	3,670	3,670	0.0%
	Mainline	20,340	20,500	0.8%

Source: Transpo, 2024

**Exhibit 3-55. Southbound I-5 Volumes**

Interchange		No Action	Action	% Diff
S. 74th Street	Mainline	25,160	25,140	-0.1%
	Off Ramp	4,970	4,970	0.0%

Interchange		No Action	Action	% Diff
	On Ramp	990	1,010	2.0%
	Mainline	21,180	21,180	0.0%
S. 84th St	On Ramp	1,080	1,050	-2.8%
	Mainline	22,260	22,230	-0.1%
SR 512	Off Ramp	6,390	6,160	-3.6%
	On Ramp	4,920	4,600	-6.5%
	Mainline	20,790	20,670	-0.6%
Bridgeport Way	Off Ramp	2,500	2,850	14.0%
	On Ramp	2,650	2,510	-5.3%
	Mainline	20,940	20,330	-2.9%
Gravelly Lake Drive	Off Ramp	1,850	1,880	1.6%
	On Ramp	2,050	1,790	-12.7%
	Mainline	21,140	20,240	-4.3%
Thorne Lane	Off Ramp	2,960	2,310	-22.0%
	On Ramp	840	870	3.6%
	Mainline	19,020	18,800	-1.2%
Berkeley Ave	Off Ramp	2,100	1,910	-9.0%
	On Ramp	390	380	-2.6%
	Mainline	17,310	17,270	-0.2%

Source: Transpo, 2024

### Tillicum-Woodbrook Subarea

The travel demand model results show relatively low volumes in the subarea for both alternatives, though volumes are slightly lower with the Action Alternative. Under both alternatives, LOS does not exceed thresholds as shown in Exhibit 3-53 and listed below:

- Union Ave SW, Northeast of Berkeley St SW and Southwest of North Thorne Ln SW: LOS A
- North Thorne Ln SW, Southeast of Union Ave SW: LOS B

Volumes along I-5 show a reduction at Berkley Avenue Interchange with the Action Alternative in both directions. See Exhibit 3-54 and Exhibit 3-55.

### No Action Alternative

The No Action Alternative would continue current LOS standards and plans and growth assumptions to 2035. It would have slightly higher VMT. It would perform less well than the Action Alternative for some intersections of Gravelly Lake Drive SW, Steilacoom Boulevard SW, Washington Boulevard, and 150<sup>th</sup> Street. It would have less impacts for some locations along Pacific Highway SW and South Tacoma Way. See the discussion of the Action Alternative below.

Similarly it would result typically in slightly higher volumes along I-5 in most interchange ramp and mainline locations.

The No Action Alternative would not allow middle housing to the same degree or change parking standards to meet state laws. It would retain current parking ratios as well as parking incentives as a means to alter parking standards (e.g., transportation demand management measures, electric vehicle parking, retention of significant trees, other).

## **Action Alternative**

### VMT

The overall growth was distributed per the proposed land use plan but capped at the 2044 target. The Action Alternative has lesser citywide VMT due to the mix of growth with most growth in centers as well as distribution of middle housing growth in neighborhoods including near transit corridors.

### Level of Service (LOS) Analysis

The analysis of the two model scenarios focuses on roadway segments which operate at LOS E or worse ( $v/c > 0.90$ ) since the general concurrency threshold for the City of Lakewood is to maintain LOS D or better along all arterial roadways. However, as discussed in greater detail below, the City has previously identified some roadway segments that are unable to maintain LOS D or better through feasible mitigation or improvements in the future. For these roadway segments, the City has established either a LOS E or LOS F threshold, depending on the roadway segment.

The following two lists summarize the roadway segments projected to operate at LOS E or worse in either the No Action Alternative or the Action Alternative model scenarios. The first list shows roadway segments projected to operate better in the Action Alternative than the No Action Alternative model scenario. The second list shows roadway segments projected to operate worse in the Action Alternative than the No Action Alternative model scenario.

- Roadway operating conditions are projected to improve under the Action Alternative model scenario for the following segments:
  - Gravelly Lake Dr SW west of the end of Nyanza Rd SW from LOS E ( $v/c$  0.97) to LOS D ( $V/C$  0.87)
  - Steilacoom Blvd SW west of Phillips Rd SW from LOS F ( $v/c$  1.02) to LOS E ( $v/c$  0.94)
  - Steilacoom Blvd SW east of Phillips Rd SW from LOS F ( $v/c$  1.12) to LOS F ( $v/c$  1.01)
  - Washington Blvd SW west of Gravelly Lake Dr SW from LOS E ( $v/c$  0.99) to LOS E ( $v/c$  0.96)
  - 150th St SW east of Woodbrook Rd SW from LOS F ( $v/c$  1.05) to LOS C ( $v/c$  0.80)
- Roadway operating conditions are projected to worsen under the Action Alternative model scenario for the following segments:
  - Pacific Highway SW north of 108th St SW from LOS D ( $v/c$  0.76) to LOS E ( $v/c$  0.94)
  - South Tacoma Way north of 100th St SW from LOS D ( $v/c$  0.89) to LOS E ( $v/c$  0.93)
  - South Tacoma Way south of SR 512 from LOS D ( $v/c$  0.79) to LOS E ( $v/c$  0.92)

## State Routes

In most interchange ramp and mainline locations volumes would be reduced under the Action Alternative but in some locations, some movements would show increased volumes.

## Parking Analysis

This section describes the analysis conducted by both BERK and Transpo Group to evaluate and identify areas within the City of Lakewood where a potential increase in on-street parking demand due to middle housing developments allowed under the State of Washington HB 1110 might cause significant safety issues. The State plans to provide guidance to local jurisdictions on how to evaluate significant safety issues related to HB 1110. However, prior to the issuance of this guidance, our analysis provides a methodology for evaluating significant safety issues that can be applied consistently to all roadway segments in the City related to parking impacts.

The analysis assumes that significant safety issues stemming from increased on-street parking could arise on roadways that were not originally designed for on-street parking. In the context of residential areas within the City of Lakewood, this would typically include narrow local roads without curbs. On-street parked vehicles on these roadways may contribute to significant safety issues, such as reduced sight distances, increased risk of dooring collisions for people biking, or preventing adequate space for two-way travel.

### *Data and Assumptions*

The City of Lakewood provided the data used in this study. GIS data layers used included:

- **Travelways:** a line layer showing the edge of pavement for the entire city. This layer also shows driveway access to/from all parcels.
- **ROW under 60:** a line layer showing areas of the city where the public right of way is less than 60 feet wide.
- **Arterials:** a line layer showing all roads in the city.
- **Parcels:** a polygon layer showing parcels in the city.

These GIS data layers were utilized to identify narrow roadway segments throughout the City of Lakewood. However, it is important to note that since our analysis relies on the “ROWunder60” layer to identify narrow roadway segments, it is possible that this excludes other roadway segments that might have significant safety issues related to on-street parking. For example, a roadway segment with adequate public ROW but the pavement width is still narrow or missing curbs. The City should consider if further study is necessary to evaluate safety in these areas.

Once parcels along narrow roadway segments were identified, our analysis excluded parcels that were within 300 feet walking distance from a roadway segment with adequate public ROW. The assumption here is that a person living at one of these parcels could park their vehicle along the roadway segment with adequate public ROW and conveniently walk to their residence.

### *Methodology to Identify Inadequate On-Street Parking*

The following steps were conducted to identify roadway segments with potentially significant safety issues related to on-street parking.

**Step 1:** *Identify where HB 1110 land uses would initially be allowed absent other data. Utilize the existing low-density residential zoning GIS layer for R1-R4 designated areas. Remove areas with lot sizes below a minimum threshold or lot size.*

This filtered dataset included 8,983 parcels.

**Step 2:** *Remove properties within ½ mile walking distance of a major transit stop. A major transit stop provides daily service frequency of 30 minutes or greater.*

Major transit stops within the city included stops with either future bus rapid transit or commuter rail service. Excluding parcels within a ½ mile walking distance of major transit stops reduced the number of parcels relevant to the parking analysis to 2,300.

**Step 3:** *Utilize estimates of potential development capacity, such as number of additional units that could be added, to highlight areas with higher likelihood of off-site parking needs.*

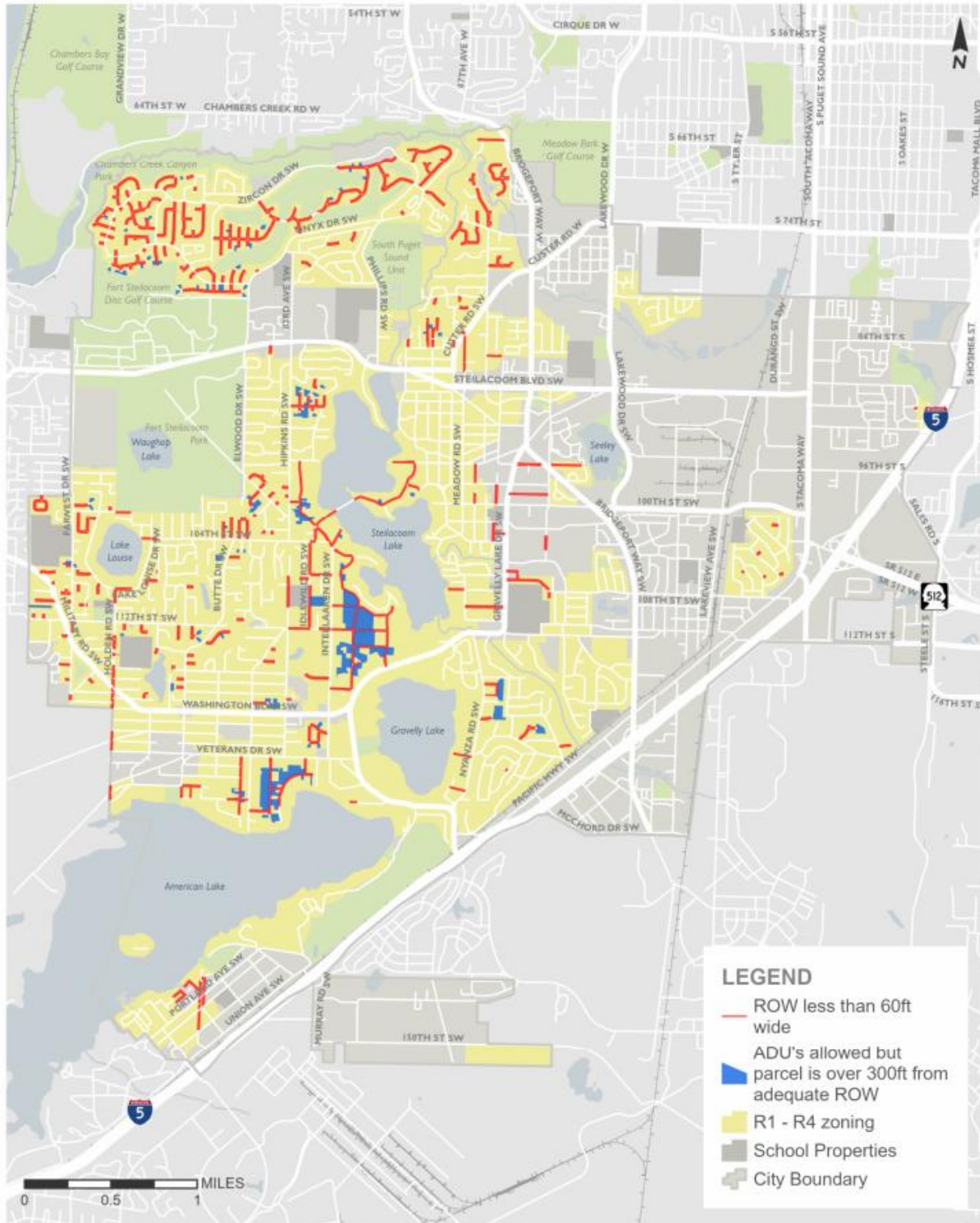
The Consultant team identified parcels where middle housing would not be allowed or would not be possible to build. The exclusion of these parcels reduced the number of parcels relevant to the parking analysis to 1,615.

**Step 4:** *Highlight properties that have direct access to public streets that have substandard public ROW widths of under 60 feet. Assume on-street parking within 300 feet of a property is within acceptable walking distance.*

This step reduced the number of parcels relevant to the parking analysis to 191. Exhibit 3-56 shows the location of the 191 parcels within the city.

The analysis highlights two neighborhoods within the city with a high concentration of parcels with potentially significant on-street parking safety issues – the Interlaken and Harts Idyllwild/Lake Holme developments. These neighborhoods include mostly low-density single-family homes. Roadways within these neighborhoods are primarily narrow and without curbs or sidewalks. The neighborhoods were designed to be accessed primarily by automobile. The historically single family area and roadway connectivity also allows for walking without the need for sidewalks since the traffic volumes are likely low and people walking have the option to walk off pavement within the public right of way. Since these roadways were not designed to accommodate higher residential densities and on-street parking, they may be appropriate areas to exempt from the HB 1110 middle housing zoning requirements. However additional evaluation may be necessary to consider other data points and information, such as equity, demographics, and practicality or risk of exempting these areas from middle housing zoning.

Exhibit 3-56. Parcels of Concern for Significant On-Street Parking Safety Issues



Source: Transpo, 2024



### 3.4.3 Mitigation Measures

#### Incorporated Plan Features

The City is updating its land use plans and associated transportation policies to meet a new horizon year of 2044 and address multimodal transportation needs. The City is updating Downtown Subarea Plan and Planned Action road cost estimates. The City is incorporating planned improvements citywide and in Downtown in a Capital Facilities Plan.

#### Regulations and Commitments

Annually, the Lakewood Transportation Improvement Program identifies needed multimodal projects for a six-year period.

Lakewood adopted a Non-Motorized Transportation Plan (NMTP) in 2023. It includes a pedestrian system plan and a bicycle system plan. It includes funding needs and recommendations to implement non-motorized transportation improvements. The proposed Comprehensive Plan policies and supporting appendix material propose the addition of a multi-modal LOS that is based on the results of the Non-2023 Motorized Transportation Plan.

The City manages transportation facilities in Title 12, including:

- Chapter 12.09 – Transportation Facilities. Establishes LOS, requirements for traffic studies, and street frontage improvements.
- Chapter 12.13 – Commute Trip Reduction (CTR). Requires an employer that employs 100 or more full-time employees at a single work site to develop commute trip reduction programs to reduce VMT.
- Chapter 12.18 – Complete Streets Policy.

The City regulates parking in Title 18A.80 as well as in the Downtown and Station District Subareas' codes (LMC Titles 18B and 18C.) Persons may use parking incentives to reduce parking requirements (see 18A.80.060).

#### Other Potential Mitigation Measures

##### Roads

The roadway segments along Steilacoom Blvd SW and Washington Blvd SW which continue to operate at LOS E or worse in the Action Alternative model scenario have previously been identified by the City as segments which are unable to maintain LOS D or better through feasible mitigation or improvements. Therefore, the analysis does not consider potential mitigations for these roadway segments since the results are similar to what had been shown in the adopted Transportation Element.

The remaining roadway segments along Pacific Highway SW and South Tacoma Way which continue to operate at LOS E or worse in the Action Alternative model scenario are considered for potential mitigations in our analysis. These two roadways directly serve the Station Area District and the increased

land use intensity in the Action Alternative model scenario contributed to the worsening roadway segment LOS.

Given the City's focus on improving transit accessibility, especially for active transportation modes such as walking and biking, within the Station Area District, it is not likely feasible to mitigate the roadway segment deficiencies along Pacific Highway SW and South Tacoma Way through roadway widening improvements. In 2024, the Sound Transit Board of Directors approved funding a series of access improvements within the Station Area District which may encourage greater transit, walking, and biking use and decrease the demand for single occupancy vehicle driving on the surrounding roadway network. These improvements include:

- **15th St Ct SW trail to station** – adds a multi-use trail in Sound Transit right-of-way from the end of 115th St. Court SW to the pedestrian bridge over the railroad tracks connecting to Lakewood Station.
- **Station area curb and sidewalk improvements** – improve curbs and sidewalks within a half mile radius of the station area.
- **Pierce Transit Route 206 bus stop at Lakewood Station** – modify the intersection of Pacific Hwy. SW and Bridgeport Way to improve the bus turning radius, which makes a Pierce Transit stop at the station more feasible.

Additionally, the City of Lakewood could consider adjusting the LOS threshold for these deficient roadway segments as they have done previously for other deficient roadway segments in the city. These adjustments would further emphasize the City's focus on improving transit access, walking, and biking within the Station Area District and surrounding area.

#### 3.4.4 Significant Unavoidable Adverse Impacts

Expected demographic and economic growth in key urban centers requires that transportation infrastructure keeps pace with development. The focus on enhancing sustainable and efficient transportation options will be crucial in managing the environmental impact and improving the quality of life for Lakewood's residents. With mitigation measures including capital investments, transportation impacts can be reduced at identified locations, except where the City has already identified lower LOS that balance investment and congestion.

The capacity of the Action Alternative to provide middle housing is greater than the No Action Alternative as described in Chapter 2. The City would allow middle housing in most residential zones, and near transit would limit parking per state requirements, with Director review of the feasibility of on-street parking. With ongoing monitoring and code allowances that provide avenues for applicants to request changes in parking with project-level information, no significant unavoidable adverse impacts are anticipated.

## 3.5 Public Services

This section documents existing public services provided within the City of Lakewood. It details adopted and effective level of service (LOS) standards, estimated demand for services, and projects future LOS and demand for each alternative. Public services analyzed in this EIS include fire, police, schools, and parks space. Exhibit 3-57 lists which essential public services and utilities are analyzed here and notes what service plans or capital planning documents guide those services.

**Exhibit 3-57 Public Services Included in this Supplemental Environmental Impact Statement**

Public Service	Provider	Guiding Documents
<b>Fire</b>	West Pierce Fire and Rescue	West Pierce Fire & Rescue Annual Report (2022 & 2023); West Pierce Fire & Rescue 2024 Budget
<b>Police</b>	Lakewood Police Department	Lakewood Police Department 2023 Annual Report
<b>Schools</b>	Clover Park School District	Office of Financial Management Small Area Estimates Program; Office of Superintendent of Public Instruction Clover Park Strategic Plan and Facility Condition Report
<b>Parks, Recreation, and Open Space</b>	Lakewood Parks & Recreation Pierce County Parks & Recreation	Lakewood Legacy Plan PROS Master Plan 2020 Parks Capital Improvement Program 2024-2029

The methodology for impacts is based on analyzing data available in the Comprehensive Plan, functional plans, provider annual reports, budgets, and other data sources, as necessary. Impacts are quantified by population and employment-based summaries and projections.

### 3.5.1 Affected Environment

#### Fire & EMS

##### Existing Service

West Pierce Fire & Rescue (WPFR) is responsible for providing fire services to the city. Formed in 2011, WPFR fully serves the communities of Lakewood and University Place and provides contracted services to Steilacoom. WPFR public services include fire prevention and suppression, motor vehicle collisions, medical aid calls, technical and water rescues, hazardous materials response, and other calls for service. They also provide services for building permitting and code enforcement.

In 2023, WPFR responded to 17,809 calls for service (West Pierce Fire & Rescue, 2023). This is slightly higher than 2022 calls for service at 17,721 (West Pierce Fire & Rescue, 2022). The call volume has increased 40% since its inception in 2011. Nearly 80% of total call volumes are medical in nature.

In 2023, WPFR employed 221 full-time employees. Of the full-time personnel, WPFR had 164 personnel employed for operations. District personnel are trained for medical aid with 57 emergency medical technicians and 118 paramedics.

WPFR has a service area encompassing 31 square miles, serving a population of over 100,000. The district has six fully staffed stations and is evaluating adding a seventh station. Five fire stations serve the City of Lakewood See Exhibit 3-58. Five of the six stations have a medic unit, which is staffed 24 hours a day with one Paramedic and one Emergency Medical Technician (EMT).

WPFR has 10 facilities, including six stations, a fleet/facilities maintenance shop, two boathouses, and a training tower. The facilities total approximately 105,000 square feet. The fleet personnel are responsible for 106 apparatus and vehicles, three vehicles and assorted trailers.

Exhibit 3-58. West Pierce Fire & Rescue Service Area Map



Source: West Pierce Fire and Rescue Adopted Budget, 2024

### Level of Service

Lakewood has adopted policies setting LOS standards for WPFR:

- PS-1.1: Maintain a Washington Surveying and Rating Bureau (or successor agency) rating of ISO Class 3 or better; and
- PS-4.2: Provide a four-minute initial time standard for EMS calls.

- PS-4.3: Provide fire station/EMT locations that meet a 1.5-mile response distance standard

WPFR has met the PS-1.1 Rating Bureau LOS standard with a class 3 WSRB every year through 2023 since it was first rated in 2012.

A common effective LOS standard is to look at fire response personnel per 1,000 capita. This helps compare service capabilities over time and across jurisdictions. Fire suppression personnel are often trained in emergency medical services, and there is overlap in the number of full-time equivalents (FTEs) for each activity. See Exhibit 3-59.

**Exhibit 3-59. Fire Services Effective Level of Services Standards**

YEAR	DISTRICT POPULATION	OPERATIONS (FIREFIGHTERS / EMT/MEDICS)	FIREFIGHTERS PER 1,000 RESIDENTS
2023	100,000	164	1.6

Source: WPFR Adopted Budget, 2024.

**Police**

Existing Service

The City of Lakewood Police Department (LPD) provides policing and other related services. LPD services include patrol operations, criminal investigations, traffic incidents, other patrol specialty services, and other policing services. LPD operates out of one station, located across from Seeley Lake Park at 9401 Lakewood Drive SW.

The LPD is one of the largest departments in the state. Since incorporation, the LPD has prioritized its limited resources toward combating serious criminal activity such as violent crimes, gang activity, and vice rather than property and other less serious crimes.

*Dispatched Calls*

Dispatched calls from 2016 to 2022 were approximately 48,000 – 50,000 per year. In 2023, the department received 53,921 calls for service, a 10% increase in calls from the previous year.

Level of Service

Currently, the LPD employs approximately 100 officers, one officer for every 636 residents. With this information, an effective LOS can be calculated, resulting in approximately 1.57 officers per 1,000 residents.

**Exhibit 3-60. Police Services Effective Level of Services Standards**

YEAR	POPULATION	OFFICERS	OFFICERS PER 1,000 RESIDENTS
2023	63,612	100	1.57

Source: Lakewood Police Department Annual Report, 2023

Comprehensive Plan Policy P-5.1 establishes response time objectives:

*PS-5.1: Provide police protection with a three-minute response time for life-threatening emergencies (Priority 1), a six-minute response time for crimes in progress or just completed (Priority 2), and a routine/non-emergency response time of 20 minutes (Priority 3).*

In 2023, response to Priority 1 calls averages 4.3 minutes, while all other priority calls average 8.1 minutes. The Police Department has not met its Priority 1 and 2 response time targets. However, it is meeting its Priority 3 response time.

**Schools**

**Existing Service**

Public school services are provided by the Clover Park School District (CPSD), It operates 23 schools, including a K-12 academy. District-wide, there are 12,436 students and 833 classroom teachers as of 2023-24 school year. Saint Francis Cabrini School also provides private school services to students in pre-K to 8<sup>th</sup> grade.

**Level of Service**

The City of Lakewood recognizes the Clover Park Capital Facilities Master Plan and Facility Condition Report School sizes are noted in the City’s Capital Facilities Element as a LOS.

**Exhibit 3-61. Clover Park Public School Size**

SCHOOL SIZE	# STUDENTS PER SCHOOL
K-5	450-475
Middle	650-700
High	1,500- 1,600

Source: City of Lakewood, 2016

CPSD sets LOS standards in its Clover Park Capital Facilities Master Plan. Under a 2016 Facilities Advisory Committee report, the school board recommended that the district maintain Lake City property for a possible future school site and is developing a long-term master plan which may use sequential bonds. A Facilities Advisory Committee was formed in 2023 with recommendations due in 2024. The scope of their review is to develop recommendations for addressing aged facilities, facility improvements to promote educational goals, facility improvements to increase safety and security, and consideration of a future capital measure.

A common effective LOS standard is to review the number of students per teacher. Schools often set student/teacher ratios which can also identify the number of future classrooms needed, which may be housed in permanent or temporary portable capacity.

To estimate student generation, it is also possible to consider the number of households in the district in relation to the number of students. The number of occupied households in the Clover Park School district is 31,505 based on State of Washington Office of Financial Management (OFM) small area estimates. There are 12,436 students in the district as of 2023. Thus, the effective student per household ratio is 0.39. This ratio is a decrease from the 2016 student-to-household ratio of 0.45.

**Exhibit 3-62. School Services Effective Level of Services Standards**

Facility	Student count (2023-24)	Classroom teachers (2023-24)	Student to teacher ratio
<b>Clover Park School District</b>	<b>12,436</b>	<b>833</b>	<b>14.93</b>
<b>Elementary Schools in Lakewood</b>			
Custer Elementary School	316	25	12.64
Dower Elementary School	307	25	12.28
Four Heroes Elementary School	530	46	11.52
Idlewild Elementary School	436	28	15.57
Lake Louise Elementary School	503	38	13.24
Oakbrook Elementary School	279	27	10.33
Park Lodge Elementary School	355	35	10.14
Tillicum Elementary School	268	20	13.40
TyeePark Elementary School	338	32	10.56
<b>Middle Schools in Lakewood</b>			
Hudtloff Middle School	588	54	10.89
Lochburn Middle School	467	47	9.94
Thomas Middle School	985	69	14.28
<b>High Schools in Lakewood</b>			
Clover Park High School	1,144	107	10.69
Lakes High School	1,204	94	12.81
<b>Other Schools in Lakewood</b>			
Lakeview Hope Academy	541	46	11.76
General William H Harrison Prep School	748	48	15.58

Source: Washington Office of the Superintendent of Public Instruction, 2024, BERK, 2024.



## Parks, Recreation, and Open Space

### Existing Service

The City owns and operates 16 parks, with a total park acreage of more than 473 acres or roughly 4% of the city’s total land area. See Exhibit 3-63 and Exhibit 3-64. In addition, nearly 1,518 acres, or 12.5% of Lakewood’s land area, is classified as Open Space/Recreation Area (EDAW 1997). This includes City-owned parks and open space, Pierce County parkland, lands belonging to the State of Washington, school playgrounds and college campuses, greenbelts, and privately owned recreation facilities. There are approximately 4,590 residents per park in the City of Lakewood, as of 2019; this equates to 7.9 acres of park land per 1,000 residents (Legacy PROS Plan, 2020).

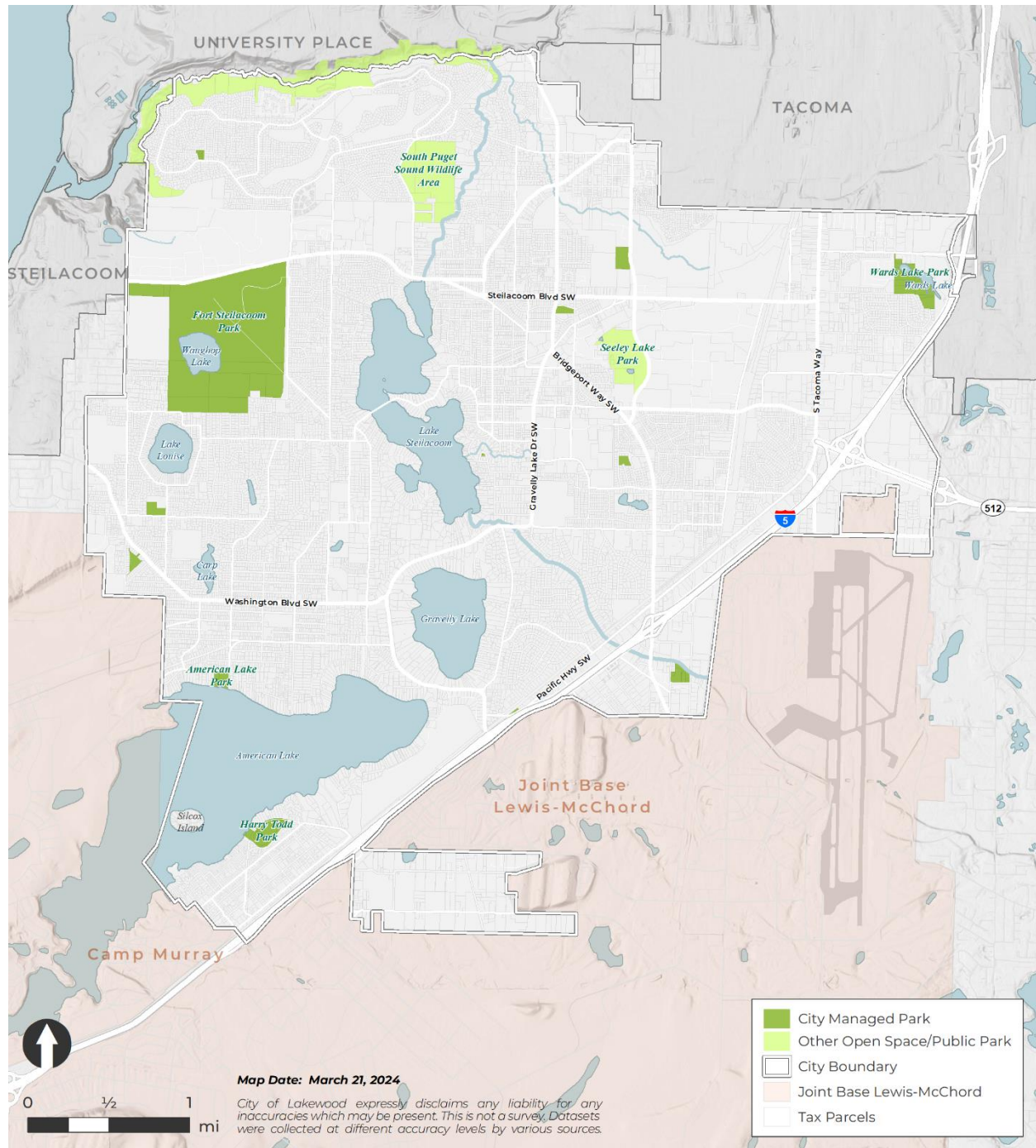
**Exhibit 3-63. City of Lakewood Park Inventory, 2020**

Park Type	Park	Acres	2020 PACA Quality Score	2020 PACA Diversity Score
N	Active Park	2.28	2.5	1.75
C	American Lake Park	5.5	2	2.5
NA	Blueberry Park	7.91	1.5	1
R	Chambers Creek Canyon Area	200+	1.7	1
U	Colonial Plaza	1	3	1.5
CG	Community Garden	-	-	-
N	Edgewater Park	2.83	1.5	1.25
R	Fort Steilacoom Park	309.51	2.8	2.5
U	Gravelly Lake Loop	3 miles	2.7	1
C	Harry Todd Park	16.78	1.9	2.5
N	Kiwanis Park	2.85	2.5	1.8
N	Lake Louise Elementary	4.72	2.2	1.5
S	Lakewood Senior Center	-	-	-
N	Oakbrook Park	1.55	2.3	1.3
U	Ponders Park	0.41	1.7	1
N	Primley Park	0.19	1.8	1.3
NA	Seeley Lake Park	48	1.5	1
N/CG	Springbrook Park	6.68	2.9	2.8
N	Wards Lake Park	27.79	2.4	1.8
N	Washington Park	3.64	2.3	1.8

C = Community Park | CG = community garden | NA = Natural Area | N = neighborhood park | R = Regional Park | S = Senior Center | U = Urban Park (linear or nodal)

Source: City of Lakewood Legacy PROS Plan, 2020.

**Exhibit 3-64. Parks and Open Space Facilities in Lakewood**



Source: City of Lakewood, 2024.

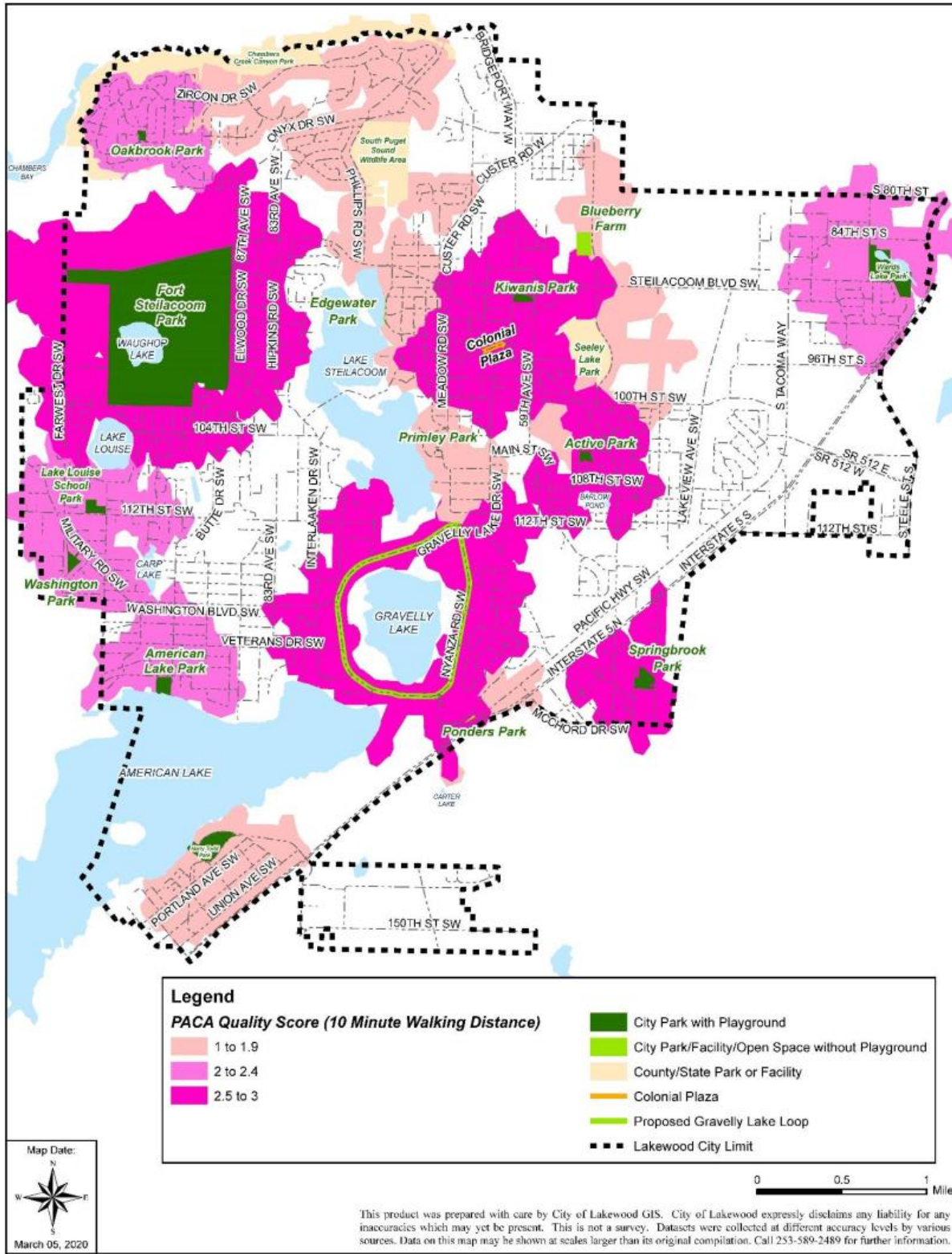
## Level of Service

The City's adopted park LOS standard provides a walkshed measurement and a park amenity condition assessment measurement. The walkshed measurement is a 10-minute walking time to publicly accessible park or open space facility. See Exhibit 3-65 and Exhibit 3-66 for the neighborhoods in Lakewood that meet that LOS. The assessment measurement is that all parks and park amenities score a 2 or higher, meaning that the park quality is in "fair" condition and the park provides a "fair" diversity of amenities.

Parks with very high (2.5 and above) PACA quality scores are geographically located in central Lakewood. In the future, the City may want to consider improving the quality scores of Lakewood parks that currently scored a 2 or below. Currently, the City is actively in the process of improving American Lake Park, Wards Lake Park, and Edgewater Park. Future quality PACA scores are likely to improve for these parks with these improvements.

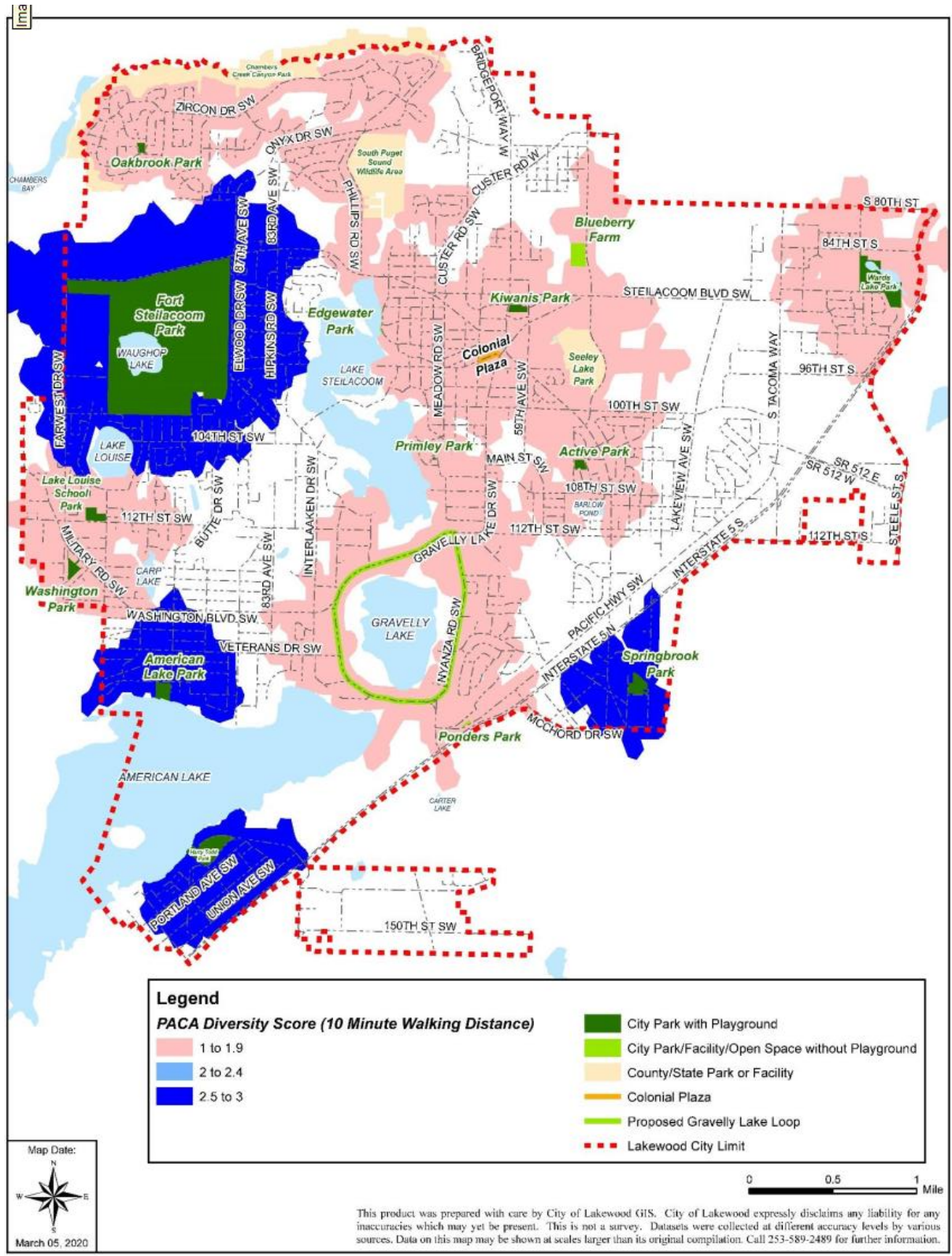
Regarding amenities, parks with a very high (2.5 and above) PACA diversity score are located in western and southern Lakewood. These parks are the City's regional and community parks. Parks with a lower (1.9 and below) PACA diversity score are concentrated in northern and central Lakewood.

Exhibit 3-65. 10-Minute Walkshed Measurement & PACA Quality Score for Lakewood Parks



Source: City of Lakewood Legacy PROS Plan, 2020

Exhibit 3-66. 10-minute Walkshed Measurement & PACA Diversity Score for Lakewood Parks



Source: City of Lakewood Legacy PROS Plan, 2020

## Tillicum-Woodbrook Subarea

### Fire & EMS

West Pierce Station 23 is located in the Tillicum-Woodbrook Subarea. The station provides the subarea with the 1.5-mile response distance standard.

### Police

The Tillicum-Woodbrook Subarea is serviced by the LPD. The subarea is located approximately 10-15 minutes away from the LPD headquarters, which may make it challenging for police to respond to Priority 1 and 2 calls in a timely manner.

### Schools

The Tillicum-Woodbrook subarea is served by the Clover Park School District. Within the subarea is the Tillicum Elementary School, which has the second-highest student-to-teacher ratio of the elementary schools in Lakewood. Its student-to-teacher ratio is 13.40. However, that ratio is below the school district ratio of 14.93.

Thomas Middle School and Clover Park High School district maps cover the subarea. Woodbrook Middle School was recently closed and replaced with Thomas Middle School. Constructed in 2020, Thomas Middle school has the highest student-to-teacher ratio of the middle schools in the district, with a ratio of 14.28. Clover Park High School has a low student-to-teacher ratio of 10.69, which is one of the lowest ratios of the schools in the school district.

### Parks, Recreation and Open Space

The Tillicum-Woodbrook subarea has one park. Harry Todd Park is a 16.78-acre lakefront park with amenities including playfields, tennis, basketball courts, a playground, beach, pier, and boat docks. Its PACA Diversity Score is 2.5. However, its PACA Quality score is 1.9 and below the City's desired LOS for park quality. The City has scheduled project investment to Harry Todd Park, including improved water access, an ADA accessible pathway, restroom replacement, playground facility replacement, and construction of a fish pier and finger docks.

Currently, the Tillicum-Woodbrook subarea does not meet the 10-minute walkshed LOS. However, there is a planned Gravelly Lake Drive – Throne Lake Connector project that will provide a non-motorized shared-use path next to the Tacoma Country and Golf Club, thereby connecting the Tillicum neighborhood with the Ponders Corner neighborhoods. It is slated to be constructed from 2025-2026. With the completion of that project, the area will meet the 10-minute walkshed LOS.

## 3.5.2 Impacts

### Thresholds of Significance

The impact analysis for each alternative applies City or District adopted LOS to projected housing, population, and employment growth:

- Negatively affect LOS for **police and/or fire and emergency medical services**;
- Increase demand for **special emergency services** beyond current operational capabilities of service providers;
- Result in increases in **students** and lack of facilities; and
- Reduce access to **park and open space facilities**.

### Impacts Common to All Alternatives

Impacts are projected based on the effective LOS standards as discussed in the Affected Environment applied to projected population by alternative described in Chapter 2.

An increase in housing units and jobs in city will generate increased demand for public service providers, including additional trained firefighter / emergency medical trained staff, additional police officers, classrooms, and park facilities. The various alternatives would direct growth to different geographic areas, which would affect the precise levels of demand generated for a specific public service providers. All providers are anticipated to experience some increase in demand, which would require hiring additional staff, purchasing additional equipment, and expanding facilities to serve the future growth. See Exhibit 3-67.

**Exhibit 3-67 Public Service Anticipated Impacts by Alternative**

Public Service	Level of Service	Implications of No Action Alternative	Implications of Action Alternative
<b>Fire</b>	Maintain a WSRB rating of ISO Class 3 or better.  Provide a 4-minute initial time standard for EMS calls.  Provide fire station/EMT locations that meet a 1.5-mile response distance standard	Increase in calls to services throughout the city, particularly in the Downtown and Station Districts.  Increased demand for facilities, staffing, and equipment.	Same as No Action Alternative  Increased calls to service in low density areas due to an increase in moderate density housing infill. Increase in response times due to narrower streets in these low-density neighborhoods; however, the City is considering focusing most middle housing in proximity to transit. Off street parking is likely to remain on the narrower streets to keep access for emergency vehicles.
<b>Police</b>	3-minute response time for life-threatening emergencies (Priority 1), a 6-minute response time for crimes in progress or just	Increased calls to services, including in more populated districts such as the Downtown and Station District Subareas.	Same as No Action Alternative.  Increased calls to service in historically single family areas due to an increase in moderate density housing infill. Increase in

Public Service	Level of Service	Implications of No Action Alternative	Implications of Action Alternative
	completed (Priority 2), and a routine/non-emergency response time of 20 minutes (Priority 3).	Increased demand for facilities, staffing, and equipment	response times due to narrower streets in these low-density neighborhoods
<b>Schools</b>	Effective LOS of 14.93 students-per-teacher ratio	Potential increase in student growth, resulting in increased demand for teachers, facilities, and equipment	Same as No Action Alternative.
<b>Parks, Recreation, and Open Space</b>	10-minute walk to park or open space facility All parks and amenities are in "fair" condition and provide a "fair" diversity of amenities.	Increased usage of current parks, resulting in increased demand for park acquisition and investment in quality and amenity factors in parks. Increased need for parks in the Downtown and Station District Subareas.	Same as No Action Alternative. Increased need for parks in low-density residential areas.

Source: BERK, 2024

## Fire & EMS

Additional trained fire fighter/emergency medical trained staff are needed under each alternative; however, the level of need differs. See Exhibit 3-68. The personnel may fulfil both duties of fire suppression and emergency medical technical services. With the increase in staffing, there may be additional needs for equipment and infrastructure to support this growth. However, the growth is expected to happen incrementally and be spread throughout the city.

Both alternatives can accommodate the 20-year growth target and would see increased growth in the Downtown and Station District Subareas, so the fire stations that service those areas may see increased demand. The Action Alternative has moderate growth spread throughout the city in middle housing. Its growth capacity, while higher, would not be expected in the 20-year period, but rather over the longer term, which would affect the precise levels of demand generated. There is likely to be an overall increase in calls for service, which may require staffing and equipment at all stations with the Action Alternative. The WPFRR releases annual reports and can monitor calls over time to identify where the city growth is occurring and in greatest need of additional staffing and equipment.

**Exhibit 3-68. Fire and EMS Services by Alternative**

Alternative	Population Capacity	Current Effective LOS per 1,000 population	Staff Need
<b>Fire</b>			
Population Growth Target	23,180 (20-year target)	2.56	59.34
No Action	23,966 (full capacity)	2.56	61.27
Action Alternative	40,922 (full capacity)	2.56	104.62
<b>EMS</b>			
Population Growth Target	23,180 (20-year target)	1.84	42.64



Alternative	Population Capacity	Current Effective LOS per 1,000 population	Staff Need
No Action	23,966 (full capacity)	1.84	44.08
Action Alternative	40,922 (full capacity)	1.84	75.27

Source: BERK, 2024

### Police

Exhibit 3-69 shows the police staff demands based on the anticipated population growth target and its alternatives' growth capacity. Additional police officers are also needed under each alternative to maintain the same ratio of officers per 1,000. Number of staff needed is estimated by each alternative's population. Given that the department is not meeting the current LOS response times for Priority 1 calls, the staffing need could be expanded. With the increase in officer need, there will be an increased need for infrastructure and equipment throughout the city. The population growth is anticipated to happen incrementally, allowing the police department to increase its staff and equipment needs over time. The Action Alternative full capacity is not expected in the 20-year period but over a much longer term. Both Alternatives are expected to achieve the growth target of 23,180 new residents.

**Exhibit 3-69. Police Staff Demands by Alternative**

Alternative	Population Net Growth Capacity	Current Effective LOS per 1,000 population	Staff Need
Population Growth Target	23,180 (20-year target)	1.57	36.39
No Action	23,966 (full capacity)	1.57	37.68
Action Alternative	40,922 (full capacity)	1.57	64.33

Source: BERK, 2024

### Schools

Added residential growth throughout the city would increase households and the number of students, requiring an increased need for teachers and classrooms. Exhibit 3-70 depicts the teacher need if the students-per-household ratio remains constant.

However, the anticipated moderate density and multifamily housing may not include families with children. Therefore, the student-per-household ratio may decrease, resulting in a lower-than-anticipated need for teachers. The School District will need to study student growth to anticipate the appropriate distribution of its teachers. The student growth that will occur is anticipated to happen incrementally, allowing the School District to respond based on need.

**Exhibit 3-70. School Generation by Alternative**

Alternative	Household Increase Capacity	Student per Household	Student Net Growth All Grades	Current Effective LOS	Teacher Need
Population Growth Target	9,378	0.39	3,702	14.93	248

Alternative	Household Increase Capacity	Student per Household	Student Net Growth All Grades	Current Effective LOS	Teacher Need
NO ACTION	10,242	0.39	4,043	14.93	271
Action Alternative	17,488	0.39	6,903	14.93	462

Source: BERK, 2024

### Parks, Recreation, and Open Space

With additional population growth, parks and open space will see increased use, which will cause parks to experience an increased need for maintenance, amenities, and park acreage. Both alternatives will also see increased housing density in the Downtown and Station District Subareas, which have a lack parks located within a 10-minute walkshed. Therefore, existing parks like Ft. Steilacoom Park and Seeley Lake Park may see increased usage.

Growth is also anticipated to occur in low-density residential areas throughout the city due to infill. Some of these areas, such as the neighborhoods west of Gravelly Lake, show a lack of parks within a 10-minute walkshed.

### Tillicum-Woodbrook Subarea

Under both alternatives, the density of land uses would be similar. However, the Action Alternative may see increased moderate housing development in historically single family areas, which will increase overall demand for public services in the area.

Given its location, road infrastructure that effectively facilitates the flow of traffic will impact response times. This could have a particular impact for police services, as police headquarters is located outside of the subarea. A reduction in traffic flow standards could reduce the reliability of police response to the subarea during peak hours.

### **No Action Alternative**

The No Action Alternative is anticipated to have growth capacity similar to the growth target and focused in mixed use centers in the Downtown and the Station District Subareas. See discussion for Impacts Common to All Alternatives for all service providers.

### **Action Alternative**

#### Fire & EMS

See discussion for Impacts Common to All Alternatives.

The Action Alternative will see increased moderate housing in historically single family areas, which may increase the calls to services in these areas. Some of these low-density areas have narrow streets, which may make it challenging for fire engines to access these areas, increasing response times. However, the

City is considering focusing most middle housing in proximity to transit. Off-street parking is likely to remain on the narrower streets to keep access for emergency vehicles.

Road infrastructure that effectively facilitates the flow of traffic can help improve response times for fire and EMS. Reductions in transportation standards due to congestion could reduce the reliability of fire & EMS response during peak hours. See Section 3.4 Transportation and Parking for more information. Generally, the Action Alternative reduces vehicle miles traveled in lower density areas compared to the No Action Alternative, as it is anticipated to provide units in proximity to other modes of transportation.

### Police

See discussion for Impacts Common to All Alternatives.

With the increase in moderate housing throughout the city, there may be an increase in calls to service for the police department, particularly in neighborhoods and areas that are historically single family. There may also be an increase of the proportion of calls in the Downtown and Station District Subareas due to the anticipated population and employment concentration.

Road infrastructure that effectively facilitates the flow of traffic can help improve response times for police. Reductions in transportation standards due to congestion could reduce the reliability of police response during peak hours.

### Schools

See discussion for Impacts Common to All Alternatives.

With the increased moderate housing and ADUs in historically single family areas, the School District may see increased student demand throughout the city. However, these housing types may also represent smaller household types that may not have students.

### Parks, Recreation, and Open Space

See discussion for Impacts Common to All Alternatives.

There will be an overall increase in park demand throughout the city, with the increase in population. The City could prioritize areas that have a lack of park space within a 10-minute walk shed, have a low diversity of amenities, and/or have a low-quality park score. These areas of the city include the north-central area, the central-east area, the central-west area near Idlewild Elementary School

### Tillicum-Woodbrook Subarea

See discussion for Impacts Common to All Alternatives where the subarea is considered cumulatively.

### 3.5.3 Mitigation Measures

#### Incorporated Plan Features

##### Fire & EMS

Directing growth to the Downtown and Station District Subareas, as well as promoting infill in areas currently served can help promote efficient and effective service by fire and emergency service providers who are established and currently have adequate resources to these areas.

##### Police

Directing growth to the Downtown and Station District Subareas, as well as promoting infill in areas currently served can help promote efficient and effective service by police who are established and have adequate resources.

##### Schools

The Comprehensive Plan includes policies encouraging City-school district coordination.

##### Parks, Recreation, and Open Space

The Comprehensive Plan includes a Parks, Recreation, and Open Space (PROS) Element.

#### Regulations and Commitments

The City addresses public service levels of service in its Capital Facilities Plan Element. The element is updated periodically to ensure that proposed growth and change can be served.

##### Fire & EMS

The fire district receives three property tax levies including a regular levy, an EMS levy, and a Maintenance & Operations (M&O) levy. The M&O levy will run from 2024-2027. On the November 5, 2024 ballot is a measure to replace a maintenance and operations levy with a fire benefit charge which is a fee based on square footage, property use, and fire risk factors. (West Pierce Fire & Rescue , 2024)

In October 2022, the West Pierce Fire and Rescue “The Monitor” issue 17 identified the following needed capital improvements:

- New fire station: Improving response times by filling the service gap between the most northern Lakewood station and the University Place station.
- Upgrading the training center originally built in 1972.
- A new emergency operations support center (EOSC). The EOSC will consolidate the fleet and facility maintenance divisions and the operational supply warehousing and distribution center. Over the past 20 years, the district’s fleet has doubled in size and the facility is no longer large enough to support the workload. Additionally, the quantity of operational supplies, fire and medical equipment,

and personal protective equipment (PPE) the district is required to maintain has exceeded storage capacity.

- An upgrade and expansion of the Oakbrook fire station. Built in the early 1970s, this station requires updating to adequately support the additional personnel housed there, as well as an additional medic unit that now responds from the station. (West Pierce Fire & Rescue, 2022)

The district is working on a capital facilities improvement and finance plan. The District could consider the growth target of Lakewood and other communities in its capital plans.

## Parks, Recreation, and Open Space

The City requires private open space and recreation for new multifamily and commercial development. 18A.50.231 Specific Uses Design Standards, 18B.500, and 18C.500.

The Downtown Subarea plan anticipates a 2- to 4-acre park and additional greenspace, such as a green street loop, to create a linear park concept. The plan would also create pedestrian connections to parks outside the subarea. The Station District identifies linear park and other opportunities in the Subarea Plan.

## Other Potential Mitigation Measures

- **Fire:** The fire district may request facility bonds and updates to maintenance and operations levies to support costs associated with growth. The fire district could also evaluate the feasibility of investment in more compact fire trucks.
- **Police:** The City could implement Crime Prevention through Environmental Design principles to allow for appropriate lighting, landscaping, and visibility.
- **Schools:** The school district could explore participating in an impact fee program to support financing of its schools' construction, improvements, and maintenance. School districts that participate in this program would update their Capital Facilities Plans every two years to project future enrollment and assess facility need.
- **Parks, Recreation, and Open Space:**
  - The City could more aggressively pursue grant and bond financing for parks and trails projects to aid in acquiring more land to build additional parks and improve the quality and diversity ratings of its current parks.
  - It could adopt a LOS for urban parks.
  - It could expand its existing partnerships with other public and private entities with existing open space facilities, such as schools, to expand potential park and open space opportunities.
  - It could partner with the State of Washington to expand access to large tracts of land including the Fort Steilacoom Golf and Disc Golf courses, the Historic Fort Steilacoom grounds, and a large open space area near Clover Park Technical College.

### 3.5.4 Significant Unavoidable Adverse Impacts

Future population growth and development will continue to increase the need for police services, fire protection, schools, and park facilities under both alternatives. Regular planning for future capital facility and staffing needs can minimize impacts and meet future demand. No significant unavoidable adverse impacts are expected.

- **Fire & EMS: No significant unavoidable adverse impacts on fire & EMS** are expected under the alternatives. Future population growth in the City of Lakewood would increase demand for fire and EMS. The costs to support station expansion, equipment acquisition, and increased hiring are anticipated to increase over time. However, regular monitoring of demand and levies helps maintain the LOS. The increased demands for fire & EMS are **not considered significant unavoidable adverse impacts**.
- **Police: No significant unavoidable adverse impacts on police** are expected under the alternatives. Population growth may increase calls to service and the overall crime level. It may also negatively affect police response times. Costs to support equipment acquisition and increased staff are anticipated to increase over time. However, growth is anticipated to occur incrementally and will occur throughout the city. Therefore, regular monitoring of calls to service and the increased demand for law enforcement could help reduce impacts to a **less-than-significant impact**.
- **Schools: No significant unavoidable adverse impacts on schools** are expected under the alternatives. Population growth may increase demand for school services. However, Clover Park School District may also experience declining enrollment. The existing schools will require maintenance and improvement, with potential construction of new schools in some areas. The costs associated with school construction and maintenance are likely to increase over time, along with the cost of land and construction materials. Regular capital facility planning, bonds, levies, and other steps could be taken to reduce impacts from growth, resulting in a **less-than-significant impact level**.
- **Parks: No significant unavoidable adverse impacts on parks** are expected under the alternatives. Future population growth in the City of Lakewood would increase demand for parks and open space. The costs to support park acquisition, development, and current park maintenance will increase over time along with the cost of land and construction materials. Land costs in Downtown and Station District are anticipated to increase, and infill development could limit new acquisition opportunities, further straining the City's financing resources to provide parks and open space in this area. However, regular planning through the PROS Plan, acquisition, and development of parks using funding and grants could reduce potential impacts to a **less-than-significant level**.

## 3.6 Utilities

This section documents existing utilities provided within the City of Lakewood. It details adopted and effective level of service (LOS) standards, estimated demand for services, and projects future levels of service and demand for each alternative. Utilities analyzed in this FSEIS include water, sewer, stormwater, and power lists which essential utilities are analyzed here and notes what service plans or capital planning documents guide those services. See Exhibit 3-71.

**Exhibit 3-71. Utilities Included in this Supplemental Final Environmental Impact Statement**

Service	Provider	Guiding Documents
<b>Water</b>	Lakewood Water District	Comprehensive Water Plan 2020 2024 Capital Improvement and Replacement and Rehabilitation Project Summary Perfluorinated Compounds in Pierce County, WA Groundwater, Lakewood Water District, January 4, 2021
<b>Sewer</b>	Pierce County Sewer Utility	Pierce County 2010 Unified Sewer Plan Sewer Improvement Program 2024-2044 Unified Sewer Plan Update Fact Sheet, 2024
<b>Stormwater</b>	City of Lakewood Engineering Services Division	City of Lakewood 2022 - 2024 Stormwater Management Program (SWMP) Stormwater Management Action Plan: Receiving Water Conditions Assessment, March 2022 Stormwater Management Action Plan: Receiving Water Prioritization, June 2022 Washington Department of Ecology Stormwater Manual as amended by the Lakewood Engineering Standards Manual, 2021
<b>Power</b>	Lakeview Light & Power Puget Sound Energy Tacoma Power	Communication with John DeVore, General Manager at Lakeview Light & Power Department of Commerce Electric Utility Resource Planning 2020 Report Tacoma Power 2022 Integrated Resource Plan Puget Sound Energy 2023

The methodology for impacts is based on analyzing data available in the Comprehensive Plan, functional plans, provider annual reports, budgets, and other data sources, as necessary. Impacts are quantified by population and employment-based summaries and projections.

### 3.6.1 Affected Environment

This section addresses the potential impacts associated with the alternatives on utilities including water, wastewater, stormwater, and power. After providing information on the affected environment, the impacts analysis considers how the alternatives could affect increases in demand for utilities. Measures to address potential impacts are included.

#### Water

##### Water Service Area Facilities and Population

Water service is primarily provided to the City by the LWD. See Exhibit 3-72. Its service area include the Lakewood city limits, a portion of the City's Urban Growth Area, and a small portion of unincorporated Pierce County. Small portions of the north and northeast sections of the city are served by the City of Tacoma, the Parkland Light and Water Company, and Southeast Tacoma Mutual Water Company.

The LWD comprises an area of 18.5 square miles, with an approximate retail population of over 61,110 as of 2019. (Lakewood Water District, 2020) (Lakewood Water District, 2024). The District's total water rights are equivalent to an average day demand withdrawal of 19.323 mgd (million gallons per day) and a peak daily demand of 69.614 mgd.

The LWD has a current average daily demand of 8.9 million gallons/day across the whole system. The District has sufficient water availability for demand within its retail service area. As a result, the District provides wholesale water to the Town of Steilacoom, and sells its extra capacity to other regional Water Districts such as Rainier Water, Summit Water, and Firgrowth Water.

The District has identified medium and high growth projections planned for the year 2039. It assumes a future retail population in Lakewood of about 68,992 by 2039, which would be a net growth of 7,882 population, consistent with the medium projections.

The District anticipates the growth in the city will be multifamily oriented such as in the Downtown Plan. The District has identified a future retail demand of 9.02 mgd/add by the year 2029 and 9.59 mgd/ADD by 2039 without conservation. With conservation, the 2029 projection is 8.76 mgd/add and the 2039 projection is 9.02 mgd/add. In addition to this planned capacity, the District has surplus water rights that can be accessed in case of unanticipated need beyond planned capacity. It has 30 active groundwater wells, 12 pump stations, and 3 reservoirs.

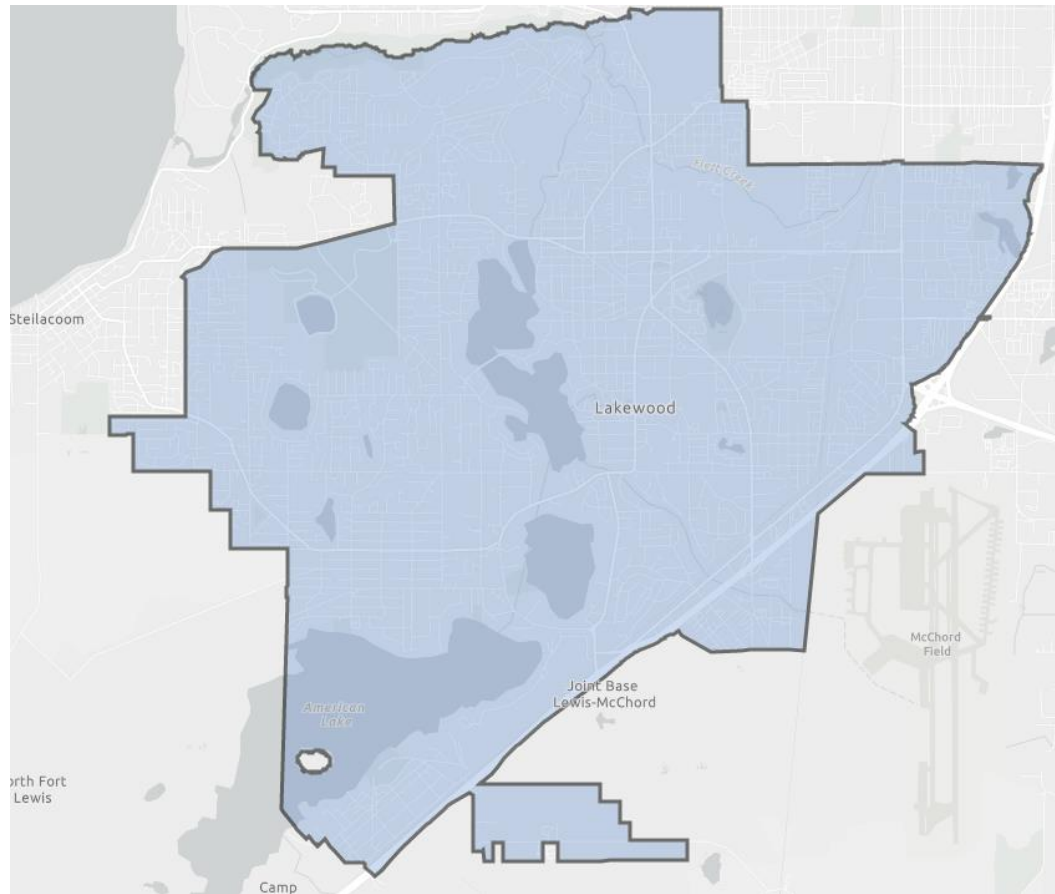
### Levels of Service (LOS) and Capital Facilities

The City's current LOS is related to sufficient fire flow and current usage per capita: "Min. pressure- 40 psi. Fire flow- 1,500 gpm. Current usage: 139 gal/person/day. LWD Capital Improvement Program." Its current usage has dropped from 139 to 136 gallons per person per day as of 2018.

The District began a 35-year program of replacement and rehabilitation in 1995, with an updated 50-year repair and replacement plan in 2014 to replace 181 miles of aging water mains. The repair and replacement plan focuses on the replacement of facilities that are nearing the end of their useful life and does not account for upgrades or extensions to support new development. District policy requires the developer to pay for system improvements related to new development. Depending on the location and intensity of new development, this may include water main upgrades or line extensions to provide additional capacity or fire flow.



**Exhibit 3-72. Lakewood Water District Service Area**



Source: Lakewood Water District, 2024

**Exhibit 3-73. Lakewood Water District Capital Projects (2024)**

Location	Project Type	Project Status
<a href="#">39th Avenue</a>	Replacement and Rehabilitation	Completed
<a href="#">39th Avenue, Phase 2</a>	Replacement and Rehabilitation	Approved and Under Construction
<a href="#">39th Avenue, Phase 3</a>	Replacement and Rehabilitation	Approved and Under Construction
<a href="#">Front/96th Street</a>	Replacement and Rehabilitation	Under Review
<a href="#">Gravelly Lake Drive</a>	Replacement and Rehabilitation	Approved and Under Construction
<a href="#">112th Street Pac Hwy to South Tacoma Way</a>	Capital Project	Completed
<a href="#">Nyanza Tank Replacement Project</a>	Capital Project	Completed
<a href="#">Spanaway Water Wholesale Pipeline</a>	Capital Project	Under Construction

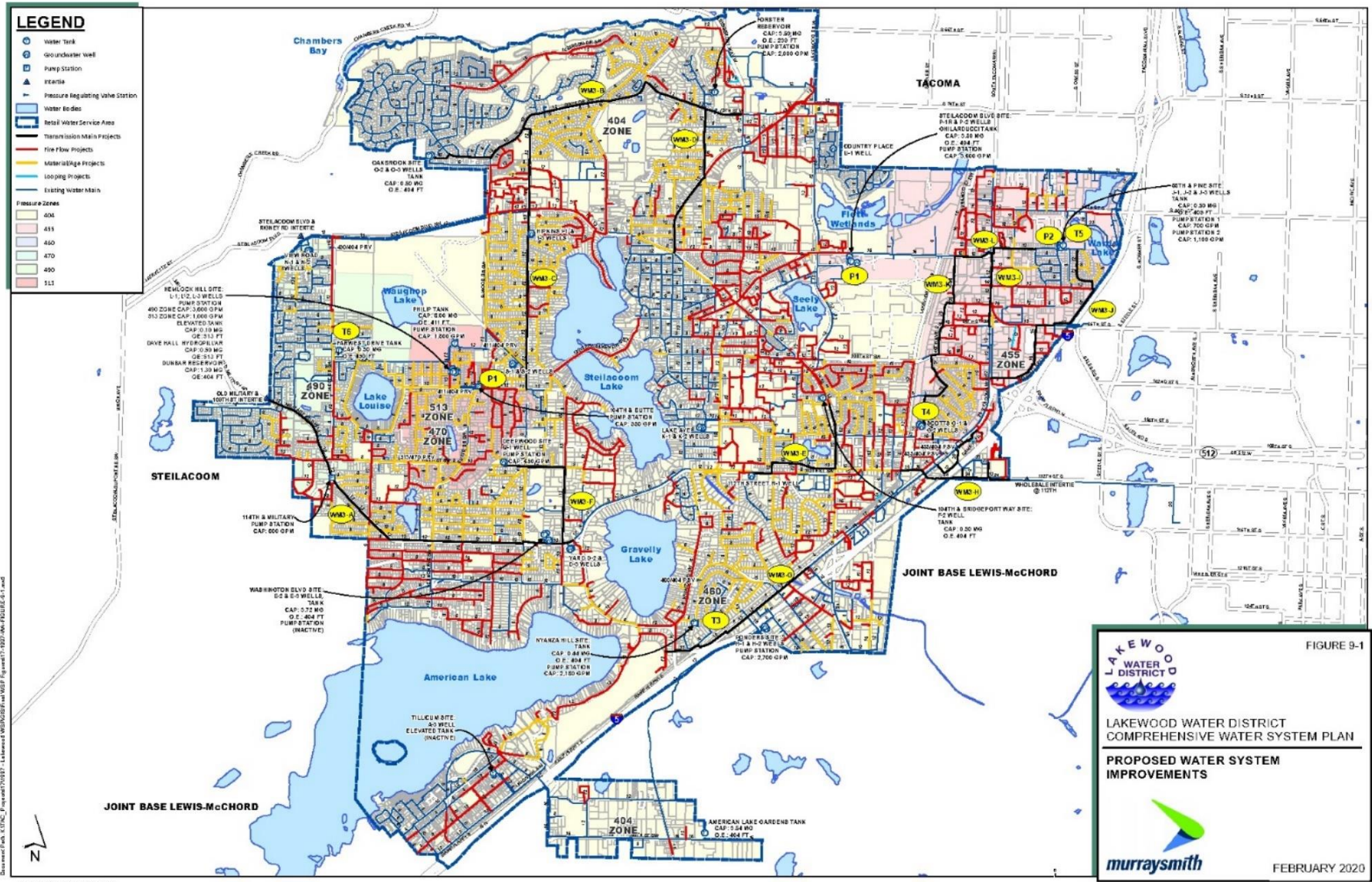
Source: (Lakewood Water District, 2024)

Proposed water system improvements include fire flow, system loops, and material/age projects; see Exhibit 3-74. The areas with priorities for water system improvements are identified in Exhibit 3-75.

### Water Quality Monitoring

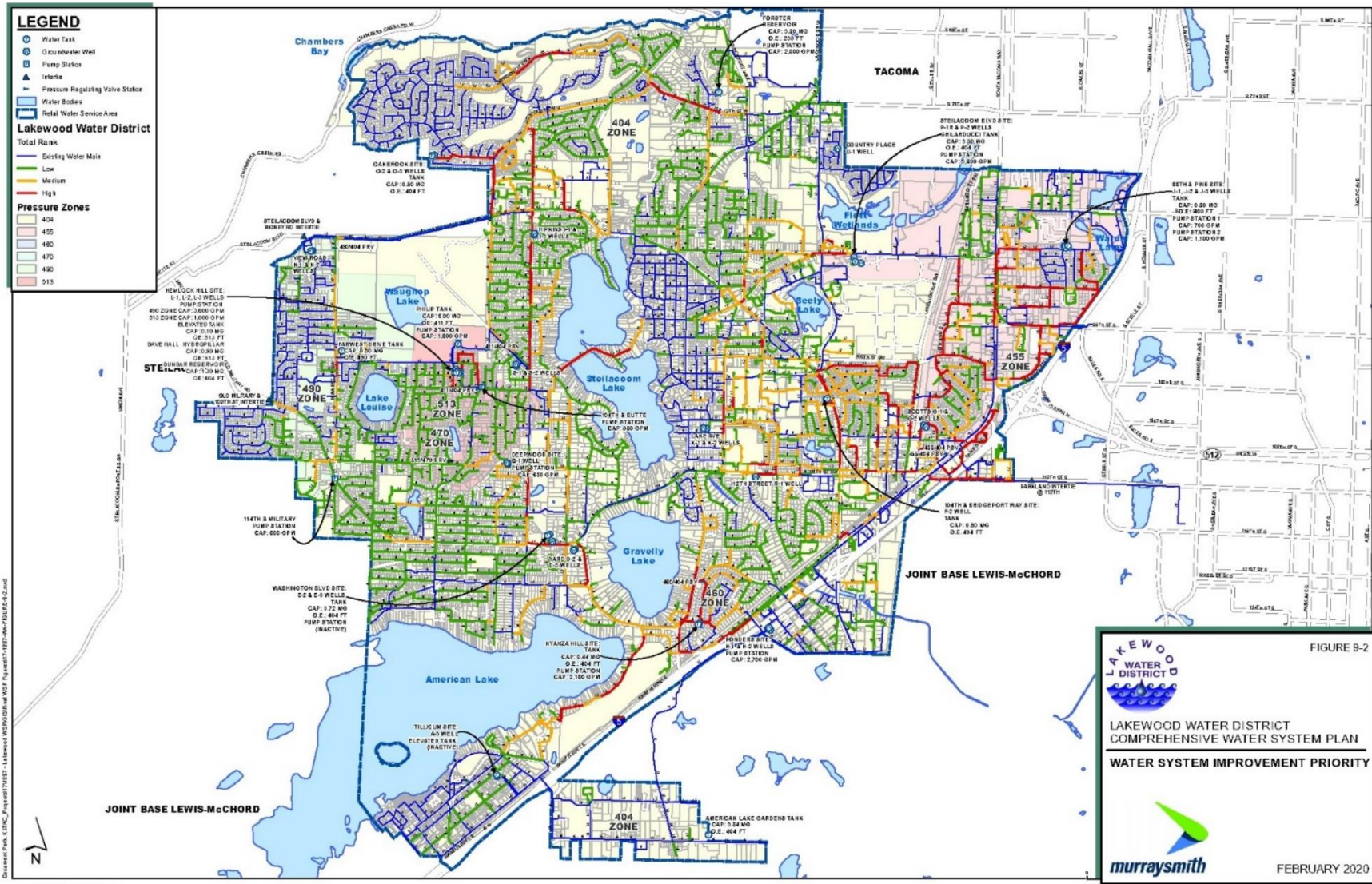
The District has been monitoring the drinking water they supply to protect public health. For example, per- and polyfluoroalkyl substances (PFAS) are a type of synthetic chemicals that are in many products and materials such as stain repellants, firefighting foam, and non-stick cookware, and they do not break down, making them a concern for human health and the environment. The district tested every well and found either no PFAS detected, or the PFAS detected is below the EPA's long term Health Advisory Levels of 70 parts per trillion. The only exception to this is LWD's well G-2 which was turned off in September 2018. (Lakewood Water District, 2021)

# Exhibit 3-74. Proposed Water System Improvements 2020



Source: (Lakewood Water District, 2020)

Exhibit 3-75. Priority Water System Improvements



Source: (Lakewood Water District, 2020)

## Sewer

Sewer service is provided by Pierce County Sewer Utility. It consists of domestic and commercial wastes generated by the residents and businesses in the City of Lakewood. Its primary drainage basin is Chamber-Clover Creek drainage basin, which includes the bulk of the County's wastewater infrastructure. Generally, the sewer infrastructure is considered in good condition with plenty of remaining service life and no current need for large-scale line replacements or upgrades. Exhibit 3-76 depicts a layout of the sanitary sewer main lines in the city.

The City's current LOS is:

- 220 gallons per day equals one residential equivalent (RE). Flow projections assume 0.83 RE for multifamily units. Pierce County Consolidated Sewer Plan Section 2.6.3. (City of Lakewood, 2016)

The County's most recent system plan is the 2010 Unified Sewer Plan, adopted in 2012. In March 2020, Pierce County launched the 2040 Unified Sewer Plan update project, which is anticipated to be finalized and adopted in 2025 after the periodic updates. This update provides an opportunity to plan for future development in Lakewood.

The County's 2010 Unified Sewer Plan anticipated a population of 72,000 within Lakewood by 2022, which the City has not yet met. The Chambers Creek Wastewater Treatment Plant considers regional growth projections through 2040.

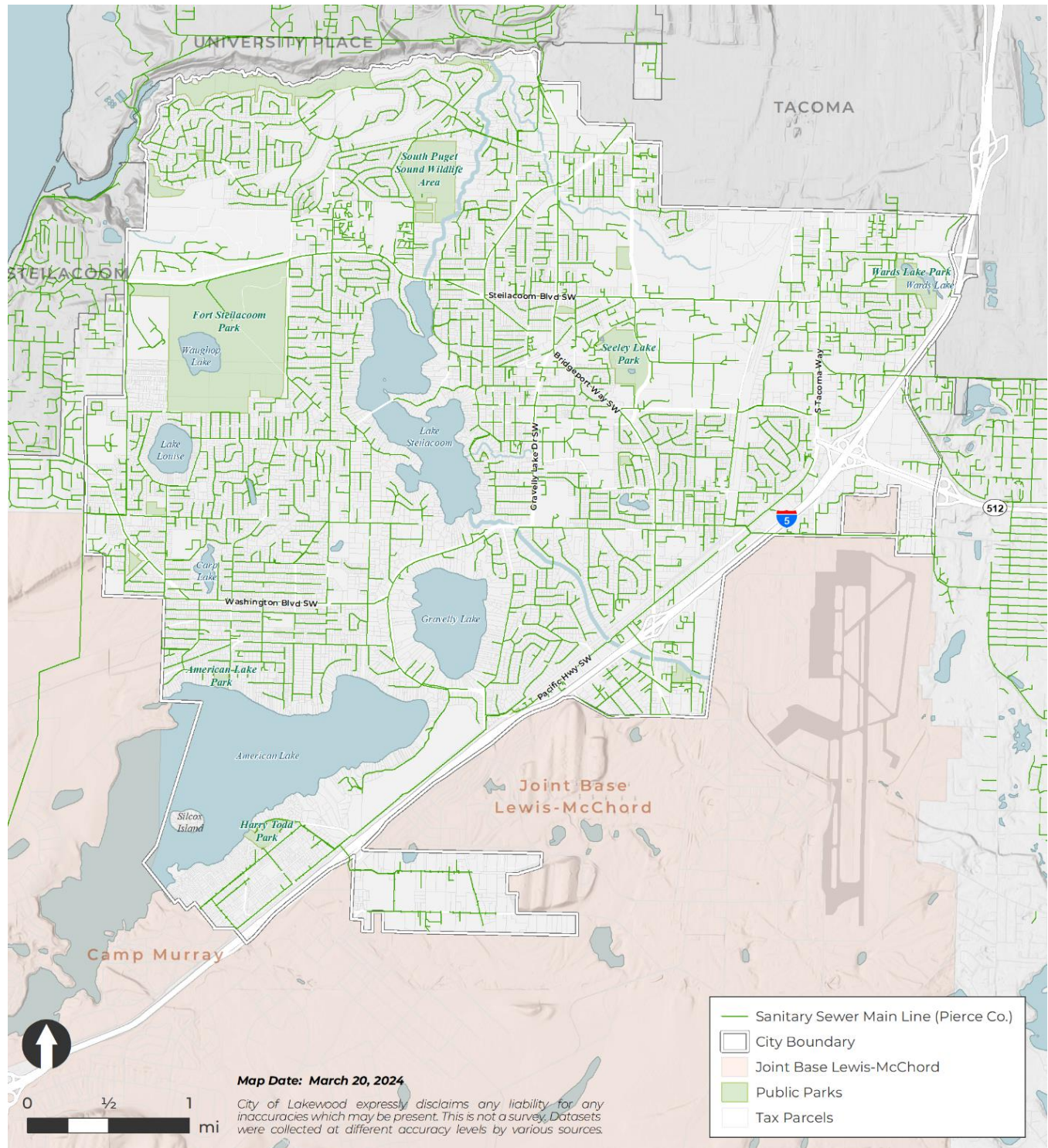
The more recent 2024-2044 Sewer Improvement Program identifies a bypass sewer interceptor in the Lakewood city limits projected for implementation in a period of 2027-2033 for a total cost of \$81.1M.

*Sewer Improvement Program 2024-2044 Bypass Interceptor Project Description: Construct a 72-inch, 19,000-foot pipeline will serve the sewer service sub-basins to the east of Interstate-5 as well as the existing portion of the Lakewood East Sub-basin. The project will provide future relief to the southern part of the Bridgeport Interceptor as well as the Steilacoom Boulevard Interceptor. The Bypass Interceptor will consist of an expansion of several existing interceptors coupled with new interceptor segments.*

Other planned improvements in Lakewood or serving the city between 6 and 20 years, include: Public Station Generator Replacements, DuPont-Lakewood Bypass Pump Station, DuPont-Lakewood Bypass Force Main, and Chambers Creek Regional Wastewater Treatment Plant Tunnel Expansion Phase 1.

Pierce County coordinates quarterly with the City of Lakewood to discuss upcoming and future projects. A Sewer Improvement Plan (SIP) was adopted in September 2021, addressing capital facility planning from 2022-2042 and identifying funding for the next six years of capital facility improvements.

Exhibit 3-76. Sanitary Sewer Main Lines in the City of Lakewood



Source: City of Lakewood, 2024.

## **Stormwater**

### Stormwater Conditions and Plans

Lakewood manages manmade and natural surface water systems; the current condition of the stormwater system as it relates to the natural environment and application of standards to development is covered in Section 3-1 Natural Environment. This section describes operations of the City's municipal stormwater utility.

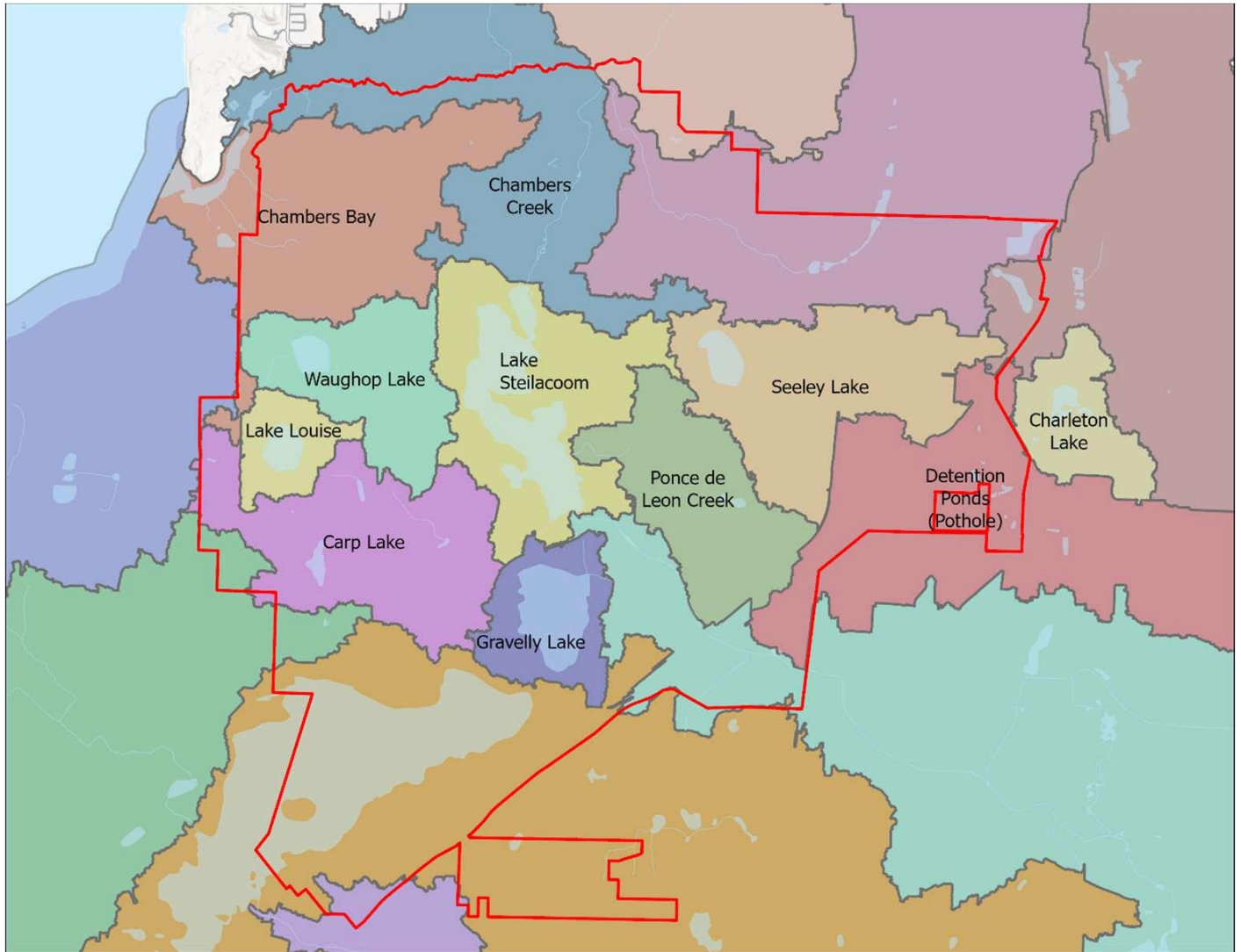
The City of Lakewood is located in the Chambers-Clover watershed, a small lowland watershed situated between two major rivers: the Puyallup to the northeast and the Nisqually to the southwest. The main stem of the network, Clover Creek, originates east of Lakewood, with headwaters and tributaries located in the unincorporated communities of Parkland and Spanaway and on Joint Base Lewis-McChord (JBLM). The creek flows under McChord Field and Interstate 5 and through southeast Lakewood before emptying into the south end of Lake Steilacoom. The stream channel leading to this inlet was created for flood control in the first half of the nineteenth century; the original course of the creek was located to the northeast and now holds a much smaller inlet stream known as Ponce de Leon Creek. The lake itself is also manmade, impounded behind a dam located at the north end of the lake.

The watershed also contains the American Lake system. American Lake is fed by Murray Creek, which originates on JBLM to the southeast. Although the inlet and outlet streams of the American Lake system are located outside Lakewood, roughly half of the lake itself is inside city limits.

Lakewood also contains a number of small, isolated wetlands and pothole lakes (lakes that do not have a surface outlet). These include Gravelly Lake, Lake Louise, Waughop Lake, Carp Lake, and Charleton Lake (which is located outside city limits but has some watershed area in the city). Seeley Lake and Wards Lake, located on the east side of the city, might be natural potholes, but they are used for stormwater detention and have manmade outlets to Flett Creek.

Although the two stream networks and the individual pothole lakes are, in a sense, separate features, they are all linked by an extensive groundwater system.

**Exhibit 3-77. Stormwater Basins in Lakewood**



Source: (City of Lakewood Public Works and Engineering, 2022)

All of Lakewood’s identified receiving waters are designated “core summer salmonid habitat,” although the City notes in its Receiving Water Conditions Assessment (2022) salmon runs are not possible in the city’s pothole lakes. In addition to aquatic uses, all of Lakewood’s water bodies have other designated uses including primary contact recreation, which corresponds to limits on bacteria levels. The water quality status is included in Exhibit 3-78.



**Exhibit 3-78. Lakewood Water Quality Summary**

Receiving Water	Desired Uses	Desired Uses Being Met?	Other Issues Affecting Downstream Waters	Impaired?
Chambers Bay	Estuarine habitat Salmon habitat	Yes – Estuary is in generally good condition	-	No
Chambers Creek	Salmon habitat Recreation	Somewhat – Exceedance of water quality standards for copper Unknown	-	Yes
Flett Creek	Salmon habitat Wetland habitat	Somewhat – Some issues with dissolved oxygen and pH Unknown	Issues with fecal coliform may affect recreation in Chambers Creek	Yes
Seeley Lake	Wetland habitat	No – Wetland receives industrial stormwater, which presumably degrades water quality	-	Yes
Lake Steilacoom	Salmon habitat Recreation	Unknown Somewhat – High phosphorus levels cause regular algae blooms	Sediments are source of copper in Chambers Creek	Yes
Ponce de Leon Creek	Salmon habitat	No – Dissolved oxygen and pH standards are consistently not met	Primary surface input of phosphorus to Lake Steilacoom	Yes
American Lake	Salmon habitat Recreation	Unknown Somewhat – Occasional bacteria and algae impairments	-	Yes
Carp Lake	Wetland habitat	Unknown	-	No
Gravelly Lake	Recreation	Yes – Lake is generally clear and free of algae in summer	-	No
Lake Louise	Recreation	Yes – Lake is generally clear and free of algae in summer	-	No
Waughop Lake	Recreation	No – High phosphorus levels cause algae blooms which make swimming and fishing inadvisable	-	Yes

Source: (City of Lakewood Public Works and Engineering, 2022)

The City implements a stormwater operations and maintenance program addressing the stormwater system. Activities include:

- All City-owned catch basins are inspected and cleaned as needed once every two years. The City has responsibility for numerous water quality vaults; these are inspected annually and cleaned as needed;
- The City contracts for vactoring and street sweeping. Vactoring and street sweeping are done by private contractors. The vactor contractor inspects storm lines and structures;
- The City performs spot checks of stormwater facilities after major storm events; and

- Work performed by City maintenance staff includes shoulder, ditch, and pond maintenance, vegetation management, infiltration system installation, sidewalk maintenance, asphalt patching, and snow and ice removal..

In addition, the City has developed a Stormwater Management Action Plan (SMAP), and identified priorities. Additional SMAP planning is anticipated for prioritized basins: Lake Steilacoom is considered to be of high importance and high opportunity. Given the size of the Lake Steilacoom watershed a sub-basin that could receive further SMAP planning was the Ponce de Leon Creek sub-basin. (City of Lakewood Public Works and Engineering, 2022)

**Exhibit 3-79. Guiding Questions for Basin Prioritization**

Receiving Water	Importance for Salmon	Percent of Basin in Lakewood	Impairments Might Be Addressed Through Stormwater?	Pollutant Sources of Concern Contributing to Direct Stormwater Discharge
Chambers Bay	High	11%	No <sup>1</sup>	<ul style="list-style-type: none"> <li>Intensive land use: 1 acre</li> <li>High traffic roads: 18 acres</li> </ul>
Chambers Creek	High	10%	No	<ul style="list-style-type: none"> <li>Intensive land use: 16 acres</li> <li>High traffic roads: 23 acres</li> </ul>
Flett Creek	High	24%	Yes	<ul style="list-style-type: none"> <li>Intensive land use: 14 acres</li> <li>High traffic roads: 35 acres</li> </ul>
Seeley Lake	None	100%	Yes	<ul style="list-style-type: none"> <li>Intensive land use: 121 acres</li> <li>High traffic roads: 28 acres</li> </ul>
Lake Steilacoom	Medium	5%	No	<ul style="list-style-type: none"> <li>Intensive land use: none</li> <li>High traffic roads: 10 acres</li> </ul>
Ponce de Leon Creek	High	100%	Yes	<ul style="list-style-type: none"> <li>Intensive land use: 49 acres</li> <li>High traffic roads: 14 acres</li> </ul>
American Lake	Low	11%	Yes	<ul style="list-style-type: none"> <li>Intensive land use: none</li> <li>High traffic roads: none</li> </ul>
Carp Lake	None	98%	No <sup>1</sup>	<ul style="list-style-type: none"> <li>Intensive land use: none</li> <li>High traffic roads: 11 acres</li> </ul>

<sup>1</sup> No impairments identified  
 Source: (City of Lakewood Public Works and Engineering, 2022)

Stormwater Regulations

Stormwater is regulated through LMC 12.11. The City of Lakewood updates its Stormwater Management Program regularly in compliance with the Western Washington Phase II Municipal Stormwater Permit. The City’s requirements include:

- Washington Department of Ecology Stormwater Manual as amended by the Lakewood Engineering Standards Manual, 2021

The Comprehensive Plan LOS for stormwater states: On-site infiltration expected. Treatment As required by DOE Stormwater manual.

The stormwater system currently has limited areas of filtration or water quality treatment; the City's stormwater system would be supported by the City's application of its stormwater standards.

City manuals require implementation of low impact development / green stormwater infrastructure techniques.

Development is also subject to development regulations in the zoning code, which has impervious surface limits as well as landscaping, tree protection, and critical area protection. See Exhibit 3-80. Thus, while some zones allow 100% impervious surfaces there is also a requirement for landscaping and trees that would result in less than absolute 100% pavement. As well the stormwater manuals and requirements would require stormwater treatment and stormwater controls including low impact development as noted above.

**Exhibit 3-80. Impervious Area and Landscaping, Open Space, and Environmental Protection**

Zone	Impervious surface limit	Landscaping Standards	Common Open Space Standards	Tree Protection Standards	Critical Area Protection
R1	45%	No	No	Yes	Yes
R2	45%	No	No	Yes	Yes
R3	60%	No	No	Yes	Yes
R4	70%	No	No	Yes	Yes
MR1	70%	Yes	Yes	Yes	Yes
MR2	75%	Yes	Yes	Yes	Yes
MF1	70%	Yes	Yes	Yes	Yes
MF2	70%	Yes	Yes	Yes	Yes
MF3	70%	Yes	Yes	Yes	Yes
ARC	60%	Yes	Yes	Yes	Yes
NC1	80%	Yes	Yes	Yes	Yes
NC2	90%	Yes	Yes	Yes	Yes
TOC	100%	Yes	Yes	Yes	Yes
CBD	100%	Yes	Yes	Yes	Yes
C1	100%	Yes	No	Yes	Yes
C2	100%	Yes	No	Yes	Yes
C3	100%	Yes	No	Yes	Yes

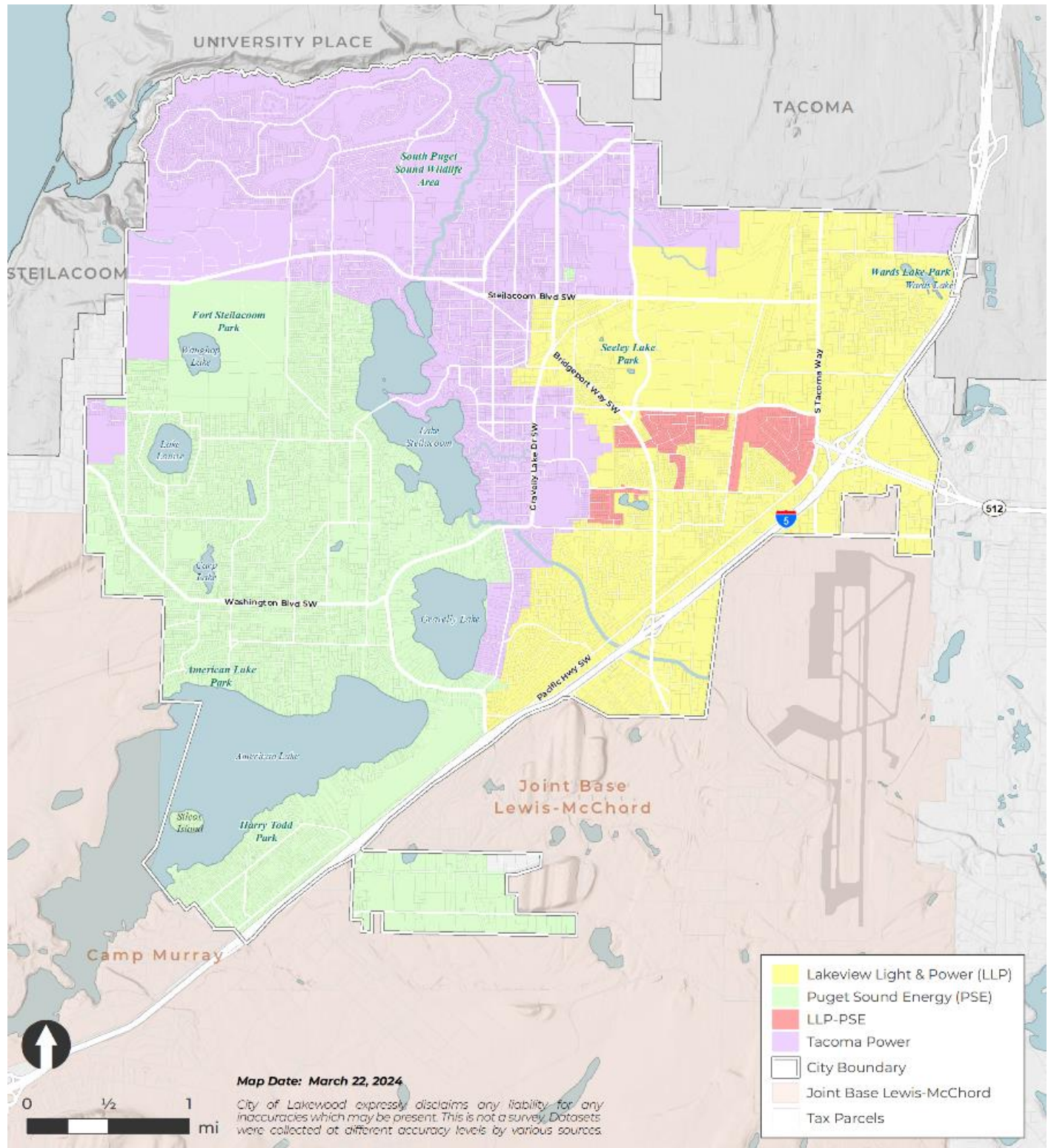
Source: Lakewood Municipal Code, 2024

## **Power**

Lakewood's electricity is provided by three electric utilities — Tacoma Power, Puget Sound Energy (PSE), and Lakeview Light and Power (LLP). See Exhibit 3-81. These utility providers supply customers throughout the city and project future load growth based on information from the PSRC and local municipalities. As larger providers, Tacoma Power and PSE are required to have Integrated Resource Plans (IRP); LLP is a smaller provider and is not required to have a Resource Plan.

Tacoma Power generates its own power, with 89% of its power from hydroelectric energy (Tacoma Public Utilities, 2024). PSE is the largest energy utility in the state and generates 43% of its electricity from hydroelectric and wind power, with other fuel generation sources from coal and natural gas (Puget Sound Energy, n.d.). LLP is a provider of power supplied from the federal Bonneville Power Administration.

Exhibit 3-81. Electrical Service Areas by Providers Map



Source: City of Lakewood, 2024

For electric utility providers, an effective LOS standard is power resources available for existing and planned customers. As of 2022, Tacoma Power served over 181,000 customers and provided an average household load of 11,761 kilowatt-hours per year. Lakeview served over 11,000 customers while providing an average winter load of 36.9 megawatts and an average summer load of 25.5 megawatts. PSE serves over 4 million customers with a 2,864 annual megawatt load.

Electric power is supplied to utility customers, either through providers generating their own power, or through contracts with other resource generating providers such as the Bonneville Power Administration.

**Exhibit 3-82. Power Services Effective Level of Services Standards**

Provider	Customers	Annual megawatt load	Total resources Megawatts
Tacoma Power	181,630	572	660.34
Lakeview Light and Power	11,434	25.5-36.9f	
Puget Sound Energy (PSE)	1.2 million electric power customers in Puget Sound (129,180, Pierce County, 2023)	2,864 (nameplate capacity 6,566)	2,911

Sources: Washington Department of Commerce Electric Utility Resource Planning Report, 2020; Personal communication with John DeVore at LLP; (Puget Sound Energy, 2023)

Lakeview Light and Power

LLP serves the eastern section of the city. It is a winter peaking utility, with an average winter load of 36.9 megawatts (MW) and an average summer load of 25.5 MW. It has sufficient capacity to meet the City’s growth plan for the area that it services, including the complete electrification of Pierce Transit’s bus and vanpool fleet.

As part of LLP’s capital infrastructure replacement plan, the utility is in the process of replacing all four of its substations. The Tye (2020) and Roy Miller 2 (2022) substations have had all of their components replaced and designs upgraded. The remaining two substations, Roy Miller 1 and Lake Grove are planned to undergo similar work in 2024 and 2027, respectively. In addition, LLP will add a fifth substation, which will be solely devoted to the electrification of the South Transit locomotives.

Puget Sound Energy

Puget Sound Energy (PSE) provides energy to the western section of the city. It also serves parts of the Lakewood Towne Center not served by LLP. In Pierce County it serves 129,180 customers with electric power, most of which are residential. In the county it has 31 substations with 942 miles overhead miles and 1,592 miles of underground cables. It also provides gas service to 169,374 customers in the county, with 2,989 miles of gas main. In Lakewood, a recent project included replacing 359 feet of gas main along 96<sup>th</sup> Street Southwest in Lakewood. (Puget Sound Energy, 2023)

PSE has an integrated resource plan to help the entity meet the Clean Energy Transformation Act (CETA): 80% renewable target by 2030; 100% renewable target by 2045. Its current sources of electric power is 27% hydroelectric, 23% coal, 23% natural gas, 16% wind, 1% solar, 1% nuclear, and 11% other/unspecified. (Puget Sound Energy, 2023)

### Tacoma Power

Tacoma Power serves the northern section and parts of the central section of the city. On average across its service territories, it expects load forecasts to remain relatively flat. However, Tacoma Power is also exploring small area forecasts. Across its infrastructure, Tacoma Power has 4 main / transmission substations, 5 switching stations, 49 distribution substations, 14 dedicated distribution substations, 23 Bonneville Power Administration customer substations, and 8 generation switchyards. Its total service area is 183 square miles and extends to the City of Tacoma and eastern Pierce County.

Tacoma Power currently develops a 10-year Capital Improvement Plans to budget for asset replacements and system capacity improvements as needed on a biennial basis. The ratemaking authority for Tacoma Power lies with the Tacoma Public Utility Board and Tacoma City Council.

As the city grows, Tacoma Power will extend service to new development projects that fall within its service territory. At this time, Tacoma Power has not identified a need to expand capacity. The cost for extending Tacoma Power's electrical system to serve new development projects is the responsibility of those development projects.

### Tillicum-Woodbrook Subarea

**Water:** The subarea is served with water supply and distribution infrastructure by the LWD. Proposed water system improvements identified include fire flow projects and materials/age projects, which are low or medium priorities. See Exhibit 3-74 and Exhibit 3-75.

**Sewer:** Pierce County Sewer Division provides sewer service to the subarea. In the near term, no planned improvements are identified in the 2024-2044 improvement program.

**Stormwater:** The City of Lakewood provides stormwater utility services. American Lake has some impaired water quality. The City has identified that stormwater requirements can address impairments.

**Power:** The subarea is served by Puget Sound Energy.

## 3.6.2 Impacts

The impact analysis for each alternative applies City or District adopted LOS to projected housing, population, and employment growth:

Impacts on utilities would be significant under one or more of the following thresholds:

- **Water, Sewer, Stormwater:** Inconsistency with utility system planned growth and capital plans.
- **Power:** Potential to require major new projects or initiatives for energy system upgrades to accommodate redevelopment.

Under all alternatives there would be increases in development and increases in population and employment density. The development would be incremental. Lakewood, as well as the utilities, are regularly updating plans to accommodate growth and maintain utilities.

**Exhibit 3-83. Summary Comparison of Utility Implications – No Action and Action Alternatives**

Utility	Level of Service - Current	Impacts Common to All Alternatives	Implications of No Action Alternative	Implications of Action Alternative
<b>Population</b>	Target 2044: 23,180		23,966 (full capacity)	40,922 (full capacity)
<b>Water</b>	136 gallons per person per day	LWD has planned for about 7,882 more population between 2019-2039. This would be net 5,380 people 2020-2039. This is 23% of the 2044 growth target. The current plan does not address the new target. However, the District has additional water rights.	The No Action Alternative has capacity to meet the 2044 growth target for population. The District would need to update its plans to address 2044 growth targets. Most growth is in centers, and less in historically single family neighborhoods.	The Action Alternative has much greater capacity for growth that would occur beyond the 20-year target. In the 20-year period, the target growth would exceed District projections. There would be more growth distributed in historically single family historically single family neighborhoods as well as in centers.
<b>Sewer</b>	220 gallons per person per day, single family 182.6 gallons per person per day, multifamily Most growth under all alternatives would consist of multifamily or attached single family dwellings.	The Pierce County Sewer Division is preparing a sewer plan update after the Comprehensive Plan periodic update. The current 2010 sewer plan assumes net 8,388 people, 2020-2044. This is a lower population than the 2044 population.	Similar to Water above.	Similar to Water above.
<b>Stormwater</b>	Infiltration, and application of stormwater manual.	All alternatives will add growth in a largely urban area. New development and infrastructure projects may add new impervious surfaces and improve stormwater management of existing impervious areas.	The No Action Alternative would apply most growth in the Downtown and Station District Subareas and would require stormwater standards of new development.	The Action Alternative would apply most growth in the Downtown and Station District Subareas but also result in growth in historically single family areas, which may increase impervious areas. Lakewood's stormwater standards would apply.



Utility	Level of Service - Current	Impacts Common to All Alternatives	Implications of No Action Alternative	Implications of Action Alternative
<b>Power</b>	None adopted.	All alternatives would allow for growth and an increase in demand for power. The power providers would all work toward new state requirements under the Clean Energy Transformation Act.	The No Action Alternative would focus growth in the Downtown and Station District Subareas and greater power demand is expected in Lakeview Light and Power in the Downtown and Station District Subareas.	The Action Alternative would focus growth in the Downtown and Station District Subareas as well as in historically single family areas, and all power providers would see an increase in demand.

### Impacts Common to All Alternatives

As growth occurs in the city, there would be an increase in development and increases in population and employment density.

### Water

Demand for water will increase under both alternatives. While the distribution of growth and the location of increased water demand will vary under the No Action Alternative versus Action Alternative, the net volume of the water increase will be proportional to the total increase in population. While both alternatives would result in an increase in water demand, use of higher efficiency and low-flow fixtures could reduce per-capita demand.

Exhibit 3-84 depicts the anticipated net increase in water demand for each alternatives. The LWD has planned for a net annual retail demand increase of 570 million gallons of water usage. Each alternative has an annual net demand increase of 1,150 to 2,031 million gallons of water usage. The whole system’s net increase is 3,418 million gallons and could accommodate the annual net need of each alternative. However, the District may need to change the amount of wholesale or partner agreements to accommodate this increased demand.

Exhibit 3-85 shows the total water usage by each alternative based on average daily demand. The LWD planned for an average daily demand of 9.59 million gallons of water usage / day (mgd) by year 2039 without conservation. The alternatives anticipate a higher daily average water need of 11.8 – 14.2 mgd. As of 2020, the LWD has water rights of 19.323 mgd average day demand withdrawal. That exceeds all the alternatives and capacity estimates. However, it may change the amount of wholesale or partner agreements if conservation efforts are not applied

The Water System Plan is updated on a 6-year cycle to address aging infrastructure, expansion to accommodate new development, and recommended improvements. These improvements and developer investment in higher efficiency water fixtures could decrease overall water demand to meet incremental increases in water demand.

**Exhibit 3-84. Additional Water Usage by Alternative**

Alternative	Population Capacity	Effective LOS (gal/person/day)	Net Need (gal/day) (mgd)	Annual Net Demand (mg)	Annual Retail Demand Net 2039 (mg)	Whole System Net 2039 (mg)
Population Growth Target (2044)	23,180	136	3.2	1,150.7	570	3,418
No Action (full capacity)	23,966	136	3.3	1,189.7	570	3,418
Action Alternative (full capacity)	40,922	136	5.7	2,031.4	570	3,418

Source: BERK, 2024

**Exhibit 3-85. Total Increased Water Usage by Alternative**

Alternative	Total Population	Effective LOS (gal/person/day)	Total Need (gal/day) (mgd)	Projected Retail Demand (AAD) Gross 2039 Without WUE (mgd)	Projected Wholesale Demand (ADD) Gross 2039 Without WUE (mgd)	Whole System Demand (ADD) Gross 2039 (mgd)
Population Growth Target (2044)	86,792	136	11.8	9.59	9.76	19.32
No Action (full capacity)	87,578	136	11.9	9.59	9.76	19.32
Action Alternative (full capacity)	104,534	136	14.2	9.59	9.76	19.32

Note: WUE (Water Use Efficiency) Program

Source: BERK, 2024

## Sewer

Sewer impacts are similar to water impacts. As growth occurs in the city, sewer usage will increase under all alternatives. While the distribution of growth and the location of increased sewer usage will vary, the net volume of the sewer increase will be proportional to the total increase in population.

**Exhibit 3-86. Net Growth and Sewer Demand**

Alternative	Population Capacity	Effective LOS (gal/person/day)	Need (gal/day)
Population Growth Target 2044	23,180	182.6	4,232,668
No Action (full capacity)	23,966	182.6	4,376,192
Action Alternative (full capacity)	40,922	182.6	7,472,357

Source: BERK, 2024

**Exhibit 3-87. Total Population and Sewer Demand**

Alternative	Population Capacity	Effective LOS (gal/person/day)	Need (gal/day)
Population Growth Target 2044	86,792	182.6	15,848,219
No Action (full capacity)	87,578	182.6	15,991,743
Action Alternative (full capacity)	104,534	182.6	19,087,908

Source: BERK, 2024

Stormwater

Both alternatives would increase growth and could add impervious area but would also be subject to landscaping, tree protection, and critical area protection regulations.

Comparing growth by zone, the alternatives would have the most growth in the Downtown zone. The No Action Alternative would focus growth more in multifamily and mixed use zones, whereas the Action Alternative would focus growth in historically single family areas where there are lower limits on impervious areas. In all cases the City stormwater standards would apply. See Exhibit 3-88.

**Exhibit 3-88. Capacity by Zone and Impervious Limits**

Zone	Impervious Limits in Zoning Code	No Action Capacity	Action Alternative Capacity
ARC	60%	1%	1%
CBD	100%	25%	21%
MF1	70%	12%	7%
MF2	70%	15%	9%
MF3	70%	11%	8%
MR1	70%	1%	4%
MR2	75%	5%	9%
NC1	80%	1%	0%
NC2	90%	4%	3%
R1	45%	0%	2%
R2	45%	1%	3%
R2T	45%	0%	<1%
R3	60%	8%	20%
R3T	60%	0%	2%
R4	70%	3%	7%
R4T	70%	0%	1%
TOC	100%	13%	4%
<b>Total</b>		<b>10,242</b>	<b>17,488</b>

Source: Lakewood Municipal Code, 2024; BERK 2024.

## Power

Based on a 2020 evaluation, the three power providers have identified their likely annual loads between 2019-2029. See Exhibit 3-89. The three providers have identified different growth rates.

**Exhibit 3-89. Power – Annual Loads (Mwa)**

	Base Year 2019	5-Year Estimate 2024	10-Year Estimate 2029	Growth Rate
Lakeview Light and Power Co	30.11	31.1	31.86	0.6%
Tacoma Power	554.93	571.75	571.7	0.3%
Puget Sound Energy*	2,681.00	2,864.00	3,036.00	1.3%
Lakewood 2020-2044 Population Target Annual Growth Rate				1.3%

\* Base Year 2018, 5-Year 2023, 10-Year 2028

If the population growth target is achieved by 2044, the citywide growth rate between 2020-2044 is 1.3%. Puget Sound Energy anticipates that rate of growth. The alternatives have different growth capacities but the planning target is the same for both alternatives.

The Lakeview Light and Power Company shows a 0.6% rate through 2029. However, as noted in the Affected Environment, the District has planned capacity to meet the City’s growth plan, for those areas that it provides services for, including the complete electrification of Pierce Transits bus and vanpool fleet. The District will eventually have a fifth substation which will be solely devoted to the electrification of the Sound Transit locomotives.

## Tillicum-Woodbrook Subarea

The Tillicum-Woodbrook Subarea would develop consistent with the plans and codes under each alternative. Under the No Action Alternative, the policies and investments would be based on the 2011 plan whereas under the Action Alternative, the policies and investments would reflect community input and create greater community connectivity and housing options. Utilities and investments would improve the quality of life for the community, such as stormwater improvements and American Lake water quality, and water system improvements for fire flow and other replacement needs.

## **No Action Alternative**

### Water

See Impacts Common to All Alternatives

Demand for water will increase under the No Action Alternative, with most growth in the Downtown and Station District Subareas and less in historically single family neighborhoods. While the distribution of growth and the location of increased water demand will vary between the two alternatives, the net volume of the water increase will be proportional to the total increase in population.

The District would need to update its plans to address the City's 2044 growth targets. Its current plan does not address the new target. However, the No Action Alternative has capacity to meet the 2044 growth target.

### Sewer

See Impacts Common to All Alternatives

As growth occurs in the city, the volume of sewer usage will increase proportional to the total increase in population. However, distribution of growth and the location of increased sewer usage will vary between the two alternatives. Similar to the impacts identified in Water, the No Action Alternative will see the volume of sewer usage increase in the Downtown and Station District Subareas and less in historically single family neighborhoods.

### Stormwater

See Impacts Common to All Alternatives

Increased growth under the No Action Alternative could add impervious area. However, It would also be subject to landscaping, tree protection, and critical area protection regulations. The No Action Alternative would apply most employment growth and much housing growth in centers and would require stormwater standards of new development.

### Power

See Impacts Common to All Alternatives

Increased growth under the No Action Alternative will result in increased power usage, with growth more focused in the Downtown and Station District Subarea. LLP has planned capacity to meet the City's growth plan within its service area, including the complete electrification of the Pierce Transit bus and vanpool fleet, replacement of its substations, and the construction of a fifth substation to support Sound Transit electrification.

### Tillicum-Woodbrook Subarea

See Impacts Common to All Alternatives

The Tillicum-Woodbrook Subarea would develop consistent with the plans and codes. Under the No Action Alternative, the policies and investments would be based on the 2011 Tillicum Neighborhood Plan.

## **Action Alternative**

### Water

See Impacts Common to All Alternatives

The Action Alternative has much greater capacity for growth that would occur beyond the 20-year target. In the 20-year period, the target growth would exceed District projections. There would be more growth distributed in historically single family neighborhoods as well as in the Downtown and Station District Subareas.

The District would need to update its plans to address the new growth target, as the current plan does not. However, the District has water capacity to address the new growth target. The District may need to change the amount of wholesale or partner agreements to accommodate this increased demand.

#### Sewer

See Impacts Common to All Alternatives

The Action Alternative sees an increased volume of sewer usage proportional to the total increase in population, with distribution of the growth and location of increased sewer usage varying. The Action Alternative would see increased volume of sewer usage in historically single family neighborhoods as well as in the Downtown and Station District Subareas. With most growth in multifamily and attached single-family dwellings, the LOS is lower per person than those in single family.

The Pierce County Sewer Division is preparing a Unified Sewer Plan update by 2029, and the City is providing information regarding planned 2044 growth target patterns as the USP is drafted.

#### Stormwater

See Impacts Common to All Alternatives

Increased growth under the Action Alternative could increase impervious area. However, it would also be subject to landscaping, tree protection, and critical area protection regulations. The Action Alternative would apply much employment growth and much housing growth in the Downtown and Station District Subareas as well as in historically single-family residential areas. Lakewood's stormwater standards would apply and it may require stormwater standards of new development.

#### Power

See Impacts Common to All Alternatives

Anticipated growth under the Action Alternative will result in increased power usage, with growth more focused in the Downtown and Station District Subareas and historically single family neighborhoods. All power providers would see an increase in demand and would update plans and capacity in their service areas to meet the City's growth plan.

#### Tillicum-Woodbrook Subarea

See Impacts Common to All Alternatives

The Tillicum-Woodbrook Subarea would develop consistent with the plans and codes under each alternative. Under the Action Alternative, the policies and investments would reflect community input

and create greater community connectivity and housing options. Utilities and investments would improve the quality of life for the community, such as stormwater improvements and American Lake water quality, and water system improvements for fire flow and other replacement needs.

### 3.6.3 Mitigation Measures

#### Incorporated Plan Features

The Action Alternative would update the Capital Facilities and Utilities Element policies, and incorporate by reference current utility provider plans.

#### Regulations and Commitments

- The Lakewood Municipal Code includes standards for water, sewer, and stormwater infrastructure for new development. (LMC Title 12)
- The Lakewood Municipal Code requires application of the international energy code as required by the State of Washington (LMC Chapter 15A.25).
- Ongoing updates to Comprehensive Water System Plan by the LWD and the Unified Sewer Plan by Pierce County would address the increases in density in the City and ensure services are in place to meet the growing demand.
- Power service providers conduct integrated resource planning to address service demand and conservation.
- The City implements the Ecology Stormwater Manual, Stormwater Management Action Plan, and Engineering Standards addressing stormwater management and promoting low impact development.
- The Zoning Code sets forth impervious surface limits and standards for landscaping, tree protection, and critical area protection.
- The City addresses illicit discharge through its Stormwater Management Plan. Budget resource allocation would be aligned with the budgeting process and the administration of the policies of the Comprehensive Plan.

#### Other Potential Mitigation Measures

- Consider applying for a grant to develop a comprehensive water quality and habitat improvement plan for Ponce De Leon Creek. Consider other lakes and streams for improvement plans where water quality or habitat improvements are needed.
- Developments may reduce water demand by using new technologies that would reduce per-capita water use (and therefore wastewater service demand) by using newer, low- or no-flow plumbing fixtures and equipment.

- Implementation of sustainable requirements including the construction and operation of LEED-compliant (or similar ranking system) buildings could reduce the increase required in power systems.
- Implementation of conservation efforts and renewable energy sources to conserve electricity in new developments, including energy efficient equipment (i.e., light bulbs, appliances, and heating and air conditioning), could reduce energy consumption.

### 3.6.4 Significant Unavoidable Adverse Impacts

Additional population, employment, and industrial/commercial growth throughout the City's service area would result in increased demands on water services, sanitary sewer facilities, stormwater, and power. The growth planned for the city would be incremental. Advance planning for sewer/water system and capital facility improvements should minimize the possibility of unavoidable impacts, ensuring the utilities can accommodate growth. **No significant unavoidable adverse impacts are expected for utilities.**



# 4 Responses to Comments

The City received approximately 12 written comments and 12 comments at the public hearings from the agencies, organizations, and individuals listed below in Exhibit 4-1 during the Draft EIS comment period from June 3, 2024 to July 3, 2024.

## Exhibit 4-1. Comment List - City of Lakewood 2044 Comprehensive Plan

Number	Name	Date
<b>Letters</b>		
1	Tricia Sears, WA Dept. of Natural Resources	6/7/24
2	Tricia Sears, WA Dept. of Natural Resources	5/31/24
3	Tina Lee, Pierce Transit	6/26/24
4	Renee Buck, Chambers-Clover Watershed Council (CCWC)	6/10/2024
5	Christina Manetti, Garry Oak Coalition	6/26/24
6	Christina Manetti, Garry Oak Coalition	7/3/2024
7	Cindy Gardner, Resident	6/6/2024
8	Derek Mai, Resident	6/12/2024
9	Christina Manetti, Resident	7/3/2024
10	T Parsons, Resident	6/5/2024
11	Don Russell, Resident	6/20/2024
12	Don Russell, Resident	6/26/2024
<b>Hearings in Order of Appearance</b>		
	Christinia Manetti, Lakewood resident,	6/5/2024
	Walter Neary, Lakewood resident,	6/5/2024
	Cindy Gardner, Lakewood resident,	6/5/2024
	Jan Cheer, Lakewood resident,	6/5/2024
	Vicky Stanish, Lakewood resident,	6/5/2024
	Phillip Fedderly, Lakewood resident,	6/5/2024

Number	Name	Date
	Shawn Ehlers, Lakewood resident,	6/5/2024
	Written testimony was received from the Department of Natural Resources, Derek Mai, and the Chambers Clover Creek Watershed Council. See letters.	6/12/2024
	Kim Underwood, Lakewood resident	6/26/2024
	Jeanna Ehlers, Lakewood resident	6/26/2024
	Christina Manetti, Lakewood resident	6/26/2024
	James Dunlop, Lakewood resident	6/26/2024

Comment letters are included in the appendices. In Exhibit 4-2, comments are summarized and responses are provided for each comment. Comments that state preferences on alternatives or other matters are acknowledged with a response that the comment is noted and forwarded to City decision makers. Comments that address methods, analysis results, mitigation, or other matters are provided a response.

**Exhibit 4-2. Comment Matrix and Responses – June 3 to July 3, 2024**

Name	Num	Comment Summary	Response
<b>Letters</b>			
Tricia Sears, WA Dept. of Natural Resources, 6/7/24	1-1	The comments I provided on 6/2/24 for 2024-S-7088 for the Comprehensive Plan remain the same. The comments I provided on 6/2/24 for 2024-S-7089 for the Development Regulations, remain the same.	See responses to comments in Letter 2 below. This is a comment on the draft plan and draft regulations.
	1-2	Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general: <ul style="list-style-type: none"> <li>▪ Consider adding a reference to WAC 365-190-120 geologically hazardous areas for definitions. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.</li> <li>▪ Consider adding a reference to the WGS Geologic Information Portal. If you have not checked our interactive database, the WGS Geologic Information Portal, lately, you may wish to do so. <a href="#">Geologic Information Portal   WA - DNR.</a></li> </ul>	The comment is noted and forwarded to City decision makers. This is a comment on the draft plan and regulations. See Mitigation Measures in Section 3.1.1 that refer to the WAC.
	1-3	If you have not checked out our Geologic Planning page, you may wish to do so. <a href="#">Geologic Planning   WA - DNR.</a>	The comment is noted and forwarded to City decision makers.
Tricia Sears, WA Dept. of Natural Resources, <i>Referenced Letter, 5/31/24/</i>	2-1	Comprehensive Plan Policies: On page 5-6, there is a goal “EC-5 Develop a Hazards Management Plan and a climate resilient community” with policies listed under it. The policies look good. Suggest adding a policy that more explicitly connects the comprehensive plan, the hazard mitigation plan, and climate change/resilience plans.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed goal and not the Draft SEIS. In the Preferred Alternative (City Council hearing draft), the Goal has been broadened to indicate “Develop a Climate Resilient Community” and underneath it a number of policies address the City’s proposed policies including to prepare a hazard management plan, as well as plan for Climate Resiliency.

Name	Num	Comment Summary	Response
		On page 8-4, there is a goal “NE-8 Protect natural topographic, geologic, and hydrological features within the city while addressing geological hazards” with policies listed under it.	The comment is noted. The comment appears to state the text without a request. In the Preferred Alternative (City Council hearing draft) the goal continues to be stated as quoted.
	2-2	NE-8.1 is somewhat awkwardly worded “Protect against seismic hazards to reduce risks to public safety and property.” Suggest rewording it. Perhaps something like, Reduce risks to public safety and property from landslides (slope failures), erosion, seismic events, volcanic eruptions, or flooding hazards. Then your policy covers all the geologically hazardous areas hazards you identify in the definition of critical areas ordinance. Note, in the definition of geologically hazardous areas, you include erosion, landslide, and seismic, but not volcanic.	The comment is noted and forwarded to City decision makers. This is a comment on the draft plan. In the Preferred Alternative (City Council hearing draft), the text is proposed for revision as follows “Reduce risks to public safety and property from landslides, slope failures, erosion, seismic events, volcanic eruptions, or flooding hazards.”
	2-3	Based on review of NE-8.2-8.5, it might be useful to add a policy(cies) about stormwater management and vegetation removal.	The comment is noted and forwarded to City decision makers. This is a comment on the draft plan. Stormwater management is also covered under Goal UT-4, with associated policies, and includes details on these considerations. Also see proposed EC-4.4, NE-7.7, DS-8 and similar goals and policies.
	2-4	On page 16-10, there is the only mention of mineral resources.	The comment is noted and forwarded to City decision makers. This is a comment on the draft plan. This inclusion of mineral resources is included to acknowledge the definition provided under RCW <a href="#">36.70A.170</a> . The City is proposing LMC 14.146.060 addressing mine hazard areas.
	2-5	Please consider the items below that could be useful in your comprehensive plan update and in other planning related endeavors. Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in future work, be it in your	The comment is noted and forwarded to City decision makers. This is a comment on the draft plan and regulations.

Name	Num	Comment Summary	Response
		<p>comprehensive plan, development code, and SMP updates, and in your work in general:                      Consider adding a reference to WAC 365-190-120 geologically hazardous areas for definitions. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.                      Consider adding a reference to the WGS Geologic Information Portal. If you have not checked our interactive database, the WGS Geologic Information Portal, lately, you may wish to do so. <a href="#">Geologic Information Portal   WA - DNR</a></p>	<p>See Mitigation Measures in Section 3.1.1 that refer to the WAC.</p>
	<p><b>2-6</b></p>	<p>Development Regulations                      On pages 11 and 70, critical areas are mentioned. Other than that, there are no proposed changes related to geologically hazardous areas and mineral resource lands. WGS has no recommended changes at this time.                      Please consider the items below that could be useful in your comprehensive plan update and in other planning related endeavors.</p>	<p>The comment is noted and forwarded to City decision makers. This is a comment on the draft plan and regulations. See Response to Comment 2-7.</p>
	<p><b>2-7</b></p>	<p>Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general:                       Consider adding a reference to WAC 365-190-120 geologically hazardous areas for definitions. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.                       Consider adding a reference to the WGS Geologic Information Portal. If you have not checked our interactive database, the WGS Geologic Information Portal, lately, you may wish to do so. <a href="#">Geologic Information Portal   WA - DNR</a></p>	<p>See Response to Comment 2-5.</p>
<p><b>Tina Lee</b>, Pierce Transit, 6/26/24</p>	<p><b>3-1</b></p>	<p>Please be advised that Pierce Transit has carefully reviewed the Transportation Element under your draft Comprehensive Plan Update and would like to offer the following comments.</p>	<p>The comment is noted and forwarded to City decision makers.</p>
	<p><b>3-2</b></p>	<p>· The plan appears more focused on transportation corridors as related to highways and personal vehicle movement. But it downplays the importance of public transit, now and in the future. It does not come off as positive towards the idea of supporting public transit. One example, when discussing issues and realities affecting transportation planning and implementation the element states, "There are few realistic alternatives to driving for most people in Lakewood (pg. 12-3)." While this may be true and it is a background section, our impression is this wording sets the tone</p>	<p>The comment is noted and forwarded to City decision makers.                       This was reviewed and the introductory materials in Chapter 12 were edited accordingly in the Preferred Alternative (City Council Hearing Draft).</p>

Name	Num	Comment Summary	Response
		<p>for a negative feeling regarding multimodal transit options. It would be appreciated if, at a minimum, you referenced the existing Lakewood Towne Center Transit Center, SR 512 Park-and-Ride, and Lakewood Sounder Station as important multimodal transportation hubs.</p>	
	3-3	<p>· We were surprised there is no Exhibit (map) that highlight transit. We see other jurisdictions include a map and provide more detail on either current or future transit routes. However, there is discussion of transit in the Subareas Element.</p>	<p>The comment is noted and forwarded to City decision makers. A map for transit was provided in Exhibit 12-4 as part of the Transportation Element in the Preferred Alternative (City Council Hearing Draft).</p>
	3-4	<p>· Transportation Mitigation Fee - Lakewood has or is considering a transportation mitigation fee in the downtown subarea (see attachment H from the June 12th PC staff report) - this could be better supported in the goals and policies of the Transportation Element (TR 114?).</p>	<p>The transportation mitigation fee is specifically discussed in the subarea plan for the Downtown and is currently under review. This fee is not envisioned for a broader application, and as such has not been incorporated into the Comprehensive Plan overall.</p>
	3-5	<p>· There is a proposed code update concerning transportation demand management (TDM) for large employers (see the 6/12 PC staff report) - once again could be better supported in the Transportation Element. Could it be covered in another area of the Plan, perhaps?</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. This is provided in both TR-8.5 and TR-10.2 in the Preferred Alternative (City Council Hearing Draft). The provision in public services under PS-10.7 specifically acknowledges the role of TDM with school districts.</p>
	3-6	<p>Goals and Policies: Proposed policy TR-1.3 says-<i>Increase availability and accessibility of alternative transportation modes like walking, biking, carpooling, and public transit, focusing on those without personal vehicles or with mobility needs.</i> This language is important to support equity considerations, but the goal of TR-1 could be further improved with a policy that not only increases availability of alternative transportation for those without personal vehicles or with mobility needs but to also include a statement encouraging or facilitating the use of alternative transportation modes among people</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS.  Please see Policy TR-1.1 that is focused all modes and all users of the transportation system.</p>

Name	Num	Comment Summary	Response
		<p>who have a choice in how they get around. This would better support a multimodal transportation system for all. We could offer some language about rewriting the culture. Specifically, people who use multimodal options can be anyone, it is not the option for just the poor or disadvantaged.</p>	
	3-7	<p>Policy TR-2.5 -suggested change: <i>Ensure the built environment is designed and developed to harmonize with the natural environment and public transportation facilities* (existing and planned)</i>. This would change the focus to requiring new development be built with multimodal transportation, especially public transit as a priority. *However, "Transportation facilities" is a broad term and if the intent is to develop around the existing automobile-centric infrastructure with most trips being SOV, the suggested policy as currently written would not support the goal of TR-2, <i>Ensure Lakewood's transportation system is designed for comprehensive, integrated, and safe access for all users of all ages, abilities, and transportation modes, including pedestrians, bicyclists, motorists, transit riders and operators, and truck operators</i>. Our suggestion is to think of transportation infrastructure versus (public) transit infrastructure.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. Policy TR-2.5 explicitly covers all transportation facilities, but nothing in the policy suggests promoting SOV trips. The City has created transit-supportive development in its Downtown Subarea Plan and Lakewood Station District Plan. See for example Goal LS-2.1.</p>
	3-8	<p>Policy TR-2.3 supports adaptation of project design to meet the needs and special circumstances that can impact accessibility to public transit and other modes of transportation. The proposed edits support such an intent:</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. Policy TR-2.3 is intended to provide broadly to all transportation infrastructure. Planning for a system designed for all modes and users including transit riders and operators is in Goal TR-2, and a Complete Streets approach is identified in Policy TR-2.2.</p>
	3-9	<p>TR-4 Create or strengthen policy related to this goal: "Use standard criteria to monitor LOS for multimodal transportation" (possibly even strengthen the goal itself) so that it more strongly supports creation of and maintaining existing multimodal transportation options. Most policies under this goal appear to maintain and support the status quo of personal vehicle use (and LOS for other forms of transport) rather than improve the situation.</p>	<p>This suggestion has been noted. The comment addresses the proposed plan and not the Draft SEIS. Multimodal LOS standards are included in the Transportation Element, and the connection has been strengthened in Section 12.2.3.</p>
	3-10	<p>TR-6.1 States, "Decrease dependence on automobiles in neighborhoods and Downtown</p>	<p>The comment is noted and forwarded to City decision</p>

Name	Num	Comment Summary	Response
		<p>while accommodating their use.” This could be stronger to include language not just about decreasing dependence on automobiles, but to support or create infrastructure that would make other forms of transportation (e.g., bicycling, walking, riding the bus) more inviting and even practical. This goal lacks policy that improves the pedestrian or bicyclists’ experience and is recommended for more proactive measures.</p>	<p>makers. The comment addresses the proposed plan and not the Draft SEIS. This consideration has been incorporated across different Elements of the Plan; see Responses to Comments 3-6 to 3-9. However, the policy has been retained from the previous version of the Plan to acknowledge that changes in mode shares in the city will occur over time.</p>
		<p>TR 8 goal and associated policies – This is an important one, so we are wondering if it can be an earlier goal? This is the first point where a reader gets the impression that single occupancy vehicle (SOV) use reduction and increased use of transportation alternatives are of importance.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS.</p> <p>The acknowledgement of multimodal transportation is referenced several times in earlier sections of the Transportation Element as well as Section 11.3.2 that includes Downtown Subarea goals and policies.</p>
	3-11	<p>TR9—This Goal and associated policies support first- and last-mile concepts. Like TR 8, this is an example of goals and policies to highlight and support.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS.</p>
	3-12	<p>TR-11— Parking management (e.g., prevention of overparking) is one way to support transit and pedestrian-oriented development and land uses. It also references High Capacity Transit (HCT). May we suggest incorporating our vision for the two new BRT routes that both serve the City of Lakewood, as shown in the Stream BRT System Expansion Study?</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. The BRT routes referenced in the transit section in the Transportation Element. The Residential/ Transit designation identifies increased residential densities for locations within a ¼ mile of transit in the 20-year period. See LU-3.3.</p>
	3-13	<p>TR-14—This would be a good place to talk about support for increased funding for public transit and related services.</p>	<p>The comment is noted and forwarded to City decision makers. The comment</p>



Name	Num	Comment Summary	Response
		<p>· Suggested additional language: Investigate options and or opportunities to support and promote adequate funding for public transit projects and services (this could set the stage for advocacy on the part of the City).</p> <p>In closing, Pierce Transit appreciates the opportunity to comment on the Transportation Element, along with our continued partnership with the City of Lakewood as your Comprehensive Plan is updated in 2024.</p>	<p>addresses the proposed plan and not the Draft SEIS.</p> <p>This is addressed as part of TR-14.2.</p>
	<p><b>3-14</b></p>	<p>Please update all references from “Pierce Transit” to “Pierce County Transit”</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS.</p> <p>The name was revised in the Preferred Alternative (City Council Hearing Draft)..</p> <p>The Draft SEIS updates the name in Final SEIS Chapter 4.</p>
<p><b>Renee Buck,</b> Chambers-Clover Watershed Council (CCWC), 6/10/2024</p>	<p><b>4-1</b></p>	<p>The CCWC Executive Committee met and would like to offer the following suggestions.</p> <p>1) Revise the buffers in the Critical Areas Ordinance for the City of Lakewood to provide increased buffer widths anywhere feasible, including areas with change of land use or proposed for development.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the proposed development regulations. The buffers provided under the draft Title 14 requirements are currently under review to ensure that they balance environmental protection considerations with the ability for landowners to use their property in responsible ways.</p>
	<p><b>4-2</b></p>	<p>2) Utilize the City’s existing communication tools to share information about the watershed and actions residents can take to protect and improve water quality and habitat. Examples could include postcard mailings, social media posts, and/or articles in Lakewood newsletter mailed to residents. The CCWC would be willing to collaborate with the City on such educational and informational materials.</p>	<p>The comment is noted and forwarded to City decision makers.</p> <p>See newly added Implementation Action NE-D: <i>Coordinate ongoing engagement to share information about natural environmental quality and actions to protect and improve water quality.</i></p>
	<p><b>4-3</b></p>	<p>3) Collaborate with Pierce Conservation District if you do not already. They have several programs</p>	<p>The comment is noted and forwarded to City decision</p>

Name	Num	Comment Summary	Response
		that would be an excellent fit for the City, particularly their Green Stormwater and Habitat Stewardship programs.	makers. The comment addresses the proposed plan and not the Draft SEIS. See Policy UT-3.7 for reference to the Conservation District Stream Team. Also see newly added Implementation Action NE-D quoted in Response to Comment 4-2.
	4-4	4) Make incorporating filtration and infiltration into stormwater facilities a priority. Infiltration is needed to support ground and surface water quantities, while filtration addresses water quality. This could be done by adding Green Stormwater features to development requirements or simply making a practice of adding these features to the City of Lakewood's projects.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. This has been broadly discussed under Goal UT-4,. More detailed provisions for green infrastructure are identified in EC-4.4 and low-impact development (LID) requirements are addressed in HO-4.5 and DS-8.2. Minimizing impervious surfaces is also addressed in UT-3.4.
	4-5	5) Contact Tacoma-Pierce County Health Department about supporting and expanding Toxic Algae Monitoring and Freshwater Lake Bacteria Monitoring programs in the City of Lakewood.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. Policy UT-3.6 identifies ongoing water quality monitoring programs.. Also see newly added Implementation Action NE-D quoted in Response to Comment 4-2.
	4-6	6) Encourage invasive plant species education and removal. If the City has existing "Cleanup" programs you might consider expanding those efforts to allow for the collection and disposal of problematic species like English Ivy, Scots Broom, and Himalayan Blackberry.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. Reference to volunteers and invasive plant species is identified in the Parks, Recreation, and Open Space Element, Section 9.2.3. Restoration of riparian areas is also addressed in NE-2.3.

Name	Num	Comment Summary	Response
			Addressing invasive plant species is included in the Other Potential Mitigation Measures in Section 3.1.1 in the Final SEIS.
	4-7	7) Encourage the planting of trees. Trees provide many benefits to watershed health including water quality, stormwater, and healthy habitat, particularly along shorelines. This might be done by adopting and enforcing tree ordinances or encouraging the voluntary planting of trees with giveaways. The Watershed Council has been particularly impressed by the work of the Tacoma Tree Foundation in offering tree education and giveaway events. The City might also want to set an example by incorporating more trees and native plants into the landscaping of city-owned properties.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. Policies encouraging the planting of trees include NE-6.2, 6.7, and 6.8 and an added Policy EC-5.5. The idea of a tree giveaway is noted. The City has recently started an Urban Forestry Program and recently amended its tree code. <sup>7</sup>
	4-8	8) Direct additional resources toward existing enforcement programs. Additional illicit discharge detection and elimination of critical areas enforcement staff would discourage and prevent damage.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. The City addresses illicit discharge through its Stormwater Management Plan. Budget resource allocation would be aligned with the budgeting process and the administration of the policies of the Comprehensive Plan. This can be noted for the implementation strategy. It is included in the Mitigation Measures in Section 3.6 in the Final SEIS.
	4-9	9) Consider applying for a grant to develop a comprehensive water quality and habitat improvement plan for Ponce De Leon Creek.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS.  Restoration of the creek is addressed in Policy NE-2.5.

<sup>7</sup> See: <https://cityoflakewood.us/trees/>.

Name	Num	Comment Summary	Response
			This grant idea could be noted as an implementation strategy. It is included in the Other Potential Mitigation Measures in Section 3.6 in the Final SEIS.
	4-10	10) Work with local water purveyors to share and support water conservation efforts.	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. This is addressed in CF-1.10, EC-3.4, and UT-7.5. It is part of the implementation strategy EC-E.
	4-11	11) Follow, share, and contribute to CCWC blog posts. The Council prioritizes sharing current, accurate information. Our blog can be found here: <a href="https://cloverchamberscreekwatershedcouncil.blog/">https://cloverchamberscreekwatershedcouncil.blog/</a>	The comment is noted and forwarded to City decision makers. The comment addresses the proposed plan and not the Draft SEIS. This will be noted for future City activities, especially with respect to engagement with community groups.
<b>Christina Manetti, Garry Oak Coalition,</b> 6/26/2024	5-1	Please include the following comments from the Garry Oak Coalition, an environmental non-profit based in Lakewood, in the record for Lakewood’s 2024 GMA updates, as well as the attached previous comments. Those contain many of the Coalition’s main comments regarding Garry oaks, which were submitted previously to Ms. Tiffany Spier.	See responses below.
		<b>Comments on Garry oaks and their habitat:</b>	
	5-2	Garry oaks should be made critical areas and protected – mature are considered to be 15” DBH, hundreds of years old, but we need to insure that there will be more oaks in the future. Young ones less than 6” DBH to even just 1” DBH should also be protected.	Garry oak trees are provided with protection as per LMC 14.154.080. Garry Oaks are also addressed in 18A.70.330. Section 14.154.080.C.4 references use of PHS management recommendations for non-single family developments. The City has recently started an Urban Forestry Program and a tree survey

Name	Num	Comment Summary	Response
			is underway. <sup>8</sup> The City does not recommend consideration of potential amendments to tree regulations in LMC Chapter 14.154.080 until after the tree inventory is complete.
	5-3	Inventory: There needs to be an inventory of Garry oaks and other trees on private as well as public property – otherwise the City does not know what its critical areas are and therefore is not protecting them, as required to do by GMA.	See Response to Comment 5-2.
	5-4	Utilities cannot be given a free hand to cut down and mutilate Garry oaks and other trees, such as in this photo from June 2022: [ photo ]	The comment is noted and forwarded to City decision makers. Utility standards for trimming, and requirements for notification prior to trimming or removal of Gary Oaks are required in 18A.70.330, and critical area requirements apply per LMC 14.154.
	5-5	The City is not subject to tree preservation regulations. It must not be given a free hand in this manner – it has resulted in the destruction and mutilation of many Garry oaks and other trees. The City’s destruction of large Garry oaks in its own public right of way, where the City is subject to no oversight or regulation, has resulted in a net loss of critical areas in the shape of priority Garry oak habitat.	The City is subject to regulations at LMC 14.154.080 and 18A.70.320, including proper management of critical areas and tree preservation.
	5-6	Penalties for ivy infestations: There must be penalties for people who allow ivy to grow on and cover trees.	The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. It is included in the Other Potential Mitigation Measures in Section 3.1.1 in the Final SEIS.
	5-7	Paving or landscaping solely with rocks within the Critical Root Zones of Garry oaks and other trees must not be permitted, and paving must be removed where it is found, allowing for the improvement of conditions for the protected Garry oaks in our drier, hotter conditions.	No hard surfaces are allowed within the dripline to the maximum extent possible per 18A.70.330.E. Where it is not avoidable a tree protection plan by a

<sup>8</sup> See: <https://cityoflakewood.us/trees/>.

Name	Num	Comment Summary	Response
			certified arborist is required.
	5-8	Monitoring of Garry oaks and other trees during construction should be required, as well as strict penalties for people who disregard regulations.	The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. See 18A.70.340 which applies civil penalties to the City Tree Fund.
	5-9	Single Garry oaks: The City does not take into account the fact that both the 1998 and 2024 WDFW oak recommendations say that SINGLE OAKS can qualify for protection. It is important to note that clearly not every single oak is “documented” by PHS or DNS, etc., which would mean that they are excluded from protection. There need to be broader protections for single Garry oaks, regardless of whether they have been “documented” specifically by PHS and DNR – who themselves say that their PHS and DNR maps are not complete. – p. 492, p. 8 of 11, Ch. 14.154 Fish and Wildlife Habitat Conservation Areas	See Response to Comment 5-2.
	5-10	“During building or construction operations, suitable protective measures in LMC 18A.70.320(A) shall be erected...”	See Response to Comment 5-7.
		There must be more oversight:	
	5-11	<p>“Removal of diseased trees and trees that present an imminent threat to properties...”</p> <p>This section goes against the WDFW recommendations, which recommend that dead trees remain standing to decay in place, adding valuable habitat. p. 12 of 1998 recommendations: “Retain large, dominant oaks and standing dead and dying trees.” In 2024 recommendations, too, one reads about the value of dead and dying trees for habitat. If endangering a structure, they can simply be made safer through pruning and cabling, for example, in consultation with an arborist specializing in Garry oaks.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS.</p> <p>The paragraph referenced goes on the cite 18A.70.330 which also indicates that removal of a damaged or diseased tree is allowed unless it constitutes an important wildlife habitat – see 18A.70.320.A.3.</p>
	5-12	<p>“Tree replacement is required at a two-to-one ratio per LMC 18A.70.330.” Also mentioned in single-family property section. p. 15 of 11</p> <p>This is not in keeping with the 2024 recommendations, p. 18, which recommend a replacement ratio of from 50 to 250 to one, depending on diameter at breast height. (50 to 1 for trees from 6-12” DBH, 250 to 1 for trees 30” DBH or larger).</p>	<p>The comment is noted and forwarded to City decision makers.</p> <p>The City does not recommend consideration of potential amendments to tree regulations in LMC</p>

Name	Num	Comment Summary	Response
			<p>Chapter 14 .154.080 until after the tree inventory is complete.</p> <p>Section 14.154.080.C.4 references use of PHS management recommendations or (proposed language) review by WDFW for non-single family developments.</p> <p>Criteria for avoidance and incentives for preservation are in critical area and tree protection regulations for single-family and other developments.</p>
	5-13	<p>“Utility pruning” – p. 15 of 11</p> <p>Utility pruning must be done under the supervision of an independent arborist specializing in Garry oak trees to insure that they are not harmed.</p> <p>A certified arborist advising the Garry Oak Coalition has recommended that the code state the following: “must be supervised by a ISA Certified Utility Specialist”.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS.</p> <p>Tree pruning for utilities is required to be conducted by ISA Best Management Practices in 18A.70.310.C. Utility companies typically use ISA certified crews who are utility specialists.</p>
	5-14	<p>“Additional impervious area for the driveway will be permitted” – p. 15 of 11</p> <p>The Critical Root Zones of Garry oaks must not be paved over (or driven over).</p>	<p>See Response to Comment 5-7.</p>
	5-15	<p>“1,500 square feet for a single-family residence, 1,000 square feet for an accessory dwelling unit, and 1,000 square feet for a detached garage.” – p. 15 of 11</p> <p>On properties with Garry oaks, the houses should be built up, keeping the footprint as minimal as possible. Instead of allowing 2,000 extra square feet for an ADU and detached garage, in new constructions, the garage should be made under the house and the ADU should be a second or third floor, to avoid impacts to Garry oaks.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. The dimensions are maximum footprints and the review criteria include “the proposal results in the least possible impact to the critical area to achieve a feasible development.”</p>
	5-16	<p>“Impervious Surface Bonus” under “incentives” LMC 18A.70.320(J) – This “incentive” is harmful to the Garry oaks that the code is trying to protect, as well as to the environment in general. In addition to increasing stormwater run-off and decreases infiltration, an increase in allowed impervious</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. Impervious area is not</p>

Name	Num	Comment Summary	Response
		surfaces damages the root zones of the Garry oaks, which can stretch for hundreds of feet in radius from the trunk. No impervious surfaces should be allowed on single- family properties, and especially not those with Garry oaks that we are trying to protect. This “incentive” should be struck.	allowed under the dripline. See Response to Comment 5-7.
	5-17	“The report and mitigation prepared by a qualified biologist or certified arborist...” p. 16 of 11 of Ch. 14.165 Definitions – Here and elsewhere, the qualified biologist or certified arborist must not be one hired by the developer, which we have seen can lead to the consultant simply approving whatever is most expedient to the developer.	The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. The proposed definitions provide qualifications for professions that are omitted in the current code. The City applies its code and has added an urban forest program with an arborist, and the City can require third party review where necessary.
	5-18	<p>“Priority Oregon white oak woodland” – p. 11 of 15 of Ch. 14.165 Definitions – p. 542 of file</p> <p>This needs to specify that all Garry oaks are to be considered a priority – the larger ones for current habitat value, and the younger ones so that there is a succession that will preserve the habitat for future without leading to a temporal gap when the large ones die.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS.</p> <p>This is providing a definition and not stating policy.</p>
	5-19	<p>“Prairies” – p. 11 of 15 of Ch. 14.165 Definitions – p. 542 of file</p> <p>Because prairies are associated with Garry oaks, provisions should also be made to protect and restore remnant prairies, as defined by physical features and presence of any indicator species.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS.</p> <p>Prairies are referenced as a habitat in 14.154.020.B.</p>
	5-20	<p>“Qualified professional” p. 11 of 15 of Ch. 14.165 Definitions – p. 539 of 999 file</p> <p>This definition needs to specify that qualified professionals assessing critical areas and specifically Garry oaks must not be hired by the developers, or utilities companies, or whoever is proposing to cut down Garry oaks, because this is a clear conflict of interest. A system must be developed in which outside Garry oak experts are the ones to determine how best to protect this protected species.</p>	<p>See Response to Comment 5-17.</p>
	5-21	<p>“Reasonable use” – p. 11 of 15 of Ch. 14.165 Definitions, p. 539 of 999 file</p>	<p>The comment is noted and forwarded to City decision makers. The comment</p>



Name	Num	Comment Summary	Response
		<p>In considering “reasonable use”, environmental protection and avoidance of adverse environmental impacts must be given precedence. Although it may seem on a case by case basis that the impact on a single property is not significant, the cumulative impact of all these actions negatively affecting for example the Garry oaks and other critical areas are indeed significant, and must be borne in mind.</p>	<p>addresses the code and not the Draft SEIS. Without reasonable use the City would risk being challenged on a potential taking due to regulations removing all productive use of property. To minimize impacts the criteria for reasonable use regarding Oregon white oak woodland include that “the proposal results in the least possible impact to the critical area to achieve a feasible development, and includes mitigation to offset any impacts to critical areas.”</p>
	5-22	<p>“Prior tree removal has met Chapter 18A.70 LMC, Article III in effect at the time.” Ch. 14.154, p. 16 of 11</p> <p>No retroactive permits shall be issued for illegal cutting of Garry oaks and other trees.</p>	<p>The point of the quoted text at 14.154.080.C.3 is to ensure that the reasonable use is applied to qualified properties and not to reward prior non-compliant activity.</p>
	5-22	<p>“No person shall willfully remove, top, damage, destroy, break, injure, mutilate or kill any priority Oregon white oak trees, savannas, and woodlands except as allowed by this chapter.” Ch. 14.154, p. 15 of 11</p> <p>Specific mention must be made of the fact that it will be illegal to allow a Garry oak or other tree to have ivy or other invasive vines growing on it. It is not enough to prohibit them from being engulfed in vines – this is already too late. The presence of invasive vines must be banned. This is a major cause of tree death in Lakewood, and is especially grievous when involving the very slow-growing Garry oaks. As part of Lakewood’s effort to preserve and increase tree canopy, a regulation must be in place prohibiting the presence of ivy and other invasive vines on trees.</p> <p>In this context, invasive holly also needs to be mentioned, because it is a serious problem, crowding out native species in Lakewood’s wooded areas.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. See Response to Comment 5-6.</p>

Name	Num	Comment Summary	Response
	5-23	<p>“Priority Oregon white oak woodland” Ch. 14.165 Definitions, Page 11 of 15</p> <p>Why has this section been struck?                      "forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).</p> <p>It contains important information about how stands less than 1 acre or single trees can be identified as priority habitat. “Large diameter” should be defined, or perhaps removed. As I have mentioned elsewhere, all Garry oaks must be protected in order to guarantee a succession without a temporal gap when the current mature oaks die.</p> <p>Garry oaks are very slow-growing and even small diameter trees can be a century old. According to WDFW’s 2024 recommendations, for each inch of diameter growth, it takes 15-20 years. Thus, a 6” diameter at breast height Garry oak is already from 90 – 120 years old. A Douglas fir at this age would be already so wide that a person could not embrace it.</p> <p>In addition, many or even most Garry oaks in Lakewood have a large canopy, which is a straightforward way of identifying oaks valuable to wildlife, as are cavities.</p> <p>As habitat biologist Darrin Masters told me when discussing the Hipkins oaks, at least one of which was cut down by the city for a roundabout, those two oaks were clearly valuable to wildlife and should be preserved. I relayed to the City that he invited them to call with questions.</p> <p>If the aim in the amendments to the Critical Areas Ordinance is to strengthen protections for Garry oaks, it seems that striking this section – which originates in the 1998 WDFW recommendations for Garry oaks – is not helpful.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. See the Response to Comment 5-2.</p>
	5-24	<p>CORRECTION: Ponce de Leon Creek is not “mostly” piped:</p>	<p>Policies reference restoration of stretches of Ponce de Leon Creek and others.</p>

Name	Num	Comment Summary	Response
	5-25	<p>Riparian Management Zone buffers. – p. 496, p. 12 of 11 of Ch. 14.154 Fish and Wildlife Habitat Conservation Areas  </p> <p>It seems misguided to allow the lowering of riparian buffers, which constitutes a move in the wrong direction. We want more protection for our salmon-bearing and other creeks, not less.</p>	<p>See the stream buffer assessment technical memo, August 2, 2024.</p>
	5-26	<p>Affordable housing: - should not have special consideration for “religious organizations” – this is inconsistent with principle of separation of church and state</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the plan and not the Draft SEIS. This provision is specifically required for Lakewood as per RCW <a href="#">35A.63.300</a>.</p>
	5-27	<p>- Lakewood cannot provide density if there won't be enough water, or infrastructure (roads, sewers), all of which must be carefully studied. The City's residents must be confident that Lakewood can support this proposed growth, and all of these issued must be carefully studied and the results shared with the public. The City must always err on the side of caution whenever our water is concerned.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the plan and not the Draft SEIS. The Comprehensive Plan provides details on the necessary infrastructure to support intended growth over the next 20 years, as well as intended growth targets for housing and employment uses.</p>
	5-28	<p>TILlicUM:</p> <p>Tillicum is home to magnificent Garry oaks, many of them single-stemmed (trunked) specimens that will be better able to resist drought and climate change. A priority in Tillicum must be to protect the Garry oaks of this neighborhood, including development such as that planned at the new library site, which are key to providing the protective shade needed for this lower-income neighborhood that is so fortunate to already have a gigantic mature Garry oak canopy to protect it from the heat.</p> <p>Tillicum must not become a heat island. The Garry oaks of Tillicum should feature prominently in that neighborhood's area plan.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the plan and not the Draft SEIS. The policies and codes addressing protection of trees are also applied to the Tillicum-Woodbrook subarea.</p>
	5-29	<p>Affordable housing: “Affordable housing” cannot take precedence over environmental considerations – a safe and healthy environment and ecosystem is required for people of all income levels.</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the plan and not the Draft SEIS.</p>

Name	Num	Comment Summary	Response
			<p>The Comprehensive Plan is intended as a document with multiple goals, including ensuring both environmental quality and affordable housing for all residents. Prioritizing environmental concerns exclusively over housing goals would not be in compliance with the GMA.</p>
	5-30	<p>- 18A.90 Housing Incentives Program                      “Updating inclusionary density bonuses up to increase of to 25% above base zone density in all zones for inclusion of low- or extremely low-income housing in project and making this density bonus exclusive of any other bonus density options in chapter”</p> <p>Moreover, preferential treatment should not be given to religious organizations in affordable housing deals, as this would violate the separation of church and state:</p> <p>“New density bonus discussion for affordable housing created in partnership with religious organizations”</p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the plan and not the Draft SEIS. Please note above regarding the provisions of RCW <a href="#">35A.63.300</a>.</p>
	5-31	<p>Aspen stands added – Where do we have aspen stands in Lakewood? p. 492, p. 8 of 11, Ch. 14.154 Fish and Wildlife Habitat Conservation Areas  </p>	<p>The comment is noted and forwarded to City decision makers. The comment addresses the code and not the Draft SEIS. Aspen stands are added in LMC 14.154 as a priority habitat and species per state guidance.</p>
<p><b>Christina Manetti,</b> Resident, 7/3/2024</p>	6-1	<p>Please accept my following public comment about Lakewood’s Draft Supplemental Environmental Impact Statement. Please make me a party of record in this process.</p> <p>In reviewing the DSEIS, please also take into consideration the public comments I submitted for the GMA update previously, as well as those submitted by the Garry Oak Coalition. I am resubmitting them together with this comment. Any others, such as those submitted to the Planning Commission recently, should also be included.</p>	<p>See Response to Letter 5.</p>
	6-2	<p>Draft SEIS Page 283 of file, Critical Areas Ordinance Gap Analysis: The City’s habitat conservation areas regulations require some modifications to align with BAS and to clarify applicability and facilitate</p>	<p>The Gap Analysis was prepared in fall 2023. See Response to Comment 5-2 regarding the current tree</p>

Name	Num	Comment Summary	Response
		<p>ease of use.... Best Available Science recommends that single Garry oaks qualify for protection when in urban and urbanizing contexts such as those in Lakewood. ...despite what Best Available Science says (WDFW recommendations published in 1998 and 2024 and WDFW habitat biologist Darrin Masters), there are no recommended changes to the sections related to Oregon white oaks (Garry oaks) in this EIS (p. 284 of file):</p>	<p>survey and future consideration of code amendments. Currently, proposed code changes reference WDFW review and continue to reference PHS recommendations for non-single-family developments and reasonable use.</p>
	<b>6-3</b>	<p>The City, because it does not have any inventory of Oregon white oaks on all public and private property, does not know what critical areas lie within its boundaries. Therefore, losses of critical areas will also be unknown.</p>	<p>The City has recently started an Urban Forestry Program and a tree survey is underway.<sup>9</sup></p>
	<b>6-4</b>	<p>Because mitigation is impossible in practice for Oregon white oaks, and because no attempt is even made to try actually to mitigate the loss of critical areas such as those in Springbrook, there is a resultant net loss of critical areas in Lakewood. By allowing Oregon white oaks to continue to be cut down on public and private property, the City is allowing a net loss of critical areas within its boundaries, which is prohibited by the Growth Management Act. There should also be added a “no-net-loss” to the Oregon white oak section...</p>	<p>The critical area regulations require mitigation sequencing which includes avoidance, minimization, and compensation. See Response to Comment 5-11. Amendments to LMC 14.142.100.B.1.e would require no net loss of ecological function for any critical area.</p>
	<b>6-5</b>	<p>It was surprising to see that the applicant is tasked with identifying critical habitat areas (see p. 285 of file). It seems that “expanding on the sources and methods of identifying critical fish and wildlife habitat areas” still remains too dependent on the property owner and any consultants he or she may hire.</p>	<p>See Response to Comment 5-16.</p>
	<b>6-6</b>	<p>The oak and priority habitats and species maps (Exhibits 3-3, 3-4, and 3-5) are not very useful because they are not exhaustive – in both the 1998 and 2024 WDFW Oregon white oak (Garry oak) guidelines, single oaks in “urban and urbanizing” contexts may be protected, and these will not necessarily appear on these maps. There are many oaks that are not part of a larger group that would not be taken into account. Similarly, as WDFW says itself, its PHS online map is also not</p>	<p>Maps are a reference but definitions and field conditions prevail in the application of the City’s critical areas ordinance. Note that a tree survey is underway per Comment 6-3.</p>

<sup>9</sup> See: <https://cityoflakewood.us/trees/>.

Name	Num	Comment Summary	Response
		exhaustive and should not be treated as such, and DNR also has a caveat that its oak map is also not exhaustive.	
	6-7	Oregon white oaks are also adversely affected by subdivisions (because if the property on which a stand of oaks stands is subdivided into lots of less than one acre, then the stand is considered to be less than one acre and therefore not protected in Lakewood – although WDFW’s recommendations clearly state that single trees may also qualify for protection.	See Response to Comment 5-2. Subdivisions are subject to critical area regulations as well as tree protection at 18A.70.310.A.
	6-8	In terms of identifying Oregon white oaks as critical areas, the City has also caused there to be a loss in critical areas because of its requirement that an appellant personally observe threatened or endangered species in the Oregon white oaks, using them. This despite the clear statement of WDFW habitat biologist Darrin Masters, which was included as an exhibit in multiple appeals before the hearing examiner, that it is not necessary for someone to personally observe species using the Oregon white oaks in order for us to know that they are valuable to wildlife.	See Response 5-2.
<b>Cindy Gardner,</b> Resident, 6/6/2024	7-1	Was an environmental impact study done prior to the Barnes & Nobel approval? If not, why not?	The application of the SEPA is subject to State laws and rules and LMC Chapter 14.02. This SEIS has been developed in parallel with the Comprehensive Plan to highlight the potential impacts of the changes discussed the plan update and associated regulations. This must be completed for the final approval of the Plan to be valid and is being developed according to State requirements.
	7-2	Could a member of this Commission personally or professionally benefit from any decision made by the panel?	This process involves comments on the Comprehensive Plan and supporting materials. It is a legislative proposal addressing the city as a whole. Information regarding the Planning Commission should be submitted directly to the Commission.

Name	Num	Comment Summary	Response
	7-3	Question for Mark Herr: If you were a homeowner in our neighborhood how would you describe the benefits of the RTA? What are the disadvantages of the RTA to the homeowner in our neighborhood?	This should be submitted directly to Mr. Herr.
Derek Mai, Resident, 6/12/204 (originally submitted 1/24/24)	8-1	Thank you very much for passing along information with regards to the 2024 Lakewood period review and proposed housing changes. The videos were helpful to help understand the case being made in favor of more housing options. My wife and I are very concerned with the requirements and proposed solutions set forth by the state legislature.	Please note that the requirements from the state cannot be adjusted as part of this process. Please contact your local legislators to address the concerns expressed.
	8-2	Thank you for what you do, and I look forward to learning more about Lakewood's approach for implementing these mandates from the state legislature.	
	8-2	In the first video entitled "why we need more housing", one of the speakers claims "people with larger incomes outbid less affluent households". Does Lakewood have data that would help determine if this is actually the case? More specifically, are the buyers truly people with more income, or private investment firms placing all cash offers? Are you aware of any plans by the state to bring legislation forward that would limit the ability of investment firms to outbid individual families?	The City has developed a Housing Needs Assessment to highlight the housing cost burdens on lower income households in aggregate. There is no available information to examine individual housing sales, but this highlights the increases in housing prices as compared to household incomes. There are no plans for the City to introduce regulations about limitations on housing purchases.
	8-3	I am concerned that adding additional "affordable housing units", many of which are subsidized by the government, will lead to further price inflation and not solve the problem. Throughout my life and throughout 14 years of active military service, I've had the opportunity to live in different locations with and without an abundance of subsidized housing. The reality is that wherever multifamily subsidized housing is built, crime rates, drug problems, and generalized urban blight increase in that area. This is the case regardless of whether it is urban or rural, ethnically homogenous or diverse.	The housing targets that the City is planning to are based on discussions with Pierce County and the Puget Sound Regional Council on receiving different amounts and types of housing. These are required for compliance with the Growth Management Act.
	8-4	Lakewood is home to beautiful natural areas. Does that state have a plan to provide the funding necessary to keep these natural areas pollution free when the population density increases? The creeks in our city eventually drain into Puget Sound. Are	The City would encourage reaching out to local legislators regarding additional funding options to be proposed from the state.

Name	Num	Comment Summary	Response
		there plans to keep new housing developments away from these areas?	Revisions to Title 14 (Environmental Protection) includes changes to buffers and other regulatory tools to address the health of natural areas and surface water.
<b>Christina Manetti,</b> Resident, 7/3/2024	<b>9-1</b>	Repeats Garry Oak Coalition letter.	Please see responses to comments in Letter 6.
<b>T Parsons,</b> Resident, 6/5/2024	<b>9-1</b>	There are positives in this Comprehensive Plan; however, it's important to truly recognize the areas within our city that could benefit from some help and focus heavily on improving those to entice residents that will also love (or at least "like") and care about our city. It's important that we keep the environmental impact with any of these changes at top of mind. We're a city with creeks, lakes, and beautiful old growth trees, but our creeks are running dry earlier each year, our lakes are lower and more polluted each year, and we're removing trees faster than ever before. For the city to be successful we must pay attention to these, we are LAKE - WOOD and it's in the city's vision statement "characterized by the beauty of its lakes, parks and natural environment." The vision statement does not make mention of a "city characterized by cheap cookie-cutter developments with sidewalks and pavement instead of trees."	The comment is noted and forwarded to City decision makers. The comment addresses the plan and not the Draft SEIS.  The City has developed amendments to critical area regulations to address changes in state guidance and available best available science.
	<b>9-2</b>	Keep this at top of mind as all these development requirements from the state come into play. How can we protect these creeks, lakes and trees and make their preservation a priority for Lakewood? Developments around these areas should be reconsidered - with a focus more on development in areas that truly have a need which points to this vision statement "Known for its safe and attractive neighborhoods, vibrant downtown, active arts and cultural communities" This is not currently a reality, it's close, but not quite there, and the focus could really be on the Town Center area, north of Gravelly Lake Drive (which is a pavement wasteland at the moment), and east of the Town Center along Bridgeport Way and Pacific Highway. I wouldn't say I feel "safe" in these areas currently, but I know we can get there if we focus our energy here instead of other areas of the city, focus on making these areas better. Can we develop Architectural guidelines to avoid building tomorrow's slums? Can we use developers that are local and care about the impact to our city? Can create better Garry oak protections, prevent critical area loss by subdividing properties	The Downtown area is subject to design guidelines in LMC Chapter 18B, Downtown Development Code.  See Response to Comment 5-2 regarding Garry oaks.



Name	Num	Comment Summary	Response
<p><b>Don Russell,</b> Resident, 6/20/2024</p>	<p><b>10-1</b></p>	<p>with Garry oaks, prohibiting citizens from allowing trees to be covered in ivy (other jurisdictions do this, and it keeps trees alive). I have faith in Lakewood and I know there are other citizens out there that want to see it thrive again.</p> <p><b>Preface</b></p> <p>This paper reviews provisions of the City of Lakewood’s 2019 Shoreline Master Program in <i>italics</i> and provides my commentary in regular print.</p> <p><b>Requirements of the Shoreline Management Act</b></p> <p><i>...to prevent the inherent harm in an uncoordinated and piecemeal development of the state’s shorelines.</i></p> <p><i>...the Act’s three broad policies:</i></p> <ol style="list-style-type: none"> <li><i>1. Encourage water-dependent uses, preferably those “consistent with control of pollution and prevention of damage to the natural environment, or unique to or dependent upon use of the state’s shorelines”;</i></li> <li><i>2. Protect shoreline natural resources, including “the land and its vegetation and wildlife, and the waters of the state and their aquatic life”; and</i></li> <li><i>3. Promote public access: “the public’s opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest extent feasible consistent with the overall best interest of the state and the people generally.”</i></li> </ol> <p><b>Shoreline Master Program Development and Public Participation</b></p> <p><i>The City obtained a grant from the Washington Department of Ecology (Ecology) in 2009 to conduct a comprehensive SMP update. The first step of the update process was to inventory the City’s shorelines as defined by the Act, Chapter 90.58 RCW. American Lake, Gravelly Lake, Lake Louise, Lake Steilacoom, Waughop Lake, Chambers Creek, and Clover Creek comprise the City’s SMA shorelines. The inventory describes existing biological and physical conditions. These conditions were then analyzed and characterized to create a baseline from which future development actions in the shoreline will be measured. The City identified environmental designations for the different shorelines, and policies and regulations for each were developed.</i></p>	<p>The comment is noted. Please see responses below.</p>
	<p><b>10-2</b></p>	<p><b>Comment</b></p> <p>All the above assumes that the Washington State Department of Ecology and Lakewood’s two consultants OTAK and AHBL did a thorough job of</p>	<p>Codification of the Shoreline Master Program is currently under review. This comment and the</p>

Name	Num	Comment Summary	Response
		<p>creating a scientifically credible City of Lakewood Shoreline Master Program.</p> <p>I would argue that OTAK and AHBL failed to accomplish what is required of the City of Lakewood in the above <b>Shoreline Master Program Development and Public Participation Chapter 90.58 RCW</b> stated requirements.</p> <p>The inventory was incomplete. It did not accurately describe existing biological and physical conditions. Nor did it correctly analyze and characterize existing biological and physical conditions to create a baseline for each shoreline. Accordingly, the policies and regulations developed were deficient to accomplish the above stated <i>...the Act's three broad policies.</i></p>	<p>adequacy of the supporting materials are noted as part of this work. The Department of Ecology has reviewed the proposed changes that are meant to address buffers on streams and lakes.</p>
	10-3	<p>The City of Lakewood is consistently in arrears in meeting RCW and WAC <b>Public Participation</b> requirements. This case is no exception.</p>	<p>The City has developed a public participation plan with the Comprehensive Plan Periodic Update and associated regulation proposals. The City sent postcards to shoreline property owners as well as sharing notices through citywide channels.</p>
<p><b>Don Russell,</b> Resident, 6/26/24</p>	11-1	<p>As an American Lake shoreline owner I received a post card indicating that the Lakewood Planning Commission wants to hear from citizen private property owners of land within 200 feet of a lake (and associated wetlands) and stream shoreline. Presumably as our private property's use and development will be impacted by provisions of the Federal Shoreline Management Act and the City of Lakewood /Shoreline Master Program update portion of the City of Lakewood's 2024 Comprehensive Plan.</p> <p>The City of Lakewood postcard provided a link on that postcard that outlined the rules and buffer widths for remodeling and new development on our private property.</p> <p>The Shoreline Management Act provisions apply to all streams with a mean annual flow greater than 20 cubic feet per second and lakes greater than 20 acres and all lands within 200 feet of the ordinary high water mark.</p> <p>Yet the City of Lakewood post card's link references a Map of Water Body Types in Lakewood and a Water Type, Buffer Widths and designated Water Bodies listing that of streams do not have flows greater than 20 cubic feet per second and lakes (and associated wetlands) that are less than 20 acres in size.</p>	<p>The City considers state laws and rules regarding the shorelines subject to the Shoreline Management Act, and the information is reviewed and approved at the state level. Water bodies that are smaller are subject to critical area regulations developed by the City under Growth Management Act laws and rules.</p> <p>A review of associated buffers from surface water bodies was conducted and proposals consider science, local conditions, and practical application of buffers.</p>

Name	Num	Comment Summary	Response
<p>Furthermore, the listing for those lakes that are more than 20 acres in size under provisions of the Shoreline Management Act <b>have buffers less than 200 feet from their ordinary high water mark</b>, which itself is questionable given the extreme range in groundwater level fluctuations that these lakes reflect.</p> <p>It is obvious that the City of Lakewood pays no attention to citizen’s expressed concerns about the way the City fails to apply and enforce Shoreline Management Act and Shoreline Master Program prescribed environmental regulations, or for that matter State surface and groundwater quality standards as they apply to the water in its wetlands, streams and lakes and in its sole source aquifer.</p>			
<p><b>Hearing 6/5/2024</b></p>			
Christinia Manetti, Lakewood resident		Spoke in favor of saving the Garry Oak populations throughout Lakewood.	See Responses to Letters 5 and 6.
Walter Neary, Lakewood resident		Spoke regarding the good communication practice of sending our postcards to alert residents to the public hearing and the opportunity to have their concerns heard.	The comment is noted and forwarded to City decision makers.
Cindy Gardner, Lakewood resident		Stated she did not receive a postcard. Ms. Gardner noted she had sent a letter with questions and wanted them answered, but staff had not yet received her inquiry.	See Response to Letter 7.
Jan Cheer, Lakewood resident		Spoke about creating community zones and building a focus core center.	The comment is noted and forwarded to City decision makers.
Vicky Stanish, Lakewood resident		Spoke in favor of daylighting the creek which flows under the Barnes & Noble property in the Lakewood Towne Center.	The comment is noted and forwarded to City decision makers. The Downtown Subarea Plan suggests an option to daylight a portion of Ponce de Leon Creek.
Phillip Fedderly, Lakewood resident		Commented that the city is over-taxing businesses while streets are crumbling, adding that the focus should be on beautifying the community.	The comment is noted and forwarded to City decision makers. The City provides a Capital Facility Plan and Transportation Improvement Program that includes street improvements including street trees and landscaping.
Shawn Ehlers, Lakewood resident		Spoke against the residential zoning changes allowing so many structures upon one parcel, feeling that community will be lost.	The comment is noted and forwarded to City decision makers. The City is following recent state laws

Name	Num	Comment Summary	Response
			(HB 1220, HB 1337, and HB 1110)
<b>Hearing</b>		<b>6/12/2024</b>	
		Hearing minutes show submittal of written comments included in the matrix above.	
<b>Hearing</b>		<b>6/26/2024</b>	
<b>Kim Underwood,</b> Resident, Chambers Clover Creek Watershed Council 6/26/2024		Kim Underwood, Lakewood resident representing Chambers Clover Creek Watershed Council read a public comment letter submitted on June 10, 2024 urging commissioners to amend the shoreline buffers to expand widths to enhance water quality and flow.	See response to Letter 4.
<b>Kim Underwood,</b> Resident, 6/26/2024		Be sure that the City plans for adequate infrastructure when densifying residential development.	Discussions of necessary infrastructure to support growth are included in the Comprehensive Plan under Chapters 3 (Capital Facilities and Essential Public Facilities), 9 (Parks, Recreation, and Open Space), 10 (Public Services), 12 (Transportation), and 14 (Utilities).
<b>Jeanne Ehlers,</b> Resident, 6/26/2024		Jeanna Ehlers, Lakewood resident, encouraged the commissioners to think about existing cul-de-sac communities and the impacts of higher densities when changing living environments by doing away with single residence properties.	This process is intended to review compliance with these requirements. This comment should be directed towards local legislators.
<b>Christina Manetti,</b> Resident, Gary Oak Coalition, 6/26/2024		Christina Manetti, Lakewood resident, representing the Gary Oak Coalition named several concerns of protecting Garry Oak trees in Lakewood. Two points were made regarding the possible inventory of all Garry Oak in the City and that cement around the trees in urban areas should be removed to allow the tree more growth opportunity.	See Response to Letters 5 and 6.
<b>James Dunlop,</b> Resident, 6/26/2024		James Dunlop, Lakewood resident, voiced concerns over the lack of documentation of what percentage of canopy or coverage has been lost since incorporation of the city in 1996. Mr. Dunlop urged the commissioners to begin record keeping and consider a 50 to 100-year window to be recorded.	See Response to Letters 5 and 6. See Policy NE-6.7 providing for a goal of 40% tree canopy by 2050. The City has started an Urban Forestry Program.

# 5 Acronyms and References

## 5.1 Acronyms

ADU – Accessory Dwelling Unit

City – City of Lakewood

CPPs – Countywide Planning Policies

CTR – commute trip reduction

DNR – Washington State Department of Natural Resources

DNS – determination of non-significance

Ecology – Washington State Department of Ecology

EIS – environmental impact statement

EMS – emergency medical services

EPA – U.S. Environmental Protection Agency

ESA – federal Endangered Species Act

FCC – Federal Communications Commission

FEMA – Federal Emergency Management Agency

FHWA – Federal Highway Administration

FTE – full-time equivalent

GC – General Commercial

GHG – greenhouse gas

GMA – Washington State Growth Management Act

gpd – gallons per day

gpm – gallons per minute

LMC – Lakewood Municipal Code

LID – low impact development

LOS – level of service

MFTE – multifamily tax exemption

mg – million gallons

mgd – million gallons per day

mph – miles per hour

NFIP – National Flood Insurance Program

OFM – Washington State Office of Financial Management

PSCAA – Puget Sound Clean Air Agency

PSE – Puget Sound Energy, Inc.

PSH – Permanent Supportive Housing

PSRC – Puget Sound Regional Council

RCW – Revised Code of Washington

RRH – Rapid Re-housing

SEPA – State Environmental Policy Act

SMAP – Stormwater Management Action Plan

SR – state route

TAZs – transportation analysis zones

TDM – transportation demand management

TH – Transitional Housing

TIP – transportation improvement plan

UGA – urban growth area

VMT – vehicle miles traveled

WAC – Washington Administrative Code

WDFW – Washington Department of Fish and Wildlife

WRIA – water resource inventory area

WSDOT – Washington State Department of Transportation

## 5.2 References

- AHBL, Otak, Herrera. (2019). *Shoreline Restoration Plan Component of the Shoreline Master Program for the City of Lakewood*. Retrieved from <https://cityoflakewood.us/>: <https://cityoflakewood.us/wp-content/uploads/2022/02/091919-Lakewood-Restoration-Plan-w-ECY-recommended-edits.pdf>
- Brown and Caldwell. (2023, February). *Clover Creek Flood Study Engineering Report* . Retrieved from <https://cityoflakewood.us/>: [https://cityoflakewood.us/wp-content/uploads/2023/03/Clover-Creek-Flood-Study\\_Engineering-Report\\_Final.pdf](https://cityoflakewood.us/wp-content/uploads/2023/03/Clover-Creek-Flood-Study_Engineering-Report_Final.pdf)
- Brown and Caldwell, Adolfson Associates, Sweet Edwards, Robinson & Noble, and Triangle Associates. (1990). *Draft Clover/Chambers Creek Basin Groundwater Management Program and Environmental Impact Statement Technical Appendices prepared for Clover/Chambers Creek Basin Ground Water Advisory Committee Tacoma-Pierce County Health Department,*. Retrieved from Washington Department of Ecology: <https://fortress.wa.gov/ecy/publications/documents/1203201.pdf>
- Cascadia Consulting Group. (2022, August). *Pierce County Communitywide Geographic Greenhouse Gas Emissions*. Retrieved from [https://www.piercecountywa.gov/DocumentCenter/View/118357/2022\\_GeographicInventory\\_Report\\_FINAL](https://www.piercecountywa.gov/DocumentCenter/View/118357/2022_GeographicInventory_Report_FINAL)
- Chambers-Clover Creek Watershed Council. (ND). *Welcome to Eyes on the Watershed: Chambers-Clover*. Retrieved from <https://wsuniv.maps.arcgis.com/apps/MapJournal/index.html?appid=8297096d62924e9ab60aea9f42410f82>
- City of Lakewood. (2018, February 5). *About Us*. Retrieved from City of Lakewood Police Department: <https://www.cityoflakewood.us/police/about-us>
- City of Lakewood. (2020, May 18). *Legacy Plan Parks Recreation & Open Space Master Plan*. Retrieved from <https://cityoflakewood.us/wp-content/uploads/2020/05/FINAL-Legacy-Plan-2020-w-pg-numbers-flattened.pdf>
- City of Lakewood. (2021, 09). *Energy and Climate Change Chapter*. Retrieved from <https://www.cityoflakewood.us/wp-content/uploads/2021/09/070621-Energy-and-Climate-Change-Chapter.pdf>
- City of Lakewood. (2022). *2022 City Tree Code and Urban Forestry Program*. Retrieved from <https://cityoflakewood.us/trees/>
- City of Lakewood. (2022). *2022 Stormwater Management Manual*. Retrieved from <https://cityoflakewood.us/wp-content/uploads/2022/01/City-of-Lakewood-Draft-SWMP-2022-for-Comment.pdf>
- City of Lakewood. (2023). *About Lakewood*. Retrieved from <https://cityoflakewood.us/>: <https://cityoflakewood.us/about-lakewood/#>

- City of Lakewood. (2024). *Lakewood Downtown Subarea Plan*. Retrieved from <https://cityoflakewood.us/downtown-plan/>
- City of Lakewood Public Works and Engineering. (2022, March). *Stormwater Management Action Plan*. Retrieved from Receiving Water Conditions Assessment: [https://cityoflakewood.us/public\\_works\\_engineering/engineering-services/](https://cityoflakewood.us/public_works_engineering/engineering-services/)
- City of Lakewood Public Works and Engineering. (2022, March). *Stormwater Management Action Plan: Receiving Water Conditions Assessment*. Retrieved from [https://cityoflakewood.us/public\\_works\\_engineering/engineering-services/](https://cityoflakewood.us/public_works_engineering/engineering-services/)
- City of Lakewood Public Works and Engineering. (2022, June). *Stormwater Management Action Plan: Receiving Water Prioritization*. Retrieved from <https://cityoflakewood.us/wp-content/uploads/2023/02/RWP-Final.pdf>
- Environmental Science Associates and BERK Consulting. (2023, June). *Pierce County Climate Vulnerability Assessment*. Retrieved from <https://www.piercecountywa.gov/>: [https://www.piercecountywa.gov/DocumentCenter/View/129238/CVAandAdaptationStrategies\\_FINALdocx?bidId=](https://www.piercecountywa.gov/DocumentCenter/View/129238/CVAandAdaptationStrategies_FINALdocx?bidId=)
- Google . (2024, April 11). *Environmental Insights Explorer (EIE); Lakewood city limits*. Retrieved from <https://insights.sustainability.google/places/ChIJWxEhNw8RkVQRDIdE5DOPfNQ?hl=en-US>
- Green, R., Bates, L. K., & Smyth, A. (2007). Impediments to recovery in New Orleans' Upper and Lower Ninth Ward: one year after Hurricane Katrina . *Disasters* 31, 311-335.
- Lakewood Water District. (2020). *Comprehensive Water System Plan*. Retrieved from <https://www.lakewoodwater.org/>: <https://www.lakewoodwater.org/lwd/page/water-system-plans>
- Lakewood Water District. (2021, January 4). *Perfluorinated Compounds in Pierce County, WA Groundwater*. Retrieved from <https://storymaps.arcgis.com/stories/2a06bb2518df44b39d497eb397b4fb4c>
- Lakewood Water District. (2024). *About Us: Our History*. Retrieved from <https://www.lakewoodwater.org/lwd>
- Lakewood Water District. (2024). *District Projects*. Retrieved from [https://www.lakewoodwater.org/projects?term\\_node\\_tid\\_depth=All&field\\_project\\_status\\_value=All&field\\_project\\_type\\_tid=36&keys=](https://www.lakewoodwater.org/projects?term_node_tid_depth=All&field_project_status_value=All&field_project_type_tid=36&keys=)
- Lakewood Water District. (2024, April 5). *Source of Your Water*. Retrieved from Lakewood Water District: <https://www.lakewoodwater.org/pwt/page/source-your-water>
- MSRC. (2023, March 27). *For More Equitable and Livable Cities, Consider Trees*. Retrieved from MSRC Insights: <https://mrsc.org/stay-informed/mrsc-insight/march-2023/trees-for-equitable-and-livable-cities>
- Pierce County. (2022, 11 11). *Buildable Lands*. Retrieved from Final Inventory (2020 parcel base, updated 11/11/2022): <https://www.piercecountywa.gov/923/Buildable-Lands>



- Pierce County. (2022-2023). *Countywide Planning Policies Appendix A Adopted 2044 Population/Housing/Employment for Pierce County and its Cities and Towns*. Retrieved from <https://www.piercecountywa.gov/>:  
<https://www.piercecountywa.gov/DocumentCenter/View/23902/Appendix-A-CPPs>
- Pierce County. (2023, June). *Pierce County Climate Vulnerability Assessment*. Retrieved from [https://www.piercecountywa.gov/DocumentCenter/View/129238/CVAandAdaptationStrategies\\_FINALdocx?bidId=](https://www.piercecountywa.gov/DocumentCenter/View/129238/CVAandAdaptationStrategies_FINALdocx?bidId=)
- Pierce County. (2024, January). *Pierce County Comprehensive Plan Periodic Review and Update Draft Environmental Impact Statement (EIS)*. Retrieved from <https://www.piercecountywa.gov/DocumentCenter/View/133454/SEPA-Draft-EIS>
- Puget Sound Energy. (2023). *About Us: 2023 Profiles*. Retrieved from Pierce County: <https://www.pse.com/en/about-us>
- Puget Sound Energy. (2023). *Electricity Supply*. Retrieved from Published by the Washington Department of Commerce, Dec. 2023, with data reported by PSE in August 2023: <https://www.pse.com/en/pages/energy-supply/electric-supply>
- Puget Sound Energy. (n.d.). *Energy Supply > Electricity Supply*. Retrieved from PSE: <https://www.pse.com/en/pages/energy-supply/electric-supply>
- Puget Sound Regional Council. (2020, March). *VISION 2050 Final Supplemental Environmental Impact Statement*. Retrieved from <https://www.psrc.org/>: <https://www.psrc.org/sites/default/files/2022-02/v2050finaleis-march2020.pdf>
- Tacoma Public Utilities. (2024). *About Tacoma Power*. Retrieved from Tacoma Power Utilities: <https://www.mytpu.org/about-tpu/services/power/about-tacoma-power/>
- U.S. Environmental Protection Agency (EPA). (2024, April 15). *Urban Heat Islands*. Retrieved from <https://www.epa.gov/heatislands>
- U.S. EPA. (2024, April 15). *Sources of Greenhouse Gas Emissions*. Retrieved from <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>
- US Environmental Protection Agency. (2024, April 11). *Overview of Greenhouse Gases*. Retrieved from <https://www.epa.gov/>: <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>
- US Fish and Wildlife Service. (Accessed 2024). *National Wetlands Inventory*. Retrieved from <https://www.fws.gov/program/national-wetlands-inventory>
- Washington Department of Commerce. (2023, December). *Climate Element Planning Guidance Intermediate Version*. Retrieved from <https://www.commerce.wa.gov/>:  
<https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/climate-change-2/>

Washington Department of Ecology. (2023). *PFAS at cleanup sites*. Retrieved from <https://ecology.wa.gov/>: <https://ecology.wa.gov/waste-toxics/reducing-toxic-chemicals/addressing-priority-toxic-chemicals/pfas/cleanup-sites>

Washington Department of Ecology. (2023, January 25). *Saving Washington's salmon from toxic tire dust*. Retrieved from <https://ecology.wa.gov/>: <https://ecology.wa.gov/blog/january-2023/saving-washington-s-salmon-from-toxic-tire-dust>

Washington Department of Natural Resources. (2024). *Geologic Hazard Maps*. Retrieved from <https://www.dnr.wa.gov/>: <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/geologic-hazard-maps>

Zoraster, R. M. (2010). Vulnerable populations: Hurricane Katrina as a case study. *Prehospital and Disaster Medicine* 25 (1), 74-78. doi:10.1017/S1049023X00007718.

# 6 Appendices

# A. Scoping Notice



## DETERMINATION OF SIGNIFICANCE (DS) AND REQUEST FOR COMMENTS ON SCOPE OF NON-PROJECT ENVIRONMENTAL IMPACT STATEMENT (EIS)

**Proposal Name:** Lakewood 2024 Comprehensive Plan Periodic Review

**Lead Agency/Proponent:** City of Lakewood Community & Economic Development Department

**Date of Issuance:** February 8, 2023

**Agency Contact:** Tiffany Speir, Long Range & Strategic Planning Manager  
(253) 983-7702 | [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)

**Application Number:** N/A

**Location:** City of Lakewood, WA

### Background and Purpose

The City of Lakewood is preparing for a periodic review and update to its Comprehensive Plan. The Comprehensive Plan is the 20-year plan for land use and growth based on the community’s vision of the future. It guides City decisions about where housing and jobs should be located, and how public investments are made in things like transportation, utilities, parks, and other assets.

The Comprehensive Plan fits into a state, regional, and local planning framework, and must be consistent with the [Growth Management Act](#) (GMA), the Puget Sound Regional Council’s [Vision 2050 Plan](#) (V2050), and the [Pierce County Countywide Planning Policies](#) (CPPs.) Vision 2050 includes multicounty planning policies (MPPs) and the regional growth strategy for the central Puget Sound region, including King, Kitsap, Pierce, and Snohomish counties. The CPPs are a set of policies addressing a similar set of issues that apply to Pierce County and the cities and towns within the county.

Through [Ordinance 2022-46s](#), the Pierce County Council adopted 20-year growth targets (to 2044), which are distributed in the following way for the City of Lakewood:

2044 Population Target	2044 Housing Unit Target	2044 Employment Target
86,792	36,713	39,735

The Environmental Impact Statement (EIS) is an informational document that provides the County, members of the public, and other groups and entities with information to inform the decision-making process. An EIS is required under the [State Environmental Policy Act](#) (SEPA) for many major actions. The EIS focuses on identifying and avoiding adverse impacts and can also identify potential beneficial outcomes. The EIS evaluation and mitigation measures will help inform the development of the proposal “Lakewood 2024 Comprehensive Plan Periodic Review.”

## **Proposal Description**

The proposal will include the following:

- Necessary updates to City of Lakewood Comprehensive Plan Text and Maps, including goals, policies, and objectives, to comply with the GMA, Vision 2050, and the Countywide Planning Policies.
- A consolidated capital facilities plan for investing in transportation systems, utilities, public facilities, and services to serve the 20-year growth in the City of Lakewood.
- Necessary updates to development regulations to comply with the GMA, Vision 2050, and the Countywide Planning Policies.
- Updated regulations for critical areas based on an assessment of best available science.

Policy area updates expected to be included in the proposal:

- Land use and zoning changes.
- Policies related to racial and historically disadvantaged community equity.
- Housing policy updates to better support affordability and implement housing targets by income band.
- Policies to support a multi-modal level of service standard for transportation.
- Integration of policies from the 2020 Legacy Plan, the City's Parks, Recreation, and Open Space Plan.
- Policies related to climate change adaptation, mitigation, and resiliency, including policies to meet a 45% reduction in GHG emissions.
- Consideration of health and equity.
- Enhanced coordination policies with Tribes, adjacent jurisdictions, military installations, and special purpose districts.
- Protection of environmentally sensitive areas.
- Strategies to prevent failing water systems.
- Policies to support access to broadband service.
- Design guidance for transit facilities.
- Economic vitality policies.

## **Determination**

The Lakewood Community & Economic Development Department has determined that this proposal is likely to have a significant adverse impact on the environment. An environmental impact statement (EIS) is required under RCW 43.21C.030 (2)(c) and will be prepared. The EIS will analyze impacts and alternatives broadly and at the level of detail appropriate for this non-project proposal in accordance with WAC 197-11-442 and WAC 197-11-443. The City's 2000 and 2015 Comprehensive Plan EIS documents, the 2018 Downtown Subarea EIS document, and the 2021 Lakewood Station District Subarea Expanded SEPA Checklist will all inform the process to review the 2024 Comprehensive Plan Periodic Review.

## **Appeal**

There is no administrative appeal of this threshold determination. Lakewood Municipal Code Section 18A.20.070 and State statute RCW 36.70A.280 provide for SEPA appeals of City of Lakewood GMA legislative actions. Once the City Council takes legislative action on the

Comprehensive Plan Periodic Review and Update, the EIS may be appealed to the Growth Management Hearings Board (GMHB) within 60 days following publication in the City paper of record for the underlying governmental action pursuant to RCW 36.70.290(2) and WAC 242-03-200. Review *Practicing Before the Growth Management Hearings Board Handbook* for additional information on the appeal process. In some cases, the SEPA appeal must be combined with any appeal of the underlying governmental action pursuant to RCW 43.21C.075(2)(a).

### **Significant Impacts (Preliminary Alternatives)**

An EIS is required to identify and analyze alternative approaches to meeting the goals of a proposal and are the basis for environmental analysis. Analyzing and comparing different alternatives provides information for the public and assists decision-makers in selecting a preferred course of action.

The alternatives will include a **No Action Alternative**. The no action alternative will integrate the 2044 growth targets into the Comprehensive Plan with no changes to current plans, policies, or regulations.

The City will also study **at least one additional alternative** that will be drawn from the concepts below. The City is seeking input on the development of these alternatives.

- **Compliance updates.** Legally required updates to achieve minimum consistency with laws, regulations, and policies.
- **Land use changes.** The range of alternatives may include: increasing densities and/or expanding allowed use types in residential zones; increasing densities in high capacity transit areas; updating environmental protection and climate change policies; and/or other land use changes.
- **Transportation.** The range of alternatives may include approaches to reducing traffic by: integrating multi-modal transportation options such as transit, pedestrian, and bicycle options, transportation demand management, strategies to reduce vehicle miles traveled (VMT), or other changes.
- **Capital facilities and services.** The range of alternatives may include reducing or changing level of service standards for utilities, facilities, services, or parks and open space.
- **Critical areas.** This will include updated regulation of critical areas such as wetlands, riparian areas or stream corridors, geological hazards, critical aquifer recharge areas, and wildlife habitat areas based on the best available science.
- **Climate.** The range of alternatives may include: strategies to achieve a 45% reduction in GHG emissions that go beyond the recommendations of Sustainability 2030, strategies to increase open space and support carbon sequestration, different approaches to mitigation and resiliency, or other changes.

### **Scoping**

**Scoping comments are due no later than March 15, 2023** and may be submitted:

- Via e-mail at: [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)
- Online at <https://lakewoodwaspeaks.org/projects/2024-comprehensive-plan-periodic-review>
- In writing to:  
City of Lakewood 2024 Periodic Review

Attn: Tiffany Speir  
6000 Main St SW  
Lakewood, WA 98499

Scoping provides an opportunity for the public to learn about the proposal and to provide comments on the project as it begins. Agencies, tribes, and members of the public are invited to comment on the scope of the EIS including alternatives, probable significant adverse impacts, possible mitigation measures, and licenses or other approvals that may be required. Feedback on these issues is particularly important as it will inform the analysis in the EIS. Based on the input received during scoping, the lead agency will refine the alternatives, probable significant impacts, and mitigation measures that will be included in the EIS.

**Get Involved**

To learn more about the proposal and share your feedback, please visit and subscribe to the project website <https://lakewoodwaspeaks.org/projects/2024-comprehensive-plan-periodic-review>. The website will also list the dates and times of events as they are set.

**Responsible Official:**

**Date:** February 8, 2023



Dave Bugher, Assistant City Manager  
for Development Services,  
SEPA Responsible Official

---



# **B. Housing Affordability Workbook**

# HB 1220 Affordability Evaluation

No Action Current Plan and Action Alternative | March 2024 | Prepared by BERK Consulting, Inc.

This appendix summarizes the City of Lakewood Growth Targets with a focus on housing and affordable housing targets. Following the presentation of the targets, the tables identify key steps in determining capacity, dwelling types allowed, relationship to affordability levels, and resulting achievement or gaps in meeting targets.

## Growth Targets

**Targets:** <https://www.piercecountywa.gov/DocumentCenter/View/23902/Appendix-A-CPPs>

	2020	Growth 2020-2044	2044 Total
Population	63,612	23,180	86,792
Jobs	29,872	9,863	39,735
Housing	26,999	9,378	36,377

**Housing by Affordability Level:** <https://online.co.pierce.wa.us/cfapps/council/model/otDocDownload.cfm>

Year	Total	0-30% Non-PSH	0-30% PSH	>30- 50%	>50- 80%	>80- 100%	>100- 120%	>120%	Emergency Housing
2020	26,999	588	101	4,565	11,699	4,347	2,250	3,449	8
2020- 2044	9,378	1,212	1,637	1,739	1,375	592	536	2,287	574

PSH = Permanent Supportive Housing

## Consolidation of Housing Targets by Area Median Income (AMI)

Income AMI	Units
0-80%	5,963
80-120%	1,128
120% +	2,287
<b>Total</b>	<b>9,378</b>

# Commerce HB 1220 Steps and Results

Commerce Guidebook: [Guidance for Updating your Housing Element \(Book 2\)](#)

## Step 1 – Land Capacity by Zone

Exhibit 9. Example summary table of development capacity by zone

Development capacity by zone

Zone	Net developable land (acres)	Assumed density (units/acre)	Gross residential capacity (units)	Existing housing on developable land (units)	Net residential capacity (units)
Single Family Residential (R-4)	2,924	2.5 units/acre	7,310	310	7,000
Medium Density Residential (R-8)	1,201	6 units/acre	7,206	206	7,000
Multifamily Residential (R-12)	611	10 units/acre	6,110	110	6,000
Multifamily Residential (R-30)	267	25 units/acre	6,675	75	6,600

ADU Capacity (all zones)

Lots available for ADUs	Participation factor	Potential ADU lots	Average ADUs per lot	Total ADU capacity
4,000	10%	400	1.25	500

## Buildable Lands 2021 – Lakewood

Zone	Adjusted Vac + UU Acres	Assumed Density	Gross Capacity	Displaced Units	Net Residential Capacity
AC1	-	-	-	-	-
AC2	-	-	-	-	-
ARC	13.23	15	198	41	127
C1	-	-	-	19	(12)
C2	-	-	-	3	(2)
C3	-	-	-	-	-
CBD	39.83	80	3,186	86	2,590
CZ	-	-	-	-	-
I1	-	-	-	7	(5)
I2	-	-	-	-	-
IBP	-	-	-	28	(18)
MF1	81.83	22	1,800	279	1,181
MF2	55.92	35	1,957	137	1,514
MF3	31.57	54	1,705	233	1,131
ML	-	-	-	-	-
MR1	24.50	8	196	39	117
MR2	63.52	14	889	195	532
NC1	1.08	22	24	11	54
NC2	17.75	35	621	132	421
OSR1	-	-	-	-	-
OSR2	-	-	-	-	-
PI	-	-	-	1	(1)
R1	21.21	2	42	8	45
R2	68.11	2	136	21	148
R3	231.45	5	1,157	233	850
R4	56.44	6	339	69	287
ROW	-	-	-	-	-
TOC	13.35	54	721	130	1,283
<b>Grand Total</b>	<b>719.79</b>		<b>12,973</b>	<b>1,672</b>	<b>10,242</b>

## Step 2 – Categorize Zones

Exhibit 11. Example of classifying land use zones using example zone categories

Land use zone	Housing types allowed	Max density level allowed	Assigned zone category
Single-Family Residential (R-4)	Detached single-family homes	4 units/acre	Low Density
Medium Density Residential (R-8)	Detached single-family homes, duplexes	8 units/acre	Low Density
Multifamily Residential (R-12)	Detached single-family homes, townhomes, duplexes, triplexes, quadplexes, 6-plexes	12 units/acre	Moderate Density
Multifamily Residential (R-30)	Apartments, townhomes	30 units/acre	Low-Rise Multifamily

## Categorized Zones – Lakewood

Zone	Density Category (BLR)	Building Height (ft)	Assumed Density (du/ac)	Zone Category	Housing Types Allowed
AC1	Very Low		0	n/a	
AC2	Very Low		0	n/a	
ARC	Medium Low	40	15	Moderate Density	SF, Duplex, Triplex, Multifamily
C1	Very Low	60	0	n/a	
C2	Very Low	60	0	n/a	
C3	Very Low	60	0	n/a	
CBD	High	90	80	Mid-rise Multifamily	Multifamily, Mixed Use
CZ	Very Low		0		
I1	Very Low	60	0	n/a	
I2	Very Low	60	0	n/a	
IBP	Very Low	60	0	n/a	
MF1	Medium Low	45	22	Low-rise Multifamily	ADU, Duplex, Triplex, Multifamily
MF2	Medium High	65	35	Mid-rise Multifamily	ADU, Duplex, Triplex, Multifamily
MF3	High	80	54	Mid-rise Multifamily	Multifamily (Station District also Duplex, Triplex, Townhomes, Multifamily)
ML	Very Low		0		
MR1	Low	35	8	Moderate Density	SF, ADU, Duplex, Triplex-CUP
MR2	Medium Low	50	14	Moderate Density	SF, ADU, Duplex, Triplex-CUP
NC1	Medium Low	50	22	Low-rise Multifamily	Duplex, Triplex, Multifamily, Mixed Use
NC2	Medium High	60	35	Mid-rise Multifamily	Duplex, Triplex, Multifamily, Mixed Use
OSR1	Very Low		0		
OSR2	Very Low		0		
PI	Very Low		0	n/a	
R1	Very Low	35	2	Low Density	SF, ADU
R2	Very Low	35	2	Low Density	SF, ADU
R3	Low	35	5	Low Density	SF, ADU
R4	Low	35	6	Low Density	SF, ADU
ROW	Very Low		0		
TOC	High	90	54	Mid-rise Multifamily	ADU, Multifamily, Mixed Use

ADU – Accessory Dwelling Unit, SF – Single Family

### Step 3 – Zones and Incomes

**Exhibit 12. Example of relating zone categories to housing types and income levels served in moderate-cost communities**

Zone category	Typical housing types allowed	Lowest potential income level served		Assumed affordability level for capacity analysis
		Market rate	With subsidies and/or incentives	
Low Density	Detached single family homes	Higher income (>120% AMI)	Not typically feasible at scale*	Higher income (>120% AMI)
Moderate Density	Townhomes, duplex, triplex, quadplex	Moderate income (>80-120% AMI)	Not typically feasible at scale*	Moderate income (>80-120% AMI)
Low-Rise Multifamily	Walk-up apartments, condominiums (2-3-floors)	Low income (>50-80% AMI)	Extremely low and Very low income (0-50% AMI)	Low income (0-80% AMI) and PSH
Mid-Rise Multifamily	Apartments, condominiums	Low income (>50-80% AMI)	Extremely low and Very low income (0-50% AMI)	Low income (0-80% AMI) and PSH
ADUs (all zones)	Accessory Dwelling Units on developed residential lots	Low income (>50-80% AMI)	N/A	Low income (>50-80% AMI) – Group with Low-Rise and/or Mid-Rise Multifamily

### Lakewood Zones and Income Levels

Zone	Zone Category	Housing Types Allowed	Building Height (ft)	Assumed Density		AMI Bracket by Density Category (Market Rate Commerce)	Total Housing Unit Capacity
				Density (du/ac)	Density Category (BLR)		
AC1	n/a			0	Very Low		0
AC2	n/a			0	Very Low		0
ARC	Moderate Density	SF, Duplex, Triplex, Multifamily	40	15	Medium Low	Moderate Income (80-100% AMI)	127
C1	n/a		60	0	Very Low		-12
C2	n/a		60	0	Very Low		-2
C3	n/a		60	0	Very Low		0
CBD	Mid-rise Multifamily	Multifamily, Mixed Use	90	80	High	Low Income (>50-80% AMI)	2,590
CZ				0	Very Low		0
I1	n/a		60	0	Very Low		-5
I2	n/a		60	0	Very Low		0
IBP	n/a		60	0	Very Low		-18
MF1	Low-rise Multifamily	ADU, Duplex, Triplex, Multifamily	45	22	Medium Low	Low Income (>50-80% AMI)	1,181
MF2	Mid-rise Multifamily	ADU, Duplex, Triplex, Multifamily	65	35	Medium High	Low Income (>50-80% AMI)	1,514
MF3	Mid-rise Multifamily	Multifamily (Station District also Duplex, Triplex, Townhomes, Multifamily)	80	54	High	Low Income (>50-80% AMI)	1,131
ML				0	Very Low		0
MR1	Moderate Density	SF, ADU, Duplex, Triplex-CUP	35	8	Low	Moderate Income (80-100% AMI)	117
MR2	Moderate Density	SF, ADU, Duplex, Triplex-CUP	50	14	Medium Low	Moderate Income (80-100% AMI)	532
NC1	Low-rise Multifamily	Duplex, Triplex, Multifamily, Mixed Use	50	22	Medium Low	Low Income (>50-80% AMI)	54
NC2	Mid-rise Multifamily	Duplex, Triplex, Multifamily, Mixed Use	60	35	Medium High	Low Income (>50-80% AMI)	421
OSR1				0	Very Low		0
OSR2				0	Very Low		0
PI	n/a			0	Very Low		-1
R1	Low Density	SF, ADU	35	2	Very Low	Higher Income (>120% AMI)	45
R2	Low Density	SF, ADU	35	2	Very Low	Higher Income (>120% AMI)	148
R3	Low Density	SF, ADU	35	5	Low	Higher Income (>120% AMI)	850
R4	Low Density	SF, ADU	35	6	Low	Higher Income (>120% AMI)	287
ROW				0	Very Low		0
TOC	Mid-rise Multifamily	ADU, Multifamily, Mixed Use	90	54	High	Low Income (>50-80% AMI)	1,283
							<b>10,242</b>

## Step 4 – Capacity by Income

### Lakewood Zone Capacity by Income Levels

Zone	Zone Category	AMI Bracket by Density Category (Market Rate Commerce)	No Action	Action				Total Housing Unit Capacity
			Total Housing Unit Capacity	SFR	Middle	MFR	ADU	
AC1	n/a		0	0	0	0	0	0
AC2	n/a		0	0	0	0	0	0
ARC	Moderate Density	Moderate Income (80-100% AMI)	127	0	151	0	0	151
C1	n/a	Low Income (>50-80%) AMI	-12	0	0	0	0	0
C2	n/a	Low Income (>50-80%) AMI	-2	0	0	0	0	0
C3	n/a	Low Income (>50-80%) AMI	0	0	0	0	0	0
CBD	Mid-rise Multifamily	Low Income (>50-80%) AMI	2,590	-23	-3	3,607	0	3,580
CZ			0	0	0	0	0	0
I1	n/a	Low Income (>50-80%) AMI	-5	0	0	0	0	0
I2	n/a	Low Income (>50-80%) AMI	0	0	0	0	0	0
IBP	n/a	Low Income (>50-80%) AMI	-18	0	0	0	0	0
MF1	Low-rise Multifamily	Low Income (>50-80%) AMI	1,181	0	1,294	0	0	1,294
MF2	Mid-rise Multifamily	Low Income (>50-80%) AMI	1,514	-2	1,609	-5	0	1,602
MF3	Mid-rise Multifamily	Low Income (>50-80%) AMI	1,131	-1	0	1,315	0	1,314
ML			0	0	0	0	0	0
MR1	Moderate Density	Moderate Income (80-100% AMI)	117	-192	-1	953	0	760
MR2	Moderate Density	Moderate Income (80-100% AMI)	532	-188	-80	1,790	0	1,523
NC1	Low-rise Multifamily	Low Income (>50-80%) AMI	54	0	0	18	0	18
NC2	Mid-rise Multifamily	Low Income (>50-80%) AMI	421	-3	0	480	0	477
OSR1			0	0	0	0	0	0
OSR2			0	0	0	0	0	0
PI	n/a	Low Income (>50-80%) AMI	-1	0	0	0	0	0
R1	Low Density	Higher Income (>120% AMI)	45	55	215	0	36	306
R2	Low Density	Higher Income (>120% AMI)	148	229	296	0	46	570
R2T	Moderate Density	Moderate Income (80-100% AMI)		15	0	0	1	16
R3	Low Density	Higher Income (>120% AMI)	850	-176	3,462	-19	164	3,431
R3T	Moderate Density	Moderate Income (80-100% AMI)		-115	-21	433	4	302
R4	Low Density	Higher Income (>120% AMI)	287	-456	1,571	-32	65	1,148
R4T	Moderate Density	Moderate Income (80-100% AMI)		-111	-21	350	1	218
ROW			0	0	0	0	0	0
TOC	Mid-rise Multifamily	Low Income (>50-80%) AMI	1,283	-6	-3	788	0	779
			<b>10,242</b>	<b>-977</b>	<b>8,470</b>	<b>9,679</b>	<b>316</b>	<b>17,488</b>

### Summary

	No Action	Action
Low Income (>50-80%) AMI	8,136	9,064
Moderate Income (80-100% AMI)	776	2,969
Higher Income (>120% AMI)	1,330	5,455
<b>Total</b>	<b>10,242</b>	<b>17,488 *</b>

\*Unadjusted for Loss in Non-Residential Zones. By removing lost dwellings in zones that do not allow residential uses (C1, C2, C3, I1, I2, IBP) there would be -38 units.

**Step 5 – Comparison of Projected Housing Needs to Capacity**

**Exhibit 16. Example comparison of projected housing needs to capacity**

Income level (% AMI)	Projected housing need	Zone categories serving these needs	Aggregated housing needs	Total capacity (From Exhibit 15)	Capacity surplus or deficit
0-30% PSH	2,000	Low-Rise Multifamily + ADUs	13,000	7,100	-5,900
0-30% Other	4,000				
>30-50%	3,000				
>50-80%	4,000				
>80-100%	2,000	Moderate Density	5,000	6,000	1,000
>100-120%	3,000	Low Density	6,000	14,000	8,000
>120%	6,000				
<b>Total</b>	<b>24,000</b>				

**No Action (Current Plan) – Capacity and Need**

Income	Projected Housing Need	Zoning Categories Serving Needs	Aggregated Housing Needs	Total Capacity	Capacity Surplus/Deficit
<b>0-30% Non-PSH</b>	1,212	Low-Rise Multifamily + ADUs	5,963	8,136	2,173
<b>0-30% PSH</b>	1,637				
<b>&gt;30-50%</b>	1,739				
<b>&gt;50-80%</b>	1,375				
<b>&gt;80-100%</b>	592	Moderate Density	1,128	776	(352)
<b>&gt;100-120%</b>	536				
<b>&gt;120%</b>	2,287	Low Density	2,287	1,330	(957)
<b>Total</b>	<b>9,378</b>		<b>9,378</b>	<b>10,242</b>	<b>864</b>

**Action Alternative – Commerce Zone Based Approach**

Income	Projected Housing Need	Zoning Categories Serving Needs	Aggregated Housing Needs	Total Capacity	Capacity Surplus/Deficit
<b>0-30% Non-PSH</b>	1,212	Low-Rise Multifamily + ADUs	5,963	9,064	3,101
<b>0-30% PSH</b>	1,637				
<b>&gt;30-50%</b>	1,739				
<b>&gt;50-80%</b>	1,375				
<b>&gt;80-100%</b>	592	Moderate Density	1,128	2,969	1,841
<b>&gt;100-120%</b>	536				
<b>&gt;120%</b>	2,287	Low Density	2,287	5,455	3,168
<b>Total</b>	<b>9,378</b>		<b>9,378</b>	<b>17,488</b>	<b>8,110</b>

**Action Alternative – Unit Capacity Based Approach**

Income	Projected Housing Need	Zoning Categories Serving Needs	Aggregated Housing Needs	Total Capacity	Capacity Surplus/Deficit
0-30% Non-PSH	1,212	Low-Rise Multifamily + ADUs	5,963	9,995	4,032
0-30% PSH	1,637				
>30-50%	1,739				
>50-80%	1,375				
>80-100%	592	Moderate Density	1,128	2,117	989
>100-120%	536				
>120%	2,287	Low Density	2,287	5,376	3,089
<b>Total</b>	<b>9,378</b>		<b>9,378</b>	<b>17,488</b>	<b>8,110</b>



## **C. Transpo Memoranda and 1-5 Volumes**

## MEMORANDUM

<b>Date:</b>	April 26, 2024	<b>TG:</b>	1.22324.00
<b>To:</b>	Andrew Bjorn, BERK		
<b>From:</b>	Jon Pascal, PE, Transpo Group John Lewis, Transpo Group Jonathan DenHaan, Transpo Group Drew Heckathorn, Transpo Group		
<b>cc:</b>	Tiffany Speir, City of Lakewood		
<b>Subject:</b>	Lakewood Comprehensive Plan Update: Transportation Element Review		

### Introduction

The City of Lakewood is currently updating its Comprehensive Plan to comply with the latest State of Washington GMA requirements, PSRC certification standards, and prepare for housing and job growth targets through the year 2044. A previous technical memorandum provided a high-level description of the extent of the effort required to update the Transportation Element portion of the Comprehensive Plan. This memorandum provides a more detailed analysis of components of the Transportation Element which need to be updated as part of the overall Comprehensive Plan update.

Specifically, the analysis described in this memorandum includes the development of travel forecasts for two future scenarios – 2044 Baseline and 2044 Plan. The adopted Roadway Level of Service (LOS) has been updated to show the results for selected corridors for both future scenarios. For any deficiencies identified beyond those described in the adopted Transportation Element, this memorandum provides a potential list of mitigation strategies. Additionally, this memorandum describes a parking analysis conducted to prepare for recent State legislation regarding zoning for middle housing. The results of these analyses will help inform the necessary updates to the Transportation Element.

### Travel Forecasts

This section provides an overview of the potential roadway deficiencies of the 2044 Plan scenario and any mitigation necessary to accommodate the City’s housing and job growth targets. To do this, we conducted a travel demand model comparison between the 2044 Baseline and 2044 Plan land use scenarios.

The travel demand model used for this analysis was derived from the previous Lakewood Model that was prepared as part of the last Comprehensive Plan update and more recent Subarea Plans. This model can be utilized to forecast travel demand based on the City’s housing and job growth targets. The land use assumptions included in this analysis are consistent with work being performed in updating the Land Use Plan and are intended for planning purposes only and in no way are meant to restrict or require specific land use actions.

### 2044 Baseline Scenario

The 2044 Baseline scenario model builds upon the 2030 Plan scenario model used in the previous Transportation Element update and incorporates more recent land use planning efforts, such as the Downtown Plan and Station Area Plan. Additionally, the 2044 Baseline scenario model

includes one minor roadway improvement – the widening of Murray Road north of 146th SW to two lanes in each direction. This scenario is used as a future baseline to consider only approved land use capacity and roadway improvements.

### 2044 Plan Scenario Model

The 2044 Plan scenario model builds upon the 2044 Baseline scenario model by adding the City’s housing and job growth targets through the year 2044. The two models are otherwise identical, allowing for a measurement of the traffic volume effects of the additional housing and job growth.

### Land Use Changes

The housing and job growth targets incorporated into the 2044 Plan scenario model were informed by other components of the Comprehensive Plan update. Land use data for this scenario model were provided by the prime consultant (BERK) who is working with the City in updating the Comprehensive Plan.

**Table 1** shows a comparison of total occupied households and employees for the 2044 Baseline and 2044 Plan scenarios for the City overall and within specific districts. For reference, **Figure 1** shows the analysis districts included in this analysis. Land uses outside of the City of Lakewood were assumed to be unchanged in both future scenarios in order to compare and contrast the transportation impacts of the land use changes internal to the City.

	Downtown District	Station Area District	Other Lakewood District <sup>1</sup>	City of Lakewood Total
<b><u>Occupied Households</u></b>				
2044 Baseline	2,688	2,553	31,727	36,968
2044 Plan	2,915	2,564	30,151	35,630
<i>Difference</i>	<i>227</i>	<i>11</i>	<i>(1,576)</i>	<i>(1,338)</i>
<i>% Difference</i>	<i>8.4%</i>	<i>0.4%</i>	<i>(5.0%)</i>	<i>(3.6%)</i>
<b><u>Employees</u></b>				
2044 Baseline	13,498	3,145	24,407	41,050
2044 Plan	14,739	4,998	20,007	39,744
<i>Difference</i>	<i>1,241</i>	<i>1,853</i>	<i>(4,400)</i>	<i>(1,306)</i>
<i>% Difference</i>	<i>9.2%</i>	<i>58.9%</i>	<i>(18.0%)</i>	<i>(3.2%)</i>

1. All other areas in the City outside the Downtown and Station Area Districts.

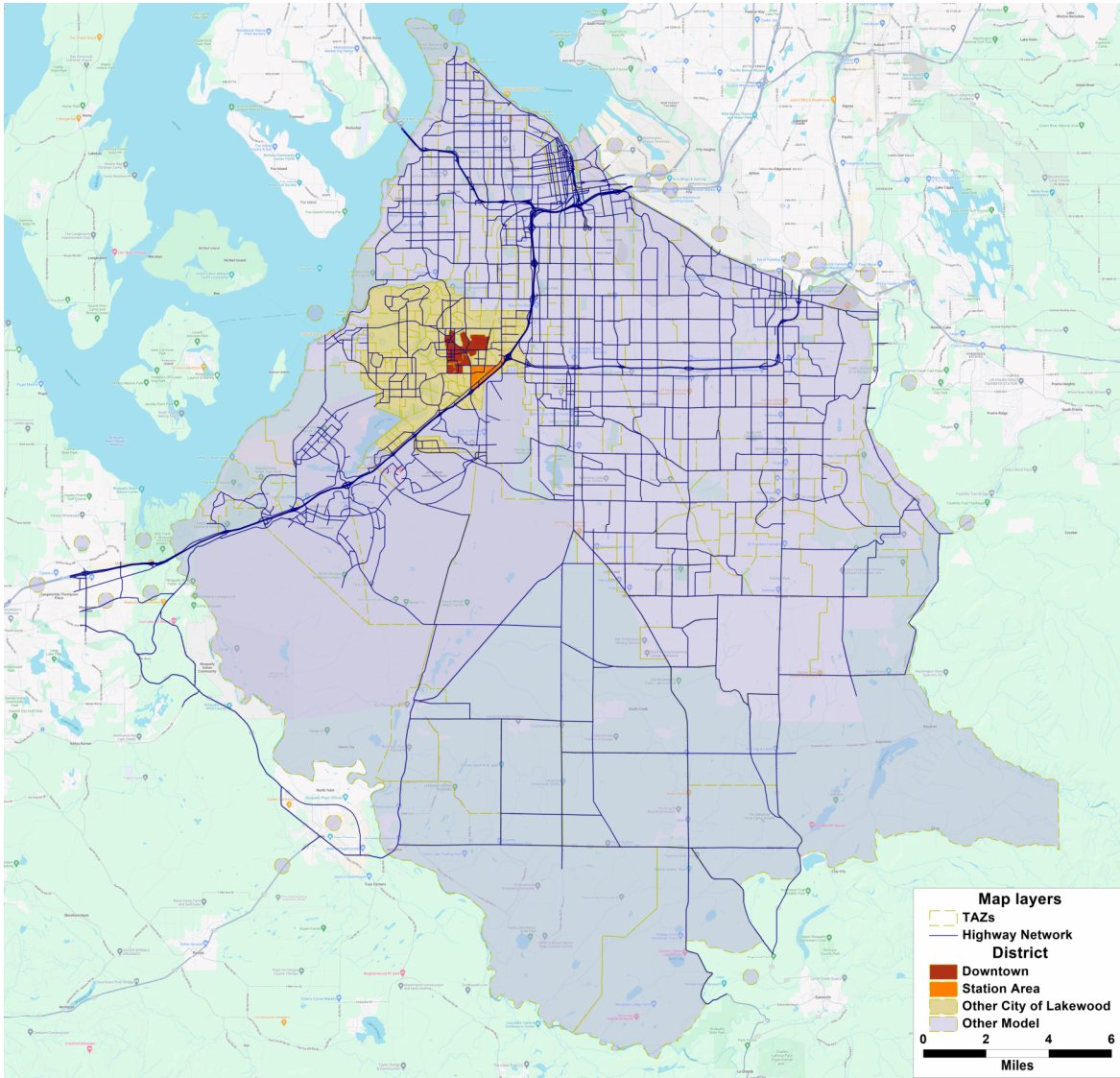
### Key Findings

- Under the 2044 Plan scenario, there is a slight decrease in households and employees citywide compared to the 2044 Baseline scenario.
  - The 2044 Plan scenario shifts household growth to concentrate more within the Downtown (+227) and Station Area (+11) districts and less outside of these areas (-1,576).
  - The 2044 Plan scenario also shifts employee growth to concentrate more within the Downtown (+1,241) and Station Area (+1,853) districts and less outside of these areas (-4,400).

These land use changes for the 2044 Plan scenario are intended to increase density in areas of the City with greater access to transit and other active transportation modes such as walking and biking.



Figure 1. Analysis Districts



## Vehicle Miles Travelled

Vehicle Miles Travelled (VMT) measures the total number of miles travelled by all vehicles leaving, arriving, and/or passing through a geographic region. **Table 2** shows the VMT results for the two future scenarios overall and by analysis district.

**Table 2. Vehicle Miles Travelled Analysis Results**

	Downtown District	Station Area District	Other Lakewood Districts	City of Lakewood Total	Other Model
2044 Baseline	11,630	8,539	55,243	75,412	1,207,587
2044 Plan	12,339	9,489	52,668	74,496	1,218,125
<i>Difference</i>	<i>709</i>	<i>950</i>	<i>(2,575)</i>	<i>(916)</i>	<i>10,538</i>
<i>% Difference</i>	<i>6.1%</i>	<i>11.1%</i>	<i>(4.7%)</i>	<i>(1.2%)</i>	<i>0.9%</i>

## Key Findings

- Both the Downtown and Station Area districts show VMT increases of 6.1% and 11.1% respectively in the 2044 Plan scenario. These increases are consistent with the changes in land use for this scenario.
- Other areas of the City of Lakewood are projected to produce less VMT (-4.7%) in the 2044 Plan scenario, also consistent with the changes in land use for this scenario.
- VMT within the City of Lakewood overall is projected to decrease slightly (-1.2%) under the 2044 Plan scenario.
- VMT outside of the City of Lakewood is projected to increase slightly (0.9%) under the 2044 Plan scenario.

## Level of Service Analysis

The travel demand model was utilized to model both land use scenarios outlined previously. Traffic volumes, roadway volume-to-capacity (v/c) ratios, and level of service (LOS) were then calculated for mid-block arterial roadway segments throughout the City of Lakewood. The v/c and LOS calculations are based on the Highway Capacity Manual (HCM) methodology and the PM peak hour traffic volumes from the two model scenarios. The LOS is consistent with the methodologies adopted in the existing Comprehensive Plan. **Table 3** shows the results from this analysis.

**Table 3. 2044 Weekday PM Peak Hour Roadway Traffic Operations Summary**

Intersection	2044 Baseline			2044 Plan		
	LOS <sup>12</sup>	V/C (NB/EB)	V/C (SB/WB)	LOS	V/C (NB/EB)	V/C (SB/WB)
<b><u>Ardmore Dr SW</u></b>						
Southeast of Steilacoom Blvd SW	D	0.74	0.83	C	0.68	0.71
Northwest of Whitman Ave SW	B	0.40	0.63	A	0.36	0.55
<b><u>Bridgeport Way W</u></b>						
North of 75th St W	C	0.79	0.69	C	0.80	0.66
North of Custer Rd W	B	0.66	0.62	B	0.69	0.60
South of Custer Rd W	C	0.71	0.63	C	0.76	0.62
North of Gravelly Lake Dr SW	A	0.56	0.54	A	0.59	0.51
South of Gravelly Lake Dr SW	A	0.39	0.43	A	0.42	0.40
North of 100th St SW	A	0.50	0.52	A	0.53	0.53
South of 100th St SW	A	0.26	0.23	A	0.30	0.25
South of Lakewood Dr SW	A	0.51	0.56	A	0.58	0.60
North of 112th St SW	A	0.52	0.58	A	0.59	0.58
North of Pacific Highway SW	C	0.67	0.78	C	0.78	0.78
South of Pacific Highway SW	D	0.79	0.85	D	0.78	0.84
I-5 Overcrossing	B	0.58	0.62	B	0.54	0.65
At Clover Creek Bridge South of I-5	A	0.44	0.31	A	0.44	0.33
<b><u>Custer Rd SWW</u></b>						
Northeast of Bridgeport Way SW	C	0.62	0.75	C	0.64	0.75
Southwest of Bridgeport Way SW	C	0.52	0.72	B	0.52	0.70
North of 88th St SW	B	0.47	0.66	B	0.47	0.64
South of 88th St SW	A	0.55	0.04	A	0.51	0.03
<b><u>Far West Dr SW</u></b>						
South of Steilacoom Blvd SW	A	0.12	0.16	A	0.25	0.18
<b><u>Gravelly Lake Dr SW</u></b>						
Southwest of Steilacoom Blvd SW	A	0.30	0.56	A	0.34	0.59
Northeast of Bridgeport Way SW	A	0.15	0.37	A	0.19	0.39
Southwest of Bridgeport Way SW	A	0.25	0.29	A	0.26	0.29
South of Mount Tacoma Dr SW	A	0.26	0.19	A	0.29	0.22
South of 100th St SW	A	0.39	0.41	A	0.43	0.45
South of Alfaretta St SW	A	0.26	0.30	A	0.29	0.33
North of Wildaire Rd SW	A	0.48	0.50	A	0.45	0.49
North of 112th St SW	A	0.45	0.45	A	0.45	0.50
West of 112th St SW	B	0.50	0.65	B	0.48	0.62
West of Nyanza Rd SW/S	E	0.89	0.97	D	0.75	0.87
North of Pacific Highway SW	B	0.70	0.54	B	0.67	0.47
South of Pacific Highway SW	B	0.68	0.55	B	0.65	0.51
I-5 Overcrossing	A	0.47	0.33	A	0.45	0.32
<b><u>Hipkins Rd SW</u></b>						
South of Steilacoom Blvd SW	A	0.33	0.43	A	0.26	0.36
<b><u>Lakeview Ave SW</u></b>						
South of 100th St SW	A	0.24	0.39	A	0.27	0.43
South of Steilacoom Blvd SW	A	0.34	0.26	A	0.44	0.28

<b><u>Lakewood Dr SW</u></b>						
North of 74th St W	D	0.66	0.86	D	0.72	0.88
South of 74th St W	D	0.66	0.81	D	0.72	0.82
North of Steilacoom Blvd SW	C	0.67	0.79	C	0.74	0.80
South of Steilacoom Blvd SW	A	0.54	0.51	A	0.60	0.51
North of 100th St SW	A	0.40	0.48	A	0.48	0.54
<b><u>Military Rd SW</u></b>						
South of 112th St SW	A	0.39	0.34	A	0.37	0.39
Northwest of 112th St SW	A	0.19	0.16	A	0.17	0.14
<b><u>Mount Tacoma Dr SW</u></b>						
West of Bridgeport Way	A	0.15	0.19	A	0.25	0.22
West of Gravelly Lake Dr	A	0.18	0.28	A	0.16	0.26
<b><u>Murray Rd SW</u></b>						
North of 146th St SW	A	0.58	0.50	A	0.55	0.45
<b><u>North Thorne Ln SW</u></b>						
Southeast of Union Ave SW	B	0.66	0.67	B	0.56	0.65
<b><u>Nyanza Rd SW</u></b>						
North of Gravelly Lake Dr SW	A	0.55	0.28	A	0.57	0.26
South of Gravelly Lake Dr SW	A	0.55	0.30	A	0.57	0.30
<b><u>Pacific Highway SW</u></b>						
North of 108th St SW	C	0.76	0.69	E	0.94	0.72
Southwest of 108th St SW	A	0.47	0.39	B	0.69	0.48
Northeast of Bridgeport Way SW	A	0.48	0.45	B	0.59	0.68
Southwest of Bridgeport Way SW	B	0.58	0.63	C	0.66	0.71
East of Gravelly Lake Dr SW	B	0.54	0.64	B	0.47	0.63
<b><u>Phillips Rd SW</u></b>						
North of Steilacoom Blvd SW	C	0.71	0.35	A	0.58	0.31
<b><u>South Tacoma Way</u></b>						
North of 84th St SW	D	0.64	0.89	D	0.65	0.90
North of Steilacoom Blvd SW	D	0.75	0.87	D	0.78	0.87
South of Steilacoom Blvd SW	C	0.72	0.77	D	0.72	0.83
North of 96th St S	C	0.65	0.75	C	0.68	0.80
North of 100th St SW	D	0.89	0.62	E	0.93	0.62
South of SR 512	C	0.79	0.67	E	0.92	0.67
Southeast of Pacific Highway SW	A	0.30	0.29	A	0.30	0.31
<b><u>Steilacoom Blvd SW</u></b>						
East of Farwest Dr SW	A	0.39	0.49	A	0.48	0.47
West of 87th Ave SW	A	0.56	0.52	A	0.48	0.47
West of 83rd Ave SW/Hipkins Rd SW	A	0.52	0.51	A	0.46	0.50
West of Phillips Rd SW	F	0.84	1.02	E	0.72	0.94
East of Phillips Rd SW	F	0.84	1.12	F	0.73	1.01
Southeast of 88th St SW	C	0.78	0.68	B	0.66	0.60
West of Bridgeport Way SW	B	0.38	0.65	A	0.31	0.57
East of Bridgeport Way SW	A	0.33	0.53	A	0.28	0.49
West of Gravelly Lake Dr SW	A	0.32	0.47	A	0.28	0.43
East of Lakewood Dr SW	A	0.35	0.47	A	0.34	0.44
West of Lakeview Ave SW	A	0.35	0.49	A	0.34	0.46



West of South Tacoma Way	A	0.48	0.54	A	0.55	0.53
<b><u>Union Ave SW</u></b>						
Northeast of Berkeley St SW	A	0.16	0.21	A	0.13	0.16
Southwest of North Thorne Ln SW	A	0.37	0.31	A	0.28	0.29
<b><u>Washington Blvd SW</u></b>						
West of Gravelly Lake Dr SW	E	0.66	0.99	E	0.65	0.96
<b><u>Whitman Ave SW</u></b>						
South of Ardmore Dr SW	A	0.13	0.14	A	0.13	0.13
<b><u>40th Ave SW</u></b>						
North of 100th St SW	B	0.32	0.62	B	0.37	0.66
<b><u>74th St S</u></b>						
West of Lakewood Dr SW	C	0.56	0.71	A	0.57	0.71
<b><u>83rd Ave SW</u></b>						
North of Steilacoom Blvd SW	A	0.56	0.33	A	0.39	0.26
<b><u>84th St S</u></b>						
East of South Tacoma Way	A	0.39	0.25	A	0.41	0.26
<b><u>87th Ave SW</u></b>						
South of Steilacoom Blvd SW	A	0.09	0.09	A	0.03	0.03
North of Steilacoom Blvd SW	A	0.36	0.28	A	0.30	0.14
<b><u>88th St SW</u></b>						
East of Steilacoom Blvd SW	A	0.17	0.58	A	0.15	0.53
<b><u>93rd St SW</u></b>						
East of Whitman Ave SW	A	0.46	0.34	A	0.39	0.32
<b><u>96th St S</u></b>						
West of South Tacoma Way	C	0.61	0.77	C	0.52	0.73
East of South Tacoma Way	D	0.81	0.45	D	0.81	0.44
<b><u>100th St SW</u></b>						
West of South Tacoma Way	C	0.72	0.53	C	0.78	0.53
East of Lakeview Dr SW	D	0.83	0.82	D	0.90	0.83
West of Lakeview Dr SW	C	0.74	0.63	C	0.80	0.63
East of Lakewood Dr SW	C	0.73	0.68	C	0.75	0.67
East of Bridgeport Way SW	B	0.64	0.63	B	0.69	0.65
East of Gravelly Lake Dr SW	A	0.13	0.19	A	0.16	0.21
<b><u>108th St SW</u></b>						
West of Pacific Highway SW	C	0.71	0.74	D	0.82	0.80
East of Bridgeport Way SW	A	0.57	0.42	A	0.60	0.45
West of Bridgeport Way SW	A	0.45	0.31	A	0.46	0.28
East of Davisson Rd SW	A	0.48	0.34	A	0.47	0.30
<b><u>112th St SW/S</u></b>						
Between Military Rd SW & Farwest Dr S	A	0.25	0.35	A	0.26	0.48
East of Gravelly Lake Dr SW	B	0.31	0.61	A	0.32	0.49
East of Bridgeport Way SW	B	0.54	0.66	A	0.56	0.56
West of Bridgeport Way SW	B	0.49	0.68	B	0.57	0.61
<b><u>150th St SW</u></b>						
East of Woodbrook Rd SW	F	1.05	0.75	C	0.80	0.57

1. Level of service, based on Highway Capacity Manual, 7th Edition methodology.
2. Level of service reported for worst performing direction of travel.





## Key Findings

Our analysis of the two model scenarios focuses on roadway segments which operate at LOS E or worse ( $v/c > 0.90$ ) since the general concurrency threshold for the City of Lakewood is to maintain LOS D or better along all arterial roadways. However, as discussed in greater detail below, the City has previously identified some roadway segments that are unable to maintain LOS D or better through feasible mitigation or improvements in the future. For these roadway segments, the City has established either a LOS E or LOS F threshold, depending on the roadway segment.

The following two lists summarize the roadway segments projected to operate at LOS E or worse in either the 2044 Baseline or the 2044 Plan model scenarios. The first list shows roadway segments projected to operate better in the 2044 Plan than the 2044 Baseline model scenario. The second list shows roadway segments projected to operate worse in the 2044 Plan than the 2044 Baseline model scenario.

1. Roadway operating conditions are projected to improve under the 2044 Plan model scenario for the following segments:
  - a. Gravelly Lake Dr SW west of the end of Nyanza Rd SW from LOS E ( $v/c$  0.97) to LOS D ( $V/C$  0.87)
  - b. Steilacoom Blvd SW west of Phillips Rd SW from LOS F ( $v/c$  1.02) to LOS E ( $v/c$  0.94)
  - c. Steilacoom Blvd SW east of Phillips Rd SW from LOS F ( $v/c$  1.12) to LOS F ( $v/c$  1.01)
  - d. Washington Blvd SW west of Gravelly Lake Dr SW from LOS E ( $v/c$  0.99) to LOS E ( $v/c$  0.96)
  - e. 150th St SW east of Woodbrook Rd SW from LOS F ( $v/c$  1.05) to LOS C ( $v/c$  0.80)
2. Roadway operating conditions are projected to worsen under the 2044 Plan model scenario for the following segments:
  - a. Pacific Highway SW north of 108th St SW from LOS D ( $v/c$  0.76) to LOS E ( $v/c$  0.94)
  - b. South Tacoma Way north of 100th St SW from LOS D ( $v/c$  0.89) to LOS E ( $v/c$  0.93)
  - c. South Tacoma Way south of SR 512 from LOS D ( $v/c$  0.79) to LOS E ( $v/c$  0.92)

## Potential Mitigations

The roadway segments along Steilacoom Blvd SW and Washington Blvd SW which continue to operate at LOS E or worse in the 2044 Plan model scenario have previously been identified by the City as segments which are unable to maintain LOS D or better through feasible mitigation or improvements. Therefore, our analysis does not consider potential mitigations for these roadway segments since the results are similar to what had been shown in the adopted Transportation Element.

The remaining roadway segments along Pacific Highway SW and South Tacoma Way which continue to operate at LOS E or worse in the 2044 Plan model scenario are considered for potential mitigations in our analysis. These two roadways directly serve the Station Area District and the increased land use intensity in the 2044 Plan model scenario contributed to the worsening roadway segment LOS.

Given the City's focus on improving transit accessibility, especially for active transportation modes such as walking and biking, within the Station Area District, it is not likely feasible to mitigate the roadway segment deficiencies along Pacific Highway SW and South Tacoma Way through roadway widening improvements. However, the Sound Transit Board of Directors approved a series of improvements within the Station Area District which may encourage greater transit,

walking, and biking use and decrease the demand for driving on the surrounding roadway network. These improvements include:

1. **115th St Ct SW trail to station** – adds a multi-use trail in Sound Transit right-of-way from the end of 115th St. Court SW to the pedestrian bridge over the railroad tracks connecting to Lakewood Station.
2. **Station area curb and sidewalk improvements** – improve curbs and sidewalks within a half mile radius of the station area.
3. **Pierce Transit Route 206 bus stop at Lakewood Station** – modify the intersection of Pacific Hwy. SW and Bridgeport Way to improve the bus turning radius, which makes a Pierce Transit stop at the station more feasible.

Additionally, the City of Lakewood could consider adjusting the LOS threshold for these deficient roadway segments as they've done previously for other deficient roadway segments in the City. These adjustments would further emphasize the City's focus on improving transit access, walking, and biking within the Station Area District and surrounding area.

## Parking Analysis

This section describes the analysis conducted by both BERK and Transpo Group to evaluate and identify areas within the City of Lakewood where a potential increase in on-street parking demand due to middle housing developments allowed under the State of Washington HB 1110 might cause significant safety issues. The State plans to provide guidance to local jurisdictions on how to evaluate significant safety issues related to HB 1110. However, prior to the issuance of this guidance, our analysis provides a methodology for evaluating significant safety issues that can be applied consistently to all roadway segments in the City related to parking impacts.

Our analysis assumes that significant safety issues stemming from increased on-street parking could arise on roadways that were not originally designed for on-street parking. In the context of residential areas within the City of Lakewood, this would typically include narrow local roads without curbs. On-street parked vehicles on these roadways may contribute to significant safety issues, such as reduced sight distances, increased risk of dooring collisions for people biking, or preventing adequate space for two-way travel.

### ***Data and Assumptions***

The City of Lakewood provided the data used in this study. GIS data layers used included:

1. **Travelways:** a line layer showing the edge of pavement for the entire City. This layer also shows driveway access to/from all parcels.
2. **ROW under 60:** a line layer showing areas of the City where the public right of way is less than 60 feet wide.
3. **Arterials:** a line layer showing all roads in the City.
4. **Parcels:** a polygon layer showing parcels in the City.

These GIS data layers were utilized to identify narrow roadway segments throughout the City of Lakewood. However, it's important to note that since our analysis relies on the "ROWunder60" layer to identify narrow roadway segments, it's possible that this excludes other roadway segments that might have significant safety issues related to on-street parking. For example, a roadway segment with adequate public ROW but the pavement width is still narrow or missing curbs. The City should consider if further study is necessary to evaluate safety in these areas.

Once parcels along narrow roadway segments were identified, our analysis excluded parcels that were within 300 feet walking distance from a roadway segment with adequate public ROW. The

assumption here is that a person living at one of these parcels could park their vehicle along the roadway segment with adequate public ROW and conveniently walk to their residence.

### ***Methodology to Identify Inadequate On-Street Parking***

The following steps were conducted to identify roadway segments with potentially significant safety issues related to on-street parking.

***Step 1: Identify where HB 1110 land uses would initially be allowed absent other data. Utilize the existing low-density residential zoning GIS layer for R1-R4 designated areas. Remove areas with lot sizes below a minimum threshold or lot size.***

This step was completed by BERK and the filtered dataset was then provided to Transpo Group for further analysis. This filtered dataset included 8,983 parcels.

***Step 2: Remove properties within ½ mile walking distance of a major transit stop. A major transit stop provides daily service frequency of 30 minutes or greater.***

This step was also completed by BERK. Major transit stops within the City included stops with either future bus rapid transit or commuter rail service. Excluding parcels within a ½ mile walking distance of major transit stops reduced the number of parcels relevant to the parking analysis to 2,300.

***Step 3: Utilize estimates of potential development capacity, such as number of additional units that could be added, to highlight areas with higher likelihood of off-site parking needs.***

BERK identified parcels where middle housing would not be allowed or would not be possible to build. The exclusion of these parcels reduced the number of parcels relevant to the parking analysis to 1,615.

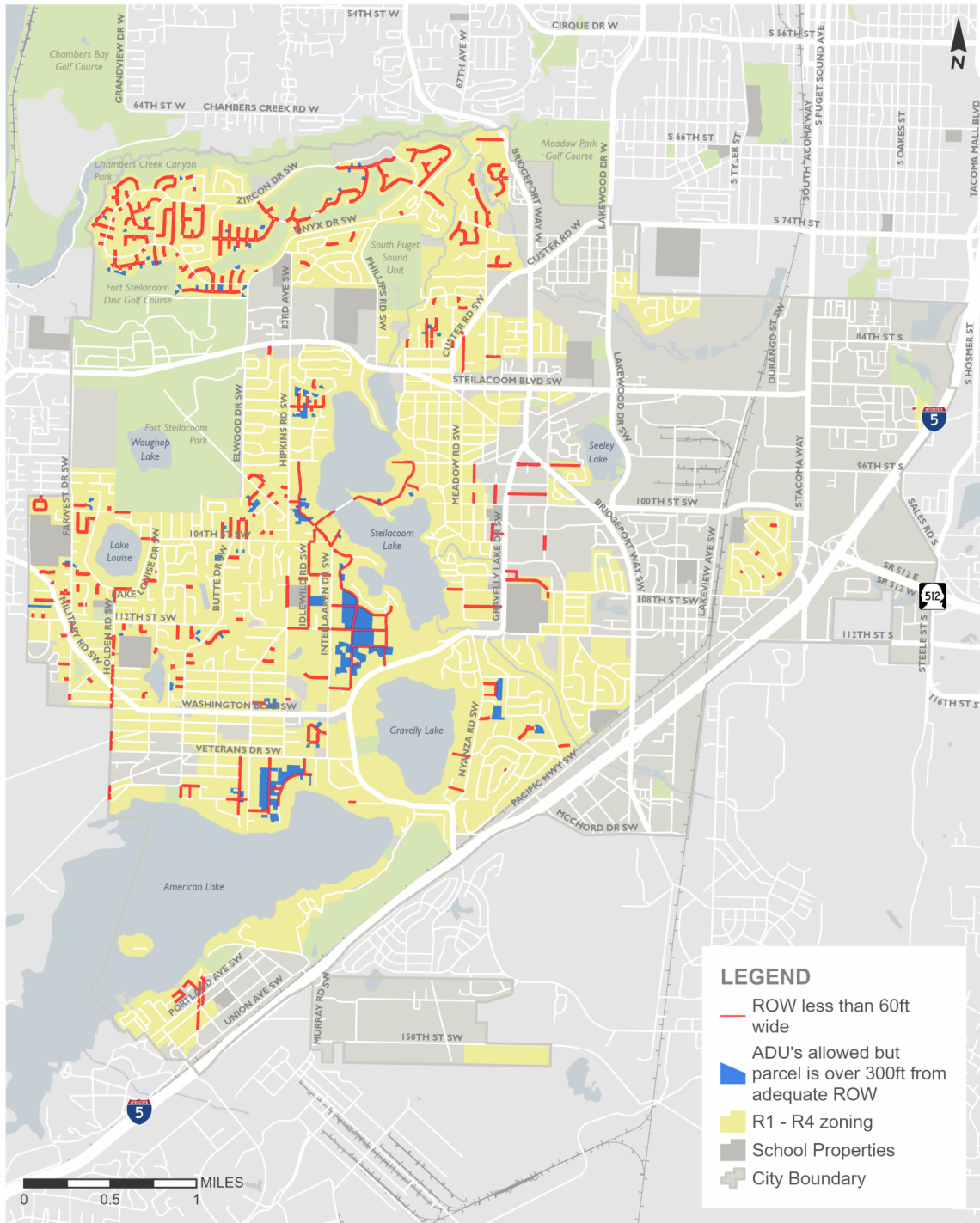
***Step 4: Highlight properties that have direct access to public streets that have substandard public ROW widths of under 60 feet. Assume on-street parking within 300 feet of a property is within acceptable walking distance.***

This step was completed by Transpo Group and reduced the number of parcels relevant to the parking analysis to 191. **Figure 2** shows the location of the 191 parcels within the City.

### **Key Findings**

Our analysis highlights two neighborhoods within the City with a high concentration of parcels with potentially significant on-street parking safety issues – the Interlaken and Harts Idyllwild/Lake Holme developments. These neighborhoods include mostly low-density single-family homes. Roadways within these neighborhoods are primarily narrow and without curbs or sidewalks. The neighborhoods were designed to be accessed primarily by automobile. The low density and roadway connectivity also allows for walking without the need for sidewalks since the traffic volumes are likely low and people walking have the option to walk off pavement within the public right of way. Since these roadways were not designed to accommodate higher residential densities and on-street parking, they may be appropriate areas to exempt from the HB 1110 middle housing zoning requirements. However additional evaluation may be necessary to consider other data points and information, such as equity, demographics, and practicality or risk of exempting these areas from middle housing zoning.

Figure 2. Parcels of Concern for Significant On-Street Parking Safety Issues



**From:** Jon Pascal <[jon.pascal@transpogroup.com](mailto:jon.pascal@transpogroup.com)>  
**Sent:** Friday, May 24, 2024 11:50  
**To:** Andrew Bjorn <[Andrew@Berkconsulting.com](mailto:Andrew@Berkconsulting.com)>  
**Cc:** Drew Heckathorn <[drew.heckathorn@transpogroup.com](mailto:drew.heckathorn@transpogroup.com)>; John Lewis <[john.lewis@transpogroup.com](mailto:john.lewis@transpogroup.com)>  
**Subject:** RE: Transportation Element Review for Lakewood

Andrew,  
Attached is a spreadsheet with the I-5 volumes from the model. As expected, the Planned Action volumes are slightly lower in general compared to baseline or No Action. Let us know if you need anything else. Thanks and have a good weekend.



Jon Pascal PE | Managing Principal



[425-896-5230](tel:425-896-5230)



[206-890-3868](tel:206-890-3868)

**Northbound I-5**

Interchange		Planned		
		Baseline	Action	% Diff
Berkeley Ave	Mainline	15,588	15,373	-1.4%
	Off Ramp	922	830	-10.0%
	On Ramp	3,603	3,552	-1.4%
Thorne Lane	Mainline	18,270	18,095	-1.0%
	Off Ramp	882	1,045	18.5%
	On Ramp	3,371	3,178	-5.7%
Gravelly Lake Drive	Mainline	20,759	20,229	-2.6%
	Off Ramp	2,200	2,134	-3.0%
	On Ramp	1,426	1,371	-3.9%
Bridgeport Way	Mainline	19,984	19,466	-2.6%
	Off Ramp	1,931	1,925	-0.3%
	On Ramp	2,661	3,035	14.1%
SR 512	Mainline	20,715	20,576	-0.7%
	Off Ramp	5,510	5,444	-1.2%
	On Ramp	5,238	5,299	1.2%
S. 84th St	Mainline	20,442	20,431	-0.1%
	Off Ramp	1,928	1,816	-5.8%
	Mainline	18,514	18,614	0.5%
S. 74th Street	Off Ramp	1,845	1,782	-3.4%
	On Ramp	3,671	3,668	-0.1%
	Mainline	20,340	20,500	0.8%
Total	On Ramps	19,970	20,103	0.7%
	Off Ramps	15,218	14,976	-1.6%
	Mainline	154,612	153,284	-0.9%
	All Links	189,800	188,363	-0.8%

**Southbound I-5**

Interchange		Planned		
		Baseline	Action	% Diff
S. 74th Street	Mainline	25,155	25,144	0.0%
	Off Ramp	4,967	4,977	0.2%
	On Ramp	987	1,013	2.6%
S. 84th St	Mainline	21,175	21,180	0.0%
	On Ramp	1,081	1,049	-3.0%
	Mainline	22,256	22,230	-0.1%
SR 512	Off Ramp	6,386	6,161	-3.5%
	On Ramp	4,918	4,602	-6.4%
	Mainline	20,787	20,671	-0.6%
Bridgeport Way	Off Ramp	2,502	2,850	13.9%
	On Ramp	2,651	2,505	-5.5%
	Mainline	20,936	20,326	-2.9%
Gravelly Lake Drive	Off Ramp	1,851	1,874	1.2%
	On Ramp	2,049	1,791	-12.6%
	Mainline	21,134	20,243	-4.2%
Thorne Lane	Off Ramp	2,955	2,310	-21.8%
	On Ramp	839	871	3.8%
	Mainline	19,017	18,805	-1.1%
Berkeley Ave	Off Ramp	2,100	1,912	-9.0%
	On Ramp	395	381	-3.5%
	Mainline	17,313	17,274	-0.2%
Total	On Ramps	12,920	12,212	-5.5%
	Off Ramps	20,761	20,084	-3.3%
	Mainline	167,773	165,873	-1.1%
	All Links	201,454	198,169	-1.6%

**Rounded & Balanced**

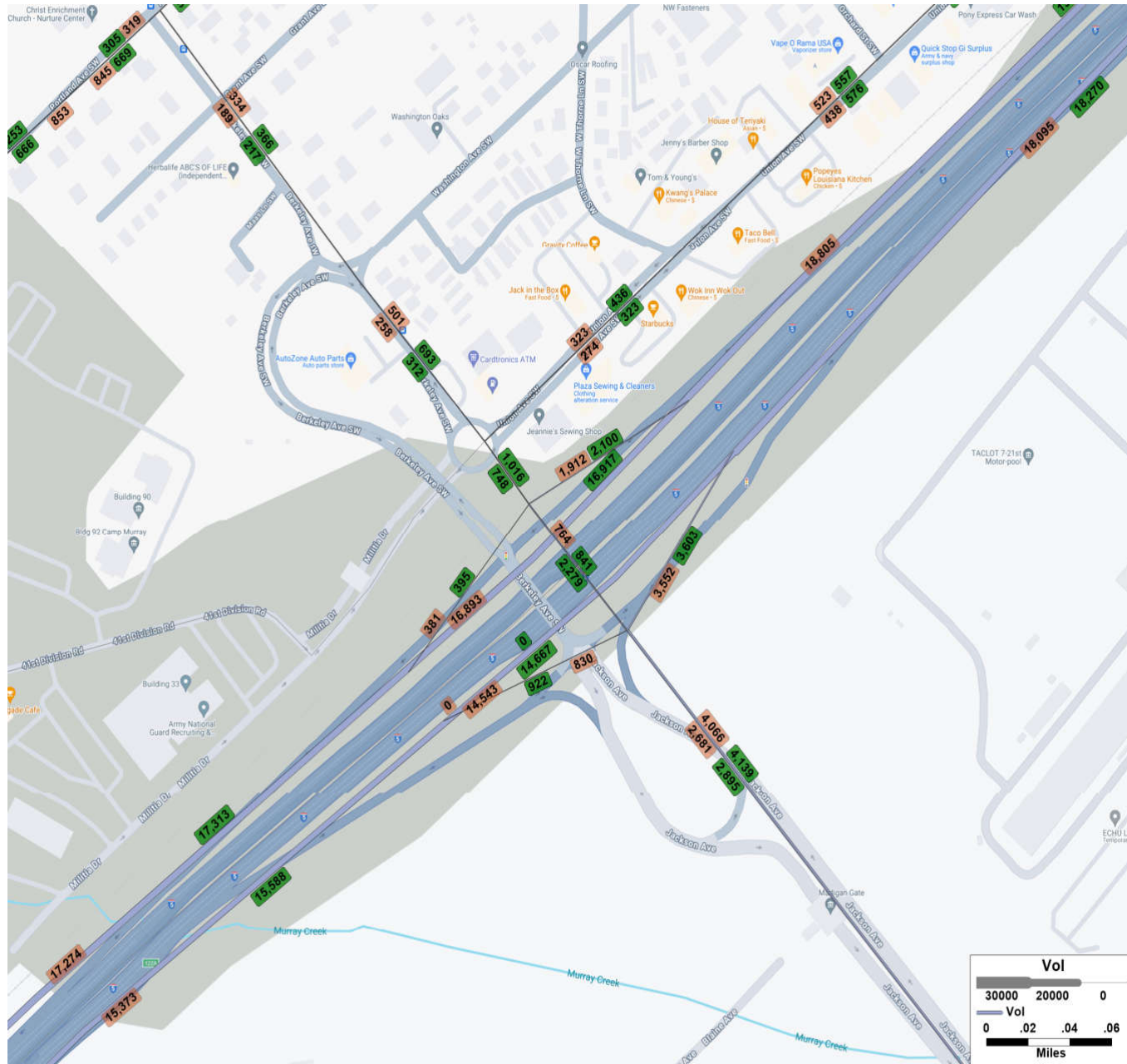
**Northbound I-5**

Interchange		Planned		
		Baseline	Action	% Diff
Berkeley Ave	Mainline	15,590	15,370	-1.4%
	Off Ramp	920	830	-9.8%
	On Ramp	3,600	3,550	-1.4%
Thorne Lane	Mainline	18,270	18,090	-1.0%
	Off Ramp	880	1,040	18.2%
	On Ramp	3,370	3,180	-5.6%
Gravelly Lake Drive	Mainline	20,760	20,230	-2.6%
	Off Ramp	2,200	2,130	-3.2%
	On Ramp	1,430	1,370	-4.2%
Bridgeport Way	Mainline	19,990	19,470	-2.6%
	Off Ramp	1,930	1,930	0.0%
	On Ramp	2,660	3,040	14.3%
SR 512	Mainline	20,720	20,580	-0.7%
	Off Ramp	5,510	5,450	-1.1%
	On Ramp	5,230	5,300	1.3%
S. 84th St	Mainline	20,440	20,430	0.0%
	Off Ramp	1,930	1,820	-5.7%
	Mainline	18,510	18,610	0.5%
S. 74th Street	Off Ramp	1,840	1,780	-3.3%
	On Ramp	3,670	3,670	0.0%
	Mainline	20,340	20,500	0.8%

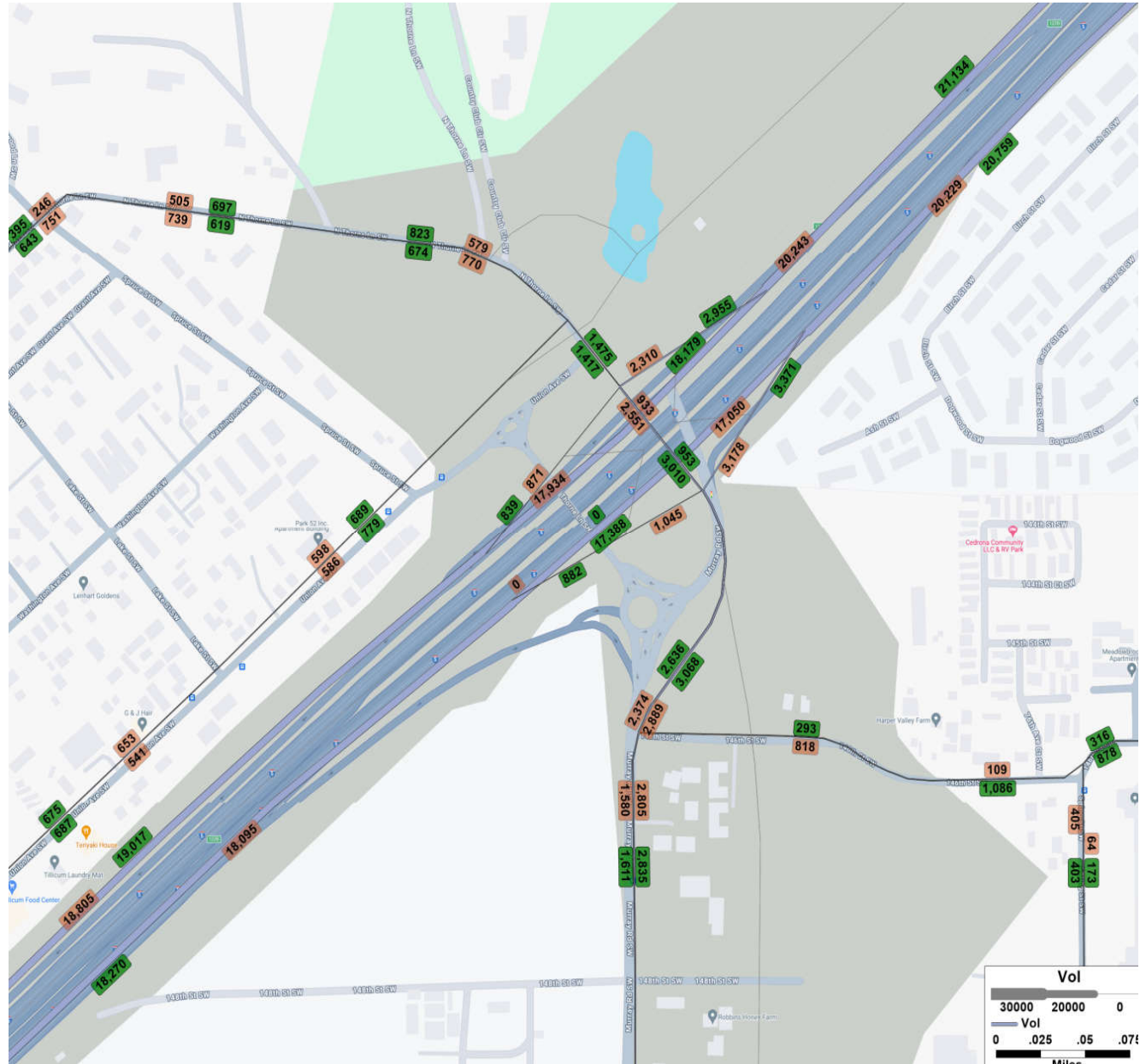
**Southbound I-5**

Interchange		Planned		
		Baseline	Action	% Diff
S. 74th Street	Mainline	25,160	25,140	-0.1%
	Off Ramp	4,970	4,970	0.0%
	On Ramp	990	1,010	2.0%
S. 84th St	Mainline	21,180	21,180	0.0%
	On Ramp	1,080	1,050	-2.8%
	Mainline	22,260	22,230	-0.1%
SR 512	Off Ramp	6,390	6,160	-3.6%
	On Ramp	4,920	4,600	-6.5%
	Mainline	20,790	20,670	-0.6%
Bridgeport Way	Off Ramp	2,500	2,850	14.0%
	On Ramp	2,650	2,510	-5.3%
	Mainline	20,940	20,330	-2.9%
Gravelly Lake Drive	Off Ramp	1,850	1,880	1.6%
	On Ramp	2,050	1,790	-12.7%
	Mainline	21,140	20,240	-4.3%
Thorne Lane	Off Ramp	2,960	2,310	-22.0%
	On Ramp	840	870	3.6%
	Mainline	19,020	18,800	-1.2%
Berkeley Ave	Off Ramp	2,100	1,910	-9.0%
	On Ramp	390	380	-2.6%
	Mainline	17,310	17,270	-0.2%

- 18028 Baseline
- 18270 Planned Action

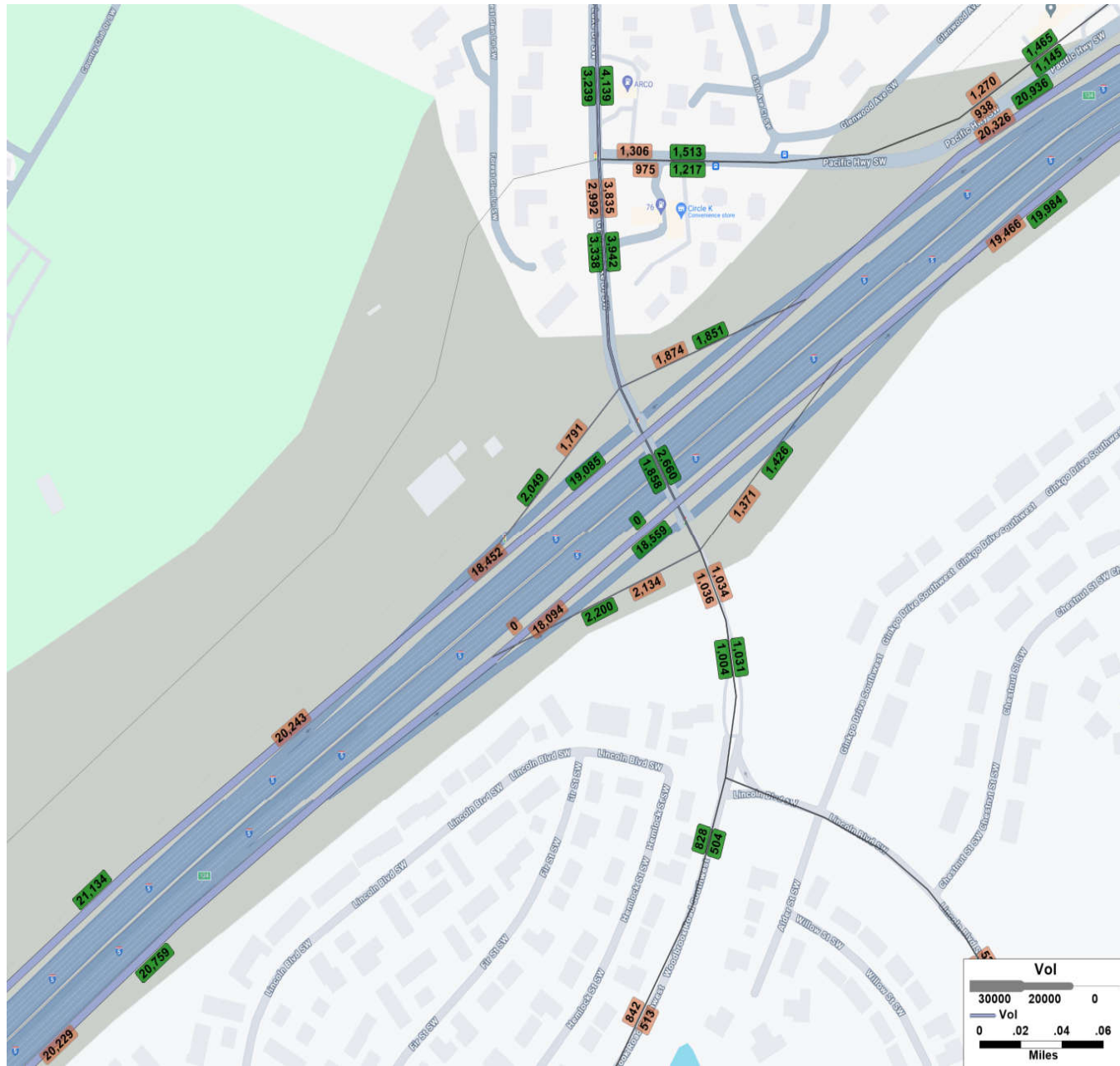


- 18028 Baseline
- 18270 Planned Action





**18028** Baseline  
**18270** Planned Action



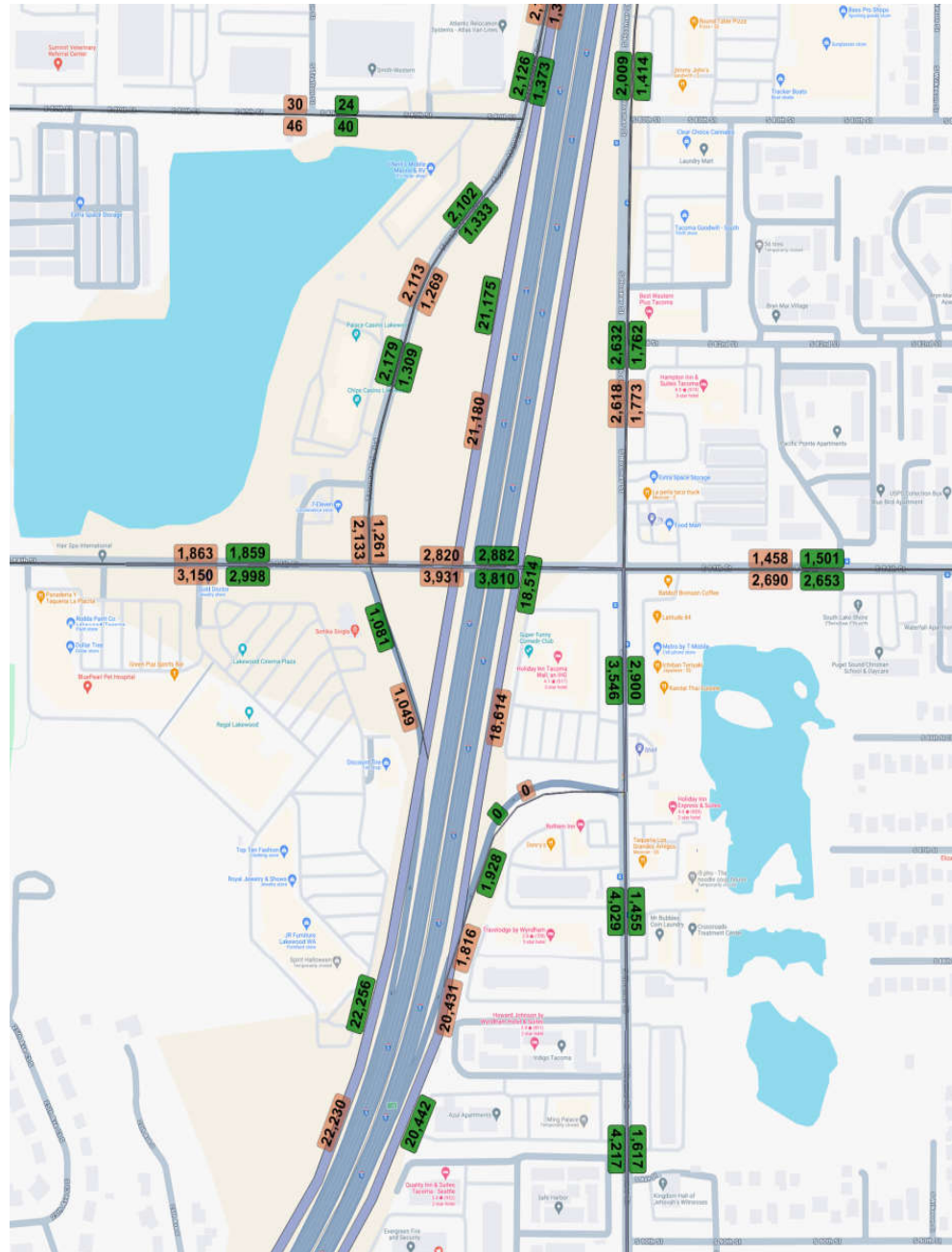
**18028** Baseline  
**18270** Planned Action



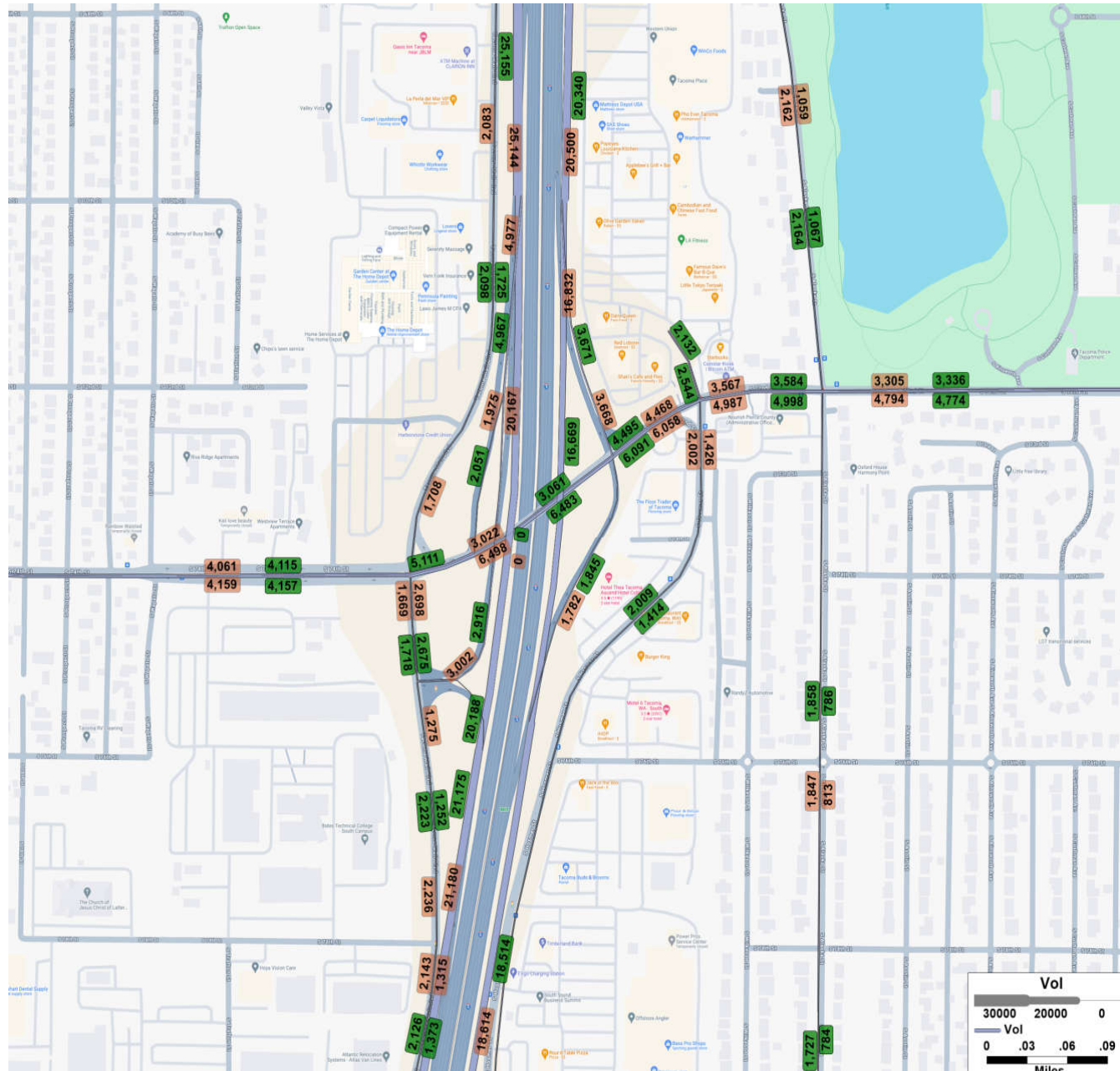
- 18028 Baseline
- 18270 Planned Action



- 18028 Baseline
- 18270 Planned Action



- 18028 Baseline
- 18270 Planned Action



# D. FACET NW, Inc. Gap Analysis

/ Formerly DCG Watershed

# **CRITICAL AREAS ORDINANCE GAP ANALYSIS**

## City of Lakewood

Prepared for:



City of Lakewood  
Department of Community Development  
6000 Main St. SW  
Lakewood, WA 98499

Prepared by:

**October 2023**



**DCG/Watershed Reference Number:**  
230320

**Cite this document as:**

DCG/Watershed. June 2023. City of Lakewood Critical Areas Ordinance  
Gap Analysis.





# TABLE OF CONTENTS

---

	Page #
<b>1 Introduction .....</b>	<b>1</b>
1.1 GMA Regulatory Process.....	1
1.2 Document Organization .....	<b>Error! Bookmark not defined.</b>
<b>2 General Provisions - LMC 14.142.....</b>	<b>2</b>
2.1 General Provisions (LMC 14.142.010-200) .....	2
2.2 Definitions (LMC 14.65) .....	46
2.3 Applicability and Mapping .....	4
2.4 Exemptions .....	4
2.5 Reasonable Use Exceptions (LMC 14.142.080) .....	5
2.6 Process (LMC 14.142.100) .....	5
2.7 Nonconforming Uses .....	6
<b>3 Geologically Hazardous Areas - LMC 14.146 .....</b>	<b>6</b>
3.1 Geologically Hazard Areas (LMC 14.146.010-14.146.050). .....	7
3.2 Purpose (LMC 14.146.010).....	7
3.3 Designation of erosion and landslide hazard areas (LMC 14.146.020).....	7
3.4 Designation of seismic hazard areas (LMC 14.146.040). .....	8
<b>4 Critical Aquifer Recharge Areas - LMC 14.150 .....</b>	<b>8</b>
4.1 Consider adding maps of CARAs.....	8
4.2 Create an inventory of potential contaminant sources.....	8
<b>5 Fish and Wildlife Habitat Areas - LMC 14.154 .....</b>	<b>9</b>
5.1 Fish and Wildlife Habitat Areas (LMC 14.154.010-14.154.090). .....	10
5.2 Designation of critical fish and wildlife habitat areas (LMC 14.154.020). ...	10
5.3 Habitat Protection Standards (LMC 14.154.030).....	11
5.4 Habitat protection for rivers and streams (LMC 14.154.050). .....	12
5.5 Habitat protection for lakes (LMC 14.154.060). .....	12
5.6 Habitat protection for ponds (LMC 14.154.070).....	13
<b>6 Flood Hazard Areas - LMC 14.158.....</b>	<b>13</b>
6.1 Flood Hazard Areas .....	14
6.2 Purpose .....	15
6.3 Designation.....	15
<b>7 Wetlands Areas - LMC 14.162 .....</b>	<b>15</b>
7.1 Delineation, and Wetland Analysis Requirements .....	16
7.2 Protection Standards – Establishing Buffers .....	17

7.3	Mitigation .....	19
<b>8</b>	<b>References .....</b>	<b>Error! Bookmark not defined.</b>

## **LIST OF TABLES**

---

Table 1.	General provisions review summary.....	2
Table 2.	Geologically hazardous areas review summary.....	6
Table 3.	Fish and wildlife habitat areas review summary.....	9
Table 4.	Flood hazard areas review summary.....	13
Table 5.	Wetlands areas review summary .....	16
Table 6.	Current wetland buffer table .....	17
Table 7.	Current wetland mitigation ration.....	18

# **CRITICAL AREAS ORDINANCE GAP ANALYSIS**

---

## **CITY OF LAKEWOOD**

### **1 INTRODUCTION**

---

With passage of the Growth Management Act (GMA), local jurisdictions throughout Washington State, including the City of Lakewood (City), were required to develop policies and regulations to designate and protect critical areas. Critical areas, as defined by the GMA (Revised Code of Washington [RCW] 36.70A.030(5)), include wetlands, areas with a critical recharging effect on aquifers used for potable water, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas.

An ongoing requirement of the GMA is for local jurisdictions to periodically review and evaluate their adopted critical areas policies and regulations. In accordance with the GMA, the City adopted a Critical Areas Ordinance (Ordinance No. 362) in 2004 and sections of this ordinance were updated and adopted in Ordinance No. 630 in 2015. The City is now considering further updates to its critical area policies and regulations to be consistent with recent updates to the best available science (BAS). Any deviations from science-based recommendations should be identified, assessed, and explained (Washington Administrative Code [WAC] 365-195-915). In addition, jurisdictions are to give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries.

The City's critical areas regulations are currently codified in Chapters 14.02 through 14.165 of the Lakewood Municipal Code (LMC or Code) (Lakewood, 2023).

This gap analysis provides a review of the current critical areas regulations, noting gaps where existing policies or regulations may not be consistent with BAS or the GMA. It also documents where revisions could be made to aid in clarity and general usability of the code based on a review and use of the code by DCG/Watershed and City staff. The primary intention of this gap analysis is to help guide the update of the City's critical areas regulations.

#### **1.1 GMA Regulatory Process**

The City of Lakewood is conducting a substantive review and revision of its Critical Areas Ordinance (Lakewood Municipal Code Title 14, Chapter 14.02). The Growth Management Act (GMA) requires all cities and counties in Washington to adopt regulations protecting critical areas to preserve the natural

environment, wildlife habitats, and sources of fresh drinking water. Critical areas regulation also encourages public safety by limiting development in areas prone to natural hazards like floods and landslides. All jurisdictions are required to review, evaluate, and, if necessary, revise their critical areas ordinances according to an update schedule. Furthermore, the GMA, under RCW 36.70A.172 requires all counties and cities to “include the best available science in developing policies and development regulation to protect the functions and values of critical areas.”

## 1.2 Document Organization

Recommendations for updating the City’s existing critical areas regulations are provided in Sections 2 through 7. Section 2 addresses the general provisions that are applicable to all critical areas and Sections 3 through 7 address the different types of critical areas covered by the GMA. To highlight findings of the gap analysis, a Code review summary table is provided at the beginning of each section. Where a potential gap is identified, subsections provide further discussion.

# 2 GENERAL PROVISIONS – LMC 14.142

Code sections 14.142.010 through 14.142.200 contain general provisions that are applicable to all types of critical areas. While overall the general provisions contained in these sections are strong, some refinements could be made to further align these sections with the GMA and BAS. Table 1 (general provisions review summary) below provides a summary of recommendations that are described in detail in this section.

Table 1. General provisions review summary.

Code Section	Title	Review Comment / Recommendations*
14.142.010-14.142.200	General Provisions	<ul style="list-style-type: none"> <li>• Add a section for best available science</li> <li>• Add allowed activities section</li> </ul>
14.142.010	Authority and title	None
14.142.020	Intent	None
14.142.030	Interpretation	None
14.142.040	Applicability and Mapping	Create City-owned critical area maps or add reference to BAS map resources in individual sections
14.142.050	Permitted Uses	None
14.142.060	Regulated uses/activities	None
14.142.070	Exemptions	<ul style="list-style-type: none"> <li>• Specify requirements for demonstrating project exemption</li> <li>• Add reference to Pierce County Noxious Weed Control Board species list</li> </ul>

Code Section	Title	Review Comment / Recommendations*
14.142.080	Reasonable use exception	<ul style="list-style-type: none"> <li>Update reasonable use exceptions</li> </ul>
14.142.090	Reasonable use exception and modification of critical requirements for individual single-family residences	None
14.142.100	Process	<ul style="list-style-type: none"> <li>Add requirement in subsection (B), requiring staff to confirm no net loss of ecological function for each project application, pursuant to WAC 365-196-830(4).</li> <li>Add general language on impact avoidance and mitigation sequencing.</li> </ul>
14.142.110	Variances	None
14.142.120	Current use assessment	None
14.142.130	Compliance provisions	None
14.142.140	Appeal procedures	None
14.142.160	Fees	None
14.142.170	Title and pat notification	Correct spelling of "plat"
14.142.180	Nonconforming uses	<ul style="list-style-type: none"> <li>Recommend breaking section into subsections for Nonconforming use, nonconforming structure, and nonconforming lots</li> <li>Recommend adding definitions for new items to Section 14.165</li> </ul>
14.142.190	Administrative procedures and technical criteria	None
14.142.200	Severability	None
14.165	Definitions	Review and consider revisions

\* See discussion of comments/recommendations in the subparts below this table.

## 2.1 General Provisions (LMC 14.142.010- 14.124.200, LMC 14.165)

### 2.1.1 Add a section for best available science

RCW 36.70A.172(1) requires the inclusion of best available science (BAS) in critical area regulations. The application of BAS is not discussed in the current CAO. Such a section could identify criteria for what qualifies as BAS, identify the process to be followed in absence of valid scientific information, and how BAS will be used to preserve or enhance anadromous fisheries (a special consideration required by Chapter 365-195 WAC).

### **2.1.2 Add allowed activities section**

Some jurisdictions have expressed an interest in adding an allowed uses section which lists activities allowed in critical areas. Creation of such a section should involve review of the existing exemptions section of the code and reconcile and clarify which activities are considered exempt and which are allowed and what the difference is. As the code is currently written, it appears exempt uses do not require submittal of a critical areas report, or mitigation. Allowed uses should still be required to provide mitigation if activities would result in a loss of the function and values of the critical area.

## **2.2 Applicability and Mapping (LMC 14.142.040)**

### **2.2.1 Add City maps or map resources**

The current CAO defines/designates regulated critical areas according to guidelines, however there are no reference maps or resources which applicants can use to identify potential critical areas in their project area. The City should either add a reference to publicly available resources for critical areas identification or create City maps containing those designations that are updated regularly.

## **2.3 Exemptions (LMC 14.142.070)**

### **2.3.1 Specify requirements for proving project exemption**

This section lists actions which are exempt from the critical areas code. However, it does not specify what the responsibilities of a project proponent are in proposing such an action. The City should consider adding language clarifying what, if any, approval is needed prior to engaging in an exempt activity. To promote protection of critical areas even from exempt activities, language similar to the following is recommended for insertion at the beginning of this section:

*All exempted activities shall use reasonable methods to avoid potential impacts to critical areas. To be exempt from this Chapter does not give permission to degrade a critical area or ignore risk from natural hazards. Any incidental damage to, or alteration of, a critical area that is not a necessary outcome of the exempted activity shall be restored, rehabilitated, or replaced at the responsible party's expense (CTED 2007).*

### **2.3.2 Add reference to Pierce County Noxious Weed Control Board species list**

Regulation R of this section references the state noxious weed list allowed to be removed under the stated exemption. To include the coverage of more weeds, the City should consider adding a reference to include all weeds listed

on the Noxious Weeds Designated for Control or Eradication in Pierce County by the Pierce County Noxious Weed Control Board annual list.

## **2.4 Reasonable Use Exceptions (LMC 14.142.080)**

The LMC currently allows for “reasonable use” if the CAO would otherwise deny all reasonable use of a property. The code does not currently contain provisions for establishing legal lot status, which can cause issues with review of reasonable use exceptions. The city should consider revisions to this section that incorporate determination of lot status.

## **2.5 Process (LMC 14.142.100)**

### **2.5.1 Add requirement in subsection (B), requiring staff to confirm no net loss of ecological function for each project application, pursuant to WAC 365-196-830(4).**

Pursuant to WAC 365-196-830(4), Counties and Cities are required to ensure no-net-loss of critical area functions for any proposed development. Although counties and cities may protect critical areas in different ways or may allow some localized impacts to critical areas, or even the potential loss of some critical areas, development regulations must preserve the existing functions and values of critical areas. Avoidance is the most effective way to protect critical areas. If development regulations allow harm to critical areas, they must require compensatory mitigation of the harm. Development regulations may not allow a net loss of the functions and values of the ecosystem that includes the impacted or lost critical areas.

### **2.5.2 Add general language on impact avoidance and mitigation sequencing.**

Pursuant to WAC 197-11-768, mitigation consists of a specific sequence which includes: avoidance, minimization, rectification, reduction, and compensatory mitigation. We recommend adding general language on impact avoidance and each step of the mitigation sequence.

## **2.6 Title and Plat Notification (14.142.170)**

### **2.6.1 Correct spelling of “plat”.**

## **2.7 Nonconforming Uses (LMC 14.142.180)**

### **2.7.1 Recommend breaking section into subsections for nonconforming use, nonconforming structure, and nonconforming lots**

The Lakewood Shoreline Master Program (SMP) adopted in 2019 incorporates the Department of Ecology recommended changes listed in WAC 173-27-080,

which separates “nonconforming uses and development” into “nonconforming uses”, “nonconforming structures”, and “nonconforming lots”. These updates are only required for SMPs, however we recommend updating the CAO sections with similar verbiage to be consistent with the SMP as well as provide clarity on “nonconforming” regulations. We also recommend adding the new definitions to Section 14.165.

## 2.8 Definitions (LMC 14.165)

### 2.8.1 Review and consider revisions

The City should conduct a thorough review of the definitions section and remove or modify redundant definitions, those which are not used in the code, and those which may require revisions as a result of other code amendments.

# 3 GEOLOGICALLY HAZARDOUS AREAS – LMC 14.146

---

The goal of geologic hazard regulations is to classify and designate areas on which development should be prohibited, restricted, or otherwise controlled because of danger from geological hazards. Geologically hazardous areas addressed in the Code include erosion and landslide hazard areas and seismic hazard areas. The Code does not designate mine, volcanic or tsunami hazard areas as geologically hazardous areas.

Table 2. Geologically hazardous areas review summary

Code Section	Title	Review Comment / Recommendations*
14.146.010-14.146.050	Geologically Hazardous Areas	Consider updating definition to match RCW definition
14.146.010	Purpose	Update types of hazards included
14.146.020	Designation of erosion and landslide hazard areas	Update classification criteria consistent with WAC 365-190-120 Update list of mapping resources
14.146.030	Protection standards for erosion and landslide hazard areas	None
14.146.040	Designation of seismic hazard areas	Update definition of seismic hazard areas
14.146.050	Protection standards in seismic hazard areas	None

\* See discussion of comments/recommendations in the subparts below this table.



### **3.1 Geologically Hazardous Areas (LMC 14.146.010-14.146.050).**

#### **3.1.1 Consider adding RCW definition**

The LMC contains a definition of geologically hazardous areas, however the language differs slightly from the RCW definition. The City should consider adding the definition of geologically hazardous areas consistent with RCW 36.70A.030(9) to the definitions section in 14.165.

#### **3.1.2 Consider adding a section for designation of Mine Hazard Areas**

The LMC does not address volcanic or mine hazard areas. Based on the DNR Geologic Information Portal there are no volcanic vents in the area around Lakewood however there are surface mines within the City limits such as the Miles Sand and Gravel Company. Areas such as this should be addressed in the CAO to address future development of these areas.

### **3.2 Purpose (LMC 14.146.010).**

#### **3.2.1 Consider adding further explanation for areas that are considered geologically hazardous.**

This section specifies geologically hazardous areas to include erosion and landslide hazard areas and seismic hazard areas. The City should consider adding the following language “For purposes of this title, geologically hazardous areas include the following: erosion, landslide and seismic hazard areas, and other hazard areas subject to other geological events such as coal mine hazards and volcanic hazards including mass wasting, debris flow, rock falls, and differential settlement” to align with WAC-190-120.

### **3.3 Designation of erosion and landslide hazard areas (LMC 14.146.020).**

#### **3.3.1 Consider adding further explanation for areas that are considered geologically hazardous.**

The classification criteria included in this section are not complete and lack criteria for landslide hazard areas. This list should be updated consistent with WAC 365-190-120 6.(a-i).

#### **3.3.2 Consider updating map resources**

The LMC contains a list of sources that may be used to delineate geologically hazardous areas. These sources may be out of date and/or other sources that are considered BAS may be available. For example, the Soil Survey of Pierce County Area listed in this section is from 1979.

### **3.4 Designation of seismic hazard areas (LMC 14.146.040).**

#### **3.4.1 General**

The LMC contains a list of areas considered seismic hazard areas, however the language differs slightly from the RCW designation. The City should consider adding the complete list of seismic hazard areas consistent with WAC 365-190-120 (7).

#### **3.4.2 Mapping**

The Lakewood code references two sources for mapping of seismic hazard areas, both of which were published in 2003. The Washington Department of Commerce recommends the following source: [Geologic Hazards and the Environment | WA - DNR](#).

## **4 CRITICAL AQUIFER RECHARGE AREAS – LMC 14.150**

---

Critical Aquifer Recharge Areas (CARA) are defined in Lakewood Municipal Code (LMC 14.150) and designated in LMC 14.150.020. LMC 14.150.040 lists the requirements for hydrogeological assessments when required through the permitting process. The current regulations appear generally consistent with the CARA guidance provided by the Department of Ecology. The following subsections are suggestions for improving the level of aquifer protection and general clarification of regulations to implement the plan.

### **4.1 Consider adding maps of CARAs (LMC 14.150)**

The LMC designates CARAs based on DRASTIC zones seen in the Pierce County Map of Groundwater Pollution Potential and the Clover/Chambers Creek Aquifer Basin boundary, as identified in the Draft Clover/Cambers Creek Basin Ground Water Management Program. However, there are no listed resources for applicants to see if their project site is within a regulated CARA. We recommend either listing resource map links (such as those mentioned in LMC 14.150.020(B)(1) or for the City to consider creating its own CARA map for applicants to utilize as a reference during project development.

### **4.2 Create an inventory of potential contaminant sources (LMC 14.150)**

Aquifer vulnerability analyses based on susceptibility assessments benefit from updated inventories of potential contaminant sources and their pathways. A monitoring well program (resource protection wells) with piezometers above and below the aquitards can provide early detection of changes in groundwater levels or water quality in specific aquifers, as well as long-term monitoring of water level trends and aquifer recharge. An inventory of existing wells in the CARA,

particularly smaller domestic water supply wells, can be used to assess hazards from spills and contamination affecting municipal water supplies. An inventory of existing wells in the CARA can provide information for implementing a well abandonment program to prevent abandoned wells or open casings from causing contamination of groundwater supplies in the future.

## 5 FISH AND WILDLIFE HABITAT AREAS – LMC

### 14.154

Code sections 14.154.010 through 14.154.090 contain provisions that are applicable to all Fish and Wildlife Habitat Areas. The City’s habitat conservation areas regulations require some modifications to align with BAS and to clarify applicability and facilitate ease of use. The following subsections are suggestions for improving the level of Fish and Wildlife Habitat protection and general clarification of regulations to implement the plan.

Table 3. Fish and wildlife habitat areas review summary.

Code Section	Title	Review Comment / Recommendations*
14.154.010-14.154.090	Fish and Wildlife Habitat Areas	<ul style="list-style-type: none"> <li>• Update title of chapter</li> <li>• Update definition in 14.165</li> <li>• Include designation and protection of waters of the State</li> </ul>
14.154.010	Purpose and intent	None
14.154.020	Designation of critical fish and wildlife habitat areas	<ul style="list-style-type: none"> <li>• Provisions of this title apply to both public and private lands</li> <li>• Add identification information consistent with WAC 365-190-030</li> <li>• Update map resources</li> <li>• Update identification consistence with WAC-365-190-130</li> <li>• Include anadromous fisheries</li> </ul>
14.154.030	Habitat protection standards	<ul style="list-style-type: none"> <li>• Add BAS to section B</li> <li>• Expand on the sources and methods of identifying critical fish and wildlife habitat areas</li> </ul>
14.154.040	Title and plat notification	None
14.154.050	Habitat protection for rivers and streams	<ul style="list-style-type: none"> <li>• Update stream protection buffers to ensure consistency with BAS</li> <li>• Add language for “no-net-loss” of ecological function</li> </ul>
14.154.060	Habitat protection for lakes	<ul style="list-style-type: none"> <li>• Update the buffer requirements for lakes that are urban in character</li> </ul>
14.154.070	Habitat protection ponds	<ul style="list-style-type: none"> <li>• Add buffer requirements for naturally occurring ponds under 20-acres in size</li> </ul>

Code Section	Title	Review Comment / Recommendations*
14.154.080	Provisions for priority Oregon white oak trees and woodlands	None
14.154.090	Provisions for fish and wildlife, habitat buffers, where required	None

\* See discussion of comments/recommendations in the subparts below this table.

## 5.1 Fish and Wildlife Habitat Areas (LMC 14.154.010-14.154.090).

### 5.1.1 Update title of chapter

Chapter 14.154 of the LMC is currently titled Fish and Wildlife Habitat Areas, the RCW 36.70A.030(6) references these areas as Fish and Wildlife Habitat Conservation Areas. For clarity, the City could consider revising the chapter title and applicable language throughout the chapter to be consistent with the title “Fish and Wildlife Habitat Conservation Areas”.

### 5.1.2 Update definition in 14.165

Concurrently with the update suggested in 5.1.1, we recommend updating the definition for “Fish and Wildlife Habitat Areas” in Section 14.165 to be consistent.

### 5.1.3 Include designation and protection of waters of the State

RCW 90.48.020 defines waters of the State, which include all surface waters, salt waters, groundwater, and all other water courses in Washington. Per WAC 365-190-1300(2) all waters of the state should be designated as fish and wildlife habitat conservation areas. The City should add a definition for “waters of the state” as well as designating them under this chapter.

## 5.2 Designation of critical fish and wildlife habitat areas (LMC 14.154.020).

### 5.2.1 Provisions of this title apply to both public and private lands

Chapter 14.154 currently states that this chapter applies to proposed regulated activities within critical fish and wildlife habitat areas. For the purpose of adding clarity to the document it is recommended that the City add language stating that this chapter applies to proposed regulated activities within critical fish and wildlife habitat areas *on all public and private lands*.

### **5.2.2 Add identification information consistent with WAC 365-190-030**

Section A of this chapter includes areas currently identified as critical fish and wildlife species and habitats are referenced by CFR and WAC sections. Language stating “and which, if altered, may reduce the likelihood that the species will ~~maintain and reproduce~~ *persist* over the long term” should be retained.

### **5.2.3 Update map resources**

The LMC references four resources for information on critical fish and wildlife habitat areas. This section lists both the Washington Department of Wildlife and the Washington Department of Fisheries. This section should be updated with the BAS as well as updating these two departments to the single entity of the Washington Department of Fish and Wildlife.

### **5.2.4 Update identification consistence with WAC-365-190-130**

Section B of this chapter should expand on the sources and methods of identifying critical fish and wildlife habitat areas as outlined in WAC-365-190-130(4)(a-i).

WAC 365-190-130(4)(i) recommends sources and methods for protecting fish and wildlife habitat conservation areas, including salmonid habitat. BAS is available from the US Department of Fish and Wildlife Service, the State Recreation and Conservation Office, and the Puget Sound Partnership and the City should consider recommendations found in the regional and watershed specific salmon recovery plan (Governor's Salmon Recovery Office - Recreation and Conservation Office (wa.gov)).

## **5.3 Habitat Protection Standards (LMC 14.154.030).**

### **5.3.1 Add BAS to Section B**

Section B of this chapter references existing codes and policies, both state and local, that are used to implement Habitat Protection Standards. This list should include BAS as set forth in RCW 36.70A.172. in addition to the WDFW's Priority Habitat and Species webpage ([Priority Habitats and Species \(PHS\) | Washington Department of Fish & Wildlife](#)) as required by WAC 365-190-130 (4).

### **5.3.2 Expand on the sources and methods of identifying critical fish and wildlife habitat areas**

The City should consider listing publicly available resources to help applicants identify critical fish and wildlife habitat areas. At minimum the City should list the WDFW's Priority Habitat and Species webpage ([Priority Habitats and Species \(PHS\) | Washington Department of Fish & Wildlife](#)) as required by WAC 365-190-130 (4).

## **5.4 Habitat protection for rivers and streams (LMC 14.154.050).**

### **5.4.1 Update stream protection buffers to ensure consistency with BAS**

The current standards set forth in 14.154.050 for river and stream buffers have not been updated since 2015 (Ordinance No. 630). In 2020, the Washington Department of Fish and Wildlife (WDFW) came out with new guidance (Rentz et al. 2020) for protection of riparian areas that heavily emphasizes a shift in terminology from the concept of “stream buffers” to “riparian management zones” (RMZs). An RMZ is defined as “...a scientifically based description of the area adjacent to rivers and streams that has the potential to provide full function based on the SPTH [site potential tree height] conceptual framework.” This differs from the use of “buffer(s),” as an RMZ is by definition wide enough to potentially provide full riparian function. Stream buffers are established through policy decisions and are clearly intended to protect streams but may or may not be intended to provide full riparian function or a close approximation of it. The guidance recommends that a RMZ be delineated on a site-specific basis and be measured from the outer channel migration zone.

The City could consider requiring site specific RMZs, rather than set buffer widths. However, this approach is difficult to implement, and many jurisdictions are choosing to continue with set buffer widths, while taking into consideration the range of widths that the custom RMZ mapping would produce. The 200-foot set buffer width currently recommended for Type F streams is on the larger end of what is seen in many jurisdictions and should be adequate to protect most stream and stream buffer function.

### **5.4.2 Add language for “no-net-loss” of ecological function**

Section D of this chapter currently states that “new development shall not reduce the effective flood storage volume of the regulatory floodplain”. The current recommended language states that there shall be “no-net-loss of ecologic function”. This language should be added to this section per WAC 365-196-830(4).

## **5.5 Habitat protection for lakes (LMC 14.154.060).**

### **5.5.1 Regulated activities**

Regulated activities proposed on lakes that are urban in nature are currently exempt from buffering requirements of this chapter. However, the lakes in the City of Lakewood fall under the jurisdiction of the Shoreline Master Program. We recommend adding a clarifying statement to this section such as:

*All activities within 200 ft. of regulated shorelines are subject to the regulations in the Shoreline Master Program (SMP). Applicants should consult the Lakewood SMP for setback/buffer requirements.*

## 5.6 Habitat protection for ponds (LMC 14.154.070).

### 5.6.1 Regulated activities

Naturally occurring ponds under 20-acres and their submerged aquatic beds that provide fish or wildlife habitat are considered Fish and Wildlife Habitat Conservation Areas per WAC 365-190-130. The state code also states that “naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farmponds, temporary construction ponds (of less than three years duration) and landscape amenities. However, naturally occurring ponds may include those artificial ponds intentionally created from dry areas in order to mitigate conversion of ponds, if permitted by a regulatory authority.” It is recommended that the City update this section to provide clear buffer requirements for ponds under 20-acres in size.

# 6 FLOOD HAZARD AREAS – LMC 14.158

The existing Code includes restrictions on development within floodplains, which are outlined in LMC 18A.50 – Article 1. Flood Hazard Overlay (FHO). Existing regulations could be enhanced by providing specific critical area special study and/or habitat assessment requirements as detailed below.

Table 4. Flood hazard areas review summary

Code Section	Title	Review Comment / Recommendations*
14.158.010 - 14.158.030	Flood Hazard Areas	<ul style="list-style-type: none"> <li>• Consider revising chapter title to “frequently flooded areas”, consistent with GMA language</li> <li>• Specific critical area report requirements for floodplains not included—consider including</li> <li>• Require a habitat assessment (FEMA Biological Opinion process) for development in the floodway or floodplain</li> </ul>
14.158.010	Purpose	Consider updating this section to be consistent with referenced LMC 18A.50 (Article 1)
14.158.020	Designation	Consider adding links to FEMA resource maps
14.158.030	Protection	None

## **6.1 Flood Hazard Areas (LMC 14.158.010-14.158.030)**

### **6.1.1 Consider revising chapter title to “frequently flooded areas”**

RCW 36.70A.030 defines the five types of critical areas which are required to be protected, including “frequently flooded areas”. “Frequently flooded areas” are lands in the floodplain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater (WAC 365-190-030). Section 14.158.020 of the Flood Hazard Areas chapter specifies that the chapter applies to all “areas of special flood hazard”. A “Flood Hazard areas” definition is included in 14.165, which we recommend be updated to be consistent with the GMA definition in WAC 365-190-030. For clarity, the City could consider revising the chapter title and applicable language throughout the chapter to be consistent with the “frequently flooded area” term.

### **6.1.2 Consider including critical area report requirements for frequently flooded areas**

The Flood Hazard Area chapter does not have a critical area report section specifying requirements for a critical area report specific to frequently flooded areas, nor does the linked Overlay District chapter (LMC 18A.50 – Article 1). The City should consider adding specific requirements for a floodplain critical area report or study to ensure no-net-loss of floodplain function.

### **6.1.3 Require a habitat assessment (FEMA BiOp process) for development in the floodway or floodplain**

As a result of the 2008 National Marine Fisheries Service (NMFS) Biological Opinion (BiOp) on the implementation of the National Flood Insurance Program (NFIP) in the Puget Sound region, the City is required to adopt one of the three following approaches (or “doors”) to managing development within the floodplain:

1. Adopt the model ordinance;
2. Develop floodplain regulations that protect floodplain functions on a programmatic basis; or
3. Require the completion of a floodplain habitat assessment for any development within the floodplain. Habitat assessments must evaluate impacts to stormwater, floodplain capacity, and vegetative habitat.

It is our understanding that the City has not adopted the model ordinance (Door 1) nor has customized floodplain regulations that have been reviewed and approved by FEMA (Door 2), therefore Door 3 is the default requirement. Door 1, the model ordinance, would likely represent the most conservative



approach to protecting floodplain functions, but it also would also be expected to be the most restrictive option in terms of future development and provide the least flexibility in implementation. Door 2 allows local jurisdictions to establish regulations that recognize local conditions and may incorporate programs that enhance floodplain functions into the evaluation of how floodplain functions are maintained. However, FEMA must approve any Door 2 approach before it is implemented. The timing to get approval for Door 2 depends on the approach and detail in the application submittal. If Door 3 is the desired approach, a regulation should be added to this section specifying when a habitat assessment is required and the minimum content requirements.

## **6.2 Purpose**

### **6.2.1 Consider updating section to be consistent with referenced LMC 18A.50 (Article 1)**

The protection standards for “flood hazard areas” are listed via the City’s Cite Development Regulations and Chapter 18A.50 of the LMC (Article 1). These standards list the purpose of that section, which mirrors the purpose listed in this section. For consistency as well as highlighting the importance of maintaining no-net-loss standards (pursuant to WAC 365-196-830), recommend updating this section to match LMC 18A.50.010(A)-(L).

## **6.3 Designation**

### **6.3.1 Consider adding links to FEMA resource maps**

The designation of flood hazard areas is identified by the Federal Insurance Administration in a report entitled “The Flood Insurance Study for Pierce County and Incorporated Areas” dated March 7, 2017. We understand that the City will update the designated flood hazard areas upon receiving revisions to this report, however we recommend referencing the FEMA floodplain map as an additional resource. The FEMA online floodplain map is updated regularly and is considered a resource for incorporating best available science into local regulations.

# **7 WETLANDS AREAS – LMC 14.162**

---

The wetland sections are extensive, but they could be updated to be consistent with BAS related to habitat score ranges, buffer functionality and mitigation sequencing.

Table 5. Wetlands areas review summary

Code Section	Title	Review Comment / Recommendations*
14.162.070	Delineation, and wetland analysis requirements	<ul style="list-style-type: none"> <li>• Update Critical Areas Atlas to include BAS resources</li> <li>• Consider establishing a requirement for a qualified wetland professional to complete any needed wetland report</li> <li>• Consider listing requirements of a wetland analysis report</li> </ul>
14.152-080	Protection standards – Establishing buffers	<ul style="list-style-type: none"> <li>• Update habitat score ranges to reflect Ecology recommendations</li> <li>• Consider adding provision to end buffer where there is a functional disconnection</li> <li>• Protection of wetland buffer widths</li> </ul>
14.162.100	Mitigation	<ol style="list-style-type: none"> <li>1. Update mitigation ratio table to reflect Ecology recommendations</li> <li>2. Add additional information for required mitigation steps</li> <li>3. Add requirement for monitoring when a project requires on-site mitigation</li> </ol>

## 7.1 Delineation, and Wetland Analysis Requirements (LMC 14.162.070)

### 7.1.1 Update Critical Areas Atlas to include BAS resources

The LMC Code 14.162.070(A) refers to a Critical Area Atlas which is a City Wetland Inventory map which provides an indication of where potential wetlands are located within the county. This resource does not include the source of its information; therefore it is unknown if it is incorporating BAS as a part of its designation. We recommend either 1) listing resources utilized to create the Critical Areas Atlas and how often it is updated with assurances that BAS is used during the review process; or 2) switching to listed public resources which use BAS and are updating frequently (for example the National Wetland Inventory, Web Soil Survey, WDFW PHS, etc).

### 7.1.2 Consider establishing a requirement for a qualified wetland professional to complete any needed wetland report

When a wetland analysis report is required by the Department, we recommend listing a requirement which states that such reports must be completed by a qualified professional. Wetlands are complex ecosystems, and to be delineated/classified accurately requires extensive training and experience. The City can refer to the Pierce County approved consultant list or outline specific requirements for certifications and experience.

### 7.1.3 Consider listing requirements for a wetland analysis report

The City currently has two wetland reports listed in LMC 14.165 – Wetland Verification Report and Wetland Analysis Report. However, neither section lists the requirements for said reports. The City should consider outlining requirements for each report, including (but not limited to) wetland delineation and rating documentation required by the methods referenced in 14.162.020 and 14.162.030, specifically wetland data sheets, and Ecology 2014 rating form(s) and figures.

## 7.2 Protection Standards – Establishing Buffers (LMC 14.152-080)

### 7.2.1 Update habitat score ranges to reflect Ecology recommendations

Effective wetland buffer widths vary depending on the targeted wetland functions, intensity of surrounding land use, and buffer characteristics. The Code’s existing buffer widths are based on wetland category and habitat score. In July of 2018 Ecology released updated guidance modifying the habitat ranges in their wetland buffer tables (Granger, 2018). In previous Ecology wetland buffer tables, low habitat function was represented by a habitat score of 3 or 4 points and moderate habitat function by a score of 5 to 7 points. The new guidance re-categorizes a habitat score of 5 as part of the low category. Using the Code’s existing buffer system, this change would result in a reduction in the buffer width for wetlands with a habitat score of 5. Therefore, the habitat score ranges and buffer widths used in the current buffer system must be updated to match the revised Ecology guidance. The buffer width table in the current Code, updated to reflect the July 2018 Ecology guidance, is shown below.

Table 6. Current wetland buffer table, updated with July 2018 Ecology changes. Existing buffer widths included in ( ) for comparison.

Wetland Category <sup>1</sup>	Buffer Width according to Habitat Score <sup>1</sup>			
	(3-4) 3-5 points	(5 points)	6-7 points	8-9 points
Category I: Based on total score	75 ft	(105 ft)	(165 ft) 110 ft	(225 ft) 225 ft
Category I: Bogs and wetlands with a High Conservation Value	190 ft			225 ft
Category I: Coastal lagoons	(150 ft)	(165 ft)		(225 ft) 225 ft
	150 ft (buffer with not based on habitat scores)			
Category I: Interdunal	(225 ft)			(225 ft) 225 ft
	225 ft (buffer width not based on habitat scores)			

Wetland Category <sup>1</sup>	Buffer Width according to Habitat Score <sup>1</sup>			
	(3-4) 3-5 points	(5 points)	6-7 points	8-9 points
Category I: Forested	(75 ft) 75 ft	(105 ft)	(165 ft) 225 ft	(225 ft) 225 ft
Category I: Estuarine	150 ft (buffer with not based on habitat scores)			
Category II: Based on score	75 ft	(105 ft)	(165 ft) 165 ft	(225ft) 225 ft
Category II: Interdunal wetlands	(110 ft) 110 ft (buffer width not based on habitat scores)		(165 ft)	(225 ft) 225 ft
Category II: Estuarine	110 ft (buffer width not based on habitat scores)			
Category III (all)	(60 ft) 60 ft	(105 ft)	(165 ft) 225 ft	(225 ft) 225 ft
Category IV	40 ft			

The current buffer system, when updated to reflect the change in habitat score ranges, will be aligned with BAS. The current code also mandates that for any project that does not employ the mitigation measures listed in table 14.2, a 33% buffer width increase will be required. This multi-tiered approach helps to ensure no-net-loss of wetland functions.

**7.2.2 Consider adding provision to end buffer where there is a functional disconnection**

Areas that are disconnected from the wetland by a permanent road or other substantially developed surface often do not provide significant buffer function. The City could consider adding a provision that the edge of an improved right-of-way or similar infrastructure of a linear nature shall be considered the extent of the buffer, if the part of the critical area buffer on the other side of the infrastructure provides insignificant function in relation to the part of the buffer adjacent to the wetland, unless the infrastructure can be feasibly removed, relocated or restored to provide buffer functions. Such functional analysis should be included in the critical areas report.

**7.2.3 Reduction of wetland buffer widths**

Current LMC allows for up to a 25% buffer reduction on a case-by-case basis for unique wetland circumstances. However, the current recommended buffer widths provided by Ecology already includes reduced widths than what is normally required, and these widths should not used in conjunction with other reductions. We recommend removing the allowance for up to a 25% buffer reduction. Alternatively, if the City wishes to keep the reduction option in the code, updated buffer widths would be required which would increase each buffer width by 33%.

## 7.3 Mitigation (LMC 14.162.100)

### 7.3.1 Update mitigation ratios to reflect Ecology recommendations

Ecology's recent publication *Wetland Guidance for Critical Areas Ordinance (CAO) Updates* dated October 2022 (Shorelands and Environmental Assistance Program, 2022) outlines additional research for mitigation practices. These updates include new recommended mitigation ratios. We recommend that you update the mitigation ratios located in LMC 14.162.100 (B)(3) to reflect Ecology's recommended ratios. The mitigation ratio table in the current Code, updated with Ecology's 2022 guidance is shown below.

Table 7. Current wetland mitigation ratio, updated with 2022 Ecology guidance

Category and Type of Wetland	Creation or Reestablishment	Rehabilitation	Preservation	Enhancement
Category I: Mature forested	6:1	12:1	24:1	16:1
Category I: Based on functions	4:1	8:1	16:1	16:1
Category II	3:1	6:1	12:1	12:1
Category III	2:1	4:1	8:1	8:1
Category IV	1.5:1	3:1	6:1	6:1

#### 4. Add additional information for required mitigation steps

### 7.3.2 Add additional information for required mitigation steps.

Ecology's recent publication *Wetland Guidance for Critical Areas Ordinance (CAO) Updates* dated October 2022 outlines recommended mitigation steps to ensure a thorough approach to no net loss for development projects. We recommend that you expand on the existing code language and incorporate the following language into the mitigation section of the LMC.

#### 14.162.100 – Mitigation

(A) Mitigation Sequencing. Before being authorized to impact any wetland or its buffer, an applicant must demonstrate that they have implemented mitigation in the following order.

1. Avoid impacts altogether by not taking certain action or parts of an action.
2. Minimize impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.
3. Rectify impacts by repairing, rehabilitating, or restoring the affected environment.
4. Reduce or eliminate impacts over time by preservation and maintenance operations.

5. Compensate for impacts by replacing, enhancing, or providing substitute resources or environments.
6. Monitor required compensation and take remedial or corrective measures when necessary.

(C) Methods of Compensatory Mitigation. Mitigation for wetland and buffer impacts shall rely on a method listed below in order of preference. A lower-preference form of mitigation shall be used only if the applicant's qualified wetland professional demonstrates to the [Administrator]'s satisfaction that all higher-ranked types of mitigation are not viable, consistent with the criteria in this Section.

1. Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions and environmental processes to a former or degraded wetland. Restoration is divided into two categories:
  - a. Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions and environmental processes to a former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland area and functions. Example activities could include removing fill, plugging ditches, or breaking drain tiles to restore a wetland hydroperiod, which in turn will lead to restoring wetland biotic communities and environmental processes.
  - b. Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions and environmental processes to a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland area. The area already meets wetland criteria, but hydrological processes have been altered. Rehabilitation involves restoring historic hydrologic processes. Example activities could involve breaching a dike to reconnect wetlands to a floodplain or return tidal influence to a wetland.
2. Establishment (Creation): The manipulation of the physical, chemical, or biological characteristics of a site to develop a wetland on an upland where a wetland did not previously exist at an upland site. Establishment results in a gain in wetland area and functions. An example activity could involve excavation of upland soils to elevations that will produce a wetland hydroperiod and hydric soils by intercepting groundwater, and in turn supports the growth of hydrophytic plant species.

- a. If a site is not available for wetland restoration to compensate for expected wetland and/or buffer impacts, the [Administrator] may authorize establishment of a wetland and buffer upon demonstration by the applicant's qualified wetland professional that:
  - i. The hydrology and soil conditions at the proposed mitigation site are conducive for sustaining the proposed wetland and that establishment of a wetland at the site will not likely cause hydrologic problems elsewhere;
  - ii. Adjacent land uses and site conditions do not jeopardize the viability of the proposed wetland and buffer (e.g., due to the presence of invasive plants or noxious weeds, stormwater runoff, noise, light, or other impacts); and
  - iii. The proposed wetland and buffer will eventually be self-sustaining with little or no long-term maintenance.
  - iv. The proposed wetland would not be established at the cost of another high-functioning habitat (i.e., ecologically important uplands).
3. Preservation (Protection/Maintenance). The removal of a threat to, or preventing the decline of, wetlands by an action in or near those wetlands. This term includes activities commonly associated with the protection and maintenance of wetlands through the implementation of appropriate legal and physical mechanisms such as recording conservation easements and providing structural protection like fences and signs. Preservation does not result in a gain of aquatic resource area or functions but may result in a gain in functions over the long term. Preservation of a wetland and associated buffer can be used only if:
  - a. The [Administrator] determines that the proposed preservation is the best mitigation option;
  - b. The proposed preservation site is under threat of undesirable ecological change due to permitted, planned, or likely actions that will not be adequately mitigated under existing regulations;
  - c. The area proposed for preservation is of high quality or critical for the health and ecological sustainability of the watershed or sub-basin. Some of the following features may be indicative of high-quality sites:
    - i. Category I or II wetland rating.
    - ii. Rare or irreplaceable wetland type [e.g, peatlands, mature forested wetland, estuaries, vernal pools, alkali wetlands]

- or aquatic habitat that is rare or a limited resource in the area.
- iii. The presence of habitat for threatened or endangered species (state, federal, or both).
  - iv. Provides biological and/or hydrological connectivity to other habitats.
  - v. Priority sites identified in an adopted watershed plan
- c. Permanent preservation of the wetland and buffer shall be provided through a legal mechanism such as a conservation easement or tract held by an appropriate natural land resource manager/land trust.
  - d. The [Administrator] may approve another legal and administrative mechanism in lieu of a conservation easement if it is determined to be adequate to protect the site.
4. Enhancement. The manipulation of the physical, chemical, or biological characteristics of a wetland to heighten, intensify, or improve specific wetland function(s). Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in the gain of selected wetland function(s) but may also lead to a decline in other wetland function(s). Enhancement does not result in a gain in wetland area. Enhancement activities could include planting vegetation, controlling non-native or invasive species, and modifying site elevations to alter hydroperiods in existing wetlands.

Applicants proposing to enhance wetlands and/or associated buffers shall demonstrate how the proposed enhancement will increase the wetland and/or buffer functions, how this increase in function will adequately compensate for the impacts, and how existing wetland functions at the mitigation site will be protected.

5. Alternative Types of Mitigation/Resource Tradeoffs. The [Administrator] may approve alternative mitigation proposals that are based on best available science, such as priority restoration plans that achieve restoration goals identified in the SMP. Alternative mitigation proposals shall provide an equivalent or better level of ecological functions and values than would be provided by standard mitigation approaches. Alternative mitigation approaches shall comply with all reporting, monitoring, and performance measures of this Section including adherence to mitigation sequencing. The [City/County] may consult with agencies with expertise and jurisdiction over the critical areas during the review to assist with analysis and identification of appropriate performance measures that adequately safeguard critical



areas. The [Administrator] will consider the following for approval of an alternative mitigation proposal:

- a. Clear identification of how an alternative approach will achieve equal or better ecological benefit.
- b. The proposal uses a watershed approach consistent with Selecting Wetland Mitigation Sites Using a Watershed Approach [Western Washington or Eastern Washington (Ecology Publication #09-06-32 or Publication #10-06-007), or as revised].
- c. All impacts are identified, evaluated, and mitigated.
- d. Methods to demonstrate ecological success are clear and measurable.

(D) Location of Compensatory Mitigation. Permittee-responsible compensatory mitigation actions shall be conducted using a watershed approach and shall generally occur within the same sub-drainage basin. However, when the applicant can demonstrate that a mitigation site in a different sub-drainage basin is ecologically preferable, it should be used.

The following criteria will be evaluated when determining whether on-site or offsite compensatory mitigation is ecologically preferable. When considering the location of mitigation, preference should be given to using programmatic approaches, such as a mitigation bank or an ILF program.

1. No reasonable opportunities exist on site or within the sub-drainage basin or opportunities on site or within the sub-drainage basin do not have a high likelihood of success based on a determination of the capability of the site to compensate for the impacts. Considerations should include anticipated replacement ratios for wetland mitigation, buffer conditions and required widths, available water to maintain anticipated hydrogeomorphic class(es) of wetlands when restored, proposed flood storage capacity, and potential to mitigate riparian fish and wildlife impacts (such as connectivity);
2. On-site mitigation would require elimination of high-quality upland habitat;
3. Off-site mitigation has a greater likelihood of providing equal or improved wetland functions compared to the altered wetland.
4. Off-site locations shall be in the same sub-drainage basin unless:
  - a. Watershed goals for water quality, flood storage or conveyance, habitat, or other wetland functions have been established by the [City/County] and strongly justify locating mitigation at another site;

- b. Credits from a state-certified wetland mitigation bank are used as compensation, and the use of credits is consistent with the terms of the certified bank instrument;
  - c. Fees are paid to an approved ILF program to compensate for the impacts.
5. The design for the compensatory mitigation project needs to be appropriate for its position in the landscape. Therefore, compensatory mitigation should not result in the creation, restoration, or enhancement of an atypical wetland.

(D) Timing of Compensatory Mitigation. It is preferred that compensatory mitigation projects be completed prior to activities that will impact wetlands. At the least, compensatory mitigation shall be completed immediately following wetland impacts and prior to use or occupancy of the action or development. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and flora.

1. The [Administrator] may authorize a one-time temporary delay in completing construction or installation of the compensatory mitigation when the applicant provides a written explanation from a qualified wetland professional as to the rationale for the delay. An appropriate rationale would include identification of the environmental conditions that could produce a high probability of failure or significant construction difficulties. For example, a project delay that creates conflicts with other regulatory requirements (fisheries, wildlife, stormwater, etc.) or installing plants should be delayed until the dormant season to ensure greater survival of installed materials. The delay shall not create or perpetuate hazardous conditions or environmental damage or degradation, and the delay shall not be injurious to the health, safety, or general welfare of the public. The request for the delay shall include a written justification that documents the environmental constraints that preclude timely implementation of the compensatory mitigation plan. The justification will be verified by the [City/County] who will issue a formal decision.

(E) Monitoring. Mitigation monitoring shall be required for a period necessary to establish that performance standards have been met, but not for a period less than five years. If a scrub-shrub or forested vegetation community is proposed, monitoring may be required for ten years or more. The mitigation plan shall include monitoring elements that ensure success for the wetland and buffer functions. If the mitigation goals are not attained within the initially established monitoring period, the applicant remains responsible for managing the mitigation project until the goals of the mitigation plan are achieved.

## 8 REFERENCES

---

- DNR (Washington Department of Natural Resources). (2023). Geologic Information Portal. Retrieved from DNR: <https://www.dnr.wa.gov/geologyportal>
- Granger, T. H. (2018). *Wetlands in Washington State, Volume 2 - Guidance for Protecting and Managing Wetlands (used with modified Appendix-C, 2018)*. Olympia: Washington State Ecology Publication No. 05-06-008.
- Lakewood, C. o. (2023). *City of Lakewood Legislative History: Ordinance 718*. Retrieved from City of Lakewood:  
<https://lakewood.municipal.codes/enactments?page=2&type=Ord>
- Rentz, R. A. (2020). *Riparian Ecosystems, Volume 2: Management Recommendations*. Olympia: Habitat Program, Washington Department of Fish and Wildlife.
- Shorelands and Environmental Assistance Program. (2022). *Wetland Guidance for Critical Areas Ordinance (CAO) Updates - Western and Eastern Washington*. Olympia: Department of Ecology Publication #22-06-014.

## **E. FACET NW, Inc., Stream Buffer Memo**

**TECHNICAL MEMORANDUM**

---

Date:	August 2, 2024
To:	City of Lakewood, Planning and Public Works
Cc:	Tiffany Speir, Planning Division Manager
From:	Laura Jones, Environmental Planner Dan Nickel, Principal of Planning
Project Name:	Lakewood SMP 2024

---

## Stream Buffers Assessment

### Purpose of Memorandum

In accordance with the Washington State Growth Management Act (GMA), the purpose of this memorandum is to briefly review the applicable Best Available Science (BAS) related to stream buffers and consider recommended changes to the Lakewood Municipal Code (LMC) Title 14: Environmental Protection for the protection of riparian ecosystems. Specifically, this review evaluates the Washington Department of Fish and Wildlife (WDFW) Riparian Management Zone (RMZ) guidance and provides a technical analysis of existing buffers. Further, this technical memorandum is intended to provide an overview of the WDFW RMZ guidance, recommend updates to the Title 14.154.050: Habitat Protection of Rivers and Streams, and document how proposed changes comply with state law (WAC 365-195-915(1)(c)) which requires that when departures from the best available science are made in policies and regulations, scientifically based, reasoned justifications should be provided in the record.

This memo does not review WDFW guidance as it pertains to the Lakewood Shoreline Master Program (SMP), governed by the Shoreline Management Act (Chapter 90.58 RCW). Any locally initiated SMP amendment to update critical area protections within the shoreline jurisdiction will be evaluated separately and consistent with Washington State Department of Ecology procedural guidance.

The City's objective is to be consistent with state laws to ensure no net loss of critical areas functions and values while balancing all state law requirements by identifying a practical and predictable approach to application review of critical area requirements in LMC Title 14.

### *Executive Summary:*

WDFW Guidance recommends that a Riparian Management Zone (RMZ) width (i.e. stream buffer) be set at a minimum distance of 100 feet, to achieve 95% or more removal efficacy of phosphorous, sediment, and most pesticides, and an 80% removal efficacy for nitrogen (Rentz et al. 2020).

Additionally, as demonstrated in Figure 1. *FEMAT Curves*, cumulative effectiveness may be achieved at roughly 75% Site Potential Tree Height (SPTH<sub>200</sub>). The proposed City of Lakewood buffers shown in Table 2 meet the minimum 100-foot width recommendation for Type Np and Ns streams and 75% SPTH<sub>200</sub> for Type F streams. These dimensions should achieve 95% removal of phosphorous, sediment, and most pesticides, and an 80% removal efficacy for nitrogen.

In an analysis of riparian zone ordinances, Wenger and Fowler (2000) support using approaches that allow some flexibility in how policies are implemented on a parcel scale. Whereas variable-width policies provide greater flexibility and adaptability to address site-specific conditions, it is noted that fixed buffer widths are more easily established, require a lesser degree of scientific knowledge to implement, and generally require less time and money to administer (Castelle, 1998). Thus, although stream and riparian conservation measures should be based on BAS, some level of policy interpretation must be made by a local jurisdiction.

The proposed fixed-width buffers will meet or exceed the WDFW SPTH<sub>200</sub> buffers along Chambers Creek and Flett Creek along the northern City limits as well as other small sections of other streams. This should provide enhanced protection of these streams and ensure no net loss of critical habitat or ecological function.

Other streams such as Clover Creek, Ponce De Leon Creek, and sections of stream near Wards Lake are proposed to have a smaller buffer than WDFW's SPTH<sub>200</sub> RMZ model. This should not have a negative impact or result in a net loss of ecological function from the existing condition as these areas of the City are already built out and there is little land available for development. The areas around Lake Louise, Ponce De Leon Creek, and Clover Creek consist primarily of residential uses and utilizing the SPTH<sub>200</sub> RMZ model would likely have little to no benefit over the use of fixed buffers as these areas are already built out. Regulations focused on redevelopment and enhancement of existing buffer conditions may have a higher likelihood to improve riparian ecological functions in the City of Lakewood.

## Regulatory Framework

The Growth Management Act (GMA) requires counties and cities to designate critical areas and adopt policies and regulations for the protection under RCW 36.70A.040 and Washington Administrative Code (WAC) 365-196-830. WAC 365-196-830(2) requires critical areas and ecosystems protection including Fish and Wildlife Habitat Conservation Areas (FWHCA).

Further, RCW 36.70A.172 requires that "*in designating and protecting critical areas under this chapter, counties and cities shall include the best available science in developing policies and development regulations to protect the functions and values of critical areas.*"

Current BAS from WDFW is summarized in the publication, *Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications* (Quinn et al. 2020) with WDFW implementation guidance summarized in the publication, *Riparian Ecosystems, Volume 2: Management Recommendations* (Rentz et al. 2020). To assist in the implementation of the updated guidance, WDFW also released a Riparian

Management Zone Checklist for Critical Areas Ordinances in April 2023 with an addendum in August 2023. The RMZ checklist is intended to be a voluntary technical assistance tool that is supplemented with the Department of Commerce’s CAO Checklist.<sup>1</sup>

WDFW Riparian Ecosystems Volume 2: Management Recommendations (Rentz et al. 2020) states, *“Local governments are encouraged to use information provided through PHS to guide critical area ordinance (CAO) updates and other land use policies, plans, or regulations. More specifically, WDFW advises using the information in this PHS Riparian Volume 2 for designating riparian areas as Fish and Wildlife Habitat Conservation Areas (FWHCAs) and protecting them for their inherent value, rather than just as buffers for rivers and streams. This is because riparian areas are so important for helping sustain endangered, threatened, and sensitive species; providing habitat connectivity for both aquatic and terrestrial wildlife; and for their critical role in protecting salmonid habitat (WAC 365-190-130).”* As current BAS, WDFW’s Volume 1 document must be considered when developing policies and regulations to protect critical area functions and values consistent with criteria under (WAC 365-195-915).

Further, the broader goals of the GMA must also be considered. The GMA includes 13 goals under RCW 36.70A.020 including the topics of urban growth, reduce sprawl, transportation, housing, economic development, property rights, permits, natural resource industries, open space and recreation, environment, citizen participation and coordination, public facilities, and services, as well as historic preservation. In 2023 through HB 1181, the state legislature expanded the GMA goals to 15 by including climate change and resiliency, and shorelines of the state. RCW 36.70A.040 notes GMA’s planning goals are not listed in order of priority and shall be used exclusively for the purpose of guiding the development of comprehensive plans, development regulations and regional planning.

## WDFW Guidance & Riparian BAS Review

### Overview

A Riparian Management Zone (RMZ) is a scientifically based description of the area adjacent to rivers and streams that has the potential to provide full function based on the Site Potential Tree Height (SPTH) (Rentz et. al 2020). RMZ is another term for a stream and its protective buffer. WDFW guidance recommends characterizing RMZs as delineable, regulatory critical areas and designating them as FWHCAs. The guidance recommends jurisdictions incorporate the following into their CAO (Rentz et al. 2020):

- Watershed-scale management considerations;
- Specific guidance for how to delineate a RMZ;
- Include Channel Migration Zones (CMZs) in the delineation of a RMZ;
- Establish a monitoring and adaptative management framework; and
- Consider the needs of relevant terrestrial species.

---

<sup>1</sup> [Washington Department of Commerce Growth Management Critical Areas](#) dated December 2022.

In the delineation of a RMZ, WDFW has prepared a SPTH<sub>200</sub> model to establish RMZ widths based on conditions, using soil types. The SPTH<sub>200</sub> of an area is defined as “...the average maximum height of the tallest dominant trees (200 years or more) for a given site class.” (Rentz et al. 2020, as defined by FEMAT, 1993 p. V-34). The SPTH<sub>200</sub> model is supported by WDFW’s GIS-based online mapping tool<sup>2</sup> developed to assist in the determination of the SPTH<sub>200</sub> based on specific ecoregions. The WDFW guidance recommends the SPTH<sub>200</sub> model be applied for determining RMZ widths for all streams, regardless of stream type or size. Based on WDFW’s Volume 1, the guidance suggests that there are no significant differences in riparian ecosystem functions along non-fish-bearing streams relative to fish-bearing streams (Rentz et al. 2020). Riparian functions, for all stream types, include support for aquatic and riparian-obligate wildlife; corridors for wildlife movement; inputs of matter and energy that benefit wildlife habitat; connection between riparian vegetation and geomorphic processes; and cool water contributions to downstream reaches (Rentz et al. 2020). As such, maintaining significant riparian ecosystem functions through increased regulatory protections along non-fish bearing streams will also benefit fish-bearing streams. WDFW guidance further notes impacts of climate change in Washington State including increased stream temperatures that are anticipated to further increase with time. Implementation of the guidance is intended to improve climate resiliency and provide increased protection of riparian ecosystems functions and values.

Where the SPTH<sub>200</sub> or the width of the riparian vegetative community is less than 100 feet, WDFW recommends assigning a RMZ minimum width of 100 feet to provide adequate biofiltration and infiltration of runoff for water quality protection from most pollutants and to consider other habitat-related factors. A 100-foot-wide buffer is estimated to achieve 95% overall pollution removal and approximately 85% surface nitrogen removal to protect water quality (Rentz et al. 2020). WDFW also recommends measuring RMZ widths from the outer edge of the channel migration zone, where present, or from the Ordinary High-Water Mark (OHWM) where a channel migration zone is not present.

Additionally, WDFW guidance emphasizes the importance of watershed-scale management to better achieve ecosystem protection and restoration (Rentz et al. 2020). Anthropogenic changes at the watershed-scale can reduce protection of aquatic habitat and riparian ecosystems functions. For example, stormwater inputs from impervious surfaces without mitigation can increase peak stream flows, alter channel form, and can reduce the capacity of riparian areas to remove pollutants (Rentz et al. 2020). Additionally, culverts that block fish passage can reduce stream network connectivity and in turn reduce available habitat. Policies and regulations should consider watershed-scale protection efforts to improve the protection of ecosystem functions and values.

In April 2023, WDFW released a RMZ Checklist to help jurisdictions review regulations for consistency with the RMZ guidance that was recently amended in August 2023. The RMZ Checklist includes consideration of incorporating standards for RMZ delineation, RMZ width based on water quality and SPTH, habitat connectivity and Priority Habitats and Species protections, mitigation sequencing, restoration incentives, and adaptive management. WDFW recommends maintaining the most

---

<sup>2</sup> WDFW RMZ Online Mapping Tool: [Priority Habitats And Species: Riparian Ecosystems and the Online SPTH Map Tool \(arcgis.com\)](https://arcgis.com)



protective provision when regulatory conflicts occur. To support ecosystem functions, WDFW recommends jurisdictions encourage and incentivize riparian restoration that goes 'above and beyond' minimum requirements<sup>3</sup>.

As described in WAC 365-196-380, "Avoidance is the most effective way to protect critical areas. If development regulations allow harm to critical areas, they must require compensatory mitigation of the harm. Development regulations may not allow a net loss of the functions and values of the ecosystem that includes the impacted or lost critical areas." To meet this requirement, the regulations must ensure that no net loss of riparian ecological function is achieved, and that adequate mitigation sequencing is required beginning with avoidance as the first consideration.

### *Buffer Functions & Values*

The intent of critical area policies and regulations are to ensure no net loss of ecological functions and values comply with WAC 365-196-380. This no net loss requirement serves as a benchmark to evaluate BAS and identify gaps by reviewing existing development regulations to determine if updates are needed. The City must also give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries (WAC 365-195-925).

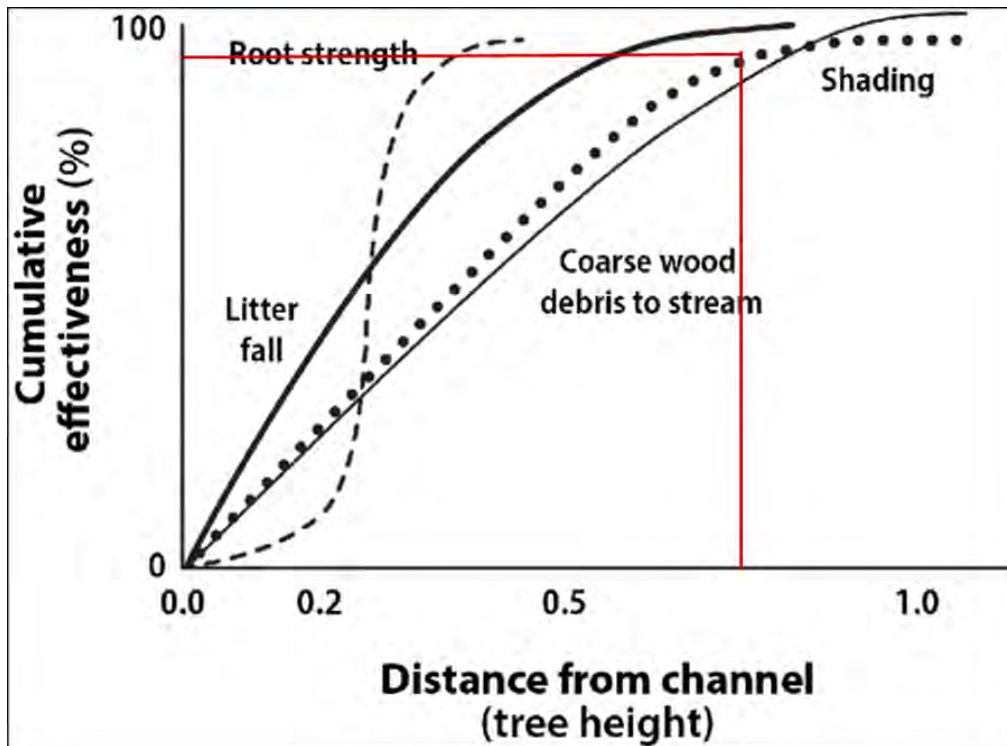
Figure 1 provides a graphical representation of the Forest Ecosystem Management Assessment Team<sup>4</sup> (FEMAT) curves, similar to that included in WDFW's recommendations for establishing the bounds of RMZs (Quinn et al. 2020). The curves show the percentage of full function for riparian habitat attributes with increasing distance from a stream channel. The "FEMAT Curves" are a generalized conceptual model describing contributions of four key riparian ecosystem functions to aquatic ecosystems as the distance from a stream channel increases.

---

<sup>3</sup> Recommendations are included in the [WDFW August 2023 RMZ Checklist Addendum](#)

<sup>4</sup> "In 1993, a group of experts (Forest Ecosystem Management Assessment Team [FEMAT]) was convened to develop a conceptual model to determine how to protect riparian areas in forested landscapes. This model has come to be known as the FEMAT curves (FEMAT 1993). Though this model is over 25 years old, it continues to be one of the most useful conceptual models informing riparian management (Rentz et al. 2020)."

Figure 1. FEMAT Curves



Source: FEMAT 1993

Note: "Tree height" refers to average height of the tallest dominant tree (200 years old or greater), referred to as site potential tree height (SPTH).

Rentz et al. (2020) includes this graphic to justify recommending one full SPTH for the width of a RMZ to attain "full" riparian function. An examination of the graphed habitat functions shown in the red intersection lines demonstrates that most of the four referenced functions level off before reaching one full SPTH from the channel, indicating that cumulative effectiveness may be achieved at roughly 75% SPTH. Exceptions to this include coarse wood recruitment, but only a slight improvement of cumulative effectiveness is shown beyond approximately 0.75 SPTH. Where old-growth conditions no longer exist within a buffer or RMZ, up to 200 years would be needed for this added small percentage of habitat benefit to accrue. Figure 1 indicates that the majority of RMZ function is experienced at 70-80% of SPTH, with only slight, if any, improvements beyond that. Cumulative effectiveness can be achieved with a width of no less than 75% of one full SPTH, as is demonstrated by the FEMAT curves, though arguably, some additional small gains for aquatic habitat would be realized even beyond 100% SPTH.

Overall, the highest rates of return on aquatic habitat function generally occur at and near the streambank and diminish from there with distance. However, it is acknowledged that the FEMAT curves only evaluate four ecological functions for the benefit of aquatic species. The WDFW guidance

references that RMZs can also provide habitat for many terrestrial wildlife species including movement corridors and that regulations should consider their protection, as well as aquatic habitat. Since riparian protections benefit both aquatic and terrestrial wildlife species, concentrating protections around riparian areas may be an efficient use of resources (Rentz et al. (2020)).

To evaluate the range of SPTH that would likely be experienced in Lakewood, a random sampling of SPTH values for each predominate tree species in the region were documented to determine the corresponding range of SPTH based on the WDFW web-based mapping tool. It should be acknowledged that the list below is not an exhaustive evaluation. The following ranges of values were found for the range of SPTH in feet for various dominant forest types, with Douglas-fir being the predominant species and red alder present to a lesser extent, predominately along Chambers Creek and Flett Creek.

Table 1. Range of sample SPTH values in Lakewood

Species	SPTH Range
Douglas-fir	187-196 feet
Red Alder	105 feet

Habitat and wildlife corridor functions are critical for supporting endangered, threatened, and sensitive species. These corridors provide habitat connectivity for aquatic and terrestrial wildlife and serve a critical role in protecting salmonid habitat as described in WAC 365-190-130 and WAC 365-195-925.

WDFW categorizes riparian ecosystems as a Priority Habitat. WDFW's Priority Habitats and Species (PHS) program provides recommended designation maps through an online mapping tool<sup>5</sup> and provides performance standards for FWCA.

Outside of the PHS program, federal protections are also in effect, including the Migratory Bird Treaty Act and the Endangered Species Act (ESA). The ESA provides federal protection for fish, wildlife, and plants that are listed as threatened or endangered species. The ESA also provides methods for adding species to and removing species from the list of threatened and endangered species and prepares and implements plans to aid in their recovery, including the issuance of permits for otherwise prohibited activities.

The WDFW guidance recommends RMZ width be based on the STPH according to site specific conditions, with no less than 100 feet to protect water quality. This 100-foot minimum RMZ width is referenced for the pollution removal function to meet the target of 95% removal for most pollutants. However, there are several variables that impact the overall effectiveness of the riparian area to remove pollutants. Several variables may impact the ability of the RMZ to effectively remove pollutants based on the site-specific conditions, including the type of pollutant, slope, and vegetation structure (Quinn et al. 2020). The WDFW guidance discusses that ecosystem structures and processes responsible for pollutant removal functions of riparian areas are complex, can be spatially and temporally variable, and

<sup>5</sup> [Priority Habitats And Species: Riparian Ecosystems and the Online SPTH Map Tool \(arcgis.com\)](https://www.wdfw.wa.gov/priority-habitats-and-species-riparian-ecosystems-and-the-online-spth-map-tool)

are dependent on site-level environmental conditions (Quinn et al. 2020). As such, the effectiveness of the stream buffers within the City of Lakewood can vary depending on local conditions.

Volume 1 (Quinn et al. 2020) discusses that nearly all research and literature reviews focus on how riparian buffer widths affect pollutant removal efficacy. The primary conclusions include that removal efficacy increases as buffer width increases, topographic slope and vegetation type are strongly correlated with the efficacy of removal, and the relationship between removal efficacy and buffer width is highly variable based on the site conditions (Quinn et al. 2020).

The WDFW Guidance recommends that an RMZ width be set at a minimum distance of 100 feet, to achieve 95% or more removal efficacy of phosphorous, sediment, and most pesticides, and an 80% removal efficacy for nitrogen (Rentz et al. 2020). The guidance emphasizes that the WDFW values nitrogen removal the same as other pollutants, but that literature indicates that the risk of excess nitrogen and efficacy of removal based on the site-specific conditions can be highly variable. To address this, the guidance recommends that in instances where upland uses contribute excess nitrogen, at locations with steep slopes, areas of high land use intensity, or poorly drained soils, increasing the 100-foot minimum pollution removal distance should be considered to provide additional protection of water quality functions (Rentz et al. 2020).

Streams receive surface, subsurface, and groundwater flow inputs. Subsurface and groundwater stream inputs infiltrate the ground prior to discharge. Infiltration is known to provide some pollutant removal through chemical and biological processes, including attachment to soil, microbial degradation, and plant uptake. Some contaminants can move through shallow subsurface soil and groundwater. Pollutant transport rates vary based on site-specific conditions (Quinn et al. 2020).

The state water typing system is described in WAC 222-16-030. The stream types addressed include:

- Type S (Shorelines of the State),
- Type F (Fish bearing streams),
- Type Np (Non-fish perennial streams), and
- Type Ns (Non-fish seasonal streams).

This system is used by many local jurisdictions and state agencies, including WDFW, Washington State Department of Ecology, and Washington Department of Natural Resources (DNR). DNR has prepared water typing maps for the referenced stream types for forested areas of the state based on a multiparameter, field-verified geographic information system (GIS) logistic regression model as described in WAC 222-16-030. The model is used to identify fish habitat by using geomorphic parameters intended to achieve a 95% accuracy in separating fish and non-fish habitat streams. In the case where a stream type is unknown or if there are questions regarding accuracy, field verification is recommended by a qualified consultant or WDFW Habitat Biologist. In the City of Lakewood's 2023 draft CAO update, it was recommended the City incorporate the state's stream typing system.

The recent WDFW guidance suggests shifting away from this typing system and focusing on the SPTH<sub>200</sub> model. However, the state stream typing system will still be utilized for forest practices, determining fish passage culverts/fish presence, as well as federal and other state permitting practices.

Moving away from stream typing all together and transitioning to a soil-based model may cause conflicts. Additionally, eliminating the stream classifications may result in a reduction in standards compared to current conditions for fish bearing streams.

### *WDFW's SPTH<sub>200</sub> Tool Review*

As previously referenced, WDFW's online GIS-based mapping tool provides 200-year SPTH values statewide largely based on ecosystem type. The online tool contains designated SPTH values for forested ecoregions and selected urban areas based on the National Resource Conservation Service (NRCS) soil polygons. However, in areas of dryland ecosystems, the SPTH<sub>200</sub> tool derives a RMZ width based on delineation using three factors including SPTH<sub>200</sub> (if trees are present), the riparian vegetative community, or pollution removal function (WDFW SPTH Tool). There are also areas that have no SPTH<sub>200</sub> values associated with them that must be evaluated at a site-specific level with coordination of a WDFW Habitat Biologist to determine the appropriate RMZ width.

The online tool uses the 200-year site-potential tree height for most species, extrapolated based on soil type. WDFW considers the SPTH as the maximum height attainable within the typical life span for short lived species (maximum age of approximately 100 years).<sup>6</sup>

Challenges encountered when using the WDFW SPTH Mapping Tool include:

- No parcel information.
- NRCS soil data to determine SPTH<sub>200</sub> values are from 1955 and were collected on a regional basis.
- Soil data and associated SPTH information is missing in some areas of the City.
- Channel Migration Zone (CMZ) mapping is integrated.
- Stream data may be less accurate than the other existing GIS databases, particularly for urban areas.
- A single parcel may contain multiple SPTH<sub>200</sub> values, resulting in a variable RMZ widths.
- No implementation guidance is provided to support parcel-specific applications.

The issues above make parcel-specific implementation on a project application basis challenging. A lack of parcel boundaries could lead to interpretation issues or inaccuracies with application to an individual property. The soil data utilized to determine SPTH<sub>200</sub> values is 68 years old and was not conducted for parcel-level accuracy. There are also gaps in soil data in certain areas, resulting in no SPTH<sub>200</sub> provided, and certain soil types do not have an inferred SPTH<sub>200</sub> associated with them. Since the SPTH<sub>200</sub> can vary across a parcel the accuracy of the data is imperative for ensuring state law requirements are met. If the data is inaccurate, lacks precision, or has gaps, this can cause issues with the implementation of RMZ delineations and can lead to variations in effectiveness. The irregular soil class boundaries are also difficult to interpret without an overlay of SPTH<sub>200</sub> values, and additional technical review. These gaps are anticipated to be difficult for landowners and regulatory staff to predict or verify without substantial effort.

---

<sup>6</sup> [Priority Habitats And Species: Riparian Ecosystems and the Online SPTH Map Tool \(arcgis.com\)](#)

The WDFW guidance does not include recommendations for how jurisdictions should address all these issues. Where data gaps occur, users are instructed to contact local WDFW Habitat Biologists to determine the RMZ width based on other site conditions. We anticipate this may result in extended permit review times. Additionally, this may also increase the need for subjective interpretations, and increase resources needed to resolve by both WDFW as well as City permit review and enforcement programs. It's also unclear from the guidance what implementation methods WDFW recommends at a project-by-project level and what methods would be applied in those instances to ensure predictability.

The WDFW SPTH<sub>200</sub> model lacks detailed guidance for application of the online tool or a supporting model ordinance. Without detailed guidance, users and jurisdictions have the potential to interpret the tool differently. For example, along streams with more than one dominant tree species, multiple SPTH<sub>200</sub> widths would apply. In these situations, it may be difficult or confusing to determine which SPTH to apply to determine the regulatory RMZ width. Similarly, when RMZ widths change along the length of a stream due to changes in soil types and associated SPTH<sub>200</sub>, it is unclear how the transition would be administered during the permitting process. It is unclear if the delineation boundary when RMZ widths abruptly change should be extrapolated as a perpendicular line or as an arc from the mapped change. This interpretation could meaningfully alter the RMZ on a property and could be applied inconsistently. The guidance also does not note what to do when the RMZ interacts with wetlands, or floodplains as other regulatory requirements will be triggered. This may cause conflicts or interpretation issues at the application level.

## Discussion and Recommendations for CAO Update

The current CAO references the Shoreline Master Program (SMP) for the identification of stream buffers (including lakes and streams) as listed in SMP Chapter 4, Section C, Table II. These current buffer requirements do not consider the state water typing system described in WAC 222-16-030. While the recent WDFW guidance suggests shifting away from the state water typing system and focusing on the SPTH<sub>200</sub> model, it has been recommended under LMC 14.154.050(B) to incorporate this stream typing system to remain in alignment with forest practices, determining fish passage culverts/fish presence, as well as federal and other state permitting practices.

The current buffers outlined in the SMP range from a minimum of 65' in shoreline residential and urban stream protection designations to 150' for conservancy and natural designations. These existing buffer requirements are not in complete alignment with BAS and guidance from WDFW to use a SPTH model that uses parcel specific conditions. However, in an analysis of riparian zone ordinances, Wenger and Fowler (2000) support using approaches that allow some flexibility in how policies are implemented on a parcel scale. Whereas variable-width policies provide greater flexibility and adaptability to address site-specific conditions, it is noted that fixed buffer widths are more easily established, require a lesser degree of scientific knowledge to implement, and generally require less time and money to administer

(Castelle, 1998). Thus, although stream and riparian conservation measures should be based on BAS, some level of policy interpretation must be made by a local jurisdiction.

If fixed-width buffers are implemented, buffers should be sufficiently wide to ensure that riparian buffers are effective under a range of variable conditions and meet the intent of local regulations. The following fixed-width buffers have been recommended based on existing buffers requirements, existing development, WDFW SPTH<sub>200</sub> recommendations, and adaptability of the City to adopt and regulate these buffers.

Table 2. Standard buffers from ordinary high water mark of the water body (draft regulations to LMC 14.154.050(B)(1))

<b>Water Type</b>	<b>Standard buffer</b>
Type F Waters	150 ft
Type Np Waters	100 ft
Type Ns Waters	100 ft

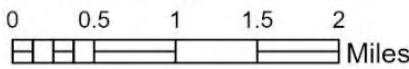
As discussed earlier in this memorandum the WDFW Guidance recommends that an RMZ width be set at a minimum distance of 100 feet, to achieve 95% or more removal efficacy of phosphorous, sediment, and most pesticides, and an 80% removal efficacy for nitrogen (Rentz et al. 2020). Additionally, as demonstrated in Figure 1. *FEMAT Curves*, most of the four referenced functions level off before reaching one full SPTH from the channel, indicating that cumulative effectiveness may be achieved at roughly 75% SPTH. The proposed buffers shown in Table 2 meet the minimum 100-foot width recommendation and 75% SPTH<sub>200</sub> for the tallest Douglas-fir sites. While these buffers are below the recommendations from WDFW they still will achieve 95% removal of phosphorous, sediment, and most pesticides, and an 80% removal efficacy for nitrogen while providing a cumulative effectiveness.

The image below shows an analysis of proposed fixed-width stream buffers versus WDFW SPTH<sub>200</sub> buffer recommendations and stream locations within the City of Lakewood.

Figure 2. Proposed Regulatory Buffer Widths Compared to SPTH<sub>200</sub> RMZ Values



City of Lakewood  
Regulatory buffer widths compared to  
SPTH<sub>200</sub> RMZ values



- Streams with out SPTH Value
- 100 Ft (SPTH)
- 101 - 150 Ft (SPTH)
- 151 - 200 Ft (SPTH)
- 201 - 220 Ft (SPTH)
- 221+ Ft (SPTH)
- Regulatory buffer larger than or equal to SPTH RMZ
- Regulatory buffer less than SPTH RMZ
- City Limits



The proposed fixed-width buffers will meet or exceed the WDFW SPTH<sub>200</sub> buffers along Chambers Creek and Flett Creek along the northern limit as well as other small sections of other streams. This should provide enhanced protection of these streams and ensure no net loss of critical habitat or ecologic function.

Other streams such as Clover Creek, Ponce De Leon Creek, and sections of stream near Wards Lake are proposed to have a smaller buffer than the SPTH<sub>200</sub> RMZ model. This should not have a negative impact or result in a net loss of ecological function from existing conditions as these areas of the City are already built out and there is little land available for development. The areas around Lake Louise, Ponce De Leon Creek, and Clover Creek consist primarily of residential uses and utilizing the SPTH<sub>200</sub> RMZ model would likely have little to no benefit over a fixed buffer approach as these areas are already built out. Regulations focused on redevelopment and enhancement of existing buffer conditions may have a higher likelihood to improve riparian ecological functions.

The below table show the miles of streams within the city and how the proposed fixed-width buffers compare to the WDFW SPHT<sub>200</sub> recommended buffers. **Note, in all cases, the stream buffers presented in Table 2 should provide 95% or more removal efficacy of phosphorous, sediment, and most pesticides, and an 80% removal efficacy for nitrogen for all streams in the City of Lakewood with these minimum stream buffer dimensions.**

Table 3. Length of Streams that Meet or Exceed SPTH<sub>200</sub> RMZ Values.

Type	Miles			Feet		
	Meets or exceeds SPTH <sub>200</sub>	Less than SPTH <sub>200</sub>	Grand Total	Meets or exceeds SPTH <sub>200</sub>	Less than SPTH <sub>200</sub>	Grand Total
F	4.8	4.5	9.3	25,317	23,536	48,853
N	0.2	3.7	3.7	1,117	19,326	20,443
Grand Total	5	8.1	13.1	26,433	42,862	69,295

## Conclusions

This technical memorandum is intended to review and summarize approaches to regulating critical area requirements based on the WDFW RMZ Guidance and BAS. The summary of findings and recommendations include:

### *Recommendation 1:*

- The current Lakewood Municipal Code Title 14 has not adopted the most recent state water typing system.
  - For consistency of application, it is recommended that the existing stream types be updated to the state typing system contained within WAC 222-16-030 and that the stream protections be evaluated to ensure no net loss of ecological function.
- Type S waters should continue to be regulated under the Lakewood Shoreline Master Program (SMP) pursuant to Chapter 90.58.030 RCW as part of Lakewood Municipal Code Title 14

### *Recommendation 2:*

- For increased consistency with the WDFW guidance, and to provide equivalent or greater riparian protections based on existing conditions, it is recommended the City include the proposed riparian protection area widths provided in Table 2 above, proposed in LMC 14.154.050(B)(1).

Recommendation 2 is supported by the following:

- The riparian protection areas vary by stream classification to allow for predictable and consistent implementation at the permit application level.
- Buffers will protect the inherent value of the FWHCAs.
- If harm to critical areas is anticipated, the LMC requires compensatory mitigation of the harm while requiring no net loss of the functions and values of the ecosystem that includes the impacted or lost critical areas.

## References

- Castelle, A.J. & Johnson, A.W. (1998). Riparian vegetation effectiveness. In *Abstracts from the Salmon in the City conference*. Center for Urban Water Resources Management, University of Washington. Quinn, T., G.F. Wilhere, and K.L. Krueger, technical editors. Updated 2020. *Riparian Ecosystems, Volume 1: Science synthesis and management implications*. in W. D. o. F. a. Wildlife, editor., Olympia, WA.
- Rentz, R., A. Windrope, K. Folkerts, and J. Azerrad. 2020. *Riparian Ecosystems, Volume 2: Management Recommendations*. Habitat Program, Washington Department of Fish and Wildlife, Olympia.
- Washington Administrative Code (WAC). *WAC 222-16-010: General Definitions*.  
<https://apps.leg.wa.gov/wac/default.aspx?cite=222-16-010>
- Washington Department of Fish and Wildlife (WDFW). April 2023 (Amended August 2023). *Riparian Management Zone Checklist for Critical Area Ordinances, A Technical Assistance Tool*. (RMZ Checklist). <https://wdfw.wa.gov/sites/default/files/2023-08/rmr-cao-checklistaddendum.pdf>
- Wenger, S.J. and Fowler, L., 2000. Protecting stream and river corridors: creating effective local riparian buffer ordinances. University of Georgia.

## ATTACHMENT F

### **18B.700.720 Master Planned Development – Town Center Incentive Overlay.**

A. *Purpose.* The purpose of a master planned development in the Downtown District Subarea is to provide the developer and the City the opportunity to implement the ~~e~~Downtown ~~p~~Plan in way that could not be achieved through strict application of the standards in this chapter. It also allows for the development of larger, more complex, and multi-phased projects to develop with certainty.

B. *Applicability.* Development within the Town Center Incentive Overlay Downtown Subarea may apply for a master plan for the development of ~~10~~ five (5) or more acres.

**Update all references to the Public Works Engineering Department (PWE) or its Director and the Community & Economic Development Department (CED) or its Director in LMC Titles 14, 16, 17, 18A, 18B, and 18C with references to the Planning & Public Works Department (PPW) or its Director.**

## **F. DSEIS Comments**

**From:** Tiffany Speir <tspeir@cityoflakewood.us>  
**Sent:** Wednesday, August 21, 2024 8:52 PM  
**To:** Lisa Grueter  
**Subject:** FW: Lakewood Comprehensive Plan and Development Regulations (updated): WGS comments

---

Tiffany Speir, Esq., CPM®  
Planning Division Manager  
253.983.7702 | [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)

*Please be advised: All e-mail correspondence sent to and from this e-mail address is subject to the State of Washington's Public Records Act (Chapter 42.56 RCW).*

---

**From:** Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>  
**Sent:** Friday, June 7, 2024 11:35 AM  
**To:** Tiffany Speir <tspeir@cityoflakewood.us>  
**Cc:** Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>; Guida, Eric (COM) <eric.guida@commerce.wa.gov>  
**Subject:** Lakewood Comprehensive Plan and Development Regulations (updated): WGS comments

**This email originated outside the City of Lakewood.**  
Use caution when following links or opening attachments as they could lead to malicious code or infected web sites. When in doubt, please contact the HelpDesk.  
*- [helpdesk@cityoflakewood.us](mailto:helpdesk@cityoflakewood.us) ext. 4357*

---

6/7/24

Hello Tiffany

In keeping with the interagency correspondence principles, I am providing you with comments on the proposed changes to the Lakewood Comprehensive Plan and Development Regulations (Commerce ID# 2024-S-7111 and 7112).

For this proposal submitted via Planview, I looked at the proposal and focused on areas related to WGS work. Of note, but not limited to, I look for language around the geologically hazardous areas, mineral resource lands, mining climate change, and natural hazards mitigation plans.

Specifically in this proposal, I reviewed the updated Lakewood Comprehensive Plan and Development Regulations.

The comments I provided on 6/2/24 for 2024-S-7088 for the Comprehensive Plan, remain the same.

The comments I provided on 6/2/24 for 2024-S-7089 for the Development Regulations, remain the same.

Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general:

- Consider adding a reference to WAC 365-190-120 geologically hazardous areas for definitions. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.

- Consider adding a reference to the WGS Geologic Information Portal. If you have not checked our interactive database, the WGS Geologic Information Portal, lately, you may wish to do so. [Geologic Information Portal | WA - DNR](#)
- If you have not checked out our Geologic Planning page, you may wish to do so. [Geologic Planning | WA - DNR](#)

Thank you for considering our comments. If you have any questions or need additional information, please contact me. For your convenience, if there are no concerns or follow-up discussion, you may consider these comments to be final as of the 60-day comment deadline of 8/1/24.

Cheerio,  
Tricia

Tricia R. Sears (she/her/hers)

**Geologic Planning Liaison**

Washington Geological Survey (WGS)

Washington Department of Natural Resources (DNR)

Cell: 360-628-2867 | Email: [tricia.sears@dnr.wa.gov](mailto:tricia.sears@dnr.wa.gov)

**From:** Tiffany Speir <tspeir@cityoflakewood.us>  
**Sent:** Wednesday, August 21, 2024 8:52 PM  
**To:** Lisa Grueter  
**Subject:** FW: Lakewood’s Comprehensive Plan: WGS comments

---

Tiffany Speir, Esq., CPM®  
Planning Division Manager  
253.983.7702 | [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)

*Please be advised: All e-mail correspondence sent to and from this e-mail address is subject to the State of Washington's Public Records Act (Chapter 42.56 RCW).*

---

**From:** Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>  
**Sent:** Friday, May 31, 2024 3:35 PM  
**To:** Tiffany Speir <tspeir@cityoflakewood.us>  
**Cc:** Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>; Guida, Eric (COM) <eric.guida@commerce.wa.gov>  
**Subject:** Lakewood’s Comprehensive Plan: WGS comments

You don't often get email from [tricia.sears@dnr.wa.gov](mailto:tricia.sears@dnr.wa.gov). [Learn why this is important](#)

**This email originated outside the City of Lakewood.**  
Use caution when following links or opening attachments as they could lead to malicious code or infected web sites. When in doubt, please contact the HelpDesk.  
*- [helpdesk@cityoflakewood.us](mailto:helpdesk@cityoflakewood.us) ext. 4357*

---

5/31/24

Hello Tiffany,

In keeping with the interagency correspondence principles, I am providing you with comments on the proposed changes to Lakewood’s Comprehensive Plan (Commerce ID# 2024-S-7088).

For this proposal submitted via Planview, I looked at the proposal and focused on areas related to WGS work. Of note, but not limited to, I look for language around the geologically hazardous areas, mineral resource lands, mining climate change, and natural hazards mitigation plans.

Specifically in this proposal, I reviewed Lakewood’s Comprehensive Plan. Kudos to you for making updates!

On page 5-6, there is a goal “EC-5 Develop a Hazards Management Plan and a climate resilient community” with policies listed under it. The policies look good. Suggest adding a policy that more explicitly connects the comprehensive plan, the hazard mitigation plan, and climate change/resilience plans.

On page 8-4, there is a goal “NE-8 Protect natural topographic, geologic, and hydrological features within the city while addressing geological hazards” with policies listed under it.

NE-8.1 is somewhat awkwardly worded “Protect against seismic hazards to reduce risks to public safety and property.” Suggest rewording it. Perhaps something like, Reduce risks to public safety and property from landslides

(slope failures), erosion, seismic events, volcanic eruptions, or flooding hazards. Then your policy covers all the geologically hazardous areas hazards you identify in the definition of critical areas ordinance. Note, in the definition of geologically hazardous areas, you include erosion, landslide, and seismic, but not volcanic.

Based on review of NE-8.2-8.5, it might be useful to add a policy(cies) about stormwater management and vegetation removal.

On page 16-10, there is the only mention of mineral resources.

Please consider the items below that could be useful in your comprehensive plan update and in other planning related endeavors.

Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general:

- Consider adding a reference to WAC 365-190-120 geologically hazardous areas for definitions. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.
- Consider adding a reference to the WGS Geologic Information Portal. If you have not checked our interactive database, the WGS Geologic Information Portal, lately, you may wish to do so. [Geologic Information Portal | WA - DNR](#)
- If you have not checked out our Geologic Planning page, you may wish to do so. [Geologic Planning | WA - DNR](#)

Thank you for considering our comments. If you have any questions or need additional information, please contact me. For your convenience, if there are no concerns or follow-up discussion, you may consider these comments to be final as of the 60-day comment deadline of 7/20/24.

Cheerio,  
Tricia

Tricia R. Sears (she/her/hers)  
**Geologic Planning Liaison**  
Washington Geological Survey (WGS)  
Washington Department of Natural Resources (DNR)  
Cell: 360-628-2867 | Email: [tricia.sears@dnr.wa.gov](mailto:tricia.sears@dnr.wa.gov)



**From:** Tiffany Speir <tspeir@cityoflakewood.us>  
**Sent:** Wednesday, August 21, 2024 8:52 PM  
**To:** Lisa Grueter  
**Subject:** FW: Lakewood's Development Regulations: WGS comments

---

Tiffany Speir, Esq., CPM®  
Planning Division Manager  
253.983.7702 | [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)

*Please be advised: All e-mail correspondence sent to and from this e-mail address is subject to the State of Washington's Public Records Act (Chapter 42.56 RCW).*

---

**From:** Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>  
**Sent:** Friday, May 31, 2024 4:03 PM  
**To:** Tiffany Speir <tspeir@cityoflakewood.us>  
**Cc:** Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>; Guida, Eric (COM) <eric.guida@commerce.wa.gov>  
**Subject:** Lakewood's Development Regulations: WGS comments

You don't often get email from [tricia.sears@dnr.wa.gov](mailto:tricia.sears@dnr.wa.gov). [Learn why this is important](#)

**This email originated outside the City of Lakewood.**  
Use caution when following links or opening attachments as they could lead to malicious code or infected web sites. When in doubt, please contact the HelpDesk.  
*- helpdesk@cityoflakewood.us ext. 4357*

---

5/31/24

Hello Tiffany,

In keeping with the interagency correspondence principles, I am providing you with comments on the proposed changes to Lakewood's Development Regulations (Commerce ID# 2024-S-7089).

For this proposal submitted via Planview, I looked at the proposal and focused on areas related to WGS work. Of note, but not limited to, I look for language around the geologically hazardous areas, mineral resource lands, mining climate change, and natural hazards mitigation plans.

Specifically in this proposal, I reviewed Lakewood's Development Regulations.

On pages 11 and 70, critical areas are mentioned. Other than that, there are no proposed changes related to geologically hazardous areas and mineral resource lands. WGS has no recommended changes at this time.

Please consider the items below that could be useful in your comprehensive plan update and in other planning related endeavors.

Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general:

- Consider adding a reference to WAC 365-190-120 geologically hazardous areas for definitions. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.
- Consider adding a reference to the WGS Geologic Information Portal. If you have not checked our interactive database, the WGS Geologic Information Portal, lately, you may wish to do so. [Geologic Information Portal | WA - DNR](#)
- If you have not checked out our Geologic Planning page, you may wish to do so. [Geologic Planning | WA - DNR](#)

Thank you for considering our comments. If you have any questions or need additional information, please contact me. For your convenience, if there are no concerns or follow-up discussion, you may consider these comments to be final as of the 60-day comment deadline of 7/20/24.

Cheerio,  
Tricia

Tricia R. Sears (she/her/hers)

**Geologic Planning Liaison**

Washington Geological Survey (WGS)

Washington Department of Natural Resources (DNR)

Cell: 360-628-2867 | Email: [tricia.sears@dnr.wa.gov](mailto:tricia.sears@dnr.wa.gov)



June 26, 2024

Attention: Tiffany Speir, Long Range & Strategic Planning Manager  
City of Lakewood  
6000 Main Street SW  
Lakewood, WA 98499-5027

Subject: Draft Comprehensive Plan Update – Transportation Element

Dear Ms. Speir:

Please be advised that Pierce Transit has carefully reviewed the Transportation Element under your draft Comprehensive Plan Update and would like to offer the following comments.

- The plan appears more focused on transportation corridors as related to highways and personal vehicle movement. But it downplays the importance of public transit, now and in the future. It does not come off as positive towards the idea of supporting public transit. One example, when discussing issues and realities affecting transportation planning and implementation the element states, “There are few realistic alternatives to driving for most people in Lakewood (pg. 12-3).” While this may be true and it is a background section, our impression is this wording sets the tone for a negative feeling regarding multimodal transit options. It would be appreciated if, at a minimum, you referenced the existing Lakewood Towne Center Transit Center, SR 512 Park-and-Ride, and Lakewood Sounder Station as important multimodal transportation hubs.
- We were surprised there is no Exhibit (map) that highlight transit. We see other jurisdictions include a map and provide more detail on either current or future transit routes. However, there is discussion of transit in the Subareas Element.
- Transportation Mitigation Fee—Lakewood has or is considering a transportation mitigation fee in the downtown subarea (see attachment H from the June 12<sup>th</sup> PC staff report)—this could be better supported in the goals and policies of the Transportation Element (TR 114?).
- There is a proposed code update concerning transportation demand management (TDM) for large employers (see the 6/12 PC staff report)—once again could be better supported in the Transportation Element. Could it be covered in another area of the Plan, perhaps?

Goals and Policies:

Proposed policy TR-1.3 says-*Increase availability and accessibility of alternative transportation modes like walking, biking, carpooling, and public transit, focusing on those without personal vehicles or with mobility needs.* This language is important to support equity considerations, but the goal of TR-1 could be further



improved with a policy that not only increases availability of alternative transportation for those without personal vehicles or with mobility needs but to also include a statement encouraging or facilitating the use of alternative transportation modes among people who have a choice in how they get around. This would better support a multimodal transportation system for all. We could offer some language about rewriting the culture. Specifically, people who use multimodal options can be anyone, it is not the option for just the poor or disadvantaged.

Policy TR-2.5 -suggested change: *Ensure the built environment is designed and developed to harmonize with the natural environment and public transportation facilities\* (existing and planned).* This would change the focus to requiring new development be built with multimodal transportation, especially public transit as a priority.

\*However, "Transportation facilities" is a broad term and if the intent is to develop around the existing automobile-centric infrastructure with most trips being SOV, the suggested policy as currently written would not support the goal of TR-2, *Ensure Lakewood's transportation system is designed for comprehensive, integrated, and safe access for all users of all ages, abilities, and transportation modes, including pedestrians, bicyclists, motorists, transit riders and operators, and truck operators.*

Our suggestion is to think of transportation infrastructure versus (public) transit infrastructure.

Policy TR-2.3 supports adaptation of project design to meet the needs and special circumstances that can impact accessibility to public transit and other modes of transportation. The proposed edits support such an intent:

TR-4 Create or strengthen policy related to this goal: "Use standard criteria to monitor LOS for multimodal transportation" (possibly even strengthen the goal itself) so that it more strongly supports creation of and maintaining existing multimodal transportation options. Most policies under this goal appear to maintain and support the status quo of personal vehicle use (and LOS for other forms of transport) rather than improve the situation.

TR-6.1 States, "Decrease dependence on automobiles in neighborhoods and Downtown while accommodating their use." This could be stronger to include language not just about decreasing dependence on automobiles, but to support or create infrastructure that would make other forms of transportation (e.g., bicycling, walking, riding the bus) more inviting and even practical. This goal lacks policy that improves the pedestrian or bicyclists' experience and is recommended for more proactive measures.

TR 8 goal and associated policies – This is an important one, so we are wondering if it can be an earlier goal? This is the first point where a reader gets the impression that single occupancy vehicle (SOV) use reduction and increased use of transportation alternatives are of importance.

TR9—This Goal and associated policies support first- and last-mile concepts. Like TR 8, this is an example of goals and policies to highlight and support.

TR-11— Parking management (e.g., prevention of overparking) is one way to support transit and pedestrian-oriented development and land uses. It also references High Capacity Transit (HCT). May we suggest incorporating our vision for the two new BRT routes that both serve the City of Lakewood, as shown in the Stream BRT System Expansion Study?

TR-14—This would be a good place to talk about support for increased funding for public transit and related services.



- Suggested additional language: *Investigate options and or opportunities to support and promote adequate funding for public transit projects and services (this could set the stage for advocacy on the part of the City).*

In closing, Pierce Transit appreciates the opportunity to comment on the Transportation Element, along with our continued partnership with the City of Lakewood as your Comprehensive Plan is updated in 2024.

Kindest regards,



Tina Lee  
Planning Manager

Cc: Anna Petersen - Pierce Transit  
Darin Stavish - Pierce Transit



**From:** Derek Faust <derekfau@gmail.com>  
**Sent:** Monday, June 10, 2024 5:25 PM  
**To:** Tiffany Speir; Karen Devereaux  
**Subject:** Comment Letter on Lakewood Comprehensive Plan Update  
**Attachments:** Lakewood Planning Commission\_Letter of Shoreline Recommendations\_Final.pdf

Some people who received this message don't often get email from derekfau@gmail.com. [Learn why this is important](#)

**This email originated outside the City of Lakewood.**  
Use caution when following links or opening attachments as they could lead to malicious code or infected web sites. When in doubt, please contact the HelpDesk.  
*- helpdesk@cityoflakewood.us ext. 4357*

Hi Tiffany and Karen,

On behalf of the Chambers-Clover Creek Watershed Council, please find attached a letter following up on our presentation to the City of Lakewood Planning Commission on April 3, 2024 regarding a request for possible actions to improve conditions in the City's lakes and streams. We would also like this comment letter to be added to the record as comments for the Comprehensive Plan Update process that is ongoing.

Please forward this letter to members of the City Council and members of the Planning Commission as they consider proposed changes within the Comprehensive Plan Update process. Please let us know if you have any questions or problems.

Best,  
Derek Faust, Ph.D.  
Vice-Chair  
Chambers-Clover Creek Watershed Council



June 10, 2024

City of Lakewood  
6000 Main Street SW  
Lakewood, WA 98499  
Attn: Tiffany Speir and Karen Devereaux

Dear Members of City of Lakewood Planning Commission and City Council,

I am writing on behalf of the Chambers-Clover Watershed Council (CCWC) in response to a request from Mr. Mark Herr. We provided the Planning Commission with an update on watershed conditions and activities in April 3, 2024. After the presentation, Commission Members asked for a list of possible actions that the City of Lakewood could implement quickly and easily to improve conditions in the City's lakes and streams. The CCWC Executive Committee met and would like to offer the following suggestions.

- 1) Revise the buffers in the Critical Areas Ordinance for the City of Lakewood to provide increased buffer widths anywhere feasible, including areas with change of land use or proposed for development
- 2) Utilize the City's existing communication tools to share information about the watershed and actions residents can take to protect and improve water quality and habitat. Examples could include postcard mailings, social media posts, and/or articles in Lakewood newsletter mailed to residents. The CCWC would be willing to collaborate with the City on such educational and informational materials.
- 3) Collaborate with Pierce Conservation District if you do not already. They have several programs that would be an excellent fit for the City, particularly their Green Stormwater and Habitat Stewardship programs.
- 4) Make incorporating filtration and infiltration into stormwater facilities a priority. Infiltration is needed to support ground and surface water quantities, while filtration addresses water quality. This could be done by adding Green Stormwater features to development requirements or simply making a practice of adding these features to the City of Lakewood's projects.
- 5) Contact Tacoma-Pierce County Health Department about supporting and expanding Toxic Algae Monitoring and Freshwater Lake Bacteria Monitoring programs in the City of Lakewood.
- 6) Encourage invasive plant species education and removal. If the City has existing "Cleanup" programs you might consider expanding those efforts to allow for the collection and disposal of problematic species like English Ivy, Scots Broom, and Himalayan Blackberry.
- 7) Encourage the planting of trees. Trees provide many benefits to watershed health including water quality, stormwater, and healthy habitat, particularly along shorelines. This might be done by adopting and enforcing tree ordinances or encouraging the voluntary planting of trees with giveaways. The Watershed Council has been particularly impressed by the work of the Tacoma Tree Foundation in offering tree education and giveaway events. The City might also want to set an example by incorporating more trees and native plants into the landscaping of city-owned properties.

- 8) Direct additional resources toward existing enforcement programs. Additional illicit discharge detection and elimination of critical areas enforcement staff would discourage and prevent damage.
- 9) Consider applying for a grant to develop a comprehensive water quality and habitat improvement plan for Ponce De Leon Creek.
- 10) Work with local water purveyors to share and support water conservation efforts.
- 11) Follow, share, and contribute to CCWC blog posts. The Council prioritizes sharing current, accurate information. Our blog can be found here:  
<https://cloverchamberscreekwatershedcouncil.blog/>

The CCWC has many connections within the community and takes pride in serving as a clearinghouse for scientific and policy information about the watershed. We look forward to collaborating with the City on furthering efforts to protect and enhance our valuable natural assets and would be pleased to assist in whatever ways we can.

Sincerely,

A handwritten signature in black ink that reads "Renee M. Buck" in a cursive style, with "CCWC Chair" written in a simpler, blocky font underneath.

Renee Buck, Chair  
Chambers-Clover Watershed Council



**Public comment for Lakewood’s 2024 GMA updates**

Planning Commission public hearing, June 26, 2024

Garry Oak Coalition, Lakewood

Please include the following comments from the Garry Oak Coalition, an environmental non-profit based in Lakewood, in the record for Lakewood’s 2024 GMA updates, as well as the attached previous comments. Those contain many of the Coalition’s main comments regarding Garry oaks, which were submitted previously to Ms. Tiffany Spier.

**Comments on Garry oaks and their habitat:**

**Garry oaks should be made critical areas and protected** – mature are considered to be 15” DBH, hundreds of years old, but we need to insure that there will be more oaks in the future. Young ones less than 6” DBH to even just **1” DBH** should also be protected.

According to WDFW, Garry oaks need to grow 15-20 years per inch of diameter, so even a “small” Garry oak of just 6” DBH might well have been growing already for **120 years**. Another type of tree at twenty years old would be much larger, but a Garry oak, deserving of protection, will be just 1” DBH. To deny it protection because of its small caliper is contributing to Garry oak and eventual critical area loss.

**Inventory:** There needs to be an inventory of Garry oaks and other trees on private as well as public property – otherwise the City does not know what its critical areas are and therefore is not protecting them, as required to do by GMA.

**Utilities** cannot be given a free hand to cut down and mutilate Garry oaks and other trees, such as in this photo from June 2022:



**The City** is not subject to tree preservation regulations. It must not be given a free hand in this manner – it has resulted in the destruction and mutilation of many Garry oaks and other trees. The City’s destruction of large Garry oaks in its own public right of way, where the City is subject to no oversight or regulation, has resulted in a net loss of critical areas in the shape of priority Garry oak

habitat. Examples include the grant-supported sidewalks on Phillips Road in 2022 where we have been told approximately 12 large Garry oaks were destroyed, and the roundabout on Hipkins in 2024, where the City cut down one of these large oaks (20" DBH, so therefore even 400+ years old according to WDFW rule of thumb) – by WDFW’s criteria a critical area and priority habitat, as confirmed by habitat biologist Darrin Masters. See photo from spring 2024:



**Penalties for ivy infestations:** There must be penalties for people who allow ivy to grow on and cover trees.

See for example this photo of a 14" diameter Garry oak at Brook Lane that began collapsing onto the road in the spring of 2024 under the weight of the ivy and was subsequently cut (illegally). According to WDFW, each inch of diameter represents 15-20 years of growth for a Garry oak, so this oak could have been even 280 years old when it was senselessly lost due to Lakewood’s lack of regulation of invasive ivy and other invasive species. Garry oak loss due to ivy constitutes a loss in critical areas.



**Paving or landscaping solely with rocks** within the Critical Root Zones of Garry oaks and other trees must not be permitted, and paving must be removed where it is found, allowing for the

improvement of conditions for the protected Garry oaks in our drier, hotter conditions. A certified arborist, Paul A. Dubois VI (ISA Certified Arborist WE-0937A), in his assessment of the historic Davis-Meeker Garry Oak in Tumwater recently wrote: “Remove all the rocks up against or touching the root crown. This will allow a critical and vulnerable area where woody roots join the stem to completely dry out and not hold moisture, making it easier for pathogens to enter.” The same is true of pavement. These oaks will suffer under the asphalt for even decades before they show signs of damage, and very well may eventually die because their roots have been paved over, up to their trunks. A similar situation occurred with a historic oak on Whidbey Island in the Oak Harbor post office parking lot. See photos of the oaks at Mr. Claude Remy’s Gravelly Lake Townhomes development on Gravelly Lake Drive, and at the Public Storage site on Phillips road:



**Monitoring of Garry oaks and other trees during construction should be required,** as well as strict penalties for people who disregard regulations. See this recent photo from Mr. Remy’s new project at corner of Gravelly Lake Drive and Steilacoom Boulevard, where there is no protective fence or signage, and where large piles of debris and earth have been piled in the oak’s Critical Root Zone:



**Single Garry oaks:** *The City does not take into account the fact that both the 1998 and 2024 WDFW oak recommendations say that SINGLE OAKS can qualify for protection. It is important to note that clearly not every single oak is “documented” by PHS or DNS, etc., which would mean that they are excluded from protection. There need to be broader protections for single Garry oaks, regardless of whether they have been “documented” specifically by PHS and DNR – who themselves say that their PHS and DNR maps are not complete. – p. 492, p. 8 of 11, Ch. 14.154 Fish and Wildlife Habitat Conservation Areas*

**“During building or construction operations, suitable protective measures in LMC 18A.70.320(A) shall be erected...”**

*There must be more oversight: to take just two recent examples, at the new apartments being constructed at the corner of Steilacoom Boulevard and Gravelly Lake Drive, no protection was in place and the foundations were dug too close to the oaks, violating their critical root zones. At the corner of Mount Tacoma Drive and Dekoven, there were no fences during illegal filling and grading (reported to Mr. Sawatzki), and high piles of debris were dumped in the oak’s critical root zone (documentation sent to Mr. Sawatzki).*

**“Removal of diseased trees and trees that present an imminent threat to properties...”**

*This section goes against the WDFW recommendations, which recommend that dead trees remain standing to decay in place, adding valuable habitat. p. 12 of 1998 recommendations: “Retain large, dominant oaks and standing dead and dying trees.” In 2024 recommendations, too, one reads about the value of dead and dying trees for habitat. If endangering a structure, they can simply be made safer through pruning and cabling, for example, in consultation with an arborist specializing in Garry oaks.*

**“Tree replacement is required at a two-to-one ratio per LMC 18A.70.330.”** Also mentioned in single-family property section. p. 15 of 11

*This is not in keeping with the 2024 recommendations, p. 18, which recommend a replacement ratio of from 50 to 250 to one, depending on diameter at breast height. (50 to 1 for trees from 6-12” DBH, 250 to 1 for trees 30” DBH or larger).*

**“Utility pruning”** – p. 15 of 11

*Utility pruning must be done under the supervision of an independent arborist specializing in Garry oak trees to insure that they are not harmed.*

*A certified arborist advising the Garry Oak Coalition has recommended that the code state the following: “must be supervised by a ISA Certified Utility Specialist”.*

**“Additional impervious area for the driveway will be permitted”** – p. 15 of 11

*The Critical Root Zones of Garry oaks must not be paved over (or driven over).*

**“1,500 square feet for a single-family residence, 1,000 square feet for an accessory dwelling unit, and 1,000 square feet for a detached garage.”** – p. 15 of 11

*On properties with Garry oaks, the houses should be built up, keeping the footprint as minimal as possible. Instead of allowing 2,000 extra square feet for an ADU and detached garage, in new constructions, the garage should be made under the house and the ADU should be a second or third floor, to avoid impacts to Garry oaks.*

**“Impervious Surface Bonus”** under “incentives” LMC 18A.70.320(J) – *This “incentive” is harmful to the Garry oaks that the code is trying to protect, as well as to the environment in general. In addition to increasing stormwater run-off and decreases infiltration, an increase in allowed impervious surfaces damages the root zones of the Garry oaks, which can stretch for hundreds of feet in radius from the trunk. No impervious surfaces should be allowed on single-family properties, and especially not those with Garry oaks that we are trying to protect. This “incentive” should be struck.*

**“The report and mitigation prepared by a qualified biologist or certified arborist...”** p. 16 of 11 of Ch. 14.165 Definitions – *Here and elsewhere, the qualified biologist or certified arborist must not be one hired by the developer, which we have seen can lead to the consultant simply approving whatever is most expedient to the developer.*

**“Priority Oregon white oak woodland”** – p. 11 of 15 of Ch. 14.165 Definitions – p. 542 of file

*This needs to specify that all Garry oaks are to be considered a priority – the larger ones for current habitat value, and the younger ones so that there is a succession that will preserve the habitat for future without leading to a temporal gap when the large ones die.*

**“Prairies”** – p. 11 of 15 of Ch. 14.165 Definitions – p. 542 of file

*Because prairies are associated with Garry oaks, provisions should also be made to protect and restore remnant prairies, as defined by physical features and presence of any indicator species.*

**“Qualified professional”** p. 11 of 15 of Ch. 14.165 Definitions – p. 539 of 999 file

*This definition needs to specify that qualified professionals assessing critical areas and specifically Garry oaks must not be hired by the developers, or utilities companies, or whoever is proposing to cut down Garry oaks, because this is a clear conflict of interest. A system must be developed in which outside Garry oak experts are the ones to determine how best to protect this protected species.*

**“Reasonable use”** – p. 11 of 15 of Ch. 14.165 Definitions, p. 539 of 999 file

*In considering “reasonable use”, environmental protection and avoidance of adverse environmental impacts must be given precedence. Although it may seem on a case by case basis*

*that the impact on a single property is not significant, the cumulative impact of all these actions negatively affecting for example the Garry oaks and other critical areas are indeed significant, and must be borne in mind.*

**“Prior tree removal** has met Chapter 18A.70 LMC, Article III in effect at the time.” Ch. 14.154, p. 16 of 11

*No retroactive permits shall be issued for illegal cutting of Garry oaks and other trees.*

**“No person shall willfully remove, top, damage, destroy, break, injure, mutilate or kill any priority Oregon white oak trees, savannas, and woodlands except as allowed by this chapter.”** Ch. 14.154, p. 15 of 11

*Specific mention must be made of the fact that it will be illegal to allow a Garry oak or other tree to have ivy or other invasive vines growing on it. It is not enough to prohibit them from being engulfed in vines – this is already too late. The presence of invasive vines must be banned. This is a major cause of tree death in Lakewood, and is especially grievous when involving the very slow-growing Garry oaks. As part of Lakewood’s effort to preserve and increase tree canopy, a regulation must be in place prohibiting the presence of ivy and other invasive vines on trees.*

*In this context, invasive holly also needs to be mentioned, because it is a serious problem, crowding out native species in Lakewood’s wooded areas.*

**“Priority Oregon white oak woodland”** Ch. 14.165 Definitions, Page 11 of 15

*Why has this section been struck?*

~~“forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).~~

*It contains important information about how stands less than 1 acre or single trees can be identified as priority habitat. “Large diameter” should be defined, or perhaps removed. As I have mentioned elsewhere, all Garry oaks must be protected in order to guarantee a succession without a temporal gap when the current mature oaks die.*

*Garry oaks are very slow-growing and even small diameter trees can be a century old. According to WDFW’s 2024 recommendations, for each inch of diameter growth, it takes 15-20 years. Thus, a 6” diameter at breast height Garry oak is already from 90 – 120 years old. A Douglas fir at this age would be already so wide that a person could not embrace it.*

*In addition, many or even most Garry oaks in Lakewood have a large canopy, which is a straightforward way of identifying oaks valuable to wildlife, as are cavities.*

As habitat biologist Darrin Masters told me when discussing the Hipkins oaks, at least one of which was cut down by the city for a roundabout, those two oaks were clearly valuable to wildlife and should be preserved. I relayed to the City that he invited them to call with questions.

If the aim in the amendments to the Critical Areas Ordinance is to strengthen protections for Garry oaks, it seems that striking this section – which originates in the 1998 WDFW recommendations for Garry oaks – is not helpful.

## MISCELLANEOUS COMMENTS:

**CORRECTION:** Ponce de Leon Creek is not “mostly” piped:

### WDFW RIPARIAN BUFFER MAPPING TOOL DRAFT EXAMPLES Sites on Ponce de Leon Creek, Flett Creek, and Unnamed Gravelly Lake Tributary

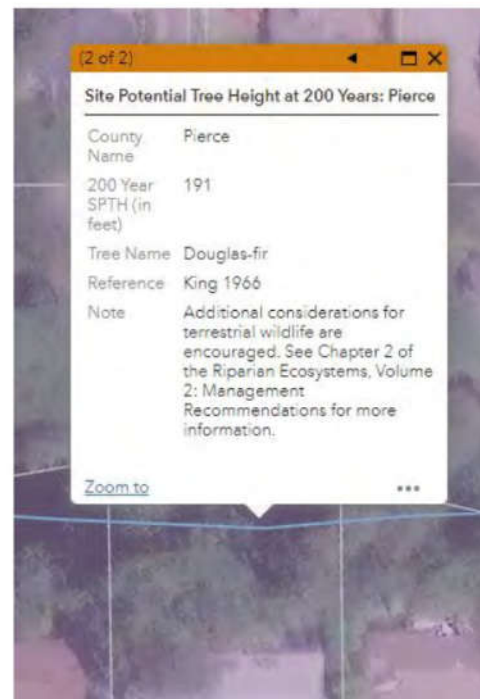
#### Source:

<https://wdfw.maps.arcgis.com/apps/MapJournal/index.html?appid=35b39e40a2af447b9556ef1314a5622d>

Collected: 6/17/24

#### CASE STUDY 1: PONCE DE LEON CREEK

- STREAM TYPE: **Type F**
- BUILT ENVIRONMENT: Developed, largely single family residential
- NATURAL ENVIRONMENT: Stream is largely tight lined (piped) watercourse but daylights at times as it heads west towards Steilacoom Lake
- **CURRENT BUFFER: 65 Feet**
- **WDFW RECOMMENDED SPTH Value: 191 feet with dominant tree species as Douglas Fir.**
- PRACTICAL PARCEL APPLICATION: **Distance from Type F from existing structure is greater/less than 50 feet.** This is a 74% difference between WDFW 200-year-old growth protection desire compared to existing, built conditions.



**Riparian Management Zone buffers.** – p. 496, p. 12 of 11 of Ch. 14.154 Fish and Wildlife Habitat Conservation Areas |

*It seems misguided to allow the lowering of riparian buffers, which constitutes a move in the wrong direction. We want more protection for our salmon-bearing and other creeks, not less.*

**Affordable housing:**

- should not have special consideration for “religious organizations” – this is inconsistent with principle of separation of church and state

- Lakewood cannot provide density if there won't be enough water, or infrastructure (roads, sewers), all of which must be carefully studied. The City's residents must be confident that Lakewood can support this proposed growth, and all of these issued must be carefully studied and the results shared with the public. The City must always err on the side of caution whenever our water is concerned.

## **TILLICUM:**

Tillicum is home to magnificent Garry oaks, many of them single-stemmed (trunked) specimens that will be better able to resist drought and climate change. A priority in Tillicum must be to protect the Garry oaks of this neighborhood, including development such as that planned at the new library site, which are key to providing the protective shade needed for this lower-income neighborhood that is so fortunate to already have a gigantic mature Garry oak canopy to protect it from the heat. Tillicum must not become a heat island. The Garry oaks of Tillicum should feature prominently in that neighborhood's area plan.

**Goal #1:** Celebrate the Tillicum-Woodbrook Community Center, Tillicum Elementary School, Harry Todd Park, and Pierce County Library branch as the heart of the Tillicum-Woodbrook Subarea.

**Goal #2:** Increase visibility of Tillicum's and Woodbrook's diverse community by investing in leadership development and the neighborhood's ability to advocate for community needs.

**Goal #3:** Diversify Tillicum's and Woodbrook's housing options to support current residents in Lakewood.

**Goal #4:** Connect Tillicum and Woodbrook to Lakewood and Pierce County through a multi-modal transportation network to increase access to employment and social activities.

**Goal #5:** Increase economic development opportunities within Tillicum and Woodbrook.

**Goal #6:** Protect Tillicum and Woodbrook's natural environment and increase adaptability and resiliency for Tillicum and Woodbrook as communities significantly impacted by air quality and climate change.

## **Affordable housing:**

*“Affordable housing” cannot take precedence over environmental considerations – a safe and healthy environment and ecosystem is required for people of all income levels.*

### **- 18A.90 Housing Incentives Program**

“Updating inclusionary density bonuses up to increase of to 25% above base zone density in all zones for inclusion of low- or extremely low-income housing in project and making this density bonus exclusive of any other bonus density options in chapter”

*Moreover, preferential treatment should not be given to religious organizations in affordable housing deals, as this would violate the separation of church and state:*

“New density bonus discussion for affordable housing created in partnership



with religious organizations”

**Aspen stands added** – *Where do we have aspen stands in Lakewood?* p. 492, p. 8 of 11, Ch. 14.154 Fish and Wildlife Habitat Conservation Areas |

From: **Christina Manetti** <[manetti.christina@gmail.com](mailto:manetti.christina@gmail.com)>  
Date: Thu, Apr 18, 2024 at 2:08 PM  
Subject: Critical Areas update - new state Garry oak recommendations + various  
To: Tiffany Speir <[tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)>  
Cc: Jason Whalen <[jwhalen@cityoflakewood.us](mailto:jwhalen@cityoflakewood.us)>, Patti Belle <[pbelle@cityoflakewood.us](mailto:pbelle@cityoflakewood.us)>, <[pbocchi@cityoflakewood.us](mailto:pbocchi@cityoflakewood.us)>, Mary Moss <[mmoss@cityoflakewood.us](mailto:mmoss@cityoflakewood.us)>, Mike Brandstetter <[mbrandstetter@cityoflakewood.us](mailto:mbrandstetter@cityoflakewood.us)>, <[rpearson@cityoflakewood.us](mailto:rpearson@cityoflakewood.us)>, Trestin Lauricella <[tlauricella@cityoflakewood.us](mailto:tlauricella@cityoflakewood.us)>, <[BSchumacher@cityoflakewood.us](mailto:BSchumacher@cityoflakewood.us)>

Dear Ms. Speir,

Please accept this public comment related to the Critical Areas update that is currently underway.

**1) NEW WDFW GARRY OAK RECOMMENDATIONS:**

Please relay to those working on the Critical Areas update that the City needs to update its Critical Areas regulations this year to reflect the new Garry oak (Oregon white oak) recommendations that were published by WDFW in February 2024, applicable also to the Garry oaks in Lakewood: "Best management practices for mitigating impacts to Oregon white oak priority habitat". (**See attached file.**)

**The City is bound by GMA to make these changes to its Critical Areas ordinance, as this WDFW publication reflects best available science on the subject of Garry oak (Oregon white oak) management, including in urban and urbanizing contexts:**

***"Cities and counties must conduct a best available science review when updating critical area regulations."***

<https://app.leg.wa.gov/WAC/>

The City will find this document very instructive. Here are just a few highlights:

In it, the recommendations specify for example, that impacts to Garry oaks should be avoided (i.e., they should not be destroyed), and outlines mitigations of up to 250 Garry oak seedlings for the destruction of just one Garry oak:

*Compensating for the loss of individual locally important trees [...]*

- o For trees > 30 inches diameter at breast height (dbh), use a tree replacement ratio of 250:1*
- o For trees between 24 - 30 inches dbh, use a tree replacement ratio of 200:1*
- o For trees between 18 - 24 inches dbh, use a tree replacement ratio of 150:1*
- o For trees between 12 - 18 inches dbh, use a tree replacement ratio of 100:1*
- o For trees between 12 - 6 inches dbh, use a tree replacement ratio of 50:1*

(p. 18)

For the destruction of 1 acre of Garry oak woodland, the mitigation would be 1000 oaks planted over two acres: "To restore an acre of woodland, use a 2:1 replacement ratio. Plant 1000 trees across 2 acres." (p. 18)

Among other things, the recommendations also stipulate that the understory should also be recreated when replanting (pp. 18-19):

*When restoring an OWO woodland or compensating for the loss of a single OWO tree, we recommend filling the space between planted OWO with a diverse native understory community, leaving at least 5 feet of space around the OWO. Plant at least eight different native understory species.*

## **2) REGULATIONS TO ENSURE WELL-BEING OF GARRY OAKS (and other trees):**

If the City is interested in preserving Lakewood's Garry oaks, the Critical Areas ordinance or tree code should also include **new regulations** to ensure that Garry oaks are able to thrive in Lakewood.

Two important ways that the City can do this is to:

**1) PROHIBIT PAVING OVER CRITICAL ROOT ZONES:** Prohibit property owners from paving over the Critical Root Zones of the Garry oaks (and of course other significant trees), as has recently been done at Mr. Claude Remy's new "**Gravelly Lake Townhomes**" apartment complex on Gravelly Lake Drive not far from the intersection with Steilacoom Boulevard. There, the parking lot asphalt has been put down just short of the trunks of the Garry oaks that line the eastern edge of the property.

These trees will suffer and eventually die if their critical root zones are covered with asphalt. Such suffering takes decades in this kind of long-lived tree, but it is assured if they are deprived of water and their roots are baked in the longer, hotter, drier summers we have begun to experience. The governor has already declared a drought emergency this week, and as you have noticed, most of April will be without substantial rain.

In decades past, for example in the 1970's and 1980's, the 9 or 10 months of rainfall made it easier for the oaks and other trees to endure such thoughtless treatment. Now it will just accelerate their suffering.

This will eventually result in a **net loss of critical areas**, which is prohibited by GMA -- since single Garry oaks of such girth should, as the new oak recommendations stress, be considered Critical Areas.

**We request that the City require that the asphalt be removed** from the Critical Root Zones of the new parking lot at Mr. Remy's property before too much damage has been done.

## **2) PROHIBIT DAMAGE BY IVY AND OTHER INVASIVES:**

During work on the Critical Areas ordinance, the City should add a regulation specifically prohibiting property owners from allowing ivy and other invasive vines to grow onto and cover Garry oaks and other trees. The ivy -- as we saw recently on Brook Lane -- eventually becomes so heavy that the tree falls under its weight, while also being smothered under the ivy's heavy foliage. That Garry oak on Brook Lane measured 12" across and was surely over one hundred years old.

The City would benefit from a more far-ranging regulation that would require property owners to eradicate the all the major invasives found in Lakewood ([English holly](#), [English ivy](#), [Himalayan blackberry](#), [English \(cherry\) laurel](#), [Scotch broom](#)), some of which have already destroyed parts of our forested areas (such the many Garry oaks and other trees that have succumbed to ivy along 112th across from Christ Lutheran, to Interlaaken).

Other jurisdictions, such as Oak Harbor and Portland (see attached files), have such regulations.

As we read in a document produced by the City of Portland, there are many important ecological reasons to eradicate invasive species within our cities and towns:

*Invasive plants are the second largest threat to native biodiversity, behind habitat loss, and they are one of the primary factors that lead to a species listing under the Endangered Species Act (City of Portland Invasive Plants Strategy Report 2008). Invasive plants degrade water quality, reduce biodiversity, impair habitat, decrease tree populations and growth rates, increase the likelihood and spread of fire, decrease the ability of stormwater infiltration and increase soil erosion. Removing invasive species and planting native vegetation is critical for improvement and maintenance of watershed health. Fish, wildlife, and the citizens of Portland benefit from the management of invasive species.*

(<https://www.portland.gov/>, p. 5)

Thank you very much for your attention to these pressing matters. Please let me know if we can be of assistance during the Critical Areas update.

Sincerely,  
Christina Manetti, Ph.D.  
President, Garry Oak Coalition, 501c3, Lakewood

Attachments: 2024 WDFW Oregon white oak recommendations and Oak Harbor municipal code regarding Garry oaks



December 29, 2023

To: The City of Lakewood, Long-Range Planning Department

Please include these comments in the record of the City’s 2024 Growth Management Comprehensive Plan Periodic Review and update, and implementation of development regulations. Please acknowledge receipt of these comments.

**I) BEST AVAILABLE SCIENCE AND NO NET LOSS:**

The GMA requires that critical areas be protected using the best available science [WAC 365-195-900 through 925], and that there be “no net loss of functions and values”. [WAC 365-196-830]

In Lakewood, we have examples of the different kinds of critical areas defined in RCW 36.70A.030(5):

- Wetlands.
- Areas with a critical recharging effect on aquifers used for potable water.
- Frequently flooded areas.
- Geologically hazardous areas.
- Fish and wildlife habitat conservation areas

This last category, “fish and wildlife habitat conservation areas”, includes Oregon white oak woodlands. Their sustained loss in Lakewood is an example of the City’s failure to use best available science.

## **II) NET LOSS OF CRITICAL AREAS:**

Lakewood’s current regulatory system has not been based on the best available science and allows a net loss of critical areas in the following ways:

### **a) Best available science for Oregon white oak woodlands not followed:**

For all critical areas, there are multiple sources for the best available science, which in the case of the Oregon white oak is the information published by the Washington Department of Fish and Wildlife’s Priority Habitats and Species (PHS) program, most notably in Eric M. Larsen and John T. Morgan, *Management Recommendations for Washington’s Priority Habitats: Oregon White Oak Woodlands* (1998).

LMC states that “[t]he City shall give substantial weight to the management recommendations contained in the Washington Department of Fish and Wildlife Priority Habitats and Species Program. [Ord. 775 § 1 (Exh. A), 2022; Ord. 630 § 2, 2015; Ord. 362 § 3, 2004.]” (LMC 14.154.030(B))

The City’s interpretation in its code must also faithfully embody the authors’ intent, which is to insure the protection of Oregon white oaks.

The definition used in the LMC is, however, not consistent with the WDFW PHS definition (i.e., best available science). Here are some examples of LMC’s inconsistencies:

**In urban and urbanizing areas:** The PHS definition says that “**In urban or urbanizing areas, single oaks, or stands of oaks <0.4 ha (1 ac), may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height [dbh], are used by priority species, or have a large canopy).**” (emphasis added) (Eric M.

Larsen and John T. Morgan, *Management Recommendations for Washington's Priority Habitats: Oregon White Oak Woodlands* (1998), p. ix),

The City has chosen to omit in its code key elements of this PHS wording, which is crucial in terms of protecting Oregon white oaks in our context here in Lakewood – that part referring to “urban or urbanizing areas”.

LMC states: “Priority Oregon white oak woodland” means forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).”

LMC nevertheless does clearly state elsewhere that “In Lakewood, **individual trees** and stands of trees are protected as critical fish and wildlife habitat area under Chapter 14.154 LMC, Fish and Wildlife Habitat Areas.” (emphasis added) (18A.70.330)

In practice, however, individual trees and stands smaller than 1 acre have not been protected in Lakewood. (See for example appeals in 2022-2023 related to the Connie Kay shortplat, Gravelly Lake Townhomes and Interlaaken shortplat.) **The protection of single Oregon white oaks has not been adopted in practice.**

### **Protection of Oregon white oak woodlands 1 acre or greater:**

The PHS recommendations clearly state that Oregon white oak woodland of greater than or equal to 1 acre should be protected, with no reference to any need for the entire 1 acre to be on a single parcel. (*Management Recommendations for Washington's Priority Habitats: Oregon White Oak Woodlands* (1998), p. ix)

LMC also repeats this 1 acre requirement. According to LMC Chapter 14.165.010 Definitions:  
***“Priority Oregon white oak woodland” means forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).***  
[emphasis added]

However, as we have seen during the oak-related appeals of 2022-2023, the City interprets this 1 acre requirement as meaning that the entire 1 acre of oaks must be found within the boundaries of a single parcel, regardless of whether they constitute a larger area of woodland with oaks on surrounding properties. This was seen for example most recently in the appeal regarding the Interlaaken plat (2023).

As a result, a stand of Oregon white oak woodland can always be eliminated as the result of subdivision into parcels smaller than 1 acre, which would remove any need for any critical area protections.

**Other ways in which current regulations allow for the net loss of critical areas:**

**b) Oak woodland delineation:**

The City has no definition of its own regarding how an area of Oregon white oak woodland should be measured, which has led to situations, such as at the Panattoni project on 123<sup>rd</sup> Street, in which hired consultants have measured Oregon white oak woodland in ways that divide oak woodlands into smaller patches, ignoring the fact that Oregon white oak woodland has an open canopy. This has resulted in consultants’ results showing there was less than 1 acre of oaks, when in reality it was clearly an area of Oregon white oak woodland larger than 1 acre.



**c) Insufficient compensatory mitigation:**

Oregon white oaks can be removed with insufficient compensatory mitigation. The City's requirement for tree replacement at a ratio of 2 to 1 is inadequate mitigation for an oak that is in all likelihood hundreds of years old, and does nothing to compensate for the temporal loss, thereby creating a cumulative net loss. [18A.70.330(B)(1)(a)(ii)]

**d) Temporal loss:**

Even when more mitigation is required for the cutting down of oaks in critical areas, this, too, does not account for the temporal loss (loss over time) of function. A seedling or sapling is not functionally equivalent to a mature tree for wildlife function. [14.154.080]

**e) Replacement trees unspecified:**

The mitigation system does not assure that replacement trees are "in-kind" (Oregon white oak), that they are maintained, and that they are permanently protected. [18A.70.330(B)(1)(a)(ii)]

**f) Mitigation lacking:**

When mitigation fees are required, there seems to have been no specific plan as to what to do with the money exacted for their destruction. Money in a bank account does not mitigate anything, and does not help achieve no net loss, which is theoretically the aim of collecting the mitigation fees.

From what we know about the City's tree fund, very little, if any, actual mitigation has been done since 2009 – in fact, we see that 33 trees were even cut down with \$24,000 of funds from the tree fund. (See tree fund table, current to June 30, 2023, which was provided to City Council.)

**g) Public Works Department and utilities exempt from tree preservation regulations:**

The Public Works Department and the utilities companies are exempt from any tree preservation regulations at all, including those related to Oregon white oak. This allows for a net loss of Oregon white oaks and critical areas. There is no reason why these entities should be exempt. While they may have greater leeway, this should not exempt them from the process of evaluating what their plans are and looking for less-damaging alternatives. Like others, they need to go through the mitigation sequencing process. [LMC 18A.70.310(C)]

**h) Remnant stands:** In areas where Oregon white oaks have already been removed from a larger stand of woodland, the remaining trees may no longer be protected even if the total size of the stand is less than 1 acre, and of course property lines need not be considered when assessing the extent of a natural feature. The remaining trees in such a stand should be protected as if they were still part of the larger stand. An example of this problem can be seen on Gravelly Lake Drive, where the apartment developer removed a number of Oregon white oaks first at Gravelly Lake Brownstones, and then more next door at Gravelly Lake Townhomes.

**i) Excessive destruction allowed for construction:**

LMC allows for the destruction of Oregon white oaks to construct a house, “permitted accessory structure” or detached garage. A garage in this situation should be put underground, which would allow the Oregon white oak to be saved. Reasonable use says that it is a single family dwelling, so “accessory structures” should not be permitted where an Oregon white oak is standing. Because Oregon white oaks comprise a critical area, they take precedence over overextended development plans. The concept of “reasonable use” is limited, especially in the context of critical areas that must be preserved.

*3. Single-Family Property. If the presence of the priority Oregon white oak woodland renders the development of a house or permitted accessory structure infeasible, and the application of incentives in LMC [18A.70.320\(J\)](#) is insufficient to result in a feasible development, the City may allow removal or*

*trimming of priority Oregon white oak trees and woodlands in order to allow a maximum building footprint of 1,500 square feet for a single-family residence, 1,000 square feet for an accessory dwelling unit, and 1,000 square feet for a detached garage.”*

[https://lakewood.municipal.codes/LMC/14.154.080\(C\)\(3\)](https://lakewood.municipal.codes/LMC/14.154.080(C)(3))

**j) Loss through ignorance and neglect:**

Loss of Oregon white oaks and critical areas – whose decline can take many decades to become apparent – by failing to insure that the oaks have the conditions necessary to thrive. The City code, for example, does not require property owners, residential, commercial and industrial, to insure survival of Oregon white oak by forbidding the paving of areas within the oaks’ driplines (as per LMC 18A.70.330(E)), and requiring the removal of existing pavement, as well as by maintaining healthy soil and understory vegetation – i.e., healthy plant communities.

**k) Loss of critical area due to incompetent arborists and “pruning”:**

Loss of Oregon white oaks due to a lack of proper regulation of arborists, pruning and other work on oaks in the city. Oaks are lost as a result of mutilation from “pruning”, whether by commercial property owners or individuals, or utility companies, due to a lack of requirement that only true arborist experts be allowed to work on Oregon white oaks in the City, guided by best available science. An example of this is at the commercial property adjacent to the post office at 9881 Bridgeport Way SW, Lakewood, WA 98499.

**l) Loss of critical areas due to inadequate Biological Site Assessments:**

Loss of Oregon white oaks due to a lack of proper Biological Site Assessments, resulting in a failure to recognize Oregon white oaks as critical areas, requiring proper mitigation sequencing.

**m) Biological Site Assessments by unqualified individuals:**

The LMC allows biological site assessments of critical areas and priority habitat to be conducted by a certified arborist, rather than a habitat biologist: “The report and mitigation prepared by a qualified biologist or certified arborist demonstrate to the satisfaction of the Director that mitigation addresses impacts to priority Oregon white oak trees and woodlands consistent with the provisions of this chapter.” (LMC 14.154.080(C)(5)(c))

Because the assessment of a priority habitat for the presence of wildlife and especially priority species would necessitate the expertise of a habitat biologist, who would carry out wildlife and bird surveys and create species lists, for example, it is inappropriate to allow such a biological site assessment to be carried out by a certified arborist. As we saw in the Interlaaken appeal (2023), the arborist carrying out the biological site assessment admitted himself to knowing virtually nothing about birds or animals.

By allowing unqualified individuals to make judgments as to the habitat value, there is the real danger that important information will be overlooked and the habitat will as a result not be protected, which will ultimately end in a net loss of critical area. Examples of such deficient Biological Site Assessments are those submitted for the Connie Kay shortplat on Alfaretta, and for the Interlaaken shortplat.

**n) Damage and loss through failure to protect during construction:**

Damage and loss of Oregon white oaks is possible and probable due to a failure to properly protect them with fences and signage during construction work, and by allowing foundations to be dug within their critical root zones. We see no fences or signage at the construction sites at the corner of Dekoven and Mount Tacoma Drive, nor at the Gravelly Lake Townhomes project. (LMC 18A.70.330(C))  
Although this regulation exists in the code, it has not been adopted in practice.

**o) Loss from ivy:**

Loss of Oregon white oaks due to a failure to regulate their protection from invasive English ivy or other vegetation, and failure to prosecute property owners allowing their oaks to become smothered by invasive English ivy or other vines, which leads to their eventual death. An example of this is the property at the corner of 112<sup>th</sup> and Interlaaken.

**p) Loss from nailing:**

Failure to regulate the damaging practice of nailing signs or other objects into Oregon white oaks, which can compromise their integrity and introduce pathogens. Although this is regulated in Pierce County code, it is not in LMC.

**q) Smaller oaks not protected – failure to recruit:**

By failing to afford Oregon white oaks with diameters smaller than 4” DBH any protection at all, the City is contributing to a net loss of Oregon white oak woodland in the City, since young Oregon white oak are rare and should be preserved. Without recruitment, it is clearly foreseeable that the next generation will not grow.

**r) Public education:**

Although the LMC mentions a “voluntary education program” to educate the public about the need to protect critical areas, no such education program has been apparent. LMC 14.154.030(A)

**s) Requirement that threatened or endangered species be observed in the Oregon white oaks in order for them to be protected:**

During oak-related appeals, we have seen that the City interprets the section of its code where it refers to Oregon white oaks that are “used by priority species” (14.165.010) – where PHS uses the much more all-encompassing phrase “particularly valuable to fish and wildlife” – to mean that an appellant must personally see and document the present of threatened or endangered species on the Oregon white oak in question in order for that tree to qualify for protection. (See for example Connie Kay appeal (2022).)

By excluding large Oregon white oaks like this from the designation of critical area, both availability and potential are being removed. When not protected and cut down, it is a certainty that no species will use that tree, thereby contributing to the endangerment of even more birds and animals.

Species make use of certain habitat, including oaks, at certain times. If you cut it down now, that means that it won't be available later when the species needs it. The fact that one doesn't see it in March or June doesn't mean that the species doesn't use it. This requirement is inconsistent with PHS standards and will result in a net loss.

This fails to follow Best Available Science, and allows for a net loss of critical areas in Lakewood.

**t) Lack of an inventory:**

Lakewood's lack of an inventory of its Oregon white oaks means that there continues to be no way to track its critical area or loss thereof.

These policies, regulations, and “interpretations” result in a failure to include the best available science and to achieve no net loss of ecosystem function; therefore, they violate GMA’s critical area protection requirement. As noted in the multiple specifics outlined above, Lakewood’s code as currently presented fails the best available science standard and mitigation sequencing, and results in a net loss. The code needs thorough-going amendments to address these serious shortcomings.

Sincerely,

A handwritten signature in cursive script that reads "Christina Manetti".

Christina Manetti, Ph.D.

President, Garry Oak Coalition (501c3)

# Best management practices for mitigating impacts to Oregon white oak priority habitat

Management recommendations for Washington's priority habitats

---



Washington  
Department of  
**FISH &  
WILDLIFE**

January 2, 2024



Cover photo by Isaac Holowatz. Oregon white oak tree in Thurston County.

**Suggested citation**

Nolan, M. P., and J. M. Azerrad. 2024. Management recommendations for Washington's priority habitats: Best management practices for mitigating impacts to Oregon white oak priority habitat. Washington Department of Fish and Wildlife, Olympia, Washington.

---

Request this information in an alternative format or language at [wdfw.wa.gov/accessibility/requests-accommodation](https://www.wdfw.wa.gov/accessibility/requests-accommodation), 833-855-1012, TTY (711), or [CivilRightsTeam@dfw.wa.gov](mailto:CivilRightsTeam@dfw.wa.gov).

## Acknowledgements

The authors would like to thank the numerous individuals who contributed their time and expertise to help develop the *Management Recommendations for Washington's Priority Habitats: Best Management Practices for Mitigating Impacts to Oregon White Oak Priority Habitat*. We are particularly grateful to our reviewers: Karen Adams, WDFW; Jessica Bryant, WDFW; Allison Cook, City of Tacoma; Brent Davis, Clark County; Warren Devine, DNR; David Howe, WDFW; Ted Labbe, Urban Greenspaces Institute; Darrin Masters, WDFW; Julia Michalak, WDFW; Amaia Smith, WDFW; Jonathan Soll, Portland Metro Regional Government; and Richard Tveten, WDFW. Thank you to George Fornes at WDFW for helping us make improvements to the Oregon white oak functional assessment. Thank you also to Amaia Smith at WDFW for field testing the Oregon white oak mapping protocol.

# Contents

Acknowledgements.....	2
Purpose .....	4
What is an Oregon white oak woodland?.....	4
Status of oak woodlands .....	4
Significance Of Oregon white oak woodlands .....	5
Overview of the Oregon white oak mitigation sequence.....	6
Avoidance.....	7
Minimization .....	7
Compensation .....	8
The importance of prioritizing avoidance and minimization.....	8
Developing compensatory mitigation plans .....	9
Initial site assessment and calculation of ecological function .....	11
Designing mitigation plans that offset the temporal loss of function .....	14
Designing mitigation plans that offset the physical loss of habitat .....	17
Literature cited.....	21
Appendices.....	24
Appendix 1: Mapping and validating Oregon white oak woodlands.....	24
Appendix 2: Willamette Partnership's rapid assessment for Oregon white oak habitat metric user guide .....	31
Appendix 3: WDFW functional assessment for individual Oregon white oak trees.....	32

## Purpose

This publication provides guidance for offsetting impacts on Oregon white oak habitat when land-use activities are likely to degrade their function as wildlife habitat. It accomplishes this through guidance and direction that helps with:

- mapping the extent of Oregon white oak woodlands,
- assessing land-use impacts,
- providing strategies to avoid, minimize, and compensate for impacts,
- designing and implementing a mitigation plan, and
- post-implementation adaptive management guidance when mitigation is not going as planned.

Landowners and developers can use the measures described in this publication to help them comply with county and municipal land-use laws required by Washington's Growth Management Act.

## What is an Oregon white oak woodland?

Oregon white oak (*Quercus garryana*) trees are slow growing, with height growth of less than one foot per year and an inch in diameter growth every 15-20 years (Niemiec et al. 1995). A mature Oregon white oak (OWO) is defined as a tree that is 50-90 feet tall and at least 24 inches in diameter at standard height (Niemiec et al. 1995). The Washington Natural Heritage Program (WNHP) defines a North Pacific Oak Woodland as a community dominated or co-dominated by OWO and associated with dry, low-elevation sites or those with frequent fires pre-settlement. Oregon white oak woodlands are associated with eight different plant communities, including a wide diversity of native herbaceous and shrub species. We recommend using WNHP's [Ecological Systems of Washington State. A Guide to Identification](#) and the [NatureServe Explorer](#) tool to learn more about these plant communities. The Washington Department of Fish and Wildlife (WDFW) identifies which OWO communities are considered priority habitats through its Priority Habitats and Species program. In addition to OWO woodlands, individual OWO trees can be considered a priority habitat if they provide considerable value to wildlife. Please refer to the [Priority Habitats and Species \(PHS\) List](#) for definitions for OWO woodlands and individual trees.

In addition to woodland communities, OWO are also associated with prairies and savannas in Washington. These communities are considered wooded grasslands and are an association of upland grassland and meadows (Rocchio and Crawford 2015). While these communities are considered a priority habitat, creating mitigation plans for this unique ecosystem is not covered in this document.

## Status of oak woodlands

Oregon white oak woodlands were a significant component of the Willamette Valley and Puget Sound landscape before non-indigenous settlers colonized the region (Campbell 2004, Floberg et al. 2004). Land-use impacts have since left only fragmented remnants of this once-expansive ecosystem. Agricultural expansion, suburban and urban development, fire suppression, and conversion to more

merchantable Douglas fir (*Pseudotsuga menziesii*) have dramatically reduced the extent of these woodlands (Holland 1994, Vesely and Rosenberg 2010).

Oregon white oak communities are now one of North America's most imperiled vegetation types (Vesely and Rosenberg 2010, Rocchio and Crawford 2015). Estimates suggest that the extent of oak communities now account for less than 10% of their historic range before non-indigenous settlement (Vesely and Rosenberg 2010). Populations of many associated species have also declined partly because of their reliance on declining oak woodlands (Altman and Stephens 2012).

Because of its significant value as habitat to native wildlife populations and due to the sharp decline of oak habitat in the state, many OWO woodlands are designated as a priority habitat by WDFW (WDFW 2008). The agency's [State Wildlife Action Plan](#) also identifies it as an ecosystem of concern and a Habitat of Greatest Conservation Need for its value to a disproportionately high number of Washington's Species of Greatest Conservation Need (SGCN; WDFW 2015).

## Significance Of Oregon white oak woodlands

Oak woodlands are highly biodiverse ecosystems that are associated with a wide range of species (Thysell and Carey 2001, Vesely and Rosenberg 2010, Michalak 2011), including more than 200 species of native wildlife (Campbell 2004, Vesely and Tucker 2004). This includes the state-threatened western grey squirrel (*Sciurus griseus*; Michalak 2011), several species of *Cinipidae* wasps that are OWO specialists (Vesely and Tucker 2004), as well as a diverse bird community (Altman and Stephens 2012). A host of endangered, threatened, and sensitive species of plants are also associated with oak ecosystems in Washington (WNHP 2021)

Individual oak trees and oak communities provide several critical ecological functions for native fauna, with mature oaks providing the most value (Altman and Stephens 2012). One of their most critical functions is as a food source through their production of acorns. Oregon white oaks do not begin producing acorns until they are approximately 20 years old (Vesely and Tucker 2004). Once a tree begins producing acorns, that tree then can produce annual crops that typically ripen between August and November (Niemiec et al. 1995, Fuchs et al. 2000), which provides a consistent, albeit variable, food resource for many native animals (Peter and Harrington 2009, Michalak 2011, Altman and Stephens 2012). The structure of oak trees also provides important habitat and cover for numerous species. The mushroom-shaped architecture of open-grown oak trees protects animals from weather and predators and provides foraging and nesting habitat for animals (Altman and Stephens 2012).

Oregon white oaks have also been identified as important breeding, nesting, and foraging habitat for many birds (Gucker 2007). Studies have found that oak woodlands have a higher diversity of bird species relative to other regional forest types (Manuwal 2003). Over 80 species of birds are known to use OWO woodlands (O'Neil et al. 2001, Marshall et al. 2003), many of which are highly specialized in using oak ecosystems (Altman and Stephens 2012). Moreover, individual remnant OWO have an outsized influence in attracting bird communities and other wildlife, regardless of the landscape characteristics surrounding them (Vesely and Tucker 2004). Large remnant oaks, in particular, act as keystone habitat structures that provide resources that would not exist in otherwise treeless landscapes (DeMars et al. 2010). The bird community in oak ecosystems is disproportionately characterized by cavity nesters,

foliage gleaning, and resident species (Altman and Stephens 2012). Research also shows more neotropical migrating bird species using oak woodlands than conifer-dominated stands (Anderson 1972, Hagar and Stern 2001, Manuwal 2003). Cavity-nesting birds have a greater affinity to oak woodlands than other types of forest, likely due to the greater abundance of tree cavities in OWO compared to other types of trees (Gumtow-Farrior 1991). Tree cavities are particularly prevalent in older large or open-grown oaks. Oregon white oak communities with old, mature trees are also associated with dead and decaying wood, with an average of four dead-standing "snags" per acre (Vesely and Tucker 2004). Dead wood is a critical component of woodland food webs, with dead and downed wood providing habitat for several species, including the ash-throated flycatcher (*Myiarchus cinerascens*) and blacked-capped chickadee (*Poecile atricapillus*; Altman and Stephens 2012).

Other taxa in the region also rely on OWO ecosystems as habitat. Numerous mammals take opportunistic advantage of the acorn crops, tree cavities, and other special attributes of oak stands (Vesely and Rosenberg 2010). This includes the Washington State listed western gray squirrel, which often rely on large diameter oaks as a reliable food source, and for cavities, which they use as natal dens (Linders et al. 2010). Several reptile SGCNs are also closely affiliated with oak habitat (WDFW 2015). This includes the northwestern pond turtle (*Actinemys marmorata*), listed as a state-endangered species in Washington. Oak habitat, particularly in eastern Washington, has more closely allied reptile SGCNs than any other ecosystem in the state except for shrubsteppe (WDFW 2015). Many moths and butterflies are also closely reliant on oak woodlands, including nearly 20 species of rare or management-sensitive moths and butterflies (Miller and Hammond 2007). One notable butterfly species closely associated with oak ecosystems is Taylor's checkerspot (*Euphydryas editha taylori*). Taylor's checkerspot is listed as Federally Endangered under the Endangered Species Act.

## Overview of the Oregon white oak mitigation sequence

The mitigation sequence is a framework of iterative actions that should be followed to ensure that a project results in no-net-loss of ecological function to wildlife habitats, which are often protected through critical area ordinances ([RCW 36.70A.060](#)). The actions within the mitigation sequence should be assessed sequentially and are listed in order of preference:

- **Avoidance** is when projects are designed in a way that leads to no loss of OWO function.
- **Minimization** is when projects are designed to limit the degree or magnitude of loss of OWO habitat function.
- **Compensation** is when additional actions are needed to offset impacts to OWO function.

The following sections provide guidance on using the mitigation sequence when planning for development that impacts OWO habitat.

## Avoidance

Avoidance is always the first and most preferred action to consider in the mitigation sequence framework. Avoidance is particularly critical for OWO due to its slow growth rate compared to many other native tree species and because their function increases as they age. This slow growth rate and slow gains in ecological function make replacing lost habitat function, particularly for mature oak trees, an almost impossible task. The physical loss of habitat is compounded by a temporal loss in ecological function when established OWO are replaced by planting young trees. Even in the most ideal and nurturing conditions, these trees will take many generations to reach the size of functional established trees, especially when harvested oak trees are mature. Successfully establishing planted OWO trees becomes even harder in less ideal conditions or without a long-term maintenance plan. Consequently, many years will pass until planted trees become big enough to match the habitat function of the trees they replaced.

Those years that pass then constitute time where all or some of the ecological function provided by the former habitat is absent, resulting in a temporal loss of function. This time lag makes it difficult for mitigation to meet the standard set by the Growth Management Act of no-net-loss ([WAC 365-196-830](#)) or a net gain of ecological functions and values. Avoidance of OWO habitat generally means neither removing trees nor impacting the ecosystem function of OWO habitat.

There are many examples of strategies to avoid the potential impacts of development on OWO habitat. Some strategies include the use of cluster development. This approach is particularly applicable when parcels are large enough to cluster homes away from stands of OWO. Other strategies can include using conservation tools and market-based incentives such as conservation easements and transfer of development rights. The use of incentives and other strategies can help maintain OWO habitat function by avoiding the need to remove individual OWO trees.

## Minimization

When all practicable means, alternatives, and options for avoidance have been seriously considered and exhausted, project applicants should identify a strategy to minimize impacts to established OWO habitat. Common strategies include reducing the project's footprint and intensity, siting a project further away from higher quality habitat, or using low-impact construction practices. An adequate minimization strategy should avoid removing high-functioning individual trees and retain as much OWO habitat function as possible.

A successful strategy will ultimately be designed around the site-specific opportunities to benefit oak habitat and associated species. Often, there will be more opportunities to minimize the negative impacts on oak habitat when a parcel is relatively large or consists of varying levels of habitat quality. Options to minimize impacts may be more limited on smaller parcels or parcels with less varied habitat, especially on parcels entirely made up of high-quality oak woodlands. This is because larger parcels with more varied habitat can often have a combination of lesser quality habitat where development can be sited while also containing areas of higher quality habitat that can be set aside and protected as mitigation. Parcels almost entirely comprised of higher quality habitat or where options to minimize impacts are limited should be strong candidates for avoiding the impacts altogether.

It is also important to minimize impacts to OWO during the construction process. All projects with OWO habitat within the project area should have an International Society of Arboriculture (ISA) certified arborist present when construction work is happening near trees. Projects should also follow the best management practices (BMP) outlined in the [Tree Protection on Construction and Development Sites](#) (Ries et al. 2009). This is a BMP guidebook published by Oregon State Extension Service. Of particular importance for oak trees is for construction crews to delineate and fence off the tree's critical root zone and avoid impacting that area. Having a certified ISA arborist available for consultation can help avoid accidental damage and potential mortality to OWO during the construction process.

Incorporating existing OWO into landscaping can be another way to minimize impacts. However, it is important to note that OWO should not be included in areas with permanent irrigation as individuals can die from root rot caused by *Armillaria* spp. (honey fungus). Another thing to consider is that as OWO mature, limbs on the trees commonly die and fall to the ground. This is a natural process that provides important habitat for native wildlife. To avoid future conflicts with this natural process and accidental destruction of property, give oaks plenty of space in the landscaping (at a minimum, development should be outside the critical root zone or the edge of the canopy, whichever is larger) and avoid placing trees near parking lots or other structures where falling limbs could cause damage.

## Compensation

The last alternative in mitigation sequencing is compensatory mitigation. Compensatory mitigation occurs when ecosystem function is lost due to habitat removal. Compensatory mitigation should ideally take place on-site or as close to the site as possible when options for on-site mitigation are limited. This is the least preferred alternative from a conservation standpoint because of the physical and temporal loss of OWO habitat. **Any plan for compensatory mitigation must address both the physical loss of OWO habitat and the temporal loss in ecological function.**

Because of the time it takes for OWO to grow and mature, compensatory mitigation will require significantly more land area to compensate for the impacted area. To offset the physical loss of habitat, new oak trees should be planted and accompanied by a comprehensive long-term maintenance plan to ensure successful OWO establishment. Remnant OWO habitat with established oaks should also be secured, protected, and enhanced to offset the temporal loss in function. **The planted and enhanced sites are separate acreage requirements that are both needed to offset the approximate loss of habitat function.** In the following sections, we describe a strategy for compensatory mitigation that includes mitigation ratios. We outline strategies below that aim to offset the loss of habitat function.

## The importance of prioritizing avoidance and minimization

Because of its slow growth and value to native wildlife, the loss of OWO to development should be avoided. Given that overall habitat function increases with oak stand age, achieving no net loss through compensatory mitigation becomes increasingly difficult when trying to mitigate the loss of more mature oaks. For this reason, we strongly advise against compensatory mitigation for older, mature trees and patches. **Many of the mature oak trees seen across the landscape are hundreds of years old and will take at least that long to replace.** This should be kept in mind when reviewing development proposals

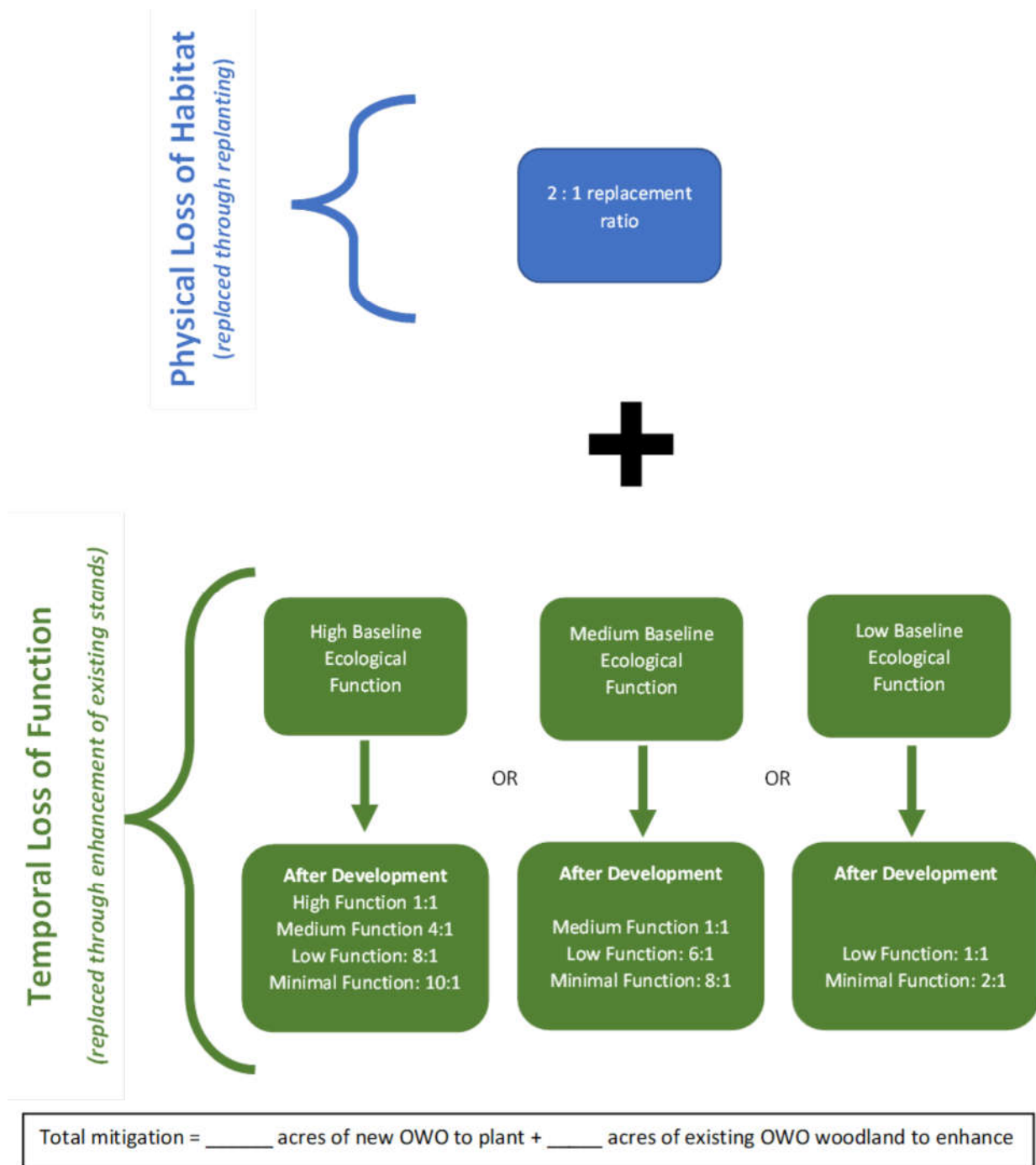


that impact this ecosystem and is why avoiding and minimizing impacts to mature OWO habitat during the development process is essential. We recognize, however, that impacts on some OWO habitat are unavoidable given reasonable use of property, prior zoning decisions, and existing rights-of-way or public infrastructure. To this end, we outline BMPs that can be used to design mitigation plans that can come as close as possible to achieving no-net-loss of ecological function. However, removing intact, mature OWO communities cannot realistically be offset through compensatory mitigation.

## Developing compensatory mitigation plans

The long lifespan of OWO makes it a challenge to develop a compensatory mitigation plan that can offset the loss of ecological function. Many of the critical ecological functions OWO provides are only provided by mature trees, with trees gaining functional capacity as they age. Thus, the loss of functional mature trees can take many decades to replace with young seedlings or saplings. This temporal loss of habitat function further compounds the physical loss of mature trees.

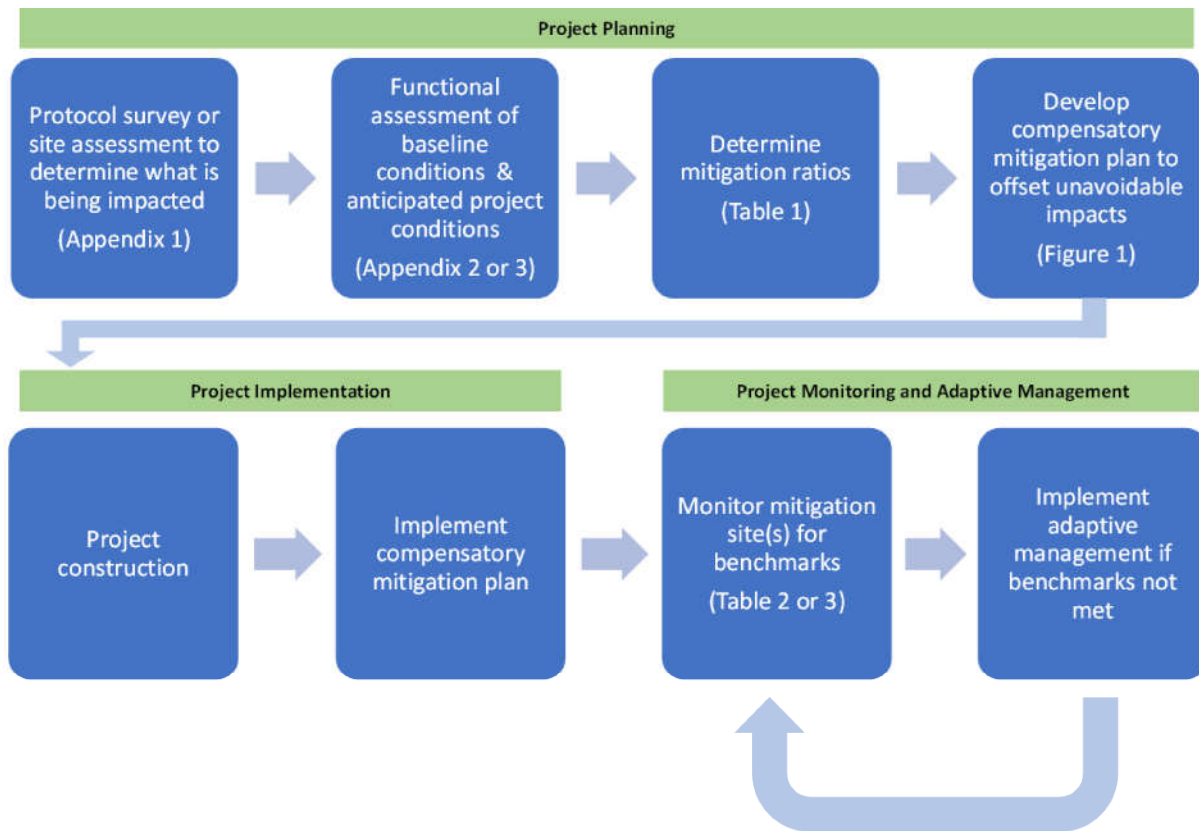
**For this reason, mitigation is needed to offset the *temporal* loss in function when mature oak stands or individual trees are removed (Figure 1). This is in addition to the mitigation needed to offset the *physical* habitat loss.**



**Figure 1.** Visual representation of the two parts of compensatory mitigation needed when Oregon white oak habitat is impacted during development. The physical loss of habitat represents the loss of the trees and habitat whereas the temporal loss represents the function lost that will not be immediately replaced by newly planted seedlings.

**Protecting all mitigation areas (both enhancement and newly replanted areas) through perpetuity with a conservation easement or other similar tool is also essential to ensure the function gained is protected and not lost to future development.** Below, we describe BMPs for designing compensatory

mitigation plans to offset the total ecological impacts (i.e., temporal plus physical loss) when OWO woodlands or individual trees are removed (Figure 2).



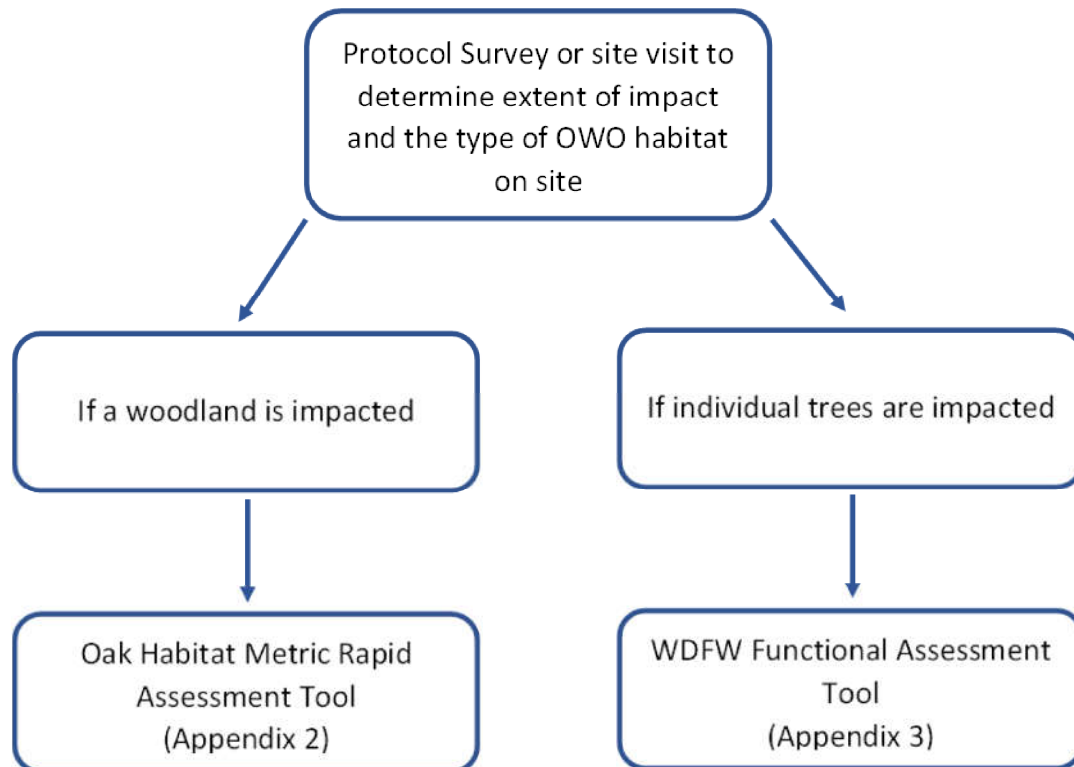
**Figure 2.** Conceptual timeline of the development and implementation of a mitigation plan. Mitigation plan design begins with initial site assessments to establish baseline conditions with subsequent assessments used to determine the net impact on OWO habitat. Mitigation plans are then implemented during or after construction and then maintained and monitored for a set number of years to ensure mitigation projects are successfully achieving no-net-loss of ecological function.

## Initial site assessment and calculation of ecological function

Before developing a compensatory mitigation plan, the type, quantity, and quality of habitat being impacted needs to be calculated. This information will help determine the mitigation required to offset the loss of function when OWO is removed from the landscape. The initial site assessment needs to be done at the beginning of the planning process for a development so the information can be incorporated into the project's design. **Often, by incorporating avoidance and minimization into the planning and design at the onset, one can substantially reduce the amount of compensatory mitigation required without compromising the project's needs.**

Stands of OWO on parcels proposed for development should be mapped using the protocol for "Mapping and Validating Oregon White Oak Woodlands" (Appendix 1). This protocol will help quantify the area of impact and identify if an area meets the Priority Habitats and Species OWO woodland definition. It is not designed to identify individual oaks that meet the PHS definition. Consult with a WDFW biologist familiar with OWO ecosystems to identify if an individual oak meets the PHS definition.

After the extent of OWO habitat is quantified using the mapping protocol or in consultation with a trained biologist, one of two functional assessments should be conducted. These functional assessments are meant to identify the kind of mitigation that will be needed to offset the loss of functional OWO habitat (Figure 3). The mapping protocol and the functional assessments are accessible and easy to use. Data needed for both functional assessments can be collected after a single site visit and with readily available online tools.



**Figure 3.** Flow chart for identifying which assessment tool is needed to determine the baseline function of a site after conducting the protocol survey.

Sometimes OWOs will occur within or adjacent to other types of critical areas (e.g., riparian habitat). In these instances, a project proponent will need to ensure that their project can achieve no net loss of function for oaks and other critical areas. We encourage contacting the local [WDFW area habitat biologists](#) in these instances.

**A functional assessment should be done if the protocol survey identifies that the proposed project will impact an OWO woodland.** We recommend using the [Oak Habitat Metric rapid assessment tool](#) (Willamette Partnership 2012) or the oak woodland functional assessment calculator (Appendix 2). This should be done for the area of impact. The resulting output of this tool will be the percent of habitat function provided by OWO on the assessed site. A score of 100% would represent a fully functioning OWO system using this assessment. A highly functional site will score >75%, a medium functional site will score between 50-75%, a low functional site will score between 25-50%, and a minimal functional site will score <25%.

**If only individual oak trees are impacted**, then the WDFW assessment tool should be used (Appendix 3). The output of this tool provides a number between 2 and 20, with 20 representing the highest amount of function a single tree can provide. A highly functional tree will score  $\geq 10$ , a medium functional tree will score between 7-9, a low functional tree will score between 4-6, and a minimal functional tree will score  $\leq 3$ . Each tree should be assessed individually.

The functional assessment tools are designed to quantify how a development project will impact the ecological function of a site. Each functional assessment should be done twice. First, to get the baseline function. A second assessment should then be done to anticipate the impacts of proposed projects before they occur (e.g., remove trees or features from the site if they are proposed to be removed in the project). This subsequent assessment can be done for multiple alternative development scenarios to compare how different project designs will impact OWO habitat function.

When the site being impacted is part of a larger oak woodland stand, a separate functional assessment should also be done on the entire woodland before and after the project. This is in addition to the assessment of the site. A functional assessment of the whole woodland is needed to assess for any indirect impacts of the project on the larger OWO woodland's function (e.g., larger oak woodland stand is high functioning pre-project but medium functioning post-project). If the project's site scale impacts negatively impacts the functioning of the larger OWO habitat, we recommend including additional mitigation to offset these impacts.

**Temporal mitigation will increase as the amount of function lost to development increases. Because more function can be lost in high-functioning sites (compared to lower-functioning sites), impacts to high-function sites can result in the highest ratios for temporal mitigation (Table 1).**

**Table 1.** Mitigation Ratios for Temporal Impacts based on functions determined by the WDFW Functional Assessment tool or Oak Habitat Metric rapid assessment.

Baseline Ecological Function	Ecological Function After Development	Mitigation Ratio
High	High	1
	Medium	4
	Low	8
	Minimal	10
Medium	Medium	1
	Low	6
	Minimal	8
Low	Low	1
	Minimal	2
Minimal	Minimal	1

## Designing mitigation plans that offset the temporal loss of function

### What activities can offset the temporal loss of ecological function?

Many of the remnant stands of oak today have shifted in form and function from historic conditions (Gilligan and Muir 2011). While degraded, these existing oak stands present a valuable opportunity for mitigating land-use impacts on OWO. **Degraded stands of existing OWO habitat are ideal areas to enhance remnant oak habitat to offset the interim temporal loss of ecological function.**

Lost ecological functions can be gained back through targeted restoration of degraded sites with established oaks, particularly where oaks are threatened by encroachment from Douglas fir or development. How best to enhance any given stand will vary depending on the landscape and site context and are too varied to describe here. So, below, we describe some common enhancement activities that can help improve the ecological function of a degraded site. We recommend working with a qualified biologist or WDFW area habitat biologist to assess your enhancement plan. They can help to make sure that the plan will achieve the desired outcome. It is also important to employ the BMPs described in [Tree Protection on Construction and Development Sites](#) when working around mature OWO during restoration projects, as many techniques can be invasive.

Some examples of ways to enhance a degraded remnant oak stand include:

#### 1) Reducing densities of competing trees in OWO stands:

Prior to non-indigenous settlement, oak woodlands consisted of mature trees with relatively open canopies. Mature oaks took on mushroom-shaped crowns that mostly did not overlap with the crowns of adjacent oaks (Vesely and Tucker 2004). Many OWO woodlands are now overcrowded. Competition with faster-growing species like Douglas fir has led to smaller-crowned oaks (Vesley and Tucker 2004) that produce fewer acorns (Peter and Harrington 2002).

One effective way to improve the condition of an overcrowded oak woodland is by reducing the density of competing trees (Devine and Harrington 2006, Devine et al. 2007a, Gould et al. 2011). Oaks are released from competition by removing vegetation, allowing them to develop an open stand structure (Devine and Harrington 2006). This increases their growth and acorn production (Clements et al. 2011, Michalak 2011).

Often, selective harvesting of trees can be used to thin stands. We also recommend girdling at least some trees and leaving them on site (without increasing the fire risk) to provide valuable snag habitat. If possible, the reintroduction of prescribed fire may also be used to thin stands. Oregon white oak ecosystems are fire-adapted, and the loss of fire disturbance has been a major contributor to the degradation of these ecosystems. The loss of fire has mainly led to increased conifer encroachment of OWO, declines in OWO establishment, and increased OWO mortality (Hamman et al. 2011). While not a replacement for fire, thinning conifers and keeping the understory less dense can help mimic the benefits of fire for OWO habitat.

#### 2) Reducing the density of the OWO present in a stand:

Some remnant OWO stands can be overcrowded with young OWO. This can lead to the same detrimental conditions as those described above. Oaks cannot develop large crowns nor develop open canopies when crowded together. Early thinning of dense stands is critical (Vesely and Tucker 2004). Thinning oaks after individuals have been established increases the growth rate of

the residual trees (Gould et al. 2011). Oak stands should be assessed for thinning every 5-10 years. At that time, less vigorous trees should be removed to prevent their encroachment on adjacent oaks so that those oaks can grow unimpeded. We also encourage thinned trees to remain on site, either girdled upright or downed, to provide valuable snag habitat.

### 3) Re-establishing a native understory:

Often, the understory of remnant OWO woodlands is dominated by non-native species. Removing these unwanted species and replanting with native plants can improve the overall function of the community. While OWO are often the only tree species present under natural disturbance regimes, they tend to exist with a diverse understory of native species. There are eight distinct associations for OWO (Rocchio and Crawford 2015), all of which have distinct understory vegetation. Common understory species include shrubs such as oceanspray (*Holodiscus discolor*), serviceberry (*Amelanchier alnifolia*), snowberry (*Symphoricarpus albus*), Oregon grape (*Berberis aquifolium*), hawthorn (*Crataegus douglasii*), Roemer's fescue (*Festuca roemerii*), and California oatgrass (*Danthonia californica*). A mature oak woodland will likely have <30% cover of native understory plants (Vesely and Tucker 2004). Refer to WNHP's [Ecological Systems of Washington State. A Guide to Identification](#) for a more complete list of native species common to each OWO association. We also recommend [A Landowner's Guide for Restoring and Managing Oregon White Oak Habitats](#) By David Vesely and Gabe Tucker for more detailed guidance on developing enhancement plans.

### How much habitat needs to be protected and enhanced?

The amount of habitat needed to offset the temporal loss of ecological function should be proportional to the site's ecological function before impact and the total area of impact. The functional assessment tools identified in this document can be used to determine how much compensation is needed to offset the amount of function lost.

Table 1 provides mitigation ratios calculated from the impacted site's baseline condition and the site's predicted function after it is developed. The ratios are a multiplier of the impact area and should be used to calculate the total mitigation area. Compensation for temporal loss of function will occur in addition to the compensation for the physical loss of habitat described below.

### Where should the enhancement sites be located?

When identifying a location to offset temporal loss of ecological function, we recommend consulting with a biologist or WDFW area habitat biologist. In general, we suggest protecting stands near other stands of OWO or adjacent to lands set aside for natural resource protection (e.g., parks or open space), even if the adjacent protected lands do not have OWO present. We also recommend locations that create and protect a habitat corridor. [Priority Habitats and Species on the web](#) can be used to identify areas where OWO is likely present. Oaks are usually restricted to sites that are too dry in the summer or too wet in the winter for other faster-growing trees. These sites tend to have soils dominated by clay or gravelly loam ranging from 4.8-5.9 pH (Vesely and Tucker 2004). While mature oaks are intolerant of shade, they can regenerate in sun and shade (Devine et al. 2007b). Any sites identified need to be protected in perpetuity through a conservation easement or similar means. **We recommend locating**

**planted oaks to offset the physical habitat (described below) adjacent to or intermixed with the site being purchased and enhanced if on-site mitigation is not possible.**

### **What maintenance is needed?**

A long-term maintenance plan is needed to ensure an OWO community is successfully established. Here, we broadly describe key BMPs to improve success rates. Individual maintenance plans incorporating relevant BMPs should be created in consultation with a biologist or a local WDFW area habitat biologist. See [Planting Native Oak in the Pacific Northwest](#) (Devine and Harrington 2010) for more guidance on planting best practices.

**1) Controlling invasive and non-native vegetation immediately adjacent to any new plantings (1-5 years post planting):**

Especially in areas heavily dominated by invasive plants before enhancement activities, reinvasion by nuisance non-native species is a common problem in restoration. For example, both Himalayan blackberry (*Rubus armeniacus*) and Scotch broom (*Cytisus scoparius*) commonly reinvade dry sites in Washington. Competing invasive plants can be reduced in several ways, including routine hand pulling, physical barriers (e.g., weed cloths or mulch), or chemical treatments. This type of work must occur for multiple years to sustain its positive effects. This can be particularly true for non-native pasture grasses.

**2) Continued removal of competing trees (ongoing throughout the monitoring period):**

If nearby seed sources exist for fast-growing trees (especially Douglas fir), sites will likely require ongoing removal of competing species. We recommend assessing a site every five years and removing seedlings of any fast-growing species found during the assessment. Because Douglas fir encroachment is one of the main threats to OWO survival, removal of encroaching seedlings and saplings in the absence of regular prescribed fire will be needed in perpetuity.

### **How long should sites be monitored and maintained? How should success be measured?**

While oaks in enhancement sites are typically established, it takes many years to assess how well activities have worked to improve the function of established oaks. For these reasons, we strongly recommend a robust long-term monitoring and maintenance plan that lasts at least 20 years. Maintenance may be needed in perpetuity when sites are near encroaching trees.

We encourage using benchmarks for monitoring an enhanced site to ensure it moves toward a desired target condition. Benchmarks are key to tracking success and identifying when adaptive management is needed to move a site back toward recovery. Table 2 outlines recommended benchmarks to guide monitoring designs. We also recommend consultation with a biologist or a WDFW area habitat biologist to assess the suitability of any monitoring design. Monitoring in five-year intervals should ideally provide enough information to inform adaptive management (Vesley and Tucker 2004). All percentage cover totals in Table 2 are out of the total land area. Because plants overlap, percent totals can exceed 100%.



**Table 2.** Recommended monitoring benchmarks for mitigation projects designed to offset the temporal loss of function.

Benchmarks for Year 5	Benchmarks for Year 10	Benchmarks for Years 20+
90% survival of planted native species (replant to target benchmark if under 90%) Evidence of natural oak recruitment (at least ten naturally recruited oaks per acre) Non-native species cover < 25% (in any given season) Presence of OWO-associated wildlife species in enhanced habitat*	Native understory canopy cover >50% An increase in OWO canopy coverage based on initial baseline conditions Non-native species cover < 25% (in any given season) Evidence of natural oak recruitment and establishment of sapling oaks (at least ten naturally recruited oaks per acre) Presence of OWO-associated wildlife species in enhanced habitat*	Native understory canopy cover >50% OWO canopy cover approaching 30% Non-native species cover < 25% (in any given season) Evidence of natural oak recruitment and establishment of sapling oaks (at least ten naturally recruited oaks per acre) Presence of OWO-associated wildlife species in enhanced habitat*

*\*Both the [Land Manager's Guide to Bird Habitat and Populations in Oak Ecosystems of the Pacific Northwest](#) by Bob Altman and Jaime L. Stephens and [Wildlife Conservation in the Willamette Valley's Remnant Prairie and Oak Habitats: A Research Synthesis](#) by David G. Vesely and Daniel K. Rosenberg have descriptions of oak associated wildlife species.*

Our recommended benchmarks are higher than those set for a typical restoration project. These higher benchmarks reflect the inherent uncertainty with OWO mitigation and the regulatory requirement of these projects to achieve no-net-loss of function. If any benchmark is not met, use adaptive management to identify and implement strategies to alleviate the obstacle(s) hindering success. This should be done in consultation with a biologist or a local WDFW area habitat biologist. We recognize that long-term site maintenance can be difficult. Still, because of the life history of OWO ecosystems, this is necessary to ensure that a project has achieved as close to no-net-loss as possible. While the project proponent is ultimately responsible for the outcome of the mitigation project, we recommend hiring a professional experienced in OWO restoration to monitor and maintain the site. Having a professional familiar with OWO systems and the challenges associated with maintaining newly established OWO communities will likely lead to greater success.

## Designing mitigation plans that offset the physical loss of habitat

### What activities can offset the physical loss of ecological function?

When OWO habitat is removed from a site, individual trees that were removed need to be replanted to compensate for their loss. On average, only 1 in 500 germinated OWO seedlings become a mature tree (Vesely and Tucker 2004). Therefore, a 1:1 replacement ratio is unlikely to compensate for that loss. For that reason, we recommend scaling the number of seedlings to the age and maturity of the removed tree, with older trees requiring a higher planting ratio than younger trees.

Many planting options exist when reintroducing OWO to a site, including native bare-root and container-grown seedlings. We recommend planting seedlings that are 2-3 years old and at least ¼ inch in stem diameter to maximize early growth. Variable survival rates are reported for planted OWO seedlings (Gould et al. 2011, Devine et al. 2007b, Clements et al. 2011). Individual OWO seedlings planted from nursery stock in Washington had survival rates ranging from as low as 30% (Clements et al. 2011) to as high as 88% (Devine et al. 2007b) after five years. Water stress likely contributed to lower survival rates (Clements et al. 2011). We recommend sourcing seedlings or saplings that are native stock and that are from as geographically close to the planting site as possible. This will promote the maintenance of the local genetic structure.

Acorns can also be used to reintroduce OWO to a site. Using acorns can be a more cost-effective strategy. However, planting with acorns comes with its own set of challenges. This includes the difficulty with tracking their germination success. See [Planting Native Oak in the Pacific Northwest](#) (Devine and Harrington 2010) for more guidance on using acorns or choosing oak seedlings for your project.

Follow the guidance below to calculate how much mitigation is needed to offset the physical loss of habitat.

- 1) Compensating for the loss of an OWO woodland
  - To restore an acre of woodland, use a 2:1 replacement ratio. Plant 1000 trees across 2 acres
- 2) Compensating for the loss of individual locally important trees (same planting density as above)
  - For trees > 30 inches diameter at breast height (dbh), use a tree replacement ratio of 250:1
  - For trees between 24 - 30 inches dbh, use a tree replacement ratio of 200:1
  - For trees between 18 - 24 inches dbh, use a tree replacement ratio of 150:1
  - For trees between 12 - 18 inches dbh, use a tree replacement ratio of 100:1
  - For trees between 12 - 6 inches dbh, use a tree replacement ratio of 50:1
  - For trees less than 6 inches dbh, no mitigation is required

Any trees that die within the first five years should be replaced. See [Planting Native Oak in the Pacific Northwest](#) (Devine and Harrington 2010) for more guidance and best practices for planting oaks.

When a project only impacts the understory of an OWO woodland, replanting or enhancement (whichever best mitigates the impact) of the OWO understory should be restored at a 2:1 ratio (by area impacted), with the restored area being as close to the directly impacted woodland as possible.

### **What additional species should be planted?**

A native understory community should be replanted in addition to OWO to restore a functioning ecosystem fully. Expect the understory canopy coverage to be greater than the canopy coverage of the planted OWO for many years. The native species will help provide some of the critical ecological functions lost while OWOs grow. See [Ecological Systems of Washington State. A Guide to Identification](#) published by the WNHP for a complete list of native species associated with OWO woodlands.

When restoring an OWO woodland or compensating for the loss of a single OWO tree, we recommend filling the space between planted OWO with a diverse native understory community, leaving at least 5 feet of space around the OWO. Plant at least eight different native understory species.

## Where should oak mitigation sites be planted?

Any areas planted with new oaks should ideally be on the same site where the oaks are being impacted by the land-use proposal (i.e., on-site mitigation). If planting cannot occur on-site (or adjacent to the site), the next preferred option is to plant trees near or adjacent to an existing oak woodland using the guidelines described in this document.

Water availability is an important consideration for identifying a site to plant oaks. Fuchs et al. (2000) found that seedlings growing on south-facing slopes were vulnerable to death from desiccation. Open north-facing sites are generally preferable to increase planted saplings' likelihood of survival. However, the effects of aspect on water availability vary widely among sites, so local environmental conditions must be considered when choosing a site.

## What maintenance is needed?

Ongoing maintenance is essential for the newly planted OWO stand to survive and become established. We recommend using [Planting Native Oak in the Pacific Northwest](#) (Devine and Harrington 2010) to guide the development of a maintenance plan. Below, we highlight some key maintenance activities.

### 1) Irrigating newly germinated acorns or planted seedlings (2 years post planting):

We recommend watering trees because water stress is linked to low OWO seedling survival rates (Clements et al. 2011). Supplemental watering in the first year will likely benefit seedlings when combined with control of competing vegetation (Devine et al. 2007b). Alternatively, the use of mulch to maintain soil moisture has also been shown to improve growth rates between year one and year 2 (Devine et al. 2007b).

### 2) Sheltering newly planted trees from browsing (remove when trees reach ~6 feet tall):

Tree shelters can improve the likelihood that transplanted seedlings successfully establish. The slow growth of OWO seedlings leaves them vulnerable to browsing (Clements et al. 2011). In areas with high densities of browsing animals such as deer, post-planting treatments are needed to protect growing seedlings until they reach heights no longer vulnerable to browsing (Devine et al. 2007b). Solid-walled shelters, instead of meshed ones, are better for protecting saplings so they can attain heights beyond the reach of browsing animals (Devine et al. 2007b). Burying shelters a few inches below the soil can also help prevent damage and death from rodents. Mesh caps placed at the top of the tubes can prevent birds from becoming entrapped. It is important to remove tree shelters once trees grow out.

### 3) Controlling invasive vegetation around OWO plantings (annually for five years):

Reducing the competition from other plants is another way to help OWO seedlings access enough resources during the initial establishment years. Invasive grasses and other herbaceous species have been shown to reduce soil moisture significantly and lower shoot and root growth for other oak species (Gorden et al. 1989). Removing competing vegetation is important during the growing season and particularly during drought conditions because it reduces competition for water (Devine et al. 2007b). The slow growth of OWO seedlings compared to other species also makes them vulnerable to being overtopped by competing vegetation (Clements et al. 2011). Overtopped OWO saplings have significantly lower growth rates than saplings in direct sunlight (Devine et al. 2007a).

## How long should sites be monitored? How should success be measured?

Oregon white oaks are a long-lived tree species that take decades to mature. We thus recommend additional monitoring of the newly planted OWO. Survival of individual trees should be measured for the first five years to assess how successfully they are establishing. After the first five years, the growth of OWO saplings should be monitored for the next five years. Tree growth is a good indicator of the tree's health, and a high growth rate suggests adequate resource availability (Gould et al. 2011). We recommend measuring the growth rate at the same time each year, ideally between January and March (Gould et al. 2011). If the planting site is large and there are many trees to monitor, we recommend identifying permanent plots that can be measured annually.

Table 3 has recommended benchmarks for newly planted OWO woodlands. Note that these are different from the monitoring benchmarks for temporal loss due to the differences in suggested activities. Monitoring plans should be created in consultation with a biologist or a local WDFW area habitat biologist. All percent cover totals are out of the total land area. The total percent canopy cover can exceed 100% because the canopies of different plants can overlap. Regardless of the benchmarks chosen, adaptive management should be done if benchmarks are not met, especially within the first five years during the establishment phase.

**Table 3.** Recommended monitoring benchmarks for mitigation projects designed to offset the physical loss of function.

Benchmarks for Year 5	Benchmarks for Year 10	Benchmarks for Year 20	Benchmarks for Years 20+
100% survival of OWO	75% survival of OWO	OWO canopy coverage > 25%	OWO canopy coverage > 25%
90% survival of other native species	75% survival of other native species	Native understory canopy cover >75%	Native species canopy cover of at least 50%
Positive increase in canopy coverage of OWO and native species over five years	Positive rate of growth trend for OWO over five years for 75% of trees monitored	Non-native species cover < 50% (in any given season)	Non-native species cover < 50% (in any given season)
Non-native species cover < 50% (in any given season)	Native understory canopy cover >50%		Acorn production from OWO
	Non-native species cover < 50% (in any given season)		Presence of OWO-associated wildlife species in enhanced habitat*

\*Both the [Land Manager's Guide to Bird Habitat and Populations in Oak Ecosystems of the Pacific Northwest](#) by Bob Altman and Jaime L. Stephens and [Wildlife Conservation in the Willamette Valley's Remnant Prairie and Oak Habitats: A Research Synthesis](#) by David G. Vesely and Daniel K. Rosenberg have descriptions of oak associated wildlife species.

## Literature cited

- Altman, B., and J. L. Stephens. 2012. Land Managers Guide to Bird Habitat and Populations in Oak Ecosystems of the Pacific Northwest. American Bird Conservancy and Klamath Bird Observatory.
- Anderson, S. H. 1972. Seasonal Variations in Forest Birds of Western Oregon. Northwest Science 46:194 - 206.
- Campbell, B. H. 2004. Restoring Rare Native Habitats in the Willamette Valley: A Landowner's Guide for Restoring Oak Woodlands, Wetlands, Prairies, and Bottomland Hardwood and Riparian Forests. Defenders of Wildlife, Washington, D.C.
- Clements, D. R., Luginbill, S., Jordan, D. A., Van Dragt, R., and Pelant, R. K. 2011. Techniques to Promote Garry Oak Seedling Growth and Survival in Areas with High Levels of Herbivory and Competition. Northwest Science 85:172 - 181.
- DeMars, C. A., Rosenberg, D. K., and Fontaine, J. B. 2010. Multi-scale Factors Affecting Bird Use of Isolated Remnant Oak Trees in Agro-ecosystems. Biological Conservation 143:1485 - 1492.
- Devine, W. D., and Harrington, C. A. 2006. Changes in Oregon White Oak (*Quercus garryana* Dougl. ex Hook.) Following Release from Overtopping Conifers. Trees 20:747 - 756.
- Devine, W. D., Harrington, C. A., and Peter, D. H. 2007a. Oak Woodland Restoration: Understory Response to Removal of Encroaching Conifers. Ecological Restoration 25:247 - 255.
- Devine, W. D., Harrington, C. A., and Leonard, L. P. 2007b. Post-planting Treatments Increase Growth of Oregon White Oak (*Quercus garryana* Dougl. ex Hook.) Seedlings. Restoration Ecology 15:212 - 222.
- Devine, W. D., and Harrington, C. A. 2010. Planting Native Oak in the Pacific Northwest. General Technical Report PNW-GTR-804. USDA Forest Service Pacific Northwest Research Station, Portland, OR.
- Floberg, J., Goering, M., Wilhere, G., MacDonald, C., Chappell, C., Rumsey, C., Ferdana, Z., Holt, A., Skidmore, P., Horsman, T., Alverson, E., Tanner, C., Bryer, M., Iachetti, P., Harcombe, A., McDonald, B., Cook, T., Summers, M., Rolph, D. 2004. Willamette Valley-Puget Trough-Georgia Basin Ecoregional Assessment, Volume One: Report. Prepared by The Nature Conservancy with support from the Nature Conservancy of Canada, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, Oregon State Natural Heritage Information Center and the British Columbia Conservation Data Centre.
- Fuchs, M. A., Krannitz, P. G., and Harestad, A. S. 2000. Factors Affecting Emergence and First-year Survival of Seedlings of Garry Oaks (*Quercus garryana*) in British Columbia, Canada. Forest Ecology and Management 137:209 - 219.
- Gilligan, L. A., and Muir, P. S. 2011. Stand Structures of Oregon White Oak Woodlands, Regeneration, and their Relationships to the Environment in Southwestern Oregon. Northwest Science 85:141 - 158.

- Gould, P. J., Harrington, C. A., and Devine, and W. D. 2011. Growth of Oregon White Oak (*Quercus garryana*). Northwest Science 85:159 - 171.
- Gordon, D. R., Menke, J. M., and Rice, K. J. 1989. Competition for Soil Water Between Annual Plants and Blue Oak (*Quercus douglasii*) seedlings. Oecologia 79:533 - 541.
- Gucker, C. L. 2007. *Quercus garryana*. in Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Accessed at [fs.usda.gov/database/feis/plants/tree/quegar/all.html](https://fs.usda.gov/database/feis/plants/tree/quegar/all.html) on October 7, 2022.
- Gumtow-Farrior, D. L. 1991. Cavity Resources in Oregon White Oak and Douglas-fir Stands in the Mid-Willamette Valley, Oregon. Thesis. Oregon State University, Corvallis, OR.
- Hagar, J. C., and Stern, M. A. 2001. Avifauna in Oak Woodlands of the Willamette Valley, Oregon. Northwestern Naturalist 82:12 - 25.
- Hamman, S. T., Dunwiddie, P. W., Nuckols, J. L., and McKinley, M. 2011. Fire as a Restoration Tool in Pacific Northwest Prairies and Oak Woodlands: Challenges, Successes, and Future Directions. Northwest Science 85:317 - 328.
- Holland, D. C. 1994. The Western Pond Turtle: Habitat and History. Final report to the U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife, and Wildlife Diversity Program, Oregon Department of Fish and Wildlife, Portland, OR.
- Linders, M. J., Vander Haegen, W. M., Azerrad, J. M., Dobson, R., and Labbe., T. 2010. Management Recommendations for Washington's Priority Species: Western Gray Squirrel. Washington Department of Fish and Wildlife, Olympia, WA.
- Manuwal, D. A. 2003. Bird Communities in Oak Woodlands of Southcentral Washington. Northwest Science 77:194 - 201.
- Marshall, D., Hunter, M., Contreras A. 2003. Birds of Oregon: A General Reference. Oregon State University Press, Corvallis, OR.
- Michalak, J. 2011. Effects of Habitat and Landscape Structure on Oregon White Oak (*Quercus garryana*) Regeneration Across an Urban Gradient. Northwest Science 85:182 – 193.
- Miller, J. C., and Hammond., P. C. 2007. Butterflies and Moths of Pacific Northwest Forests and Woodlands: Rare, Endangered, and Management-sensitive Species. FHTET-2006-07. USDA Forest Service Forest Health Technology Enterprise Team, Morgantown, WV.
- Niemiec, S. S., Ahrens, G. R., Willits, S., and Hibbs., D. E. 1995. Hardwoods of the Pacific Northwest. Research Contribution 8, Forest Research Laboratory, Oregon State University, Corvallis, OR.
- O'Neil, T. A., Johnson, D. H., Barrett, C., Trevithick, M., Bettinger, K. A., Kiilsgaard, C., Vander Heyden, M., Greda, E. L., Stinson, D., Marcot, B. G., Doran, P. J., Tank, S., Wunder, L. 2001. Matrixes for Wildlife–Habitat Relationship in Oregon and Washington. in Johnson, D.H., O'Neil, T.A. (Editors), Wildlife–Habitat Relationships in Oregon and Washington. Oregon State University Press, Corvallis, OR.

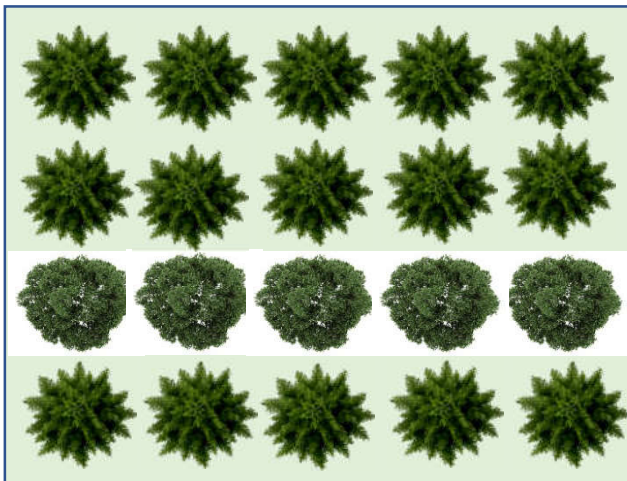
- Peter, D. H., and Harrington, C. A. 2002. Site and Tree Factors in Oregon White Oak Acorn Production in Western Washington and Oregon. *Northwest Science* 76:189 - 201.
- Peter, D. H., and Harrington, C. A. 2009. Synchronicity and Geographic Variation in Oregon White Oak Acorn Production in the Pacific Northwest. *Northwest Science* 83:117 - 130.
- Ries, P. D., Godwin, D., Foster, S., McNaughton, M., Cahill, M., Fitzgerald, T., Freed, J., Johns, S., and Mead., L. 2009. Tree Protection on Construction and Development Sites: A Best Management Practices Guidebook for the Pacific Northwest. Oregon State University Extension Service, Corvallis, OR.
- Rocchio, F. J., and Crawford, R. C. 2015. Ecological Systems of Washington State: A Guide to Identification. Washington Department of Natural Resources Natural Heritage Program. Olympia, WA.
- Thysell, D. R., and Carey, A. B. 2001. *Quercus garryana* Communities in the Puget Trough, Washington. *Northwest Science* 75:219 - 235.
- Vesely, D. G., and Rosenberg, D. K. 2010. Wildlife Conservation in the Willamette Valley's Remnant Prairie and Oak Habitats: A Research Synthesis. Oregon Wildlife Institute, Corvallis, OR.
- Vesely, D. and Tucker, G. 2004. A Landowner's Guide for Restoring and Managing Oregon White Oak Habitats. U.S. Department of the Interior, Salem, OR.
- Washington Department of Fish and Wildlife (WDFW). 2008. Priority Habitat and Species List. Available online at [wdfw.wa.gov/species-habitats/at-risk/phs/list](http://wdfw.wa.gov/species-habitats/at-risk/phs/list). Washington Department of Fish and Wildlife, Olympia, WA.
- Washington Department of Fish and Wildlife (WDFW). 2015. Washington's State Wildlife Action Plan: 2015 Update. Washington Department of Fish and Wildlife, Olympia, WA.
- Washington Natural Heritage Program (WNHP). 2021. Washington Vascular Plant Species of Conservation Concern. Report Number 2021-04. Washington Department of Natural Resources, Olympia, WA.
- Willamette Partnership. 2012. Oak Habitat Metric User's Guide and Calculator: A Rapid Assessment Measuring Oak Woodland and Savanna Habitat Quality for Improved Conservation Outcomes. Technical Bulletin. Defenders of Wildlife, Washington, D.C.

# Appendices

## Appendix 1: Mapping and validating Oregon white oak woodlands

This is intended to provide a standard procedure for mapping stands of Oregon white oak to establish if a stand meets the definition of an Oregon white oak woodland in WDFW's Priority Habitats and Species List (WDFW 2008). Oregon white oak woodland is defined in PHS by the size of the stand and its canopy cover. The definition of an Oregon white oak woodland differs depending on whether the woodland is in a rural or urban environment. It also differs depending if it is in eastern or western Washington. The complete definition of an Oregon white oak woodland is found in the PHS List (WDFW 2008).

According to the PHS definition, an Oregon white oak woodland requires a total tree canopy cover of no less than 25%. For a stand to qualify in PHS as an Oregon white oak woodland, the oak component of that total canopy cover needs to also be at least 25% (Figure A1).



**Figure A1.** Simplified diagram of a woodland showing 20 trees each of which is providing the same amount of canopy cover. The five trees in the third row are Oregon white oaks while the remaining trees are conifers. These five oaks make up 25% of the total cover provided in the stand and thus the stand qualifies as an Oregon white oak woodland in PHS.

Stands with less than 25% total tree canopy cover can also qualify under the PHS definition but would not be considered an Oregon white oak woodland. Stands with less than 25% total tree canopy cover can qualify as an Oregon white oak savanna if at least 50% of the total cover consists of Oregon white oak. This protocol, however, only deals with mapping Oregon white oak woodlands.

An Oregon white oak woodland is also defined by size (WDFW 2008). The minimum size for a stand to qualify in PHS depends on its location. Stands in western Washington qualify if they are at least an acre (0.4 hectares). In eastern Washington, a stand qualifies if it is no less than 5 acres (2 hectares). **The exception is in urban or urbanizing areas, where a stand can qualify when it is less than an acre.** In urban and urbanizing areas, some individual oak trees can also qualify as a priority in PHS when the tree has characteristics that make them particularly valuable to wildlife (WDFW 2008). Such characteristics



include open-growing oaks with mushroom-shaped crowns, large diameter mainstems, deep cavities, or when they are used by species that WDFW has identified as priority species (WDFW 2008) or species of greatest conservation need (WDFW 2015).

Mapping Oregon white oak woodlands is straightforward when the patch of woodland is relatively contiguous, greater than an acre, and has an oak canopy appreciably greater than 25% of the total canopy. Mapping of oak woodlands becomes more challenging when trees are more dispersed. For this reason, we provide the following methodology for mapping the boundary of a stand of oaks.

We have derived this methodology to map a stand and determine if it qualifies as an Oregon white oak woodland in PHS. The method involves a series of steps requiring data collection in the field and work using a Geographical Information System (GIS) application in the office. The method will help to determine if the site meets the minimum standard to qualify as an Oregon white oak woodland in PHS.

Individual oak trees will need to be mapped in the field using a Global Positioning System (GPS) unit. The data gathered with GPS technology will be downloaded for GIS viewing and processing. When taking GPS points in the field, it is important to map all oak trees on the site being assessed and any oaks on adjacent sites. The GPS reading for each Oregon white oak tree should be taken as close to the base of the tree's mainstem as possible. Point averaging or differential correction methods are advised to increase precision when taking GPS readings.

Because oak woodlands can cross into an adjacent property, GPS points should be taken for every oak tree on the assessed parcel(s) and adjacent parcels. If permission cannot be obtained to access adjacent parcels/properties, high-resolution aerial photographs can be used as an alternative to locate and mark oaks on adjacent parcels. Oak trees and particularly more mature oaks can be readily discerned from aerial photographs. They are often distinguishable from other species of trees in that they often resemble a head of broccoli when viewed on higher-resolution color aerial photographs.

### **Directions for mapping and validating oak woodland habitat in GIS**

The following steps are provided to identify and map stands of oak. This includes calculating the acreage and canopy of each stand to see if they meet the acreage and canopy threshold in PHS for Oregon white oak woodlands. The process for mapping and calculating these metrics will all require using GIS.

The first step is for the GPS point data gathered in the field to be uploaded for viewing and processing in GIS. This processing involves buffering each point by a radius of 118 feet (Figure A2). This 118-foot radius produces an area of approximately 1 acre. A 1-acre radial plot is the maximum spacing between trees that could still contain five per acre. Altman and Stephens (2012) define an oak woodland as having a minimum density of five large oaks per acre and a minimum oak canopy cover of 25%. This corresponds to what was used to identify oak woodland patches in a study to map and prioritize oak woodland habitat in Oregon and Washington (McClure and Duckworth 2021). These thresholds used by Altman and Stephens (2012) also closely correspond to the threshold used to identify priority Oregon white oak woodland habitat in PHS.



**Figure A2.** Points representing the location of the main stem of Oregon white oak trees. The green circles are 118-foot buffers surrounding each oak tree.

After buffering each oak tree, dissolve the buffers in GIS using the "dissolve" processing tool. When using this tool, uncheck "Create Multipart features" in the dissolved dialog box; otherwise, all polygons will become one large multipart polygon. This processing tool will create a new layer file where overlapping polygons are dissolved into an individual polygon (Figure A3). The resulting output will be one or more polygons representing an individual oak habitat area. Subtract buildings and other impervious surfaces from each oak habitat area by clipping out those features before proceeding to the next step.

In the next step, calculate the total acreage of each oak habitat area. To calculate total acreage, open the attribute table of the new layer file to see the attribute data for each oak habitat area. Add a new field to the attribute table. Title this field "Acres" and calculate the acreage of each oak habitat area. Right-click on the new "Acres" field heading and select "calculate geometry." Then follow the instructions to calculate acreage. This will calculate the acreage of each oak habitat area and populate that information into this field (Figure A3).



**Figure A3.** The output after buffered polygons are dissolved into individual oak habitat areas, showing the acreage of each oak habitat area. Outside urban areas in western Washington, all but the smallest of the three areas require further assessment to determine if they are woodlands. In eastern Washington, only the largest one would require further assessment.

Table A1 shows the minimum acreage requirement of an oak woodland in PHS. Proceed to the next step if any oak habitat areas meet or exceed the minimum acreage for an Oregon white oak woodland (Table A1).

**Table A1.** Thresholds for acreage and canopy coverage for an Oregon white oak woodland in PHS.

Where	Urban	Minimum acreage of an oak woodland	Minimum Relative Oak Canopy Cover
Western Washington	No	1 acre	25%
Western Washington	Yes	No minimum	25%
Eastern Washington	NA	5 acres	25%

Next, digitize the total forest canopy in each oak habitat area (Figure A4) and calculate the total acreage digitized for each area using the tool described earlier. Divide the acreage of total forest canopy cover by the acreage of each oak habitat area to see if they exceed the 25% threshold. For example, the largest oak habitat area is 6.3 acres, of which the total forest canopy cover is five acres. That means the percent total canopy cover is 79% (i.e.,  $5.0 \div 6.3$  acres), which exceeds the 25% total canopy cover threshold. Continue if any oak habitat area exceeds this threshold.



**Figure A4.** The total area of canopy cover within each oak habitat area is shown in blue. The total area of canopy coverage is labeled in acres for each of the three oak habitat areas.

The final step requires calculating the percentage of oak cover in patches with at least 25% of the total forest canopy cover. Here, the goal is to determine if an oak habitat area meets the minimum threshold of Oregon white oak tree cover. This is done by digitizing the crowns of each Oregon white oak tree within each oak habitat area (Figure A5). This can be digitized on high-resolution aerial photos when oak crowns can be discerned. When discerning oaks on aerial photos is impossible (e.g., when there is significant overlap between oak and non-oak crown cover), then map oak crown cover in the field with a handheld GPS device.



**Figure A5.** The total area of canopy cover within each oak habitat area is shown in light yellow. The total area of oak canopy cover is labeled in acres for each of the three oak habitat areas.

The total acreage of oak canopy in each oak habitat area is used to calculate the relative forest canopy cover comprised of oak. This is done by dividing the area comprised of oak crown (i.e., canopy) cover by the total forest canopy cover. For example, the largest oak habitat area has an oak crown covering a 1.7-acre area (Figure A5), while its total forest canopy covers a 5.0-acre area (Figure A4). That is a 34% (i.e.,  $1.7 \div 5.0$  acres) canopy coverage of Oregon white oak, which is greater than the threshold for oak canopy cover in PHS. The combined canopy cover of oak and non-oak tree canopy can sometimes exceed 100%, given that the canopy of oak and non-oak species can overlap. The minimum threshold of 25% oak cover still holds in forests and woodlands where the total canopy cover exceeds 100%

If, at this point, any oak habitat area meets both the minimum acreage and oak canopy threshold (Table A1), then those areas are Oregon white oak habitat woodlands as defined by WDFW's Priority Habitats and Species program (WDFW 2008). These areas should thus require protection and mitigation from activities that could degrade their function as habitat as described in Management Recommendations for Washington's Priority Habitats: Best Management Practices for Mitigating Impacts to Oregon White Oak Priority Habitat.

## Conclusions

Retain all mapped spatial and attribute data generated with this protocol, especially for sites where a land-use proposal is planned. That data will be an important tool for reviewing proposals and their potential to impact the habitat functions of Oregon white oak woodlands.

The goal of this protocol is to see if an area meets the PHS definition of an Oregon white oak woodland and to help quantify the total area of impact. This standardized protocol acts as a consistent strategy for mapping oak woodland habitat using the definition in the PHS List (WDFW 2008). If the protocol establishes the presence of Oregon white oak woodland, those woodlands should be considered a conservation priority. If the site does not qualify as an Oregon white oak woodland, any individual trees that provide valuable wildlife habitat should still be protected. When a proposed land-use activity cannot avoid impacting an oak woodland or individual tree, impacts should be mitigated using measures described in WDFW's *Management Recommendations for Washington's Priority Habitats: Best Management Practices for Mitigating Impacts to Oregon White Oak Priority Habitat*.

### **Literature cited**

- Altman, B., and J. L. Stephens. 2012. Land Managers Guide to Bird Habitat and Populations in Oak Ecosystems of the Pacific Northwest. American Bird Conservancy and Klamath Bird Observatory.
- McClure, E., and Duckworth. A. 2021. Spatial Prioritization of Oak: Task 2: Create and Score Oak Polygons – Version 4. Memo prepared by Biohabitats for the Intertwine Alliance Oak Prairie Working Group / Tualatin Soil and Water Conservation District. 12 pp.
- Washington Department of Fish and Wildlife (WDFW). 2008. Priority Habitat and Species List. Available online at [wdfw.wa.gov/species-habitats/at-risk/phs/list](http://wdfw.wa.gov/species-habitats/at-risk/phs/list). Washington Department of Fish and Wildlife, Olympia, WA.
- Washington Department of Fish and Wildlife (WDFW). 2015. Washington's State Wildlife Action Plan: 2015 Update. Washington Department of Fish and Wildlife, Olympia, WA

## **Appendix 2: Willamette Partnership's rapid assessment for Oregon white oak habitat metric user guide**

The Willamette Partnership published a rapid assessment tool that measures oak woodland habitat quality to improve conservation outcomes. The metric encompasses two parts: the habitat guide (A2a) and the calculator (A2b), which can be found at [willamettepartnership.org/oak-habitat-metric-user-guide-calculator/](http://willamettepartnership.org/oak-habitat-metric-user-guide-calculator/).

### Appendix 3: WDFW functional assessment for individual Oregon white oak trees

Metric	Present?	Multiplier	Section Score
<b>Size of Oak Trees</b> <i>(Choose one)</i>			
>76cm (30 in) dbh		6	
50 - 76 cm (20 - 30 in) dbh		5	
30 - 50 cm (12 - 20 in) dbh		3	
<30 cm (12 in) dbh		1	
<b>Condition of Crown</b> <i>(Choose one)</i>			
Well-formed/dominant		3	
Suppressed/stunted		2	
Seedling/Sapling		1	
<b>Wildlife Value</b> <i>(Choose all that apply)</i>			
Acorn production		2	
Leaves available for wildlife browsing		1	
Presence of cavities		2	
Presence of dead branches		1	
Presence of galls or fungi		1	
Presence of heart rot or carpenter ants		1	
Located near other OWO trees (<118ft)		3	
Total Score			

\* High Function = Score 10; Medium Function = Score of 7-9; Low Function = Score 4-6; Minimal Function = Score ≤3

**Total Area of Canopy (square feet) = \_\_\_\_\_**



# Management Recommendations for Washington's Priority Habitats

## *Oregon White Oak Woodlands*



Eric M. Larsen  
and John T. Morgan

January 1998



Washington  
Department of  
**FISH and  
WILDLIFE**

40903

J. Morgan 1997 © 1998

This document should be cited as:

Larsen, E. M., and J. T. Morgan. 1998. Management recommendations for Washington's priority habitats: Oregon white oak woodlands. Wash. Dept. Fish and Wildl., Olympia. 37pp.

Management Recommendations for Washington's Priority Habitats:

## OREGON WHITE OAK WOODLANDS

Eric M. Larsen and John T. Morgan

January 1998

Washington Department of Fish and Wildlife  
600 Capitol Way N  
Olympia, WA 98501-1091



# TABLE OF CONTENTS

LIST OF FIGURES .....	v
ACKNOWLEDGMENTS .....	vi
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE REGIONAL CONTACTS .....	vii
EXECUTIVE SUMMARY .....	ix
INTRODUCTION .....	1
PHS Management Recommendations .....	1
Goals .....	3
Format .....	3
DEFINITION .....	4
RATIONALE .....	4
DISTRIBUTION .....	5
HABITAT DESCRIPTION .....	6
Climate .....	6
Soil .....	6
Vegetation Communities .....	7
Tree Constituents .....	7
Understory Shrubs .....	7
Grasses and Forbs .....	8
Oak Reproduction .....	8
WILDLIFE USE .....	8
Oak Features Important to Wildlife .....	8
Oak as a Source of Cavities .....	9
Oak as a Food Source .....	9
Oak-Associated Wildlife Species and Species Groups .....	10
Woodpeckers .....	11
Western Gray Squirrel .....	11
Neotropical Migrant Birds .....	12
Invertebrates .....	12

IMPACTS OF LAND USE .....	12
Threats to Oregon White Oak .....	13
Land Conversion .....	13
Conifer Encroachment .....	13
Timber Harvest .....	14
Grazing .....	16
The Role of Fire in Oregon White Oak Woodlands .....	17
MANAGEMENT RECOMMENDATIONS .....	19
Goals .....	19
Land Use .....	19
Land Conversion and Oak Removal .....	19
Grazing .....	20
Recreation .....	21
Oak Restoration and Enhancement .....	21
Prescribed Burning .....	21
Selective Harvest and Stand Thinning .....	22
Retention of Valuable Trees .....	23
Creation of Snags When Thinning or Enhancing Oak Woodlands .....	24
Retention of Contiguous Aerial Pathways .....	25
Other Oak Enhancement Activities .....	25
REFERENCES CITED .....	26
PERSONAL COMMUNICATIONS .....	31
APPENDICES .....	33
Appendix A. Common and scientific names of plants and animals mention in the text. . . .	33
Appendix B. Invertebrates known to occur in Oregon white oak woodlands .....	34

## LIST OF FIGURES

Figure 1. Range of Oregon white oak woodlands in Washington ..... 5

## ACKNOWLEDGMENTS

Appreciation is extended to all those individuals who assisted in bringing this document to completion. In particular, Noelle Nordstrom and Stephen Penland who assisted with editing and formatting and Darrell Pruett who created the cover illustration. Also, the Department would like to thank the many individuals who provided information and who reviewed the document.



## WASHINGTON DEPARTMENT OF FISH AND WILDLIFE REGIONAL CONTACTS

**For Assistance with PHS Information Specific to Your County, Contact the Following WDFW Representative.**

### **If you live in...**

Asotin, Columbia, Ferry, Garfield, Lincoln,  
Pend Oreille, Spokane, Stevens, Walla Walla, Whitman

Adams, Chelan, Douglas, Grant, Okanogan

Benton, Franklin, Kittitas, Yakima

Island, King, San Juan, Skagit, Snohomish, Whatcom

Clark, Cowlitz, Klickitat, Lewis, Skamania, Wahkiakum

Clallam, Grays Harbor, Jefferson, Kitsap, Mason, Pacific, Pierce,  
Thurston

### **Contact...**

John Andrews  
8702 N. Division St.  
Spokane, WA 99218-1199  
Phone: (509) 456-4082

Tracy Lloyd  
1550 Alder St. NW  
Ephrata, WA 98823-9699  
Phone: (509) 754-4624

Ted Clausing  
1701 24th Ave.  
Yakima, WA 98902-5720  
Phone: (509) 575-2740

Ted Muller  
16018 Mill Creek Blvd.  
Mill Creek, WA 98012-1296  
Phone: (206) 775-1311

Bryan Cowan  
2108 Grand Blvd.  
Vancouver WA 98661  
Phone: (360) 696-6211

Steve Keller  
48 Devonshire Rd.  
Montesano, WA 98563-9618  
Phone: (360) 249-4628



## EXECUTIVE SUMMARY

Oregon white oak (*Quercus garryana*) is Washington's only native oak. Although limited and declining, oaks and their associated floras comprise distinct woodland ecosystems. The various plant communities and stand age mixtures within oak forests provide valuable habitat that contributes to wildlife diversity statewide. In conjunction with other forest types, oak woodlands provide a mix of feeding, resting, and breeding habitat for many wildlife species. More than 200 vertebrate and a profusion of invertebrate species use Washington's oak woodlands. Some species occur in especially high densities, whereas others are not typically found in Washington. Oaks provide habitat for species that are state listed as Sensitive, Threatened, Endangered, or candidates for these listings.

Oregon white oaks occur within the Puget Trough, Washington's south-central counties, along the Columbia Gorge, and northward along the east side of the Cascade range. Some small stands and relict groves can be found in the San Juan Islands, along Hood Canal, and in the Willapa Hills. Oregon white oaks are generally restricted to lower elevations, drier areas, and areas with historically limited conifer competition. West of the Cascades, oaks are found within the Western Hemlock Forest Zone and often occupy the narrow sub-zone between prairies and conifer forests. East of the Cascades, oaks are found within the Ponderosa Pine Forest Zone and occupy the transition zone between conifers and shrub-steppe. The Columbia Gorge is a transitional area where a mixture of east and west forest plant constituents can be found. Oregon white oaks tolerate an array of soil types but flourish in the deep loams of southwestern Washington. This tree species reproduces by seed and sprout.

Priority Oregon white oak woodlands are stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is  $\geq 25\%$ ; or where total canopy coverage of the stand is  $< 25\%$ , but oak accounts for at least 50% of the canopy coverage present. The latter is often referred to as an oak savanna. In non-urbanized areas west of the Cascades, priority oak habitat is stands  $\geq 0.4$  ha (1 ac) in size. East of the Cascades, priority oak habitat is stands  $\geq 2$  ha (5 ac) in size. In urban or urbanizing areas, single oaks, or stands of oaks  $< 0.4$  ha (1 ac), may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height [dbh], are used by priority species, or have a large canopy).

Oregon white oak woodlands are used by an abundance of mammals, birds, reptiles, and amphibians. Many invertebrates, including various moths, butterflies, gall wasps, and spiders, are found exclusively in association with this oak species. Oak/conifer associations provide contiguous aerial pathways for animals such as the State Threatened western gray squirrel, and they provide important roosting, nesting, and feeding habitat for wild turkeys and other birds and mammals. Dead oaks and dead portions of live oaks harbor insect populations and provide nesting cavities. Acorns, oak leaves, fungi, and insects provide food. Some birds, such as the Nashville warbler, exhibit unusually high breeding densities in oak. Oaks in Washington may play a critical

role in the conservation of neotropical migrant birds that migrate through, or nest in, Oregon white oak woodlands.

The decline of Oregon white oak woodlands has been accelerated by human activities --primarily oak removal. Conifer encroachment is a significant threat to remaining oaks, particularly on the west side of the Cascades and in portions of the Columbia Gorge, and is aggravated by urban development, fire suppression, timber conversion, and cattle grazing. Grazing is a primary use of oak woodlands and reduces species richness of ground cover, increases soil moisture, compacts soils, and disturbs sod, all of which may promote conifer growth and encroachment west of the Cascades. East of the Cascades, these pressures may also affect oak woodlands. In addition, the selective harvest of east-side conifers is detrimental to those wildlife species that depend on mixed oak/conifer associations. Fire suppression has also contributed to the decline of Oregon white oak woodlands. Natural fires and those intentionally set by Native Americans historically played a paramount role in oak forest ecology, especially natural oak regeneration. Frequent low-intensity fires curbed conifer encroachment, controlled stand density, and initiated oak sprouting. Today, managed burning can help restore degraded oak habitat.

Management recommendations are designed to maintain and enhance the integrity of Oregon white oak woodlands, reverse the trend of oak habitat loss, and promote the protection of oak habitat that is presently in good condition. Oaks west of the Cascades and in wetter sites along the Columbia Gorge should be cut only for stand enhancement. Replacing the wholesale removal of mixed oak/conifer stands with selective cutting would reduce fragmentation and conifer encroachment, and it would benefit structural and vegetative species diversity within oak forests. Encroaching conifers within oak groves should be thinned, and conifers adjacent to these stands should be retained for wildlife. An alternative to removing trees is to leave them standing as snags. East of the Cascades, the drier climate generally inhibits conifer growth. Conifers in this region's oak stands typically are limited and should be retained with the oaks because conifers contribute to the declining oak/pine habitat type.

Specific recommendations include the following:

- Do not cut Oregon white oak woodlands except for habitat enhancement.
- Allow only early spring, low-impact cattle grazing.
- Allow low-impact recreation (hunting, fishing, hiking, mushroom and acorn collecting).
- Selectively harvest individual oaks to improve stand age-class and structural diversity.
- Thin encroaching conifers in oak woodlands west of the Cascades and along the Columbia Gorge; do not remove conifers from mixed stands east of the Cascades.
- Retain large, dominant oaks and standing dead and dying trees.
- Create snags when thinning oaks or conifers instead of removing trees.
- Leave fallen trees, limbs, and leaf litter for foraging, nesting, and denning sites.
- Retain contiguous aerial pathways.
- Conduct prescribed burns where appropriate.

Other oak enhancement activities include the following:

- Planting Oregon white oak acorns and seedlings.
- Using alternatives to oak fuelwood.
- Selling or donating oak woodlands to conservation and land trust organizations.
- Purchasing contiguous or notable stands of oaks by local, state, and federal agencies.
- Moving toward the elimination of grazing on state-owned oak woodlands.
- Designating large, contiguous oak and oak/conifer stands as critical areas.
- Encouraging aggressive oak enhancement/regeneration measures by local, state, and federal agencies.



## **INTRODUCTION**

Fish and wildlife are public resources. Although the Washington Department of Fish and Wildlife (WDFW) is charged with protecting and perpetuating fish and wildlife species, the agency has very limited authority over the habitat on which animals depend. Instead, protection of Washington's fish and wildlife resources is currently achieved through voluntary actions of landowners and through the State Environmental Policy Act (SEPA), Growth Management Act (GMA), Forest Practices Act (FPA), Shoreline Management Act (SMA), and similar planning processes that primarily involve city and county governments. Landowners, agencies, governments, and members of the public have a shared responsibility to protect and maintain fish and wildlife resources for present and future generations; the information contained in this document is intended to assist all entities in this endeavor.

The Washington Department of Fish and Wildlife has identified those fish and wildlife resources that are a priority for management and conservation. Priority habitats are those habitat types with unique or significant value to many fish or wildlife species. Priority species are those fish and wildlife species requiring special efforts to ensure their perpetuation because of their low numbers, sensitivity to habitat alteration, tendency to form vulnerable aggregations, or because they are of commercial, recreational, or tribal importance. Descriptions of those habitats and species designated as priority are published in the Priority Habitats and Species (PHS) List (Wash. Dept. Fish and Wildl. 1996).

### **PHS Management Recommendations**

The Department has developed management recommendations for Washington's priority habitats and species to provide planners, elected officials, landowners, and citizens with comprehensive information on important fish, wildlife, and habitat resources. These management recommendations are designed to assist in making land use decisions that incorporate the needs of fish and wildlife. Considering the needs of fish and wildlife can help prevent species from becoming extinct or increasingly threatened and may contribute to the recovery of species already imperiled.

Agency biologists develop management recommendations for Washington's priority habitats and species through a comprehensive review and synthesis of the best scientific information available. Sources include professional journals and publications, symposia, reference books, and personal communications with professionals on specific habitats or species. Management recommendations are reviewed within the Department and by other resource professionals and potential users of the information. The recommendations may be revised if scientists learn more regarding a priority habitat or priority species.

It is expected that these management recommendations will contribute to the scientific component of planning, protection, and restoration efforts for fish and wildlife. These efforts include local

comprehensive plans and critical areas regulations, habitat conservation plans, individual landowner farm and forest plans, and cooperative restoration projects. These recommendations may provide a baseline for WDFW participation in other planning processes that address oak management strategies; however, WDFW will defer to negotiated agreements regarding oak management that may result from our participation in those planning processes.

Because PHS management recommendations address fish and wildlife resources statewide, they are generalized. Management recommendations are not intended as specific prescriptions but as guidelines for planning. Because natural systems are inherently complex and because human activities have added to that complexity, management recommendations may have to be modified for on-the-ground implementation. Modifications to management recommendations should strive to retain or restore characteristics needed by fish and wildlife. Consultation with fish and wildlife professionals is recommended when modifications are being considered.

Habitat management recommendations are directed at maintaining and enhancing habitat needed for a wide array of species. Although the management recommendations attempt to incorporate general requirements of most individual species, particular species with special needs are not covered in detail. Management recommendations for these particular species have been written in separate documents for each species. If differences exist in the documents, then the most protective recommendation should be implemented.

The locations of priority habitats and species are mapped statewide. These maps represent WDFW's best knowledge of Washington State's fish and wildlife resources based on research and field surveys conducted over the past 20 years. Management recommendations should be used whenever priority habitats and species occur in a particular area whether or not the WDFW maps show that occurrence. These maps can be used for initial assessment of fish and wildlife resources in an area, but they should also be supplemented with a field survey or local knowledge to determine the presence of priority habitats or priority species. The PHS data shows WDFW's knowledge of important fish and wildlife resources but cannot show the absence of these resources. In summary, management recommendations for Washington's priority habitats and species...

<u>Are:</u>	<u>Are not:</u>
Guidelines	Regulations
Generalized	Site specific
Updated with new information	Static
Based on fish and wildlife needs	Based on other land use objectives
To be used for all occurrences	To be used only for mapped occurrences



## ***Goals***

Management recommendations for Washington’s priority habitats and species are guidelines based on the best available scientific information and are designed to meet the following goals:

- Maintain or enhance the structural attributes and ecological functions of habitat needed to support healthy populations of fish and wildlife.
- Maintain or enhance populations of priority species within their present and/or historical range in order to prevent future declines.
- Restore species that have experienced significant declines.

## ***Format***

Management recommendations for each priority habitat are written in six sections:

DEFINITION	Explains those parameters that make a habitat type a priority in terms of biota, extent, structure, and function.
RATIONALE	Outlines the basis for designating the habitat as priority.
DISTRIBUTION	Summarizes information on the geographic extent of the habitat in Washington.
HABITAT DESCRIPTION	Delineates and characterizes plant communities and related abiotic factors, habitat structure and function, and topography; describes statewide habitat variation.
FISH AND WILDLIFE USE	Describes fish and wildlife use of the habitat; identifies factors that limit use of the habitat.
IMPACTS OF LAND USE	Identifies past and present land uses or practices that affect fish and wildlife use of the habitat.
MANAGEMENT RECOMMENDATIONS	Provides management guidelines based on a synthesis of the best available scientific information.

Management recommendations for Washington's priority habitats and species are intended to be used in conjunction with mapped and digital data which display important fish, wildlife, and habitat occurrences statewide. Data can be obtained by calling the PHS Data Request Line at (360) 902-2543. Questions and requests for additional PHS information may be directed to:

Priority Habitats and Species  
WDFW Habitat Program  
600 Capitol Way N  
Olympia, WA 98501-1091

## DEFINITION

Priority Oregon white oak (*Quercus garryana*) woodlands consist of stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is  $\geq 25\%$ ; or where total canopy coverage of the stand is  $< 25\%$ , but oak accounts for at least 50% of the canopy coverage present. The latter is often referred to as an oak savanna. In non-urbanized areas west of the Cascades, priority oak habitat consists of stands  $\geq 0.4$  ha (1 ac) in size. East of the Cascades, priority oak habitat consists of stands  $\geq 2$  ha (5 ac) in size. In urban or urbanizing areas, single oaks, or stands of oaks  $< 0.4$  ha (1 ac), may also be considered a priority when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height [dbh], are used by priority species, or have a large canopy).

## RATIONALE

Oregon white oak woodlands provide rare and variable habitat and comprise a distinct ecosystem that contributes significantly to the diversity of wildlife found in Washington (Connel et al. 1973, Jackman 1975, Manuwal 1989, Tweit and Johnson 1992).

Approximately 200 species of birds, mammals, reptiles, and amphibians use Washington oak forest habitat to some degree<sup>1</sup> (scientific and common names of plants and animals mentioned in the text are listed in Appendix A). Oak woodlands in Washington provide habitat for species that are state listed as Threatened or Endangered, or are candidates under consideration for state listing as Sensitive, Threatened, or Endangered (Rodrick and Milner 1991; Larsen et al. 1995, 1997). Oak stands along the Klickitat River harbor some wildlife species not normally found in Washington

---

<sup>1</sup>Sources: Beal, 1910, 1911; Steinecker and Browning 1970; Steinecker 1977; Chappell 1979; Knight 1979; Thomas et al. 1979; Menke and Fry 1980; Voeks 1981; Koenig and Heck 1988; Manuwal 1989; Kessler 1990; Riggle 1991; Macklin and Thompson 1992; Leonard et al. 1993; Andelman and Stock 1994; Storm and Leonard 1995; Wash. Dept. Fish and Wildl. 1997; and K. McAlister, D. Morrison, S. Pozzanghera, G. Schirato, L. Stream, D. Ware, B. Weiler, and M. Whalen, pers. comm.

(e.g., acorn woodpecker; Beal 1911, Tweit and Johnson 1992) and support unusually dense populations of other species (e.g., Nashville warbler; Manuwal 1989).

The decay characteristics of Oregon white oak are ideal for cavity-nesting species (Jackman 1975), and leaves and acorns provide a primary source of nutrition for an array of animal types (Christisen and Korschgen 1955, U.S. For. Serv. 1969, Miller 1985). Invertebrates that use Washington oak forests include moths, wasps, spiders, and butterflies (Appendix B). Some of these species are far more likely to be found within oaks, and invertebrate animals comprise the only known group of oak-obligate species<sup>2</sup> (Pyle 1989; L. Crabo, pers. comm.; R. Crawford, pers. comm.).

Oregon white oak habitat in Washington is declining and occurs in a limited distribution (Taylor and Boss 1975, Kertis 1986). The remaining Washington stands tend to be small, fragmented or isolated, and many have been degraded (Kertis 1986). Oregon white oak woodlands are recognized as an important element of the natural and cultural histories of Washington State; they provide aesthetic, economic, and recreational value to the citizens of Washington, and they are vital to many of the animals that inhabit them (State of Washington, Senate Resolution 1991-8654)

## DISTRIBUTION

Oregon white oak occurs from south-central California northward to southwest British Columbia (U.S. For. Serv. 1965, Taylor and Boss 1975, Franklin and Dyrness).

Historically, the distribution of Oregon white oaks in Washington was more extensive than today (Detling 1968, Taylor and Boss 1975). Oaks originally became established in Washington during the madro-tertiary period (Detling 1968). This warm and dry period peaked about 6,000 years ago, and with those favorable conditions oaks and associated flora reached their greatest distribution in the state. The subsequent trend toward cooler and moister climatic conditions has favored conifer establishment and has probably contributed to the diminished extent of Oregon white oak today (Hansen 1947). The current distribution of Oregon white oak woodlands in Washington is limited primarily to the

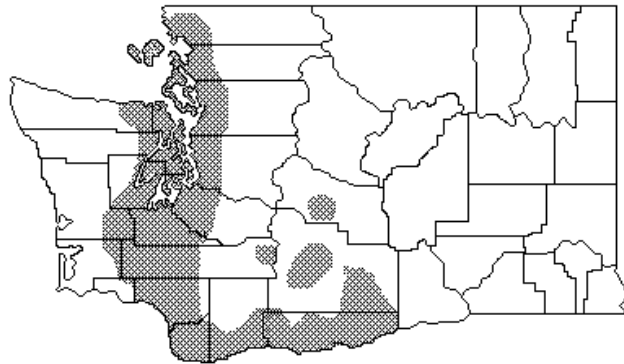


Figure 1. Range of Oregon white oak woodlands in Washington. Map derived from WDFW data files and the literature.

---

<sup>2</sup>Oak-obligate species are those that are dependent on oak for some portion of their life cycle.

Puget Trough, Washington's south-central counties, along the Columbia Gorge, and northward along the east side of the Cascade Range (Scheffer 1959, Stein 1980, Miller 1985) (Fig. 1). Some small stands and relict groves can be found in the San Juan Islands, the Willapa Hills, along the Hood Canal, and along the fringes of its current boundaries (Taylor and Boss 1975; C. Maxwell, pers. comm.). Within this limited range, oak woodlands are considered uncommon. In Washington, a shrub-like race of Oregon white oak exists on the shores and islands of Puget Sound (U.S. For. Serv. 1965).

## **HABITAT DESCRIPTION**

Oregon white oak, also known as Garry oak, is the only native oak in Washington (Scheffer 1959, Miller 1985, Kertis 1986). It is an element of several different plant community types within its range and often occupies a narrow sub-zone between prairies and conifer forests (Sprague and Hansen 1946). It is found in open savannas, in pure stands, and intermixed with conifers and other deciduous trees, but it is usually confined to drier microsites within conifer zones (Stein 1980). Oregon white oak occupies locations where soil moisture is between that supporting grasses or ponderosa pine (dry or xeric sites) and that supporting Douglas-fir (moist or mesic sites) (U.S. For. Serv. 1965). Oregon white oak can occasionally be found in wetlands; however, this is probably due to water encroachment more recent than the origination of the stand (J. Macklin, pers. comm.).

## **Climate**

In Washington, oak stands occur within the 63-102 cm (25-40 in) rainfall zone. Most important is a 10-25 cm (4-10 in) rainfall parameter during the growing season that occurs between April and September. Stands that receive more than 25 cm (10 in) of rainfall during the growing season typically encounter greater competition from faster growing coniferous tree species (Sprague and Hansen 1946, U.S. For. Serv. 1965, Taylor and Boss 1975, Franklin and Dyrness 1988).

## **Soil**

Oregon white oak is tolerant of a broad array of soil types. It is frequently found in well-drained, gravelly soils (Taylor and Boss 1975, Stein 1990), but in the Pacific Northwest it reaches optimum development in the deep loams of southwestern Washington and the Willamette Valley in Oregon (Silen 1958, Kertis 1986). This species occasionally occurs on heavy clays (U.S. For. Serv. 1965).

## **Vegetation Communities**

Because of their unique distribution in Washington, Oregon white oaks occur in association with a variety of vegetative communities and often represent a distinct ecotone. They are found within dense hardwood stands, as open savannas, and as a component of oak/conifer mixed communities.

In the moist, Douglas-fir dominated Puget Trough, Oregon white oaks are associated with sub-zones between prairie and conifer forest. Along the eastern Cascade slope, these oaks occupy the transition zone between conifers and shrub-steppe that occurs within the drier ponderosa pine region (Voeks 1981). The Columbia Gorge is a transitional area and can have characteristics similar to either side of the Cascades. Here, oaks may occur with Douglas-fir or ponderosa pine depending on the specific site.

Because Oregon white oaks are distributed in the transition zone between wet and dry extremes, a gradient of vegetation communities can be expected. In its western range and on wetter, western slopes, the associated vegetation may mimic that of nearby conifer forests where a well-developed shrub understory and a less-developed herbaceous layer are present. Eastern- or southern-facing slopes, and those areas east of the Cascades or in rain shadows, will typically exhibit less shrub understory and sometimes possess dense, herbaceous, or grassy ground cover.

### ***Tree Constituents***

West of the Cascades, Oregon white oaks are found within the Western Hemlock Forest Zone where typical tree associations include Douglas-fir, bigleaf maple, Pacific dogwood, and Oregon ash. In drier areas or areas with poor soils, oaks also may be found with Pacific madrone and ponderosa pine. East of the Cascades, oaks are found in the Ponderosa Pine and Interior Douglas-fir Forest Zones. Common associates in this drier region include Pacific madrone, black cottonwood, quaking aspen, and ponderosa pine (Silen 1958, Thilenius 1968, Kertis 1986, Franklin and Dyrness 1988, Riggle 1991).

### ***Understory Shrubs***

In the western portion of the Oregon white oak range in Washington, typical woodland understory shrub associates include ocean spray, oval-leaf viburnum, California hazelnut, serviceberry, common snowberry, wild blackberry, Indian plum, poison oak, tall Oregon grape, and scotch broom (Taylor and Boss 1975; Kertis 1986; Caicco 1989; Kessler 1990; C. Chappell, pers. comm.). Within the eastern portion of the range, poison oak, bitterbrush, and big sagebrush are common shrub constituents (Taylor and Boss 1975, Alverson 1988, Riggle 1991).

## ***Grasses and Forbs***

Large numbers of forbs and grasses are associated with oak woodlands, and many of these are dry-site species that are also associated with adjacent grasslands. Forbs found may include western bittercress, American vetch, western wood strawberry, spring beauty, chickweed, balsamroot, and lupine (Kertis 1986, Alverson 1988, Kessler 1990). Some grasses found are velvet grass, bluebunch wheatgrass, long-stoloned sedge, red fescue, Idaho fescue, western ryegrass, orchard grass, and Kentucky bluegrass (Kertis 1986; Riggle 1991; C. Chappell, pers. comm.). Cheatgrass and other non-native weed species are commonly present, especially in disturbed and grazed areas (Taylor and Boss 1975).

## **Oak Reproduction**

Oregon white oaks successfully reproduce by both seed and sprout, although natural regeneration by sprouting appears to more prevalent (Reed and Sugihara 1987, Sugihara and Reed 1987). Sprouts have a competitive advantage over seedlings because they are nourished by existing root systems (Gumtow-Farrior and Gumtow-Farrior 1994). Because acorns are a heavy seed, they do not naturally disperse far from their parent tree. Seed caching and dispersal by animals such as Douglas' squirrel, Lewis' woodpecker, and Steller's jay are probably the major long-distance dissemination mechanisms in Washington (Silen 1958, Barrett 1980, Voeks 1981).

Acorns are used by insect larvae and are often eaten by birds and mammals before germination can occur (Connel et al. 1973, Coblenz 1980, Kertis 1986, Koenig and Heck 1988). Other naturally-occurring factors that cause mortality in sprouting oaks include browsing, trampling, fire, and competition from other plants (Silen 1958, Kertis 1986).

## **WILDLIFE USE**

The diversity of wildlife species found in Washington oak habitat is closely linked to the geographic, floristic, and structural diversity present within Oregon white oak woodlands. Differences in associated plant communities, stand structure, and mixtures of age classes offer habitat variations for feeding, breeding, resting, and shelter.

## **Oak Features Important to Wildlife**

Wildlife use of Oregon white oak woodlands is dependent on structural and spatial conditions. Open-canopy stands of oak generally have more complex plant understories than closed-canopy stands and can, therefore, support more wildlife species. Oak snags and dead portions of live trees harbor insect populations and provide nesting cavities and perches for birds and mammals. Acorns

(mast) as well as leaves, fungi, and insects provide food. Oak/conifer associations provide contiguous aerial pathways for squirrels and other animals.

### ***Oak as a Source of Cavities***

Many wildlife species use cavities for nesting, resting, and escape from inclement weather and predators (Barrett 1980, Manuwal 1989, Guntow-Farrior and Guntow-Farrior 1994). Cavities can develop in dead trees (snags), dead portions of live trees, and sound live trees. Non-excavated cavities develop in live trees after decay-causing organisms infect a wound, such as a broken bole or branch, and the tree grows around the wound to contain the decay (Guntow-Farrior and Guntow-Farrior 1994). Excavated cavities, typically formed in dead trees or weakened portions of live trees, are created by the active removal of wood fiber by birds. Only a few bird species (primary cavity users) are capable of creating cavities, but many species (secondary cavity users) use pre-formed cavities.

A number of natural pressures can weaken portions of an oak or cause them to perish, thus providing better opportunities for primary excavators to produce cavities. Some trees succumb to defoliating insects or insects that attack by creating galls between the tree's bark and wood (U.S. For. Serv. 1965). Recent insect blights have occurred in Klickitat County where already drought-stressed trees have succumbed (B. Weiler, pers. comm.).

Thirty-one species of fungi also affect Oregon white oak. Some inhibit growth, and others kill trees. The major decay fungi are shoestring root rot (*Amillaria mellea*) and trunk rot (*Polyporus dryophilus*) (U.S. For. Serv. 1965). Decomposing fungi, coupled with the rotting characteristics of this oak species, simplify the excavation of cavities for woodpeckers by softening wood (Jackman 1975). The process is often facilitated by the loss of limbs that expose heartwood (Guntow-Farrior 1991).

### ***Oak as a Food Source***

The quantity and quality of food available to an animal influence its activities, health, and ability to reproduce (Christisen and Korschgen 1955). Woodpeckers forage heavily for insects on the trunks, branches, and twigs of oaks (Jackman 1975). Oak mast (acorns) and foliage constitute a significant percentage of the diet of many birds, mammals, and invertebrates (Voeks 1981; Miller 1985; Pyle 1989; L. Crabo, pers. comm.; R. Crawford, pers. comm.), and it is possible that acorns influence more wildlife species than any other single kind of natural food (Christisen and Korschgen 1955, U.S. For. Serv. 1969). Christisen and Korschgen (1955) reported that as many as 186 species of birds and mammals use oak species as a food source. This number exceeds that recorded for any other genus of woody plants, with the possible exception of *Rubus* (various berry species).

*Leaves.* The leaves of Oregon white oak are browsed by deer and elk. Oak leaves may be a significant food source at times because they possess a protein content nearly equal to that of alfalfa (Miller 1985). Oak woodlands, which provide food sources for deer and other animals, also support predator populations. Mountain lions, for instance, are dependent to some degree on deer for food. Therefore, those oak woodlands that contribute to a healthy deer population also may contribute to a healthy lion population (Barrett 1980). During larval stages, some invertebrates (oak-obligates) rely exclusively on the leaves of Oregon white oak (Pyle 1989; L. Crabo, pers. comm.; R. Crawford, pers. comm.).

*Acorns.* Acorn production by Oregon white oaks is sporadic. These oaks produce significant crops of acorns every few years, but reasons to explain the periodicity of acorn production are not known (Silen 1958). In production years, acorns develop through the growing season and mature seeds fall in September or October (U.S. For. Serv. 1965).

In California, approximately 45 wildlife species consume acorns, including woodpeckers, band-tailed pigeons, Steller's jays, raccoons, and ground squirrels (Connel et al. 1973). In Virginia and Missouri, acorns proved to be a significant staple for wild turkeys, wood ducks, mallards, raccoons, and skunks (Christisen and Korschgen 1955). Oregon consumers of acorns include western gray squirrel, Douglas' squirrel, black bear, and Lewis' woodpecker (Voeks 1981). All of these acorn consumers are found within or near Washington's oak woodlands.

In a study among Oregon white oak stands near Corvallis, Oregon, Coblenz (1976) found that acorns comprised 9-93% by weight of the stomach contents of 4 black-tailed deer collected. Overall consumption of acorns by small mammals was also high. Sixty-one percent of the acorns in experimental savanna enclosures, and 96% from closed canopy forest enclosures, were consumed by small mammals.

In California, acorns comprise over 50% of the diet of acorn woodpeckers and are critical to overwinter survival and subsequent spring breeding (Koenig and Heck 1988). Acorn woodpeckers are considered rare in Washington and are known to occur only near Lyle, Klickitat County (Beal 1911, Tweit and Johnson 1992). The scrub jay, more common to Klickitat County, also commonly uses acorns and can be considered dependent on acorn production (Beal 1910).

## **Oak-Associated Wildlife Species and Species Groups**

Oak forests in Washington harbor many kinds of animals. Many of these are so highly associated with oak woodlands that they have been used to help shape specific restoration goals of Oregon white oak in south Puget Sound (Hanna and Dunn 1996).



## *Woodpeckers*

Woodpeckers are vital to the diversity of wildlife in oak woodlands because they are primary excavators and provide cavities for nesting species that do not bore their own nest holes. Evidence suggests that the density of cavity-nesting species is linked closely to the number of cavities available. This, in turn, has been shown to be directly related to the number of snags available to cavity excavators (Jackman 1975) and/or the density of live, large-diameter, open-formed oaks (Gumtow-Farrior 1991). Not all snags or live trees are useable by woodpeckers (Jackman 1975), and different species of woodpeckers may require trees of varying diameters (Conner et al. 1975). Therefore, an abundance of quality snags and live trees of varying size and age class are needed to ensure suitable quantities for nesting and feeding.

Oak trees with heart rot not only provide cavities for nests, but suitable habitat for carpenter ants and other insects as well. Insects, especially ants, are primary food items of woodpeckers (Connor et al. 1975). Pileated woodpeckers, for instance, are highly skilled at locating trees that harbor large numbers of insects and so require a constant supply of new snags for food resources (Jackman 1975).

## *Western Gray Squirrel*

A close correlation exists between the distribution of the western gray squirrel, a State Threatened species, and Oregon white oak habitat in Washington (Wash. Dept. Wildl. 1993). This co-occurrence is expected because acorns are a critical winter food item for this rare squirrel throughout most of its range.

Like oaks in Washington, western gray squirrels were probably more widely distributed in prehistoric times, and their decline parallels that of the Oregon white oak. However, it should be noted that the decline of this squirrel species is also attributed to factors not related to the Oregon white oak (Wash. Dept. Wildl. 1993). Declines of western gray squirrel populations in Yakima County and the Columbia Gorge area coincided with the invasion and increase in the number of California ground squirrels. It is suspected that the ground squirrels transferred mange to the western gray squirrels, decimating their populations (Wash. Dept. Wildl. 1993). Also, other squirrels and even woodpeckers are more aggressive than western gray squirrels and out-compete them for food and cavity nests in Oregon white oak woodlands (Cross 1969, Barnum 1975, Foster 1992). In the Puget Trough area, western gray squirrels seem to have been displaced by increasing human populations (Wash. Dept. Wildl. 1993). Eastern gray squirrels, which are more tolerant of humans and can more easily adapt to alternative food sources (Byrne 1979), have invaded urbanizing areas within western gray squirrel range (Wash. Dept. Wildl. 1993).

### *Neotropical Migrant Birds*

Oregon white oak woodlands have been identified as critical habitat for some neotropical migrant birds. Coupled with the decline of this habitat type (particularly in the Puget Trough), the importance of oaks to neotropical migrant birds is magnified. Twenty-six of the 118 species of neotropical migrant birds that frequent Washington are associated with Oregon white oaks to some degree. Of these, band-tailed pigeon, rufous hummingbird, orange-crowned warbler, and chipping sparrow are oak-associated species in Washington with known population declines (Andelman and Stock 1993). In south-central Washington, Nashville warblers have been observed in greater abundance in stands dominated by Oregon white oaks compared to riparian areas with a greater diversity of overstory trees (Manuwal 1989).

### *Reptiles*

Three species of reptiles associated with oak woodlands include: the California Mountain kingsnake, sharptail snake, and southern alligator lizard (St. John 1985, 1987; Storm and Leonard 1995; B. Leonard, pers. comm.). Each of these uses logs, bark, and rocks for cover, common components of oak woodlands.

### *Invertebrates*

Oak forests in Washington support many species of invertebrate wildlife (Appendix B). Many invertebrate species that occur in other habitat types may be more likely to occur in Oregon white oak woodlands. For example, at Bald Hills over 70 species of insects occur, 50 of which are 10 times more likely to occur in oaks (R. Crawford, pers. comm.). Known oak-obligates in Washington include 5 moth, 2 wasp, and 1 butterfly species (Pyle 1989; L. Crabo, pers. comm.; R. Crawford, pers. comm.).

## **IMPACTS OF LAND USE**

Most oak woodlands in the state are privately owned, and private parcels collectively comprise the largest contiguous tracts (Wash. Dept. Wildl. 1993; C. Dugger, pers. comm.; B. Weiler, pers. comm.). Statewide mapping is underway by WDFW to quantify the extent of Washington's oak habitat. Large tracts of oak habitat are located on the Yakama Tribal lands (40,500 ha [100,000 ac]) (E. Hansen, pers. comm.) and Ft. Lewis Military Reservation (1,458 ha [3,600 ac]) (Macklin and Thompson 1992). The Washington Department of Fish and Wildlife and the Department of Natural Resources own and manage approximately 5,265 ha (13,000 ac) of oak habitat statewide. Klickitat County, which harbors most of Washington's oak, contains approximately 79,000 ha (195,000 ac) of oak and oak/pine woodlands >25% canopy coverage. Thurston County contains about 4,000 ha (10,000 ac) of oak and mixed oak stands.

The decline of Oregon white oak in Washington has been accelerated by a number of human activities. Stand thinning and land conversion for conifer production, agriculture, fuelwood cutting, cattle grazing, and urban development are all considered significant contributors to the current decline of Oregon white oak, although their relative importance is largely unknown (D. Anderson, pers. comm.; C. Dugger, pers. comm.; B. Weiler, pers. comm.).

There is no significant use of Oregon white oak by the timber industry, in part because of more economically important and abundant supplies elsewhere. This low economic pressure and the exceptionally slow growth of the species (Hall et al. 1959) has resulted in Oregon white oak either being ignored and left standing, being cut and sold as firewood, or being cut and piled-burned on site (C. Dugger, pers. comm.).

Shitaki mushrooms are propagated on Oregon white oak, and acorn flour is produced from the meat of acorns. Very small Shitaki mushroom and acorn flour production industries exist in at least one location in Klickitat County (B. Weiler, pers. comm.).

Fishing, camping, hunting, climbing, rafting, mountain biking, snowmobiling, and hiking are recreational activities known to occur in or next to Oregon white oak stands (Riggle 1991).

## **Threats to Oregon White Oak**

### ***Land Conversion***

Klickitat County and adjoining lands harbor the largest stands of Oregon white oak in Washington. Within this area, conversion to agricultural and range lands, urban development, and losses from fuelwood cutting are the most significant contributors to oak woodland decline (B. Weiler, pers. comm.). In western Washington, land conversion for urban development clearly threatens remnant oak woodlands, particularly in Thurston and Pierce counties (Kessler 1990). Currently, counties with oak do not monitor urban growth rates in such a way that declines in Oregon white oak can be measured. Statewide mapping of oaks would enable land planners and biologists to quantify oak loss trends.

### ***Conifer Encroachment***

Conifer encroachment, predominately by Douglas-fir, occurs primarily west of the Cascade crest and in wetter areas on the east side, such as the White Salmon River drainage of the Columbia Gorge. In drier areas east of the Cascades, conifer competition with oaks is generally negligible. Oregon white oak is usually sub-climax and becomes climax only on dry, rocky, southerly exposures (U.S. For. Serv. 1965). In Oregon's Willamette Valley, the general trend of encroachment is further suggested by the presence of relict oaks within dense stands of Douglas-fir (Sprague and Hansen 1946).

On wetter sites, Douglas-fir grows at a rate 3 to 5 times that of Oregon white oak (Sprague and Hansen 1946), and oak seedlings and saplings can be quickly out-competed by faster growing conifers. Shade tolerance is higher in juvenile than mature stages of Oregon white oak. Once oak trees become overtopped by Douglas-fir, they are unable to withstand the subsequent low light intensities (Silen 1958, Miller 1985, Kertis 1986).

From northern California to Washington, an increased presence of Douglas-fir seedlings and saplings and a noticeable lack of oak regeneration beneath oak canopy has been observed (Barnhardt et al. 1987). In western Washington, Douglas-fir encroachment affects the few Oregon white oak communities that exist today (Scheffer 1959, Kertis 1986) and is perpetuated and accelerated by land management practices.

The suppression of wildfires, along with continuing cattle grazing and timber conversion, are thought to contribute to encroachment by Douglas-fir in Oregon white oak-dominated sites. Urban and suburban development contributes to the replacement of oaks by faster growing conifer species across the landscape. Development exceeds the rate of spatial reproduction of oaks and includes development of land suitable but not currently occupied by oaks (Lang 1961, Kertis 1986, Franklin and Dyrness 1988, Manuwal 1989).

In addition to reducing the extent of this unique habitat, encroachment by Douglas-fir can reduce the number of cavities available to cavity-using wildlife. Guntow-Farrior (1991) found fewer cavities in mixed oak/Douglas-fir stands than in pure, primarily older oak stands. Of 300 oaks and an equal number of Douglas-firs sampled, 98% of the cavities found occurred in oak trees.

Except for wholesale oak removal, Douglas-fir encroachment may be the most significant and widespread threat to the existence of Oregon white oak communities within its western range. Historically, fire has played a significant role in the control of conifers, and in recent times fire suppression has perpetuated the Douglas-fir problem. In the northern oak woodlands of California, Barnhardt et al. (1987:57) hypothesized that "in the absence of periodic wildfires or other destructive forces, Douglas-fir will increase within these oak woodlands to eventually dominate and replace the oaks."

An encroachment problem is identifiable when oak reproduction is limited or absent among oaks overshadowed by conifers, or when overshadowed oaks are sick or dying. Conifer encroachment by Douglas-fir in oak woodlands can be limited effectively by prescribed burning measures (Reed and Sugihara 1987). Conifer encroachment will continue throughout the extent of Washington's oak woodlands unless management priorities and practices are altered (Reed and Sugihara 1987).

### ***Timber Harvest***

*East Versus West.* Oregon white oak has virtually no economic value as a timber species and if cut it is either for firewood or it is pile-burned on site (C. Dugger, pers. comm.). Conifers can be

produced and harvested at a rate 3 to 5 times that of Oregon white oak (Sprague and Hansen 1946). Therefore, the replacement of oak with faster growing conifers produces more marketable timber in far less time.

Distinct differences exist in timber practices and oak/conifer interactions between areas east and west of the Cascade Range. Typically, clearcutting of oaks occurs regularly in the west and rarely in the drier regions of the east. Conifer encroachment, usually by Douglas-fir, is an acute problem west of the Cascades and in portions of the Columbia Gorge; however, it is virtually nonexistent on drier sites east of the Cascades. Conversely, selective cutting of conifers in the west, which would be beneficial, does not commonly occur. Selective cutting of conifers does occur commonly, however, east of the Cascades and is detrimental to animals like wild turkeys and western gray squirrels that depend on mixed conifer/oak associations to provide useful habitat (B. Weiler, pers. comm.).

*Clearcutting.* Although economically efficient for conifer production, clearcutting stands of Oregon white oaks contributes to the decline of this slow-growing species and the populations of the animals that inhabit them. Because oak clearcuts usually regenerate to conifer forests west of the Cascades and along the Columbia Gorge, clearcutting perpetuates the conversion of oak woodland to conifer forest (Reed and Sugihara 1987). Even in drier locations where sprouts from cut oaks face little competition from conifers, clearcutting contributes to uniform stand composition with little age-class diversity. Pine/oak forest studies in Virginia revealed that several species of birds that occurred only in more mature areas were negatively affected by pine/oak clearcutting (Conner et al. 1979).

Clearcutting reduces wildlife species abundance by removing habitat and may cause disruption in contiguous aerial pathways that squirrels and other animals need to move through the forest canopy. Clearcutting creates abrupt edges between open and closed canopies. Although it is generally recognized that edge sometimes increases overall species richness, edges can be detrimental to those species that inhabit the interior of contiguously forested areas (Harris 1984). In a Maryland oak forest, the predation rate on open-nesting interior forest birds increased with proximity to edge (Chasko and Gates 1982). Selective cutting, on the other hand, reduces edge and maintains control over age-class within uniform stands by initiating new growth from the stumps of selectively cut oaks (Connel et al. 1973).

*Selective Cutting.* In the drier climate east of the Cascades, conifers associated with oaks grow more slowly, and conifer encroachment of oaks in most areas is nonexistent (C. Dugger, pers. comm.). It is a misconception that selective cutting of conifers enhances oak woodlands. What commonly occurs is that Douglas-fir and ponderosa pine are harvested, temporarily leaving pure stands of oak. Species including wild turkey and western gray squirrel use conifers within oaks for nesting and roosting and may be adversely affected by the selective harvest of conifers.

Changes in bird species composition coincide with successional changes in vegetation (Johnston and Odum 1956). Selective cutting practices allow for the retention of different age-class and species

composition within stands (Conner et al. 1979), and age diversity within stands contributes to species richness and breeding bird diversity (Connel et al. 1973).

Appropriate timber practices within oak stands vary according to location and tree species composition.

### ***Grazing***

Little information exists on the effects of grazing in oak woodlands specifically; however, variables that affect grazing impacts on vegetation include site elevation, plant community condition, and land management objectives (C. Perry, pers. comm.). Domestic livestock grazing is known to have occurred in Washington since at least 1825 (Galbraith and Anderson 1971) and is currently one of the primary uses of Oregon white oak stands.

Cattle will not usually eat oaks until forage vegetation is depleted or in poor condition. Consumption of oaks (primarily sprouts) by cattle generally occurs after intense grazing or in middle to late summer when grasses dry up (C. Perry, pers. comm.). Fall grazing adversely impacts oak sprouts to a greater degree than does spring grazing because oak sprouts in the fall are more exposed within grassy cover (D. Morrison, pers. comm.).

In a northern California study, Saenz and Sawyer (1986) reported that Oregon white oak woodlands grazed a full season contained fewer species of grasses and forbs than those grazed for a partial season. In Washington, high numbers of cattle grazing for short periods impact oaks less than does a longer grazing period using fewer animals (C. Perry, pers. comm.). Hedrick and Keniston (1966) found that soil moisture rose as a result of grazing by sheep and that conifer growth rates were greater on grazed than ungrazed plots.

In western Washington, evidence suggests that grazing enhances Douglas-fir encroachment. Thilenius (1964, cited by Kertis 1986:11) states that the general trend in grazed systems "...is the replacement of herbaceous with woody species. Disturbance of the sod layer allows shrub and seedling establishment to occur, with eventual conifer-hardwood development probable." While this scenario may appear to favor oak establishment, faster growing Douglas-firs can quickly out-compete oaks developing in grazed areas.

In drier oak woodlands, improper grazing replaces native bunchgrasses with cheatgrass or other non-native, invasive species. One of Washington's rarest landscapes, the oak/bunchgrass community, is a dry-site type that can be adversely affected by improper grazing (B. Weiler, pers. comm.).

Historically, land clearing activities for farming and cattle grazing have been extensive in prairies and oak savannas throughout the Pacific Northwest and have served to decrease Oregon white oak woodlands (Thilenius 1968, Kertis 1986). Evidence suggests, however, that oaks can repopulate areas that have been heavily grazed once cattle are removed (Voeks 1981).

## The Role of Fire in Oregon White Oak Woodlands

Fire has played a paramount role in the ecology of Oregon white oak woodlands for thousands of years (Agee 1990). Frequent fires are believed to be the major disturbance factor that have maintained Oregon white oak communities in the past (Thilenius 1968, Taylor and Boss 1975, Kertis 1986, Agee 1990).

Historically, fires have served to limit and even decrease the invasion of conifer species into Oregon white oak woodlands. The frequency of fire has controlled stand density and initiated sprouting in oaks injured or killed in previous, higher-intensity fires (Kertis 1986).

Before modern-day fire suppression was invoked, fires occurred more frequently, and the fire regime in Oregon white oak woodlands has historically been considered low in intensity and severity (Sprague and Hansen 1946). Low-intensity fires are those that remain in the understory and do not result in significant mortality to overstory trees (Sugihara and Reed 1987).

The historic climatic qualities of Oregon white oak habitat included nearly continual summer drought. A frequent, low-severity fire regime served to maintain lower accumulations of fuel between widespread fires and, therefore, limited fire intensity to moderate or low levels. Low-severity fire regimes are associated with ecosystem stability, and ecosystem stability is greater in the presence of fire than in its absence (Agee 1990).

Wildfires attributed to lightning and other natural causes were common throughout the Pacific Northwest. Several writers, however, have noted the prominent role Native Americans played in the frequency of fires in the Pacific Northwest before settlement by Europeans (Morris 1934, Habeck 1961, Thilenius 1968, Taylor and Boss 1975). The purposes of frequent burning by Native Americans in oak woodlands were to increase food production and create more effective hunting grounds. To immigrants, wildfires became associated with the destruction of forests and rangelands, and an oversimplified, negative view of wildfires evolved among European settlers. Post-settlement burning was therefore prohibited, and naturally ignited fires were suppressed as well (Shinn 1980).

Ring-growth studies of trees in Oregon's Willamette Valley have demonstrated that fires were frequent between 1647 and 1848 (Sprague and Hansen 1946). The cessation of burning by Native Americans and suppression of naturally ignited fires has changed the vegetation structure and composition within Oregon white oak woodlands (Shinn 1980, Kertis 1986). Post-settlement fire suppression practices brought about increased production of brush and stands of young trees in areas formerly covered by grasslands (Habeck 1961).

In Oregon white oak woodlands of northern California, the demise of periodic burns by Native Americans has produced denser stands of oaks and has favored invasion by Douglas-fir, a fire-sensitive species (Holms 1990). Fire suppression practices, along with reduction of fire frequency,

has allowed uncontrolled Douglas-fir establishment. Douglas-fir stands under oak canopies are often dense, which allows the conifer seedlings to survive to a fire-resistant size. After Douglas-fir is thoroughly established in the oak woodlands, fire can no longer control it effectively. Within 3 to 4 decades, the rapidly growing conifers overtop the oak canopy, effectively shading out the oaks (Sugihara and Reed 1987).

Fire is an important element to natural oak regeneration. Holms (1990:4) stated that "Weeds may reduce seedling success in unburned areas, as they compete with oak seedlings for light and moisture. Periodic wildfires could thus reduce herbaceous biomass and favor improved oak reproduction." Kertis (1986) reported that fire stimulates sprouting in Oregon white oaks, whereas Wright and Bailey (1982) noted the general trend for oak seeds is to survive fire with an increased germination rate. Once burned, an area is less likely to burn in subsequent years. Roy (1955) noted that Oregon white oak sprouts grew an average of 2 m (6.6 ft) in height after 2 years, and an average of 2.8 m (9.2 ft) after 3 years. Thus, acorns sprouting in burned areas will have a few years to grow before the next fire comes through.

Fire can offer an array of benefits to wildlife (Wright and Bailey 1982). Initially, fires may temporarily reduce the numbers of small mammals, but low-intensity burns probably have little effect on squirrels, and in some cases their numbers increase. Birds and large mammals are generally favored by fires that increase the successional diversity of the habitat and produce new growth harboring food and shelter resources. Wild turkeys, mourning doves, and woodpeckers are types of birds attracted to burned areas. Because different species of wildlife sometimes require different types of habitat, burns staggered by area, frequency, continuity, and intensity will provide an assortment of habitat associations (Wright and Bailey 1982).

Historically, fires have influenced wildlife habitats, and the importance of fire in the maintenance and health of Oregon white oak woodlands is evident. Frequent, low-intensity fire regimes facilitate the reduction of Douglas-fir and grasses, the initiation of oak sprouting, and the reduction of fuel loads in oak woodlands (Agee 1993). In the absence of fire, open-canopy oak savannas become dense oak woodlands, which in turn will eventually be overtaken by conifers (Agee 1993, Hanna and Dunn 1996). Implementation of carefully planned, controlled burning practices provides habitat diversity, attracts animals, and is a useful option in the management of Oregon white oak woodlands. However, action has to be initiated before Douglas-fir and other conifers, already present as seedlings in many oak stands, overtop the oaks (Agee 1993).



## MANAGEMENT RECOMMENDATIONS

The scientific literature provides few specific management recommendations regarding Oregon white oak in Washington. The following recommendations have been derived from a synthesis of the literature and include:

- References to historical cause and effect relationships.
- References to management recommendations that cover a wide variety of oak species, including Oregon white oak.
- References to specific management recommendations for Oregon white oak woodlands in Oregon and California.
- Management recommendations from wildlife and habitat biologists with the Washington Department of Fish and Wildlife and from recognized experts in academic and private sectors.
- Requirements of oak-associated species.

## Goals

Management recommendations for Oregon white oak woodlands are designed to meet two goals.

- Maintain or enhance the structural and functional integrity of Oregon white oak woodlands needed to support diverse wildlife populations across the landscape.
- Stop and reverse the trend toward oak habitat loss by retaining areas currently in an unaltered or natural state and by restoring degraded or lost oak habitat. Oak habitat presently in good condition should receive the highest priority for protection.

## Land Use

### *Land Conversion and Oak Removal*

*Recommendation.* Oregon white oak woodlands should not be clearcut, removed, replaced, or patch-cut unless these activities are inherent to the functional maintenance or enhancement of oak habitat. Remaining oak stands  $\geq 0.4$  ha (1 ac) west of the Cascades and  $\geq 2.0$  ha (5 ac) east of the Cascades should be maintained or enhanced, regardless of age-class or composition of the stand. Specifically, maintain 25-50% canopy cover of Oregon white oaks in oak woodland stands. In oak

savannas (i.e., stands with <25% total canopy cover), maintain the oak component at ≥50% of the canopy cover present. In urban and urbanizing areas, single trees or small patches of oaks should be maintained if they are deemed important to species highly associated with Oregon white oak.

*Rationale.* Oregon white oak stands in Washington are currently threatened and declining (Taylor and Boss 1975, Kertis 1986). Clearcutting reduces oak habitat and the numbers of animals within, encourages conifer encroachment, and creates edges. Edges are common in urban and suburban landscapes whereas contiguous habitat types, especially oak, are not. Edges increase the frequency of predation on interior nesting species (Connel et al. 1973, Conner et al. 1979, Chasko and Gates 1982, Reed and Sugihara 1987). Twenty-five to fifty percent canopy cover in oak woodlands provides generally acceptable habitat for a variety of species and provides needed gaps for sunlight (Barrett 1980).

*Consequences of Compromise.* Wholesale removal of oaks, which reduces oak habitat available to wildlife, will result in a net loss of oak-associated animals. Oak habitat that is clearcut, fragmented, or reduced in size may enhance conifer encroachment on remaining oaks and increase the number of edge-associated species at the expense of interior species.

## **Grazing**

When considering site-specific grazing issues, consult with biologists from the Washington Department of Fish and Wildlife. Also consult with representatives of the Natural Resources Conservation Service and the Washington Department of Natural Resources.

*Recommendation.* Allow low-impact grazing within oak woodlands. Low-impact grazing is defined by the timing and amount of vegetation removed. Grazing should occur only in early spring to early summer or until seed heads form (Clary and Webster 1989, Kinch 1989). Grazing should cease before 25% of the herbaceous vegetation has been consumed (Marlow 1988; Kinch 1989; C. Perry, pers. comm.) or the herbaceous layer is cropped to within 10-15 cm (4-6 in) of the ground (Clary and Webster 1989), whichever comes first. These conditions usually occur in less than 6 weeks of grazing. Rotate grazing areas to allow recovery of vegetation and to allow oak regeneration to occur (C. Perry, pers. comm.).

*Rationale.* Overgrazing stimulates alien weed invasion, tramples acorn sprouts, and compacts soils (Silen 1958, U.S. For. Serv. 1965, Saenz and Sawyer 1986, Hanna and Dunn 1996). Limited, short-term, carefully controlled grazing may mimic other thinning measures in young, dense, even-aged oak stands. Grazing is not recommended where oak sprouting and sapling growth are being encouraged, within riparian zones, or where acorn production is desired but scarce (Reed and Sugihara 1987).

*Consequences of Compromise.* Overgrazing may cause soil compaction, and it may damage the root structures of developing oak seedlings or discourage sprouting of acorns. Over-consumption of herbaceous understory exposes oak seedlings, and cattle are more likely to consume woody vegetation after herbaceous cover is consumed. Wildlife species that use a grassy or herbaceous understory may be negatively affected when cover, forage, or breeding structures are reduced or depleted.

### ***Recreation***

*Recommendation.* Low-impact recreational activities (hunting and fishing, hiking, mushroom cultivation, and limited acorn collection for flour production) are appropriate activities in Oregon white oak woodlands.

*Rationale.* Low-impact recreational activities foster an appreciation for oaks and oak habitat, and they provide an economic incentive to preserve and enhance oak woodlands.

## **Oak Restoration and Enhancement**

Unlike many other threatened habitat types, Washington oak habitat is transitional and requires active management. To mitigate for land practices that have left oak habitats degraded, land planners should incorporate oak enhancement measures or should consider alternatives to land activities that are not conducive to oak woodland perpetuation. The following recommendations are made with the goal of restoring and enhancing oak habitat.

### ***Prescribed Burning***

Fire has demonstrated potential for restoring oak woodlands to a stable equilibrium; however, extreme caution is recommended during initial burning due to potentially high fuel loads. Before conducting any prescribed or pile burns, consult with the Department of Natural Resources for permit requirements, liability information, and logistics assistance by telephoning 1-800-323-BURN.

*Recommendation.* Low-intensity, prescribed burns conducted on a regular basis (approximately 5-year intervals) are encouraged to exclude Douglas-fir encroachment, stimulate vigorous sprouting, and contribute to multi-aged stands. Maintenance fires should be conducted at more frequent intervals (3-5 years) in areas with serious Douglas-fir encroachment and high fuel loads, and at less frequent intervals (5-10 years) in areas where oak sapling growth success is critical or in areas where fuel loading is not a problem (Reed and Sugihara 1987, Sugihara and Reed 1987, J. Agee, pers. comm.). Scotch broom seeds are stimulated to germinate by fire, so a second fire 1-2 years after the initial burn is required in areas where elimination of this non-native species is a goal (Agee 1993).

Timing of burns is dependent on specific site conditions. In wetter areas, primarily west of the Cascade Range, prescribed burns should be conducted in the fall when grasses and other fine fuels are most combustible. In drier areas east of the Cascades, controlled burns should be conducted in the late-winter or spring to compensate for volatile fuel loads and very dry conditions (D. Morrison, pers. comm.).

Following prescribed burns, seeding with native fescue and grasses will discourage alien weed encroachment (J. Agee, pers. comm.). Also, providing canopy gaps for young sprouts by manually thinning some trees is recommended following burns conducted for sprout regeneration. Because Oregon white oaks are intolerant of shade, sprouts and seedlings require canopy gaps to receive sufficient light to develop into trees (Sugihara and Reed 1987).

An alternative to initial burning in high fuel load situations is manually cutting conifers flush with the ground and removing them. This practice should then be followed by regular mowing until the fuel load is reduced to levels safe enough for prescribed burns (J. Agee, pers. comm.).

*Rationale.* Fire has been an integral component of oak ecology, and oaks are highly resistant to fire after the sapling stage. Fire targets herbaceous ground cover and Douglas-fir, the latter of which typically encroaches on and impedes oak regeneration and success. Ponderosa pine is a fire-resistant conifer species, and ponderosa pine/oak associations east of the Cascades are not negatively affected by low-intensity fires. Vigorous restoration is suggested in areas with severe Douglas-fir encroachment, and the use of prescribed fires can be an important tool in restoring oak woodlands.

*Consequences of Compromise:* The effect of eliminating or reducing fire frequency from oak woodlands differs with density of the stand. In open-canopy oak savannas, the lack of fire leads to increased density of shrubs and oaks and to a denser oak woodland. In denser oak woodlands, the lack of fire leads to increases in shrubs and other tree species at the expense of oak in the long run (Agee 1993, Hanna and Dunn 1996).

### ***Selective Harvest and Stand Thinning***

*Recommendation.* Selectively harvest individual oaks where appropriate. Selective harvest should target the removal of trees in dense, even-aged oak stands while encouraging regeneration of oaks by stump sprouting. Carefully selected individual trees should be pruned or removed where overshadowing threatens younger oaks and oak regeneration. Thinning and cutting activities for oak regeneration should be conducted between December and May for better stump sprouting. The practice of thinning should be employed with the goal of improving age-class and successional diversity within stands. This practice should not result in the spatial decline of oaks. Very old or large oaks should not be removed.

*Rationale.* Stand thinning encourages sprouting and sprout success, increases age-class diversity, and is a more efficient means of regeneration (U.S. For. Serv. 1965, Kertis 1986, Reed and Sugihara 1987). Thinned stands of oaks support more bird species, greater avian density, and more breeding birds than unthinned stands (DeGraaf et al. 1991), and mixed age-class stands provide greater habitat diversity (Connel et al. 1973).

*Consequences of Compromise.* Failure to thin even-aged oak stands and failure to open canopy above overshaded oak sprouts and saplings may result in dense, even-aged oak stands of little diversity. Dense, even-aged oak stands support fewer kinds of wildlife.

*Recommendation.* On the west-side of the Cascades and along the Columbia Gorge, conifers should be removed when they encroach on oaks. Ponderosa pine and Douglas-fir in drier areas and along the east side of the Cascade Range are generally slower growing and do not encroach oaks; these trees should not be removed.

*Rationale.* Conifer encroachment on wetter sites (usually on the west side of the Cascades) threatens Oregon white oak regeneration. Encroachment by over-topping and shading-out slower growing oaks reduces the likelihood that oaks can reproduce.

*Consequences of Compromise.* Failure to remove encroaching conifers will result in oak stands dominated by conifers and stands with no oak regeneration or reproduction. Thus, oak stands eventually will be lost.

### ***Retention of Valuable Trees***

*Recommendation.* Large oaks (>50 cm dbh [20 in]), medium oaks (>30 cm dbh [12 in]), older oaks, and oaks with well formed, dominant crowns, should be retained wherever oak enhancement activities occur. Very large oaks are rare and should be retained at the cost of efficient oak regeneration directly under their canopies.

*Rationale.* Stands of medium to large oaks provide more cavities for nesting than do stands of smaller oaks (Gumtow-Farrior 1991). Trees with well formed, dominant crowns may produce more acorns, and large live trees provide habitat for branch-nesting species. Large well-developed trees produce more mast for regeneration and wildlife consumption (Connel et al. 1973). Very large, old oaks are rare.

*Consequences of Compromise.* Fewer cavities may limit the number of cavity-nesting animals that can inhabit a particular oak woodlands. Stand domination by trees with smaller crowns and less canopy may limit acorn production. These limitations may affect the numbers of individuals and species that use oak woodlands.

*Recommendation.* An abundance of snags as well as broken, diseased, and dying trees, and live trees with cavities, heartwood rot, and insect infestations, should be preserved. No standing dead trees should be cut unless absolutely necessary.

*Rationale.* Snags provide feeding, perching, and resting platforms. Diseased and dying trees provide insects for food and ensure a future source of snags. Large, live trees with cavities are an invaluable resource for cavity nesting species (Connor et al. 1975, Jackman 1975, Hardin and Evans 1976).

*Consequences of Compromise.* The removal of dead, dying, diseased, and broken trees, as well as those live trees with cavities, heartwood rot, or insect infestations, removes many of the critical structural habitat features essential for wildlife survival. Without an abundance of these important features, the numbers of individual animals and species using Oregon white oak forests may be limited.

### ***Creation of Snags When Thinning or Enhancing Oak Woodlands***

*Recommendation.* Create snags when thinning oaks or conifers instead of removing trees entirely. If the cutting of oaks is necessary to enhance oak woodlands for wildlife, top-cut the trees and leave them standing. Partial pruning or limbing may be needed for trees slated to be removed for reasons of overshadowing or encroachment. At a minimum, leave the main trunk standing.

*Rationale.* Snags provide feeding, perching, and resting platforms. Snags are limited features across the landscape and provide structures for nesting and denning. Snags provide habitat for invertebrates, which in turn provide food for vertebrate wildlife. Topping a tree produces a slower decay rate than does girdling.

*Consequences of Compromise.* Snags are a limited yet very important habitat feature for wildlife. Failure to leave undesirable trees standing may limit the number of trees available for natural snag creation, and it does nothing to mitigate losses of snags due to timber management practices.

*Recommendation.* Leave fallen dead trees, limbs, and leaf litter for foraging sites and nest/den sites.

*Rationale.* Downed trees and limbs provide ground denning and nesting habitat for all types of wildlife. Many animals forage among or feed on wood and leaf litter. Leaf litter may help retain soil moisture that aids in oak seedling survival.

*Consequences of Compromise.* Failure to leave wood and leaf litter removes wildlife nesting, denning, feeding, and cover habitat. Removal of these features may limit the numbers of individuals and species that use oak habitat.

### ***Retention of Contiguous Aerial Pathways***

The difference between conifer encroachment and those oak/conifer associations valuable to wildlife is often unclear. Consultation with biologists from the Washington Department of Fish and Wildlife is strongly recommended whenever uncertainty prevails. Almost without exception, conifers associated with oaks in eastern Washington and along drier sites in the Columbia Gorge do not encroach negatively on oaks. Conifer/oak associations in these areas are limited and very valuable as actual or potential habitat, particularly for western gray squirrels and wild turkeys. Conversely, conifer encroachment on oaks in western Washington and along wetter sites in the Columbia Gorge, such as the White Salmon drainage, is prevalent and undesirable.

*Recommendation.* Mixed oak/conifer associations should be retained where contiguous aerial pathways between oaks and conifers exist. Care should be exercised in determining where good mixed oak/conifer habitat ends and encroachment begins.

*Rationale.* Mixed oak/conifer associations are particularly important in potential western gray squirrel habitat and for increasing stand diversity for breeding birds (Rodrick and Milner 1991, Wash. Dept. Wildl. 1993).

*Consequences of Compromise.* Failure to provide conifer associations in oak woodlands may limit the number of species of breeding birds present. In addition, roost sites for wild turkeys and other birds, as well as feeding sites for squirrels, will be absent.

### **Other Oak Enhancement Activities**

- Plant Oregon white oak acorns and oak seedlings.
- Use alternatives to oak fuelwood.
- Sell or donate oak woodlands to conservation and land trust organizations.
- Purchase contiguous or notable stands of oaks by local, state, and federal agencies.
- Move toward the elimination of grazing on state-owned oak woodlands.
- Designate large, contiguous oak and oak/conifer stands as critical areas.
- Encourage aggressive oak enhancement/regeneration measures by local, state, and federal agencies.

## REFERENCES CITED

- Agee, J. K. 1990. The historical role of fire in Pacific Northwest forests. Pages 25-38 in J. D. Walstad, S. R. Radosevich, and D. V. Sandberg, eds. Natural and prescribed fire in Pacific Northwest forests. Oregon State Univ. Press, Corvallis.
- ))))). 1993. Fire ecology of Pacific Northwest forests. Island Press, Covelo, Calif. 493pp.
- Alverson, E. 1988. Bald Hill Natural Area Reserve natural features report. Unpubl. Rep. Wash. Dept. Nat. Resour., Olympia. 38pp.
- Andelman, S. J., and A. Stock. 1994. Management, research and monitoring priorities for the conservation of neotropical migratory landbirds that breed in Washington State. Nat. Heritage Prog., Wash. Dept. Nat. Resour., Olympia. (Irr. Pag.)
- Barnhardt, S. J., J. R. McBride, C. Cicero, P. da Silva, and P. Warner. 1987. Vegetation dynamics of the northern oak woodland. Pages 53-58 in T. R. Plumb and N. H. Pillsbury, tech. coords. Proc. symposium on multiple-use of California's hardwood resources. U.S. For. Serv. Gen. Tech. Rep. PSW-100.
- Barnum, D. A. 1975. Aspects of western gray squirrel ecology. M.S. Thesis, Washington State Univ., Pullman. 58pp.
- Barrett, R. H. 1980. Mammals of California oak habitats -- management implications. Pages 275-291 in T. R. Plumb, tech. coor. Ecology, management, and utilization of California oaks. U.S. For. Serv. Gen. Tech. Rep. PSW-44.
- Beal, F. E. L. 1910. The birds of California in relation to the fruit industry. Part II. U.S.D.A. Biol. Surv. Bull. 34. 24pp.
- ))))). 1911. Food of the woodpeckers of the United States. U.S.D.A. Biol. Surv. Bull. 37. 64pp.
- Byrne, S. 1979. The distribution and ecology of the non-native tree squirrels *Sciurus carolinensis* and *Sciurus niger* in northern California. Ph.D. Thesis, Univ. California, Berkley. 196pp.
- Caicco, S. L. 1989. Oak Patch Natural Area Preserve natural features report. Unpubl. Rep. Wash. Dept. Nat. Resour., Olympia. 9pp.
- Chappell, C. B. 1979. The wintering bird community of a selected plot of Oregon white oak woodland in Thurston County, Washington. Unpubl. Rep. Wash. Dept. Wildl., Olympia. 13pp.
- Chasko, G. G., and J. E. Gates. 1982. Avian habitat suitability along a transmission-line corridor in an oak-hickory forest region. Wildl. Monogr. 82:1-41.
- Christisen, D. M., and L. J. Korschgen. 1955. Acorn yields and wildlife usage in Missouri. Proc. North Am. Wildl. Conf. 20:337-357.
- Clary, W. P., and B. F. Webster. 1989. Managing grazing of riparian areas in the intermountain region. U.S. For. Serv. Gen. Tech. Rep. INT-263. 13pp.



- Coblentz, B. E. 1980. Production of Oregon white oak acorns in the Willamette Valley, Oregon. *Wildl. Soc. Bull.* 8:348-350.
- Connel, D. L., G. Davis, S. McCormick, and C. Bushey. 1973. The hospitable oak: coordination guidelines for wildlife habitats, No. 3. California Reg., U.S. For. Serv. 11pp.
- Conner, R. N., R. G. Hooper, H. S. Crawford, and H. S. Mosby. 1975. Woodpecker nesting habitat in cut and uncut woodlands in Virginia. *J. Wildl. Manage.* 39:144-150.
- ))))), J. W. Via, and I. D. Prather. 1979. Effects of pine-oak clearcutting on winter and breeding birds in southwestern Virginia. *Wilson Bull.* 92:301-306.
- Cross, S. P. 1969. Behavioral aspects of western gray squirrel ecology. Ph.D. Thesis, Univ. Arizona, Tempe. 185pp.
- DeGraaf, R. M., W. M. Healy, and R. T. Brooks. 1991. Effects of thinning and deer browsing on breeding birds in New England oak woodlands. *For. Ecol. and Manage.* 41:179-191.
- Detling, L. E. 1968. Historical background of the flora of the Pacific Northwest. *Mus. Nat. Hist. Bull. No. 13*, Univ. Oregon, Eugene. 57pp.
- Foster, S. A. 1992. Studies of ecological factors that affect the population and distribution of the western gray squirrel on northcentral Oregon. Ph.D. Thesis, Portland State Univ., Portland, Oregon. 153pp.
- Franklin, J. F., and C. T. Dyrness. 1988. Natural vegetation of Oregon and Washington. Oregon State Univ. Press, Corvallis. 452pp.
- Galbraith, W. A., and E. W. Anderson. 1971. Grazing history of the northwest. *J. Range Manage.* 24:6-12.
- Gumtow-Farrior, D. L. 1991. Cavity resources in Oregon white oak and Douglas-fir stands in the mid-Willamette Valley, Oregon. M.S. Thesis, Oregon State Univ., Corvallis. 89pp.
- Gumtow-Farrior, D., and C. Gumtow-Farrior. 1994. Wildlife on white oaks woodlands. *Woodland Fish and Wildl. Proj. World For. Cent., Portland, Ore.* 12pp.
- Habek, J. R. 1961. The original vegetation of the mid-Willamette Valley, Oregon. *Northwest Sci.* 35:65-77.
- Hall, F. C., D. W. Hedrick, and R. F. Keniston. 1959. Grazing and Douglas-fir establishment in the Oregon white oak type. *J. For.* 57:98-103.
- Hanna, I., and P. Dunn. 1996. Restoration goals for Oregon white oak habitats in the south Puget Sound region. *The Nat. Conser. of Wash., Seattle.* 84pp.
- Hansen, H. P. 1947. Climate versus fire and soil as factors in postglacial forest succession in the Puget lowland of Washington. *Am. J. Sci.* 245:1-28.
- Hardin, K. I., and K. E. Evans. 1976. Cavity nesting bird habitat in the oak-hickory forest: a review. U.S. For. Serv. Gen. Tech. Rep. NC-30. 23pp.
- Harris, L. D. 1984. The fragmented forest: island biogeography theory and the preservation of biotic diversity. Univ. Chicago Press, Chicago, Ill. 211pp.

- Hedrick, D. W., and R. F. Keniston. 1966. Grazing and Douglas-fir growth in the Oregon white oak type. *J. For.* 64:735-738.
- Holms, T. H. 1990. Botanical trends in northern California oak woodlands. *Rangelands* 12:3-7.
- Jackman, S. M. 1975. Woodpeckers of the Pacific Northwest: their characteristics and their role in the forests. M.S. Thesis, Oregon State Univ., Corvallis. 159pp.
- Johnston, D. W., and E. P. Odum. 1956. Breeding bird populations in relation to plant succession on the Piedmont of Georgia. *Ecology* 37:50-62.
- Kertis, J. 1986. Vegetation dynamics and disturbance history of Oak Patch Preserve, Mason County, Washington. Unpubl. Rep. Wash. Dept. Nat. Resour., Olympia. 112pp.
- Kessler, R. 1990. The oak woodlands of Thurston County, Washington: mapping and description of stands. Unpubl. Rep. Wash. Dept. Wildl., Olympia. 25pp.
- Kinch, G. 1989. Riparian area management: grazing management in riparian areas. Tech. Reference TR 1737-4. Bur. Land Manage. Denver, Colo. 44pp.
- Knight, R. L. 1979. Oregon white oak forest, Census 103. *Am. Birds* 33:82.
- Koenig, W. D., and M. K. Heck. 1988. Ability of two species of oak woodland birds to subsist on acorns. *Condor* 90:705-708.
- Lang, F. A. 1961. A study of vegetation change on the gravelly prairies of Pierce and Thurston counties, western Washington. M.S. Thesis, Univ. Washington, Seattle. 101pp.
- Larsen, E. M., E. Rodrick, and R. M. Milner, technical editors. 1995. Management recommendations for Washington's priority species, Vol. 1: Invertebrates. Wash. Dept. Fish and Wildl., Olympia. (Irr. Pag.)
- ))))), technical editor. 1997. Management recommendations for Washington's priority species, Vol.3: Amphibians and Reptiles. Wash. Dept. Fish and Wildl., Olympia. (Irr. Pag.)
- Leonard, W. P., H. A. Brown, L. L. C. Jones, K. R. McAllister, and R. M. Storm. 1993. Amphibians of Washington and Oregon. Seattle Audubon Soc., Seattle, Wash. 168pp.
- Macklin, J. D., and D. C. Thompson. 1992. Oregon white oak woodlands of Ft. Lewis, Pierce County, Washington. Unpubl. Rep. Seattle Dist. Corps of Eng., Seattle, Wash. (Irr. Pag.)
- Manuwal, D. A. 1989. Birds of the Klickitat National Scenic River Area. Unpubl. Rep. Wash. Dept. Wildl. and U.S. For. Serv., Olympia. 70pp.
- Marlow, C. B. 1988. Mitigating livestock impacts to streambanks within northern Rocky Mountain foothills riparian zones. Pages 147-150 in J. Emerick, S. Foster, L. Hayden-Wing, J. Hodgson, J. W. Monarch, A. Smith, O. Thorne II, and J. Todd, eds. Issues and technology in the management of impacted wildlife: proceedings III. Thorne Ecol. Inst., Boulder., Colo.

- Menke, J. W., and M. E. Fry. 1980. Trends in oak utilization -- fuelwood, mast production, animal use. Pages 297-305 in T. R. Plumb, tech. coord. Ecology, management, and utilization of California oaks. U.S. For. Serv. Gen. Tech. Rep. PSW-44.
- Miller, H. A. 1985. Oregon white oak. Pages 275-278 in H. A. Miller and S. H. Lamb., eds. Oaks of North America. Naturegraph Publ., Happy Camp, Calif.
- Morris, W. G. 1934. Forest fires in western Oregon and western Washington. *Oreg. Hist. Quart.* 35:313-339.
- Pyle, R. M. 1989. Washington butterfly conservation status report and plan. Unpubl. Rep., Wash. Dept. Wildl., Olympia. 217pp.
- Reed, L. J., and N. G. Sugihara. 1987. Northern oak woodlands -- ecosystem in jeopardy or is it already too late? Pages 59-63 in T. R. Plumb and N. H. Pillsbury, tech. coords. Proc. symposium on multiple-use of California's hardwood resources. U.S. For. Serv. Gen. Tech. Rep. PSW-100.
- Riggle, J. R. 1991. Oak Creek nongame pilot project. Unpubl. Rep. Wash. Dept. Wildl., Olympia. 48pp.
- Rodrick, E., and R. Milner, eds. 1991. Management recommendations for Washington's priority habitats and species. Wash. Dept. Wildl., Olympia. (Irr. Pag.)
- Roy, D. F. 1955. Hardwood sprout measurements in northwestern California. *For. Res. Note No. 95.* Southwest For. and Range Exper. Stn., U.S. For. Serv., Berkeley, Calif. 6pp.
- Saenz, L., and J. O. Sawyer. 1986. Grasslands as compared to adjacent *Quercus garryana* woodland understories exposed to different grazing regimes. *Madroño* 33:40-46.
- Scheffer, T. H. 1959. Field studies of the Garry oak in Washington. *Univ. Washington Arboretum Bull.* 22:88-89.
- Shinn, D. A. 1980. Historical perspectives on range burning in the inland Pacific Northwest. *J. Range Manage.* 33:415-423.
- Silen, R. R. 1958. Silvical characteristics of Oregon white oak. *Silvical Ser. No. 10.* Pac. Northwest For. and Range Exp. Stn., U.S. For. Serv., Portland, Oreg. 13pp.
- Sprague, F. L., and H. P. Hansen. 1946. Forest succession in the McDonald Forest, Willamette Valley, Oregon. *Northwest Sci.* 20:89-98.
- Stein, W. I. 1980. Oregon white oak 233. Pages 110-111 in F. H. Eyre, ed. *Forest cover types of the United States and Canada.* Soc. Amer. For., Washington D.C.
- ))))). 1990. *Quercus garryana* Dougl. ex Hook. Oregon white oak. Pages 650-660 in R. M. Burns and B. H. Honkala, eds. *Silvics of North America, Vol. 2, Hardwoods.* U.S. For. Serv. Agric. Handb. 654. Washington D.C.
- Steinecker, W. E. 1977. Supplemental data on the food habits of the western gray squirrel. *Calif. Fish and Game* 63:11-21.
- ))))), and B. M. Browning. 1970. Food habits of the western gray squirrel. *Calif. Fish and Game* 56:36-49.

- St. John, A. D. 1985. The herpetology of the interior Umpqua River drainage Douglas County, Oregon. Tech. Rep. 85-2-02, Oreg. Dept. Fish and Wildl., Portland. 69pp.
- ))))). 1987. The herpetology of the oak habitat of southwestern Klamath County, Oregon. Tech. Rep. 87-3-01, Oreg. Dept. Fish and Wildl., Portland. 49pp.
- Storm, R. M., and W. P. Brown, coordinating editors. 1995. Reptiles of Washington and Oregon. Seattle Audubon Soc., Seattle, Wash. 176pp.
- Sugihara, N. G., and L. J. Reed. 1987. Prescribed fire for restoration and maintenance of Bald Hills oak woodlands. Pages 446-451 in T. R. Plumb and N. H. Pillsbury, tech. coords. Proc. symposium on multiple-use of California's hardwood resources. U.S. For. Serv. Gen. Tech. Rep. PSW-100.
- Taylor, R. J., and T. R. Boss. 1975. Biosystematics of *Quercus garryana* in relation to its distribution in the state of Washington. Northwest Sci. 49:48-57.
- Thilenius, J. F. 1968. The *Quercus garryana* forests of the Willamette Valley, Oregon. Ecology 49:1124-1133.
- Thomas, J. W., R. G. Anderson, C. Maser, and E. L. Bull. 1979. Snags. Pages 60-76 in J. W. Thomas, tech. ed. Wildlife habitats in managed forests: the Blue Mountains of Oregon and Washington. Agric. Handb. 553, U.S. For. Serv., Wash. D.C.
- Tweit, B., and J. Johnson. 1992. Washington and Oregon spring season regional report. Am. Birds 46:469-472.
- U.S. Forest Service. 1965. Silvics of forest trees of the United States. U.S. For. Serv. Agric. Handb. No. 271. Washington D.C. 762pp.
- ))))). 1969. Wildlife habitat improvement handbook. U.S. For. Serv. Washington D.C. (Irr. Pag.)
- Voeks, R. A. 1981. The biogeography of Oregon white oak. M.S. Thesis, Portland State Univ., Portland, Oreg. 119pp.
- Washington Department of Wildlife. 1993. Status of the western gray squirrel *Sciurus griseus* in Washington. Wash. Dept. Wildl., Olympia. 40pp.
- Washington Department of Fish and Wildlife. 1996. Priority habitats and species list. Wash. Dept. Fish and Wildl., Olympia. 28pp.
- ))))). 1996. State listed species and state candidate species. Inf. Brochure, Wildl. Manage. Prog., Wash. Dept. Fish and Wildl., Olympia. 2pp.
- Wright, H. A., and A. W. Bailey. 1982. Fire ecology: United States and southern Canada. Wiley, New York, N.Y. 501pp.

## PERSONAL COMMUNICATIONS

James K. Agee, Fire Ecologist  
College of Forest Resources  
University of Washington  
Seattle, Washington

David Anderson, Area Wildlife Biologist  
Washington Department of Fish and Wildlife  
Vancouver, Washington

Chris Chappel, Natural Resource Scientist  
Washington Natural Heritage Program  
Washington Department of Natural Resources  
Olympia, Washington

Lars Crabo, Entomologist  
724 14th St.  
Bellingham, Washington

Rod Crawford, Curator  
Invertebrate Collection, Burke Museum  
University of Washington  
Seattle, Washington

Carl Dugger, Area Habitat Biologist  
Washington Department of Fish and Wildlife  
Vancouver, Washington

Eric Hansen, Biologist  
Yakama Indian Nation  
Yakima, Washington

John D. Macklin, Biological Consultant  
David Evans and Associates  
Bellevue, Washington

Cathy L. Maxwell, Botanist  
Washington Native Plant Society  
HCR-78, Box 432  
Naselle, Washington

Kelly McAllister, Wildlife Biologist  
Washington Department of Fish and Wildlife  
Olympia, Washington

Dan Morrison, Klickitat Wildlife Area Manager  
Washington Department of Fish and Wildlife  
Goldendale, Washington

Chuck Perry, Rangeland Habitat Biologist  
Washington Department of Fish and Wildlife  
Ephrata, Washington

Steve Pozzanghera  
Carnivore and Furbearer Section Manager  
Washington Department of Fish and Wildlife  
Olympia, Washington

Greg Schirato, Area Wildlife Biologist  
Washington Department of Fish and Wildlife  
Shelton, Washington

Lee Stream, Area Wildlife Biologist  
Washington Department of Fish and Wildlife  
Yakima, Washington

Dave Ware, Upland Game Section Manager  
Washington Department of Fish and Wildlife  
Olympia, Washington

Bill Weiler, Area Habitat Biologist  
Washington Department of Fish and Wildlife  
Yakima, Washington

Morie Whalen, Wildlife Biologist  
Washington Department of Fish and Wildlife  
Olympia, Washington



# APPENDICES

Appendix A. Common and scientific names of plants and animals mention in the text.

---

## Plants

American vetch ( <i>Vicia americana</i> )	Orchard grass ( <i>Dactylis glomerata</i> )
Balsamroot ( <i>Balsamorhiza sagittata</i> )	Oregon ash ( <i>Fraxinus latifolia</i> )
Bigleaf maple ( <i>Acer macrophyllum</i> )	Oregon white oak ( <i>Quercus garryana</i> )
Big sagebrush ( <i>Artemisia tridentata</i> )	Oval-leaf viburnum ( <i>Viburnum ellipticum</i> )
Bitterbrush ( <i>Purshia tridentata</i> )	Ponderosa pine ( <i>Pinus ponderosa</i> )
Blackberry ( <i>Rubus ursinus</i> )	Pacific dogwood ( <i>Cornus nuttallii</i> )
Black cottonwood ( <i>Populus trichocarpa</i> )	Pacific madrone ( <i>Arbutus menziesii</i> )
Bluebunch wheatgrass ( <i>Agropyron spicatum</i> )	Poison oak ( <i>Rhus diversiloba</i> )
California hazelnut ( <i>Corylus cornuta</i> )	Quaking aspen ( <i>Populus tremuloides</i> )
Cheatgrass ( <i>Bromus tectorum</i> )	Red fescue ( <i>Festuca rubra</i> )
Chickweed ( <i>Cerastium</i> spp.)	Scotch broom ( <i>Cytisus scoparius</i> )
Common snowberry ( <i>Symphoricarpos albus</i> )	Serviceberry ( <i>Amelanchier alnifolia</i> )
Douglas-fir ( <i>Pseudotsuga menziesii</i> )	Spring beauty ( <i>Claytonia lanceolata</i> )
Idaho fescue ( <i>Festuca idahoensis</i> )	Tall Oregon grape ( <i>Berberis aquifolium</i> )
Indian plum ( <i>Oemleria cerasiformes</i> )	Velvet grass ( <i>Holcus lanatus</i> )
Kentucky bluegrass ( <i>Poa pratensis</i> )	Western bittercress ( <i>Cardamine oligosperma</i> )
Long-stoloned sedge ( <i>Carex inops</i> )	Western wood strawberry ( <i>Fragaria vesca</i> )
Lupine ( <i>Lupinus</i> spp.)	Western hemlock ( <i>Tsuga heterophylla</i> )
Ocean Spray ( <i>Holodiscus discolor</i> )	Western ryegrass ( <i>Elymus glaucus</i> )

## Reptiles

Southern alligator lizard ( <i>Elgaria multicarinata</i> )	California mountain king snake ( <i>Lampropeltis zonata</i> )
Sharptail snake ( <i>Contia tenuis</i> )	

## Birds

Wood duck ( <i>Aix sponsa</i> )	Pileated woodpecker ( <i>Dryocopus pileatus</i> )
Mallard ( <i>Anas platyrhynchos</i> )	Steller's jay ( <i>Cyanocitta stelleri</i> )
Wild turkey ( <i>Meleagris gallopavo</i> )	Scrub jay ( <i>Aphelocoma coerulescens</i> )
Band-tailed pigeon ( <i>Columba fasciata</i> )	Orange-crowned warbler ( <i>Vermivora celata</i> )
Rufus hummingbird ( <i>Selasphorus rufus</i> )	Nashville warbler ( <i>Vermivora ruficapilla</i> )
Lewis' woodpecker ( <i>Melanerpes lewis</i> )	Chipping sparrow ( <i>Spizella passerina</i> )
Acorn woodpecker ( <i>Melanerpes formicivorus</i> )	

## Mammals

California ground squirrel ( <i>Spermophilus beecheyi</i> )	Black bear ( <i>Ursus americanus</i> )
Douglas' squirrel ( <i>Tamiasciurus douglasii</i> )	Striped skunk ( <i>Mephitis mephitis</i> )
Eastern gray squirrel ( <i>Sciurus carolinensis</i> )	Mountain lion ( <i>Felis concolor</i> )
Western gray squirrel ( <i>Sciurus griseus</i> )	Elk ( <i>Cervus elaphus</i> )
Raccoon ( <i>Procyon lotor</i> )	Black-tailed deer ( <i>Odocoileus hemionus</i> )

---

Appendix B. Invertebrates known to occur in Oregon white oak woodlands (Pyle 1989; L. Crabo, pers. comm.; R. Crawford, pers. comm.; J. Miller, pers. comm). (Species in bold are highly associated with the Oregon oak type and occur in Washington. Species marked with an asterisk have not yet been documented in Washington, but have been found near state borders.)

**Moths and Butterflies**  
(Class: Insecta, Order: Lepidoptera)

Association Codes: O = Suspected obligate: larvae are known oak feeders.  
A = Associate: larvae are suspected oak feeders, adults are found in oak habitats.  
F = Faculative: Larvae are polyphagous and eat oak. Common, widespread moth species.

Species	Assoc. Code	Comments
<b>Moths</b>		
<i>Abagrotis baueri</i>	A	Rare; known only from oak forests at Satus Pass, Klickitat Co.; not limited to oak in Oregon
<i>Abagrotis pulchrata</i> *	A	Rare west coast species known from southern Vancouver Island and 5 counties in western Oregon; larval food plant unknown
<b><i>Acronicta marmorata</i></b>	O	Common east of Cascades; probably in Puget prairies; known to feed on oak
<i>Annaphila macfarlandi</i> *	A	Known only from Benton County, Oregon
<i>Aseptis binotata curvata</i>	F	Common throughout Washington
<i>Autographa speciosa</i> *	A	Extremely rare; collected on southern Vancouver Island at the turn of the century, and in southwest Oregon
<i>Bomolocha palparia</i>	F	Western and northern Washington
<b><i>Catocala aholibah</i></b>	O	Uncommon; known only in Yakima County; known oak feeder
<i>Catocala llia</i> *	O	Present in Oregon as far north as Marion and Wasco counties
<b><i>Catocala verilliana beutenmulleri</i></b>	O	Uncommon; found in Yakima and Klickitat counties; known oak feeder
<b><i>Cissusa subtermina</i></b>	O	Common east of Cascades and in Cowlitz Co.; probably in Puget prairies; known oak feeder
<i>Cosmia calami</i> *	O	Found in the Willamette Valley and Wasco County, Oregon; known oak feeder
<i>Egira crucialis</i>	F	Abundant in Washington; reported specifically on <i>Q. garryana</i>
<i>Egira februalis</i> *	O	Widespread from the Willamette Valley to the Columbia River; known oak feeder
<i>Egira hiemalis</i>	F	Common in Washington; reported specifically on <i>Q. garryana</i>
<i>Feralia februalis</i> *	O	Widespread in Willamette Valley; known oak feeder
<i>Lacinipolia quadrilineata</i> *	A	Widespread in western Oregon, north to the Columbia River; feeds on low herbs



Appendix B. Continued.

Species	Assoc. Code	Comments
<i>Lithophane contenta</i>	O	Uncommon; found in Klickitat and Thurston counties; known to feed on oak
<i>Litocala sexsignata</i>	A	Uncommon; found in Yakima and Klickitat counties; suspected oak feeder
<b><i>Meganola miniscula</i></b>	O	Common east of Cascades; known to feed on oak and lichens growing on oak branches
<i>Nycteola columbiana</i> *	A	Found on southern Vancouver Island and the Willamette Valley; food-plant unknown
<i>Orthosia ferrigera</i> *	O	Widespread from the Willamette Valley to the Columbia River; known oak feeder
<i>Orthosia hibisci quinquefasciata</i>	F	Abundant in Washington
<i>Orthosia pacifica</i>	A	Moderately common; most common in oak forests east of Cascades and in Cowlitz County; also in western Washington forests; also feeds on <i>Salix</i> spp.
<i>Perigonica tertia</i>	F	Abundant east of the Cascades; less common in Thurston County; known to feed on oak
<i>Pseudocopivaleria sonoma</i> *	A	Known from Josephine and Clackamas counties, Oregon; suspected oak feeder
<i>Pseudoglaea</i> (new species)	F	Most common in riparian communities with oak in Yakima and Klickitat counties; also near Ellensburg; range extends to California; may feed on oak and other plants
<i>Pseudoglaea olivata</i>	F	Common throughout Washington
<i>Zale lunata salicis</i>	F	Common in western Washington and wooded portions of eastern Washington
<b>Butterflies</b>		
California sister <i>Adelpha bredowii californica</i>	A	Very few Washington records; in Clark and Pierce counties; in California, host plant are <i>Quercus</i> spp.; <i>Q. garryana</i> not recorded, but probable
<b>Propertius' duskywing</b> <i>Erynnis propertius</i>	O	Uses oak thicket openings along creeks; occurs only with <i>Q. garryana</i> in Washington, but not fully coincident with the range of this oak
California hairstreak <i>Satyrium californicum</i>	A	Uses oak among other plants; found in eastern Cascades and Blue Mountains, and Okanogan and Pend Oreille counties

### Gall Wasps

(Class: Insecta, Order: Hymenoptera, Family: Cynipidae)

Species	Comments
<i>Andricus albicomus</i> * (Weld)	Documented exclusively on <i>Q. garryana</i>
<i>Andricus californicus</i> (Ashmead)	Present in California, Oregon, and Washington on several <i>Quercus</i> spp.
<i>Andricus chrysolepidicola garryanae</i> * (Kinsey)	Documented exclusively on <i>Q. garryana</i>
<i>Andricus discularis</i> (Weld)	Documented exclusively on <i>Q. garryana</i>
<i>Andricus pattersonae</i> (Fullaway)	Present in California and Washington on <i>Q. garryana</i>
<i>Andricus stellaris</i> * (Weld)	Documented exclusively on <i>Q. garryana</i>
<i>Andricus verensis</i> * (Weld)	Documented exclusively on <i>Q. garryana</i>
<i>Besbicus leachii</i> * (Kinsey)	Documented exclusively on <i>Q. garryana</i>
<i>Besbicus mirabilis</i> (Kinsey)	Present in Oregon, Washington, B.C, on <i>Q. garryana</i>
<i>Disholcaspis eldoradensis</i> (Beutenmüller)	Present from California to Washington on several <i>Quercus</i> spp.
<i>Disholcaspis mellifica</i> * (Weld)	Documented exclusively on <i>Q. garryana</i>
<i>Disholcaspis simulata vancouverensis</i> (Kinsey)	Present in Oregon and Washington
<i>Disholcaspis washingtonensis</i> (Gillette)	Present in California, Oregon, and Washington on <i>Q. garryana</i>
<i>Neuroterus washingtonensis</i> (Beutenmüller)	Documented exclusively on <i>Q. garryana</i>
<b><i>Synergus garryana</i></b> (Gillette)	Guest in galls of <i>Disholcaspis eldoradensis</i>
<i>Xanthoeris teres</i> * (Weld)	Documented exclusively on <i>Q. garryana</i>

### Spiders

(Class: Arachnida, Order: Araneida )

All spiders listed occur in Washington. Those for which the name appears in bold are suspected oak-obligates.

Species	Comments
<i>Bathypantes</i> sp. #1	
<i>Callobius deces</i>	
<i>Ceratinopsis oregonicola</i>	
<i>Clubonia mimula</i>	
<b><i>Cybaeota nana</i></b>	
<i>Dictyna oregona</i>	
<b><i>Linyphantes</i> sp. #8</b>	
<b><i>Misumenops importunus</i></b>	
<i>Ozyptila conspurcata</i>	
<i>Pardosa distincta</i>	Prairies associated with oak
<i>Phrurotimpus certus</i>	

Appendix B. Continued.

Species	Comments
<i>Phrurotimpus parallelus</i>	Common throughout western Washington
<i>Theridion</i> sp. #1	
<i>Tricholathys rothi</i>	Prairies associated with oak
<i>Trogloneta</i> sp. #1	Highly associated with but not confined to oak
<i>Wubana ornata</i>	
<i>Xysticus gosiutus</i>	
<i>Zanomys aquilonia</i>	
<b><i>Zora hespera</i></b>	
<i>Zanomys kaiba</i>	

## Chapter 20.16<sup>1</sup> GARRY OAK TREE PROTECTION

Sections:

**20.16.010 Harm prohibited.**

**20.16.020 Permits for removal, topping and trimming.**

**20.16.030 Variances.**

### **20.16.010 Harm prohibited.**

(1) No person shall remove, top, damage, destroy, break, injure, mutilate or kill any Garry oak tree or permit any animal under his control to do so, or allow ivy or other invasive vines to takeover any Garry oak tree, or to permit any toxic chemicals to seep, drain or empty onto or about any Garry oak tree, except as allowed by this chapter.

(2) During building or construction operations, suitable protective measures listed below shall be erected around Garry oak trees which may be subject to injury.

(a) Establish a critical root zone (CRZ) for the tree which at a minimum is a circular area around the tree trunk with a radius of one foot for every one inch in diameter measured at four and one-half feet above grade.

(b) Install an access deterring fence with a minimum height of three feet around the CRZ that will remain in place till final inspections have been completed.

(c) Post highly visible and legible signs of caution, warning, or do not disturb, which are not less than 12 inches by 12 inches, of the restrictions around the tree on the fence or restricted area to help convey the importance of CRZ to workers on site.

(d) No roots greater than four inches in diameter shall be cut, even if such roots are outside the CRZ.

(e) Make all necessary cuts to tree roots cleanly with sharp tools.

(f) Construction debris or stockpile construction material shall be done outside the CRZ and away from the tree as practically possible.

(g) The soil composition in and around the CRZ shall not be disturbed or altered during project construction.

(h) Change in soil grades around the CRZ and tree shall be gradual.

(i) Washing equipment, vehicle maintenance and other potential soil contamination activities shall be done away from the CRZ and the tree as practically possible.

(j) All measures to avoid damage to tree trunks and branches should be taken during construction activities.

(3) If the protective measures listed above cannot be met due to site specific conditions, or if it is determined that the measures may not meet the intent of protecting the Garry oak tree, the applicant will be required to provide a tree protection plan prepared by a certified arborist.

(4) No hard surface area shall be allowed within the drip line of a Garry oak tree to the maximum extent possible. An administrative variance may allow hard surface on up to 25 percent of the area within the drip line when there is no practical alternative. (Ord. [1839](#) § 1, 2018; Ord. [1784](#) § 76, 2016; Ord. [1441](#) § 1, 2005).

### **20.16.020 Permits for removal, topping and trimming.**

Permits for removal or trimming of a Garry oak tree may be granted by the director when the following conditions are determined to exist:

(1) Removal or Topping. A permit for removal or topping may be granted when it is determined by the director that the Garry oak tree is so diseased or damaged that it presents a danger to the public or adjacent property and trimming is inadequate to ameliorate the danger. Wherever feasible, dead Garry oak trees shall be left as snags, for their habitat value.

(2) Trimming. A permit for trimming shall be granted when it is determined:

- (a) That trimming is needed for safety or public welfare or to remove diseased or dead branches; or
- (b) That branches hang over an existing building or interfere with utility lines or right-of-way access.

(3) The director shall respond to a request for a permit within 10 days of application. No fee shall be charged for a permit. Appeal of a decision by the director shall be to the hearing examiner and shall be made in writing within 10 days of the decision. (Ord. [1839](#) § 1, 2018; Ord. [1441](#) § 1, 2005).

**20.16.030 Variances.**

In order to ameliorate the impact of this chapter, the following variances may be allowed under the zoning code:

- (1) Setbacks. A variance may be granted to allow intrusion of a building into a setback yard by 10 feet to preserve a Garry oak tree located elsewhere on the property.
- (2) Parking. Parking requirements may be reduced by two vehicles per Garry oak tree preserved on the property.
- (3) Landscaping. A credit of one and one-half square feet for landscaping requirements under the city zoning code shall be given for every square foot of area devoted to a Garry oak tree use. (Ord. [1839](#) § 1, 2018; Ord. [1441](#) § 1, 2005).

---

<sup>1</sup> Prior legislation: Ords. [898](#) and [1275](#).

---

The Oak Harbor Municipal Code is current through Ordinance 1990, passed December 5, 2023.

Disclaimer: The city clerk's office has the official version of the Oak Harbor Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

City Website: <https://www.oakharbor.org/>

City Telephone: (360) 279-4539

[Code Publishing Company](#)



July 3, 2024

To: Ms. Tiffany Speir, City of Lakewood  
Re: Lakewood Draft EIS comments

Please accept the following public comment about Lakewood's Draft Supplemental Environmental Impact Statement from the Garry Oak Coalition, an environmental non-profit based in Lakewood. Please make our organization a party of record in this process.

In reviewing the DSEIS, please also take into consideration the public comments submitted for the GMA update previously by both the Garry Oak Coalition and, individually, by Christina Manetti. I am resubmitting them together with this comment.

**BEST AVAILABLE SCIENCE:**

***The City's habitat conservation areas regulations require some modifications to align with BAS and to clarify applicability and facilitate ease of use.***

p. 283 of file

Best Available Science recommends that single Garry oaks qualify for protection when in urban and urbanizing contexts such as those in Lakewood. Habitat biologist Darrin Masters has said that Garry oaks such as the one destroyed for the roundabout on Hipkins this year, and the 114 destroyed for the Panattoni warehouse project in Springbrook, are clearly valuable to wildlife and should be protected.

Nevertheless, despite what Best Available Science says (WDFW recommendations published in 1998 and 2024 and WDFW habitat biologist Darrin Masters), there are no recommended changes to the sections related to Oregon white oaks (Garry oaks) in this EIS (p. 284 of file):

Code Section	Title	Review Comment / Recommendations*
14.154.080	Provisions for priority Oregon white oak trees and woodlands	None
14.154.090	Provisions for fish and wildlife, habitat buffers, where required	None

\* See discussion of comments/recommendations in the subparts below this table.

p. 3:

choices – townhouses, multiplexes, and other housing – in low density areas of the city. It updates critical area regulations to address best available science (BAS), including buffer standards and mitigation for streams, and protection of aquifer recharge areas, wetlands, and floodplains. It

While the introduction says that the EIS will be update “critical area regulations to address best available science (BAS),” it completely neglects changing the regulations related to Oregon white oaks (Garry oaks), whose critical areas protections in Lakewood, as we have seen especially in recent year, are woefully inadequate.

The regulations failure to take into account all Oregon white oaks that would qualify according to Best Available Science – the WDFW recommendations published in 2024<sup>1</sup> and 1998<sup>2</sup> – which clearly state that Oregon white oaks on the west side of the Cascades are not to be cut down except for stand enhancement (p. 12, 1998 Recommendations), and that even single Oregon white oaks in urban and urbanizing contexts can qualify for protection (p. 18, 1998 Recommendations).

The 2024 recommendations stress that mitigation is in practice impossible, given the slow growth rate of the Oregon white oaks and resultant temporal gap in habitat:

“Those years that pass then constitute time where all or some of the ecological function provided by the former habitat is absent, resulting in a temporal loss of function. **This time lag makes it difficult for mitigation to meet the standard set by the Growth Management Act of no-net-loss (WAC 365-196-830)** or a net gain of ecological functions and values. Avoidance of OWO habitat generally means neither removing trees nor impacting the ecosystem function of OWO habitat.” (p. 7, 2024 Recommendations) [emphasis added]

The guidelines therefore provide detailed guidelines for assessing the habitat value of trees and replacement ratio – which is 1000 per acre of oak woodland lost, planted over two acres (p. 18 of 2024 recommendations), or up to 250 Oregon white oaks planted per single oak cut down of 30” diameter at breast height of larger (p. 18 of 2024 recommendations).

1 Nolan, M. P., and J. M. Azerrad. 2024. Management recommendations for Washington's priority habitats: Best management practices for mitigating impacts to Oregon white oak priority habitat. Washington Department of Fish and Wildlife, Olympia, Washington.

2 Larsen, E. M., and J. T. Morgan. 1998. Management recommendations for Washington's priority habitats: Oregon white oak woodlands. Wash. Dept. Fish and Wildl., Olympia. 37pp.

To give just two examples of many of the Oregon white oaks constituting critical areas that have been destroyed in recent years in Lakewood: WDFW habitat biologist Darrin Masters’ repeated statements affirming that Oregon white oaks such as 114 oaks at the 123<sup>rd</sup> Street Panattoni warehouse site and the Hipkins oaks were undeniably valuable to wildlife and worthy of protection, the City has nevertheless neglected to revise its critical areas ordinance to afford oaks better protections in Lakewood.

**NO INVENTORY: NO BASELINE OF LAKEWOOD’S OAK CRITICAL AREAS:**

The City, because it does not have any inventory of Oregon white oaks on all public and private property, does not know what critical areas lie within its boundaries. Therefore, losses of critical areas will also be unknown. As it says on p. 284 of the file, the critical areas are to include all those on both public and private property:

**5.2 Designation of critical fish and wildlife habitat areas (LMC 14.154.020).**

**5.2.1 Provisions of this title apply to both public and private lands**

Chapter 14.154 currently states that this chapter applies to proposed regulated activities within critical fish and wildlife habitat areas. For the purpose of adding clarity to the document it is recommended that the City add language stating that this chapter applies to proposed regulated activities within critical fish and wildlife habitat areas *on all public and private lands*.

**LAKEWOOD “MITIGATION” INADEQUATE:**

Lakewood essentially allows the destruction of any Oregon white oak, with the official requirement of a permit now, and even the destruction of critical areas such as those in Springbrook at the Panattoni warehouse site, in exchange for a mitigation fee – which at that site did not have any mitigation plan associated with it. (One suggestion at the City Council was that the fee would be “useful” to start the new Urban Forestry Program. Mitigating the lost of critical areas and priority habitat does not take the shape of setting up a tree-related bureaucracy.

Because mitigation is impossible in practice for Oregon white oaks, and because no attempt is even made to try actually to mitigate the loss of critical areas such as those in Springbrook, there is a resultant **net loss of critical areas in Lakewood**.

By allowing Oregon white oaks to continue to be cut down on public and private property, the City is allowing a **net loss of critical areas** within its boundaries, which is prohibited by the Growth Management Act.

There should also be added a “no-net-loss” to the Oregon white oak section, as here on p. 283 of file in reference to rivers and streams:

14.154.050	Habitat protection for rivers and streams	<ul style="list-style-type: none"> <li>• Update stream protection buffers to ensure consistency with BAS</li> <li>• Add language for “no-net-loss” of ecological function</li> </ul>
------------	---	--



**5.3.2 Expand on the sources and methods of identifying critical fish and wildlife habitat areas**

The City should consider listing publicly available resources to help applicants identify critical fish and wildlife habitat areas. At minimum the City should list the WDFW’s Priority Habitat and Species webpage ([Priority Habitats and Species \(PHS\) | Washington Department of Fish & Wildlife](#)) as required by WAC 365-190-130 (4).

**TOO MUCH DEPENDS ON APPLICANT:**

It was surprising to see that the applicant is tasked with identifying critical habitat areas (see p. 285 of file).

It seems that “expanding on the sources and methods of identifying critical fish and wildlife habitat areas” still remains too dependent on the property owner and any consultants he or she may hire. Having the property owner hire a consultant to identify and assess critical areas is a clear conflict of interest: this should be done by an independent scientist.

See p. 283 of the file:

14.154.030	Habitat protection standards	<ul style="list-style-type: none"> <li>• Add BAS to section B</li> <li>• Expand on the sources and methods of identifying critical fish and wildlife habitat areas</li> </ul>
------------	------------------------------	---

As we have seen repeatedly in the recent past, critical areas are habitually overlooked, underestimated and diminished in such consultants’ reports, which the City treats as the pronouncements of experts.

This indicates another problem with the City’s approach to critical areas: there must be sufficiently stringent standards that the applicant must meet in presenting his or her application, but also sufficiently stringent review of those applications.

There must be clear standards presented for both – and these should be included in the land use code, the critical areas ordinance, development code, etc., – in a word, the standards should be included in all of the relevant codes.

***Applicability and Mapping (LMC 14.142.040)***

- *Add City maps or map resources. The current CAO defines/designates regulated critical areas according to guidelines, however there are no reference maps or resources which applicants can use to identify potential critical areas in their project area. The City should either add a reference to publicly available resources for critical areas identification or create City maps containing those*

designations that are updated regularly.

p. 88 of 0\_Lakewood-Comprehensive-Plan-DSEIS\_2024\_0603\_Text\_wAppx-small.pdf

14.154.030	Habitat protection standards	<ul style="list-style-type: none"><li>• Add BAS to section B</li><li>• Expand on the sources and methods of identifying critical fish and wildlife habitat areas</li></ul>
------------	------------------------------	--

p. 283 of file

The oak and priority habitats and species maps (Exhibits 3-3, 3-4, and 3-5) are not very useful because they are not exhaustive – in both the 1998 and 2024 WDFW Oregon white oak (Garry oak) guidelines, single oaks in “urban and urbanizing” contexts may be protected, and these will not necessarily appear on these maps. There are many oaks that are not part of a larger group that would not be taken into account. Similarly, as WDFW says itself, its PHS online map is also not exhaustive and should not be treated as such, and DNR also has a caveat that its oak map is also not exhaustive.

According to WDFW habitat biologist Darrin Masters, commenting on the Hipkins Road oaks, single oaks such as those affected (of which only one was destroyed I believe) for the roundabout on Hipkins Road are clearly valuable to wildlife and should be protected.

#### **DELINEATION OF OREGON WHITE OAK WOODLAND:**

Oregon white oaks are also adversely affected by **subdivisions** (because if the property on which a stand of oaks stands is subdivided into lots of less than one acre, then the stand is considered to be less than one acre and therefore not protected in Lakewood – although WDFW’s recommendations clearly state that single trees may also qualify for protection. According to Darrin Masters, any of the large Oregon white oaks in Lakewood would be valuable to wildlife by virtue of the fact that they are large and used by local birds and wildlife, as well as federally protected neotropical migratory birds on their twice-yearly migrations.

Stands of Oregon white oaks must be defined biologically, not by property lines. A stand that spans more than one lot constitutes a stand. Nature does not know property lines.

Similarly, a road cannot be considered something that would divided an Oregon white oak stand into parts less than one acre and therefore unprotected, as happened at the properties on Interlaaken and 112<sup>th</sup>. The small road Interlaaken goes through a stand of oaks that I believe has 0.4 acres on the western side of the road, and 0.8 acres on the eastern side. The oaks on either side are so close that one can see that the crowns are touching, or virtually touching, in aerial photographs. According to the City, however, this did not constitute one stand, but two – both of which were less than one acre and therefore unprotected in Lakewood.

In terms of identifying Oregon white oaks as critical areas, the City has also caused there to be a loss in critical areas because of its requirement that an appellant personally observe threatened or endangered species in the Oregon white oaks, using them. This despite the clear statement of WDFW habitat biologist Darrin Masters, which was included as an exhibit in multiple appeals

before the hearing examiner, that it is not necessary for someone to personally observe species using the Oregon white oaks in order for us to know that they are valuable to wildlife.

The requirement that specifically listed species be observed in the Oregon white oaks is scientifically unfounded, since it is in all of our best interests to protect all wildlife so that species *do not* become threatened or endangered, particularly during this time of mass extinctions, when keystone species like the Oregon white oak that provide critical habitat for insects and bird, are more important than ever before.

By denying Oregon white oaks protections in these ways, the City is facilitating the unmitigated destruction of its own critical areas, which is forbidden under the Growth Management Act.

Thank you for your attention to these matters, which are so crucial to the survival of what remains of Lakewood's native Oregon white oaks, a keystone species – a species of local importance, as well as our City's official tree.

Sincerely,

A handwritten signature in cursive script that reads "Christina Manetti".

Christina Manetti, Ph.D.  
President, Garry Oak Coalition, Lakewood

From: **Christina Manetti** <[manetti.christina@gmail.com](mailto:manetti.christina@gmail.com)>  
Date: Thu, Apr 18, 2024 at 2:08 PM  
Subject: Critical Areas update - new state Garry oak recommendations + various  
To: Tiffany Speir <[tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)>  
Cc: Jason Whalen <[jwhalen@cityoflakewood.us](mailto:jwhalen@cityoflakewood.us)>, Patti Belle <[pbelle@cityoflakewood.us](mailto:pbelle@cityoflakewood.us)>, <[pbocchi@cityoflakewood.us](mailto:pbocchi@cityoflakewood.us)>, Mary Moss <[mmoss@cityoflakewood.us](mailto:mmoss@cityoflakewood.us)>, Mike Brandstetter <[mbrandstetter@cityoflakewood.us](mailto:mbrandstetter@cityoflakewood.us)>, <[rpearson@cityoflakewood.us](mailto:rpearson@cityoflakewood.us)>, Trestin Lauricella <[tlauricella@cityoflakewood.us](mailto:tlauricella@cityoflakewood.us)>, <[BSchumacher@cityoflakewood.us](mailto:BSchumacher@cityoflakewood.us)>

Dear Ms. Speir,

Please accept this public comment related to the Critical Areas update that is currently underway.

### 1) NEW WDFW GARRY OAK RECOMMENDATIONS:

Please relay to those working on the Critical Areas update that the City needs to update its Critical Areas regulations this year to reflect the new Garry oak (Oregon white oak) recommendations that were published by WDFW in February 2024, applicable also to the Garry oaks in Lakewood: "Best management practices for mitigating impacts to Oregon white oak priority habitat". (**See attached file.**)

**The City is bound by GMA to make these changes to its Critical Areas ordinance, as this WDFW publication reflects best available science on the subject of Garry oak (Oregon white oak) management, including in urban and urbanizing contexts:**

***"Cities and counties must conduct a best available science review when updating critical area regulations."***

<https://app.leg.wa.gov/WAC/>

The City will find this document very instructive. Here are just a few highlights:

In it, the recommendations specify for example, that impacts to Garry oaks should be avoided (i.e., they should not be destroyed), and outlines mitigations of up to 250 Garry oak seedlings for the destruction of just one Garry oak:

*Compensating for the loss of individual locally important trees [...]*

*o For trees > 30 inches diameter at breast height (dbh), use a tree replacement ratio of 250:1*

*o For trees between 24 - 30 inches dbh, use a tree replacement ratio of 200:1*

*o For trees between 18 - 24 inches dbh, use a tree replacement ratio of 150:1*

*o For trees between 12 - 18 inches dbh, use a tree replacement ratio of 100:1*

*o For trees between 12 - 6 inches dbh, use a tree replacement ratio of 50:1*

(p. 18)

For the destruction of 1 acre of Garry oak woodland, the mitigation would be 1000 oaks planted over two acres: "To restore an acre of woodland, use a 2:1 replacement ratio. Plant 1000 trees across 2 acres." (p. 18)

Among other things, the recommendations also stipulate that the understory should also be recreated when replanting (pp. 18-19):

*When restoring an OWO woodland or compensating for the loss of a single OWO tree, we recommend filling the space between planted OWO with a diverse native understory community, leaving at least 5 feet of space around the OWO. Plant at least eight different native understory species.*

## **2) REGULATIONS TO ENSURE WELL-BEING OF GARRY OAKS (and other trees):**

If the City is interested in preserving Lakewood's Garry oaks, the Critical Areas ordinance or tree code should also include **new regulations** to ensure that Garry oaks are able to thrive in Lakewood.

Two important ways that the City can do this is to:

**1) PROHIBIT PAVING OVER CRITICAL ROOT ZONES:** Prohibit property owners from paving over the Critical Root Zones of the Garry oaks (and of course other significant trees), as has recently been done at Mr. Claude Remy's new "**Gravelly Lake Townhomes**" apartment complex on Gravelly Lake Drive not far from the intersection with Steilacoom Boulevard. There, the parking lot asphalt has been put down just short of the trunks of the Garry oaks that line the eastern edge of the property.

These trees will suffer and eventually die if their critical root zones are covered with asphalt. Such suffering takes decades in this kind of long-lived tree, but it is assured if they are deprived of water and their roots are baked in the longer, hotter, drier summers we have begun to experience. The governor has already declared a drought emergency this week, and as you have noticed, most of April will be without substantial rain.

In decades past, for example in the 1970's and 1980's, the 9 or 10 months of rainfall made it easier for the oaks and other trees to endure such thoughtless treatment. Now it will just accelerate their suffering.

This will eventually result in a **net loss of critical areas**, which is prohibited by GMA -- since single Garry oaks of such girth should, as the new oak recommendations stress, be considered Critical Areas.

**We request that the City require that the asphalt be removed** from the Critical Root Zones of the new parking lot at Mr. Remy's property before too much damage has been done.

## **2) PROHIBIT DAMAGE BY IVY AND OTHER INVASIVES:**

During work on the Critical Areas ordinance, the City should add a regulation specifically prohibiting property owners from allowing ivy and other invasive vines to grow onto and cover Garry oaks and other trees. The ivy -- as we saw recently on Brook Lane -- eventually becomes so heavy that the tree falls under its weight, while also being smothered under the ivy's heavy foliage. That Garry oak on Brook Lane measured 12" across and was surely over one hundred years old.

The City would benefit from a more far-ranging regulation that would require property owners to eradicate the all the major invasives found in Lakewood ([English holly](#), [English ivy](#), [Himalayan blackberry](#), [English \(cherry\) laurel](#), [Scotch broom](#)), some of which have already destroyed parts of our forested areas (such the many Garry oaks and other trees that have succumbed to ivy along 112th across from Christ Lutheran, to Interlaaken).

Other jurisdictions, such as Oak Harbor and Portland (see attached files), have such regulations.

As we read in a document produced by the City of Portland, there are many important ecological reasons to eradicate invasive species within our cities and towns:

*Invasive plants are the second largest threat to native biodiversity, behind habitat loss, and they are one of the primary factors that lead to a species listing under the Endangered Species Act (City of Portland Invasive Plants Strategy Report 2008). Invasive plants degrade water quality, reduce biodiversity, impair habitat, decrease tree populations and growth rates, increase the likelihood and spread of fire, decrease the ability of stormwater infiltration and increase soil erosion. Removing invasive species and planting native vegetation is critical for improvement and maintenance of watershed health. Fish, wildlife, and the citizens of Portland benefit from the management of invasive species.*

(<https://www.portland.gov/>, p. 5)

Thank you very much for your attention to these pressing matters. Please let me know if we can be of assistance during the Critical Areas update.

Sincerely,  
Christina Manetti, Ph.D.  
President, Garry Oak Coalition, 501c3, Lakewood

Attachments: 2024 WDFW Oregon white oak recommendations and Oak Harbor municipal code regarding Garry oaks



December 29, 2023

To: The City of Lakewood, Long-Range Planning Department

Please include these comments in the record of the City's 2024 Growth Management Comprehensive Plan Periodic Review and update, and implementation of development regulations. Please acknowledge receipt of these comments.

**I) BEST AVAILABLE SCIENCE AND NO NET LOSS:**

The GMA requires that critical areas be protected using the best available science [WAC 365-195-900 through 925], and that there be “no net loss of functions and values”. [WAC 365-196-830]

In Lakewood, we have examples of the different kinds of critical areas defined in RCW 36.70A.030(5):

- Wetlands.
- Areas with a critical recharging effect on aquifers used for potable water.
- Frequently flooded areas.
- Geologically hazardous areas.
- Fish and wildlife habitat conservation areas

This last category, “fish and wildlife habitat conservation areas”, includes Oregon white oak woodlands. Their sustained loss in Lakewood is an example of the City’s failure to use best available science.

## **II) NET LOSS OF CRITICAL AREAS:**

Lakewood’s current regulatory system has not been based on the best available science and allows a net loss of critical areas in the following ways:

### **a) Best available science for Oregon white oak woodlands not followed:**

For all critical areas, there are multiple sources for the best available science, which in the case of the Oregon white oak is the information published by the Washington Department of Fish and Wildlife’s Priority Habitats and Species (PHS) program, most notably in Eric M. Larsen and John T. Morgan, *Management Recommendations for Washington’s Priority Habitats: Oregon White Oak Woodlands* (1998).

LMC states that “[t]he City shall give substantial weight to the management recommendations contained in the Washington Department of Fish and Wildlife Priority Habitats and Species Program. [Ord. 775 § 1 (Exh. A), 2022; Ord. 630 § 2, 2015; Ord. 362 § 3, 2004.]” (LMC 14.154.030(B))

The City’s interpretation in its code must also faithfully embody the authors’ intent, which is to insure the protection of Oregon white oaks.

The definition used in the LMC is, however, not consistent with the WDFW PHS definition (i.e., best available science). Here are some examples of LMC’s inconsistencies:

**In urban and urbanizing areas:** The PHS definition says that “**In urban or urbanizing areas, single oaks, or stands of oaks <0.4 ha (1 ac), may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height [dbh], are used by priority species, or have a large canopy).**” (emphasis added) (Eric M.



Larsen and John T. Morgan, *Management Recommendations for Washington's Priority Habitats: Oregon White Oak Woodlands* (1998), p. ix),

The City has chosen to omit in its code key elements of this PHS wording, which is crucial in terms of protecting Oregon white oaks in our context here in Lakewood – that part referring to “urban or urbanizing areas”.

LMC states: “Priority Oregon white oak woodland” means forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).”

LMC nevertheless does clearly state elsewhere that “In Lakewood, **individual trees** and [stands](#) of trees are protected as critical fish and wildlife habitat area under Chapter [14.154 LMC](#), Fish and Wildlife Habitat Areas.” (emphasis added) (18A.70.330)

In practice, however, individual trees and stands smaller than 1 acre have not been protected in Lakewood. (See for example appeals in 2022-2023 related to the Connie Kay shortplat, Gravelly Lake Townhomes and Interlaaken shortplat.) **The protection of single Oregon white oaks has not been adopted in practice.**

### **Protection of Oregon white oak woodlands 1 acre or greater:**

The PHS recommendations clearly state that Oregon white oak woodland of greater than or equal to 1 acre should be protected, with no reference to any need for the entire 1 acre to be on a single parcel. (*Management Recommendations for Washington's Priority Habitats: Oregon White Oak Woodlands* (1998), p. ix)

LMC also repeats this 1 acre requirement. According to LMC Chapter 14.165.010 Definitions:  
***“Priority Oregon white oak woodland” means forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).***  
[emphasis added]

However, as we have seen during the oak-related appeals of 2022-2023, the City interprets this 1 acre requirement as meaning that the entire 1 acre of oaks must be found within the boundaries of a single parcel, regardless of whether they constitute a larger area of woodland with oaks on surrounding properties. This was seen for example most recently in the appeal regarding the Interlaaken plat (2023).

As a result, a stand of Oregon white oak woodland can always be eliminated as the result of subdivision into parcels smaller than 1 acre, which would remove any need for any critical area protections.

**Other ways in which current regulations allow for the net loss of critical areas:**

**b) Oak woodland delineation:**

The City has no definition of its own regarding how an area of Oregon white oak woodland should be measured, which has led to situations, such as at the Panattoni project on 123<sup>rd</sup> Street, in which hired consultants have measured Oregon white oak woodland in ways that divide oak woodlands into smaller patches, ignoring the fact that Oregon white oak woodland has an open canopy. This has resulted in consultants’ results showing there was less than 1 acre of oaks, when in reality it was clearly an area of Oregon white oak woodland larger than 1 acre.

**c) Insufficient compensatory mitigation:**

Oregon white oaks can be removed with insufficient compensatory mitigation. The City's requirement for tree replacement at a ratio of 2 to 1 is inadequate mitigation for an oak that is in all likelihood hundreds of years old, and does nothing to compensate for the temporal loss, thereby creating a cumulative net loss. [18A.70.330(B)(1)(a)(ii)]

**d) Temporal loss:**

Even when more mitigation is required for the cutting down of oaks in critical areas, this, too, does not account for the temporal loss (loss over time) of function. A seedling or sapling is not functionally equivalent to a mature tree for wildlife function. [14.154.080]

**e) Replacement trees unspecified:**

The mitigation system does not assure that replacement trees are "in-kind" (Oregon white oak), that they are maintained, and that they are permanently protected. [18A.70.330(B)(1)(a)(ii)]

**f) Mitigation lacking:**

When mitigation fees are required, there seems to have been no specific plan as to what to do with the money exacted for their destruction. Money in a bank account does not mitigate anything, and does not help achieve no net loss, which is theoretically the aim of collecting the mitigation fees.

From what we know about the City's tree fund, very little, if any, actual mitigation has been done since 2009 – in fact, we see that 33 trees were even cut down with \$24,000 of funds from the tree fund. (See tree fund table, current to June 30, 2023, which was provided to City Council.)

**g) Public Works Department and utilities exempt from tree preservation regulations:**

The Public Works Department and the utilities companies are exempt from any tree preservation regulations at all, including those related to Oregon white oak. This allows for a net loss of Oregon white oaks and critical areas. There is no reason why these entities should be exempt. While they may have greater leeway, this should not exempt them from the process of evaluating what their plans are and looking for less-damaging alternatives. Like others, they need to go through the mitigation sequencing process. [LMC 18A.70.310(C)]

**h) Remnant stands:** In areas where Oregon white oaks have already been removed from a larger stand of woodland, the remaining trees may no longer be protected even if the total size of the stand is less than 1 acre, and of course property lines need not be considered when assessing the extent of a natural feature. The remaining trees in such a stand should be protected as if they were still part of the larger stand. An example of this problem can be seen on Gravelly Lake Drive, where the apartment developer removed a number of Oregon white oaks first at Gravelly Lake Brownstones, and then more next door at Gravelly Lake Townhomes.

**i) Excessive destruction allowed for construction:**

LMC allows for the destruction of Oregon white oaks to construct a house, “permitted accessory structure” or detached garage. A garage in this situation should be put underground, which would allow the Oregon white oak to be saved. Reasonable use says that it is a single family dwelling, so “accessory structures” should not be permitted where an Oregon white oak is standing. Because Oregon white oaks comprise a critical area, they take precedence over overextended development plans. The concept of “reasonable use” is limited, especially in the context of critical areas that must be preserved.

*3. Single-Family Property. If the presence of the priority Oregon white oak woodland renders the development of a house or permitted accessory structure infeasible, and the application of incentives in LMC [18A.70.320\(J\)](#) is insufficient to result in a feasible development, the City may allow removal or*

*trimming of priority Oregon white oak trees and woodlands in order to allow a maximum building footprint of 1,500 square feet for a single-family residence, 1,000 square feet for an accessory dwelling unit, and 1,000 square feet for a detached garage.”*

[https://lakewood.municipal.codes/LMC/14.154.080\(C\)\(3\)](https://lakewood.municipal.codes/LMC/14.154.080(C)(3))

**j) Loss through ignorance and neglect:**

Loss of Oregon white oaks and critical areas – whose decline can take many decades to become apparent – by failing to insure that the oaks have the conditions necessary to thrive. The City code, for example, does not require property owners, residential, commercial and industrial, to insure survival of Oregon white oak by forbidding the paving of areas within the oaks’ driplines (as per LMC 18A.70.330(E)), and requiring the removal of existing pavement, as well as by maintaining healthy soil and understory vegetation – i.e., healthy plant communities.

**k) Loss of critical area due to incompetent arborists and “pruning”:**

Loss of Oregon white oaks due to a lack of proper regulation of arborists, pruning and other work on oaks in the city. Oaks are lost as a result of mutilation from “pruning”, whether by commercial property owners or individuals, or utility companies, due to a lack of requirement that only true arborist experts be allowed to work on Oregon white oaks in the City, guided by best available science. An example of this is at the commercial property adjacent to the post office at 9881 Bridgeport Way SW, Lakewood, WA 98499.

**l) Loss of critical areas due to inadequate Biological Site Assessments:**

Loss of Oregon white oaks due to a lack of proper Biological Site Assessments, resulting in a failure to recognize Oregon white oaks as critical areas, requiring proper mitigation sequencing.

**m) Biological Site Assessments by unqualified individuals:**

The LMC allows biological site assessments of critical areas and priority habitat to be conducted by a certified arborist, rather than a habitat biologist: “The report and mitigation prepared by a qualified biologist or certified arborist demonstrate to the satisfaction of the Director that mitigation addresses impacts to priority Oregon white oak trees and woodlands consistent with the provisions of this chapter.” (LMC 14.154.080(C)(5)(c))

Because the assessment of a priority habitat for the presence of wildlife and especially priority species would necessitate the expertise of a habitat biologist, who would carry out wildlife and bird surveys and create species lists, for example, it is inappropriate to allow such a biological site assessment to be carried out by a certified arborist. As we saw in the Interlaaken appeal (2023), the arborist carrying out the biological site assessment admitted himself to knowing virtually nothing about birds or animals.

By allowing unqualified individuals to make judgments as to the habitat value, there is the real danger that important information will be overlooked and the habitat will as a result not be protected, which will ultimately end in a net loss of critical area. Examples of such deficient Biological Site Assessments are those submitted for the Connie Kay shortplat on Alfaretta, and for the Interlaaken shortplat.

**n) Damage and loss through failure to protect during construction:**

Damage and loss of Oregon white oaks is possible and probable due to a failure to properly protect them with fences and signage during construction work, and by allowing foundations to be dug within their critical root zones. We see no fences or signage at the construction sites at the corner of Dekoven and Mount Tacoma Drive, nor at the Gravelly Lake Townhomes project. (LMC 18A.70.330(C))  
Although this regulation exists in the code, it has not been adopted in practice.

**o) Loss from ivy:**

Loss of Oregon white oaks due to a failure to regulate their protection from invasive English ivy or other vegetation, and failure to prosecute property owners allowing their oaks to become smothered by invasive English ivy or other vines, which leads to their eventual death. An example of this is the property at the corner of 112<sup>th</sup> and Interlaaken.

**p) Loss from nailing:**

Failure to regulate the damaging practice of nailing signs or other objects into Oregon white oaks, which can compromise their integrity and introduce pathogens. Although this is regulated in Pierce County code, it is not in LMC.

**q) Smaller oaks not protected – failure to recruit:**

By failing to afford Oregon white oaks with diameters smaller than 4” DBH any protection at all, the City is contributing to a net loss of Oregon white oak woodland in the City, since young Oregon white oak are rare and should be preserved. Without recruitment, it is clearly foreseeable that the next generation will not grow.

**r) Public education:**

Although the LMC mentions a “voluntary education program” to educate the public about the need to protect critical areas, no such education program has been apparent. LMC 14.154.030(A)

**s) Requirement that threatened or endangered species be observed in the Oregon white oaks in order for them to be protected:**

During oak-related appeals, we have seen that the City interprets the section of its code where it refers to Oregon white oaks that are “used by priority species” (14.165.010) – where PHS uses the much more all-encompassing phrase “particularly valuable to fish and wildlife” – to mean that an appellant must personally see and document the present of threatened or endangered species on the Oregon white oak in question in order for that tree to qualify for protection. (See for example Connie Kay appeal (2022).)

By excluding large Oregon white oaks like this from the designation of critical area, both availability and potential are being removed. When not protected and cut down, it is a certainty that no species will use that tree, thereby contributing to the endangerment of even more birds and animals.

Species make use of certain habitat, including oaks, at certain times. If you cut it down now, that means that it won't be available later when the species needs it. The fact that one doesn't see it in March or June doesn't mean that the species doesn't use it. This requirement is inconsistent with PHS standards and will result in a net loss.

This fails to follow Best Available Science, and allows for a net loss of critical areas in Lakewood.

**t) Lack of an inventory:**

Lakewood's lack of an inventory of its Oregon white oaks means that there continues to be no way to track its critical area or loss thereof.



These policies, regulations, and “interpretations” result in a failure to include the best available science and to achieve no net loss of ecosystem function; therefore, they violate GMA’s critical area protection requirement. As noted in the multiple specifics outlined above, Lakewood’s code as currently presented fails the best available science standard and mitigation sequencing, and results in a net loss. The code needs thorough-going amendments to address these serious shortcomings.

Sincerely,

A handwritten signature in cursive script that reads "Christina Manetti".

Christina Manetti, Ph.D.

President, Garry Oak Coalition (501c3)

**Karen Devereaux**

---

**From:** Tiffany Speir  
**Sent:** Friday, June 7, 2024 11:01 PM  
**To:** Karen Devereaux  
**Subject:** FW: Cindy Gardner public comments

Please add to 6/12 public comments to the Planning Commission

Thanks,

---

Tiffany Speir, Esq., CPM®  
Long Range & Strategic Planning Manager  
253.983.7702 | [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)

*Please be advised: All e-mail correspondence sent to and from this e-mail address is subject to the State of Washington's Public Records Act (Chapter 42.56 RCW).*

**From:** Cindy <[ccgardner@earthlink.net](mailto:ccgardner@earthlink.net)>  
**Sent:** Thursday, June 6, 2024 8:07 PM  
**To:** Tiffany Speir <[tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)>  
**Subject:** My Questions

**This email originated outside the City of Lakewood.**  
Use caution when following links or opening attachments as they could lead to malicious code or infected web sites. When in doubt, please contact the HelpDesk.  
*- [helpdesk@cityoflakewood.us](mailto:helpdesk@cityoflakewood.us) ext. 4357*

Absolutely no problem. Here are the 3 questions that John & I submitted:

- 1) Was an environmental impact study done prior to the Barnes & Nobel approval? If not, why not?
- 2) Could a member of this Commission personally or professionally benefit from any decision made by the panel?
- 3) Question for Mark Herr: If you were a homeowner in our neighborhood how would you describe the benefits of the RTA? What are the disadvantages of the RTA to the homeowner in our neighborhood?

Thank you Ms. Speir. We appreciate your communications.  
John & Cindy

---

**From:** Tiffany Speir [<mailto:tspeir@cityoflakewood.us>]  
**Sent:** Thursday, June 6, 2024 3:57 PM  
**To:** Cindy Gardner  
**Subject:** RE: Questions

Hello once more Ms. Gardner:

Please send me your questions one more time to this email.

Apologies for any inconvenience and thank you,

---

Tiffany Speir, Esq., CPM®  
Long Range & Strategic Planning Manager  
253.983.7702 | [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)

*Please be advised: All e-mail correspondence sent to and from this e-mail address is subject to the State of Washington's Public Records Act (Chapter 42.56 RCW).*

**From:** Cindy Gardner <[cvgardner@earthlink.net](mailto:cvgardner@earthlink.net)>  
**Sent:** Wednesday, May 29, 2024 8:49 AM  
**To:** Tiffany Speir <[tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)>  
**Subject:** Questions

---

We have questions that we would like to submit to the Planning Commission prior to the June 5<sup>th</sup> meeting. Is this the email that we should use?

Thank you. John/Cindy Gardner

Sent from [Mail](#) for Windows

**Karen Devereaux**

---

**From:** Tiffany Speir  
**Sent:** Sunday, June 9, 2024 2:40 PM  
**To:** Karen Devereaux  
**Subject:** FW: Periodic review / Lakewood housing

Please add to public comments for 6/12 planning commission

---

Tiffany Speir, Esq., CPM®  
Long Range & Strategic Planning Manager  
253.983.7702 | [tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)

Please be advised: All e-mail correspondence sent to and from this e-mail address is subject to the State of Washington's Public Records Act (Chapter 42.56 RCW).

-----Original Message-----

From: Derek Mai <[derek.d.mai@me.com](mailto:derek.d.mai@me.com)>  
Sent: Friday, January 12, 2024 8:49 PM  
To: Tiffany Speir, Esq <[tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)>  
Subject: Periodic review / Lakewood housing

This email originated outside the City of Lakewood.  
Use caution when following links or opening attachments as they could lead to malicious code or infected web sites.  
When in doubt, please contact the HelpDesk.  
- [helpdesk@cityoflakewood.us](mailto:helpdesk@cityoflakewood.us) ext. 4357

---

Ms Speir-

Thank you very much for passing along information with regards to the 2024 Lakewood period review and proposed housing changes. The videos were helpful to help understand the case being made in favor of more housing options. My wife and I are very concerned with the requirements and proposed solutions set forth by the state legislature.

In the first video entitled “why we need more housing”, one of the speakers claims “people with larger incomes outbid less affluent households”. Does Lakewood have data that would help determine if this is actually the case? More specifically, are the buyers truly people with more income, or private investment firms placing all cash offers? Are you aware of any plans by the state to bring legislation forward that would limit the ability of investment firms to outbid individual families?

I am concerned that adding additional “affordable housing units”, many of which are subsidized by the government, will lead to further price inflation and not solve the problem. Throughout my life and throughout 14 years of active military service, I’ve had the opportunity to live in different locations with and without an abundance of subsidized housing. The reality is that wherever multifamily subsidized housing is built, crime rates, drug problems, and generalized urban blight increase in that area. This is the case regardless of whether it is urban or rural, ethnically homogenous or diverse.

Lakewood is home to beautiful natural areas. Does that state have a plan to provide the funding necessary to keep these natural areas pollution free when the population density increases? The creeks in our city eventually drain into Puget Sound. Are there plans to keep new housing developments away from these areas?

Thank you for what you do, and I look forward to learning more about Lakewood's approach for implementing these mandates from the state legislature.

Best regards,

Derek Mai  
6711 Mills Dr SW  
Lakewood, WA

July 3, 2024

Letter 9

To: Ms. Tiffany Speir, City of Lakewood  
Re: Lakewood Draft EIS comments

Please accept my following public comment about Lakewood’s Draft Supplemental Environmental Impact Statement. Please make me a party of record in this process.

In reviewing the DSEIS, please also take into consideration the public comments I submitted for the GMA update previously, as well as those submitted by the Garry Oak Coalition. I am resubmitting them together with this comment. Any others, such as those submitted to the Planning Commission recently, should also be included.

**BEST AVAILABLE SCIENCE:**

***The City’s habitat conservation areas regulations require some modifications to align with BAS and to clarify applicability and facilitate ease of use.***

p. 283 of file

Best Available Science recommends that single Garry oaks qualify for protection when in urban and urbanizing contexts such as those in Lakewood. Habitat biologist Darrin Masters has said that Garry oaks such as the one destroyed for the roundabout on Hipkins this year, and the 114 destroyed for the Panattoni warehouse project in Springbrook, are clearly valuable to wildlife and should be protected.

Nevertheless, despite what Best Available Science says (WDFW recommendations published in 1998 and 2024 and WDFW habitat biologist Darrin Masters), there are no recommended changes to the sections related to Oregon white oaks (Garry oaks) in this EIS (p. 284 of file):

City of Lakewood  
Critical Areas Ordinance Gap Analysis

Code Section	Title	Review Comment / Recommendations*
14.154.080	Provisions for priority Oregon white oak trees and woodlands	None
14.154.090	Provisions for fish and wildlife, habitat buffers, where required	None

\* See discussion of comments/recommendations in the subparts below this table.

p. 3:

choices – townhouses, multiplexes, and other housing – in low density areas of the city. It updates critical area regulations to address best available science (BAS), including buffer standards and mitigation for streams, and protection of aquifer recharge areas, wetlands, and floodplains. It

While the introduction says that the EIS will be update “critical area regulations to address best available science (BAS),” it completely neglects changing the regulations related to Oregon white oaks (Garry oaks), whose critical areas protections in Lakewood, as we have seen especially in recent year, are woefully inadequate.

The regulations failure to take into account all Oregon white oaks that would qualify according to Best Available Science – the WDFW recommendations published in 2024<sup>1</sup> and 1998<sup>2</sup> – which clearly state that Oregon white oaks on the west side of the Cascades are not to be cut down except for stand enhancement (p. 12, 1998 Recommendations), and that even single Oregon white oaks in urban and urbanizing contexts can qualify for protection (p. 18, 1998 Recommendations).

The 2024 recommendations stress that mitigation is in practice impossible, given the slow growth rate of the Oregon white oaks and resultant temporal gap in habitat:

“Those years that pass then constitute time where all or some of the ecological function provided by the former habitat is absent, resulting in a temporal loss of function. This time lag makes it difficult for mitigation to meet the standard set by the Growth Management Act of no-net-loss (WAC 365-196-830) or a net gain of ecological functions and values. Avoidance of OWO habitat generally means neither removing trees nor impacting the ecosystem function of OWO habitat.” (p. 7, 2024 Recommendations)

The guidelines therefore provide detailed guidelines for assessing the habitat value of trees and replacement ratio – which is 1000 per acre of oak woodland lost, planted over two acres (p. 18 of 2024 recommendations), or up to 250 Oregon white oaks planted per single oak cut down of 30” diameter at breast height of larger (p. 18 of 2024 recommendations).

To give just two examples of many of the Oregon white oaks constituting critical areas that have been destroyed in recent years in Lakewood: WDFW habitat biologist Darrin Masters’ repeated statements affirming that Oregon white oaks such as 114 oaks at the 123<sup>rd</sup> Street Panattoni warehouse site and the Hipkins oaks were undeniably valuable to wildlife and worthy of protection, the City has nevertheless neglected to revise its critical areas ordinance to afford oaks better protections in Lakewood.

## **NO INVENTORY, HAVE NO BASELINE OF LAKEWOOD’S OAK CRITICAL AREAS:**

The City, because it does not have any inventory of Oregon white oaks on all public and private property, does not know what critical areas lie within its boundaries. Therefore, losses of critical areas will also be unknown. As it says on p. 284 of the file, the critical areas are to include all those on both public and private property:

### **5.2 Designation of critical fish and wildlife habitat areas (LMC 14.154.020).**

#### **5.2.1 Provisions of this title apply to both public and private lands**

Chapter 14.154 currently states that this chapter applies to proposed regulated activities within critical fish and wildlife habitat areas. For the purpose of adding clarity to the document it is recommended that the City add language stating that this chapter applies to proposed regulated activities within critical fish and wildlife habitat areas *on all public and private lands.*

's priority

n's priority

**LAKWOOD “MITIGATION” INADEQUATE:**

Lakewood essentially allows the destruction of any Oregon white oak, with the official requirement of a permit now, and even the destruction of critical areas such as those in Springbrook at the Panattoni warehouse site, in exchange for a mitigation fee – which at that site did not have any mitigation plan associated with it. (One suggestion at the City Council was that the fee would be “useful” to start the new Urban Forestry Program. Mitigating the lost of critical areas and priority habitat does not take the shape of setting up a tree-related bureaucracy.

Because mitigation is impossible in practice for Oregon white oaks, and because no attempt is even made to try actually to mitigate the loss of critical areas such as those in Springbrook, there is a resultant **net loss of critical areas in Lakewood**.

By allowing Oregon white oaks to continue to be cut down on public and private property, the City is allowing a **net loss of critical areas** within its boundaries, which is prohibited by the Growth Management Act.

There should also be added a “no-net-loss” to the Oregon white oak section, as here on p. 283 of file:

14.154.050	Habitat protection for rivers and streams	<ul style="list-style-type: none"><li>• Update stream protection buffers to ensure consistency with BAS</li><li>• Add language for “no-net-loss” of ecological function</li></ul>
------------	---	---

**5.3.2 Expand on the sources and methods of identifying critical fish and wildlife habitat areas**

The City should consider listing publicly available resources to help applicants identify critical fish and wildlife habitat areas. At minimum the City should list the WDFW’s Priority Habitat and Species webpage ([Priority Habitats and Species \(PHS\) | Washington Department of Fish & Wildlife](#)) as required by WAC 365-190-130 (4).

**TOO MUCH DEPENDS ON APPLICANT:**



It was surprising to see that the applicant is tasked with identifying critical habitat areas (see p. 285 of file).

It seems that “expanding on the sources and methods of identifying critical fish and wildlife habitat areas” still remains too dependent on the property owner and any consultants he or she may hire. Having the property owner hire a consultant to identify and assess critical areas is a clear conflict of interest: this should be done by an independent scientist.

See p. 283 of the file:

14.154.030	Habitat protection standards	<ul style="list-style-type: none"> <li>• Add BAS to section B</li> <li>• Expand on the sources and methods of identifying critical fish and wildlife habitat areas</li> </ul>
------------	------------------------------	---

As we have seen repeatedly in the recent past, critical areas are habitually overlooked, underestimated and diminished in such consultants’ reports, which the City treats as the pronouncements of experts.

This indicates another problem with the City’s approach to critical areas: there must be sufficiently stringent standards that the applicant must meet in presenting his or her application, but also sufficiently stringent review of those applications.

There must be clear standards presented for both – and these should be included in the land use code, the critical areas ordinance, development code, etc., – in a word, the standards should be included in all of the relevant codes.

***Applicability and Mapping (LMC 14.142.040)***

- *Add City maps or map resources. The current CAO defines/designates regulated critical areas according to guidelines, however there are no reference maps or resources which applicants can use to identify potential critical areas in their project area. The City should either add a reference to publicly available resources for critical areas identification or create City maps containing those designations that are updated regularly.*

p. 88 of 0\_Lakewood-Comprehensive-Plan-DSEIS\_2024\_0603\_Text\_wAppx-small.pdf

14.154.030	Habitat protection standards	<ul style="list-style-type: none"> <li>• Add BAS to section B</li> <li>• Expand on the sources and methods of identifying critical fish and wildlife habitat areas</li> </ul>
------------	------------------------------	---

p. 283 of file

The oak and priority habitats and species maps (Exhibits 3-3, 3-4, and 3-5) are not very useful because they are not exhaustive – in both the 1998 and 2024 WDFW Oregon white oak (Garry oak) guidelines, single oaks in “urban and urbanizing” contexts may be protected, and these will not

necessarily appear on these maps. There are many oaks that are not part of a larger group that would not be taken into account. Similarly, as WDFW says itself, its PHS online map is also not exhaustive and should not be treated as such, and DNR also has a caveat that its oak map is also not exhaustive.

According to WDFW habitat biologist Darrin Masters, commenting on the Hipkins Road oaks, single oaks such as those affected (of which only one was destroyed I believe) for the roundabout on Hipkins Road are clearly valuable to wildlife and should be protected.

### **DELINEATION OF OREGON WHITE OAK WOODLAND:**

Oregon white oaks are also adversely affected by **subdivisions** (because if the property on which a stand of oaks stands is subdivided into lots of less than one acre, then the stand is considered to be less than one acre and therefore not protected in Lakewood – although WDFW’s recommendations clearly state that single trees may also qualify for protection. According to Darrin Masters, any of the large Oregon white oaks in Lakewood would be valuable to wildlife by virtue of the fact that they are large and used by local birds and wildlife, as well as federally protected neotropical migratory birds on their twice-yearly migrations.

Stands of Oregon white oaks must be defined biologically, not by property lines. A stand that spans more than one lot constitutes a stand. Nature does not know property lines.

Similarly, a road cannot be considered something that would divided an Oregon white oak stand into parts less than one acre and therefore unprotected, as happened at the properties on Interlaaken and 112<sup>th</sup>. The small road Interlaaken goes through a stand of oaks that I believe has 0.4 acres on the western side of the road, and 0.8 acres on the eastern side. The oaks on either side are so close that one can see that the crowns are touching, or virtually touching, in aerial photographs. According to the City, however, this did not constitute one stand, but two – both of which were less than one acre and therefore unprotected in Lakewood.

In terms of identifying Oregon white oaks as critical areas, the City has also caused there to be a loss in critical areas because of its requirement that an appellant personally observe threatened or endangered species in the Oregon white oaks, using them. This despite the clear statement of WDFW habitat biologist Darrin Masters, which was included as an exhibit in multiple appeals before the hearing examiner, that it is not necessary for someone to personally observe species using the Oregon white oaks in order for us to know that they are valuable to wildlife.

The requirement that specifically listed species be observed in the Oregon white oaks is scientifically unfounded, since it is in all of our best interests to protect all wildlife so that species *do not* become threatened or endangered, particularly during this time of mass extinctions, when keystone species like the Oregon white oak that provide critical habitat for insects and bird, are more important than ever before.

By denying Oregon white oaks protections in these ways, the City is facilitating the unmitigated destruction of its own critical areas, which is forbidden under the Growth Management Act.

Thank you for your attention to these matters, which are so crucial to the survival of what remains of Lakewood’s native Oregon white oaks, a keystone species – a species of local importance, as well as our City’s official tree.

Sincerely,

*Christina Manetti*

Christina Manetti, Ph.D., Lakewood

From: **Christina Manetti** <[manetti.christina@gmail.com](mailto:manetti.christina@gmail.com)>

Date: Thu, Apr 18, 2024 at 2:08 PM

Subject: Critical Areas update - new state Garry oak recommendations + various

To: Tiffany Speir <[tspeir@cityoflakewood.us](mailto:tspeir@cityoflakewood.us)>

Cc: Jason Whalen <[jwhalen@cityoflakewood.us](mailto:jwhalen@cityoflakewood.us)>, Patti Belle <[pbelle@cityoflakewood.us](mailto:pbelle@cityoflakewood.us)>, <[pbocchi@cityoflakewood.us](mailto:pbocchi@cityoflakewood.us)>, Mary Moss <[mmoss@cityoflakewood.us](mailto:mmoss@cityoflakewood.us)>, Mike Brandstetter <[mbrandstetter@cityoflakewood.us](mailto:mbrandstetter@cityoflakewood.us)>, <[rpearson@cityoflakewood.us](mailto:rpearson@cityoflakewood.us)>, Trestin Lauricella <[tlauricella@cityoflakewood.us](mailto:tlauricella@cityoflakewood.us)>, Briana Schumacher <[BSchumacher@cityoflakewood.us](mailto:BSchumacher@cityoflakewood.us)>

Dear Ms. Speir,

Please accept this public comment related to the Critical Areas update that is currently underway.

### **1) NEW WDFW GARRY OAK RECOMMENDATIONS:**

Please relay to those working on the Critical Areas update that the City needs to update its Critical Areas regulations this year to reflect the new Garry oak (Oregon white oak) recommendations that were published by WDFW in February 2024, applicable also to the Garry oaks in Lakewood: "Best management practices for mitigating impacts to Oregon white oak priority habitat". **(See attached file.)**

**The City is bound by GMA to make these changes to its Critical Areas ordinance, as this WDFW publication reflects best available science on the subject of Garry oak (Oregon white oak) management, including in urban and urbanizing contexts:**

***"Cities and counties must conduct a best available science review when updating critical area regulations."***

<https://app.leg.wa.gov/WAC/default.aspx?cite=365-195-905>

The City will find this document very instructive. Here are just a few highlights:

In it, the recommendations specify for example, that impacts to Garry oaks should be avoided (i.e., they should not be destroyed), and outlines mitigations of up to 250 Garry oak seedlings for the destruction of just one Garry oak:

*Compensating for the loss of individual locally important trees [...]*

- o For trees > 30 inches diameter at breast height (dbh), use a tree replacement ratio of 250:1*
- o For trees between 24 - 30 inches dbh, use a tree replacement ratio of 200:1*
- o For trees between 18 - 24 inches dbh, use a tree replacement ratio of 150:1*
- o For trees between 12 - 18 inches dbh, use a tree replacement ratio of 100:1*
- o For trees between 12 - 6 inches dbh, use a tree replacement ratio of 50:1*

(p. 18)

For the destruction of 1 acre of Garry oak woodland, the mitigation would be 1000 oaks planted over two acres: "To restore an acre of woodland, use a 2:1 replacement ratio. Plant 1000 trees across 2 acres." (p. 18)

Among other things, the recommendations also stipulate that the understory should also be recreated when replanting (pp. 18-19):

*When restoring an OWO woodland or compensating for the loss of a single OWO tree, we recommend filling the space between planted OWO with a diverse native understory community, leaving at least 5 feet of space around the OWO. Plant at least eight different native understory species.*

## **2) REGULATIONS TO ENSURE WELL-BEING OF GARRY OAKS (and other trees):**

If the City is interested in preserving Lakewood's Garry oaks, the Critical Areas ordinance or tree code should also include **new regulations** to ensure that Garry oaks are able to thrive in Lakewood.

Two important ways that the City can do this is to:

**1) PROHIBIT PAVING OVER CRITICAL ROOT ZONES:** Prohibit property owners from paving over the Critical Root Zones of the Garry oaks (and of course other significant trees), as has recently been done at Mr. Claude Remy's new "**Gravelly Lake Townhomes**" apartment complex on Gravelly Lake Drive not far from the intersection with Steilacoom Boulevard. There, the parking lot asphalt has been put down just short of the trunks of the Garry oaks that line the eastern edge of the property.

These trees will suffer and eventually die if their critical root zones are covered with asphalt. Such suffering takes decades in this kind of long-lived tree, but it is assured if they are deprived of water and their roots are baked in the longer, hotter, drier summers we have begun to experience. The governor has already declared a drought emergency this week, and as you have noticed, most of April will be without substantial rain.

In decades past, for example in the 1970's and 1980's, the 9 or 10 months of rainfall made it easier for the oaks and other trees to endure such thoughtless treatment. Now it will just accelerate their suffering.

This will eventually result in a **net loss of critical areas**, which is prohibited by GMA -- since single Garry oaks of such girth should, as the new oak recommendations stress, be considered Critical Areas.

**We request that the City require that the asphalt be removed** from the Critical Root Zones of the new parking lot at Mr. Remy's property before too much damage has been done.

**2) PROHIBIT DAMAGE BY IVY AND OTHER INVASIVES:**

During work on the Critical Areas ordinance, the City should add a regulation specifically prohibiting property owners from allowing ivy and other invasive vines to grow onto and cover Garry oaks and other trees. The ivy -- as we saw recently on Brook Lane -- eventually becomes so heavy that the tree falls under its weight, while also being smothered under the ivy's heavy foliage. That Garry oak on Brook Lane measured 12" across and was surely over one hundred years old.

The City would benefit from a more far-ranging regulation that would require property owners to eradicate the all the major invasives found in Lakewood ([English holly](#), [English ivy](#), [Himalayan blackberry](#), [English \(cherry\) laurel](#), [Scotch broom](#)), some of which have already destroyed parts of our forested areas (such the many Garry oaks and other trees that have succumbed to ivy along 112th across from Christ Lutheran, to Interlaaken).

Other jurisdictions, such as Oak Harbor and Portland (see attached files), have such regulations.

As we read in a document produced by the City of Portland, there are many important ecological reasons to eradicate invasive species within our cities and towns:

*Invasive plants are the second largest threat to native biodiversity, behind habitat loss, and they are one of the primary factors that lead to a species listing under the Endangered Species Act (City of Portland Invasive Plants Strategy Report 2008). Invasive plants degrade water quality, reduce biodiversity, impair habitat, decrease tree populations and growth rates, increase the likelihood and spread of fire, decrease the ability of stormwater infiltration and increase soil erosion. Removing invasive species and planting native vegetation is critical for improvement and maintenance of watershed health.*

*Fish, wildlife,  
and the citizens of Portland benefit from the management of invasive species.*

(<https://www.portland.gov/sites/default/files/2020-06/nuisance-plant-removal-rules-20100701-2-301195.pdf>, p. 5)

Thank you very much for your attention to these pressing matters. Please let me know if we can be of assistance during the Critical Areas update.

Sincerely,  
Christina Manetti, Ph.D.  
President, Garry Oak Coalition, 501c3, Lakewood





December 29, 2023

To: The City of Lakewood, Long-Range Planning Department

Please include these comments in the record of the City's 2024 Growth Management Comprehensive Plan Periodic Review and update, and implementation of development regulations. Please acknowledge receipt of these comments.

**I) BEST AVAILABLE SCIENCE AND NO NET LOSS:**

The GMA requires that critical areas be protected using the best available science [WAC 365-195-900 through 925], and that there be “no net loss of functions and values”. [WAC 365-196-830]

In Lakewood, we have examples of the different kinds of critical areas defined in RCW 36.70A.030(5):

- Wetlands.
- Areas with a critical recharging effect on aquifers used for potable water.
- Frequently flooded areas.
- Geologically hazardous areas.
- Fish and wildlife habitat conservation areas

This last category, “fish and wildlife habitat conservation areas”, includes Oregon white oak woodlands. Their sustained loss in Lakewood is an example of the City’s failure to use best available science.

## **II) NET LOSS OF CRITICAL AREAS:**

Lakewood’s current regulatory system has not been based on the best available science and allows a net loss of critical areas in the following ways:

### **a) Best available science for Oregon white oak woodlands not followed:**

For all critical areas, there are multiple sources for the best available science, which in the case of the Oregon white oak is the information published by the Washington Department of Fish and Wildlife’s Priority Habitats and Species (PHS) program, most notably in Eric M. Larsen and John T. Morgan, *Management Recommendations for Washington’s Priority Habitats: Oregon White Oak Woodlands* (1998).

LMC states that “[t]he City shall give substantial weight to the management recommendations contained in the Washington Department of Fish and Wildlife Priority Habitats and Species Program. [Ord. 775 § 1 (Exh. A), 2022; Ord. 630 § 2, 2015; Ord. 362 § 3, 2004.]” (LMC 14.154.030(B))

The City’s interpretation in its code must also faithfully embody the authors’ intent, which is to insure the protection of Oregon white oaks.

The definition used in the LMC is, however, not consistent with the WDFW PHS definition (i.e., best available science). Here are some examples of LMC’s inconsistencies:

**In urban and urbanizing areas:** The PHS definition says that “**In urban or urbanizing areas, single oaks, or stands of oaks <0.4 ha (1 ac), may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height [dbh], are used by priority species, or have a large canopy).**” (emphasis added) (Eric M.

Larsen and John T. Morgan, *Management Recommendations for Washington's Priority Habitats: Oregon White Oak Woodlands* (1998), p. ix),

The City has chosen to omit in its code key elements of this PHS wording, which is crucial in terms of protecting Oregon white oaks in our context here in Lakewood – that part referring to “urban or urbanizing areas”.

LMC states: “Priority Oregon white oak woodland” means forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).”

LMC nevertheless does clearly state elsewhere that “In Lakewood, **individual trees** and [stands](#) of trees are protected as critical fish and wildlife habitat area under Chapter [14.154 LMC](#), Fish and Wildlife Habitat Areas.” (emphasis added) (18A.70.330)

In practice, however, individual trees and stands smaller than 1 acre have not been protected in Lakewood. (See for example appeals in 2022-2023 related to the Connie Kay shortplat, Gravelly Lake Townhomes and Interlaaken shortplat.) **The protection of single Oregon white oaks has not been adopted in practice.**

### **Protection of Oregon white oak woodlands 1 acre or greater:**

The PHS recommendations clearly state that Oregon white oak woodland of greater than or equal to 1 acre should be protected, with no reference to any need for the entire 1 acre to be on a single parcel. (*Management Recommendations for Washington's Priority Habitats: Oregon White Oak Woodlands* (1998), p. ix)

LMC also repeats this 1 acre requirement. According to LMC Chapter 14.165.010 Definitions:

***“Priority Oregon white oak woodland” means forested areas of pure oak, or of oak/conifer associations one acre or larger, and all oak trees located within, where oak canopy coverage of the area is at least 25 percent. Stands of oaks less than one acre in size may also be considered priority habitat when found to be particularly valuable to fish and wildlife (i.e., they contain many cavities, have a large diameter at breast height (dbh), are used by priority species, or have a large canopy).***

[emphasis added]

However, as we have seen during the oak-related appeals of 2022-2023, the City interprets this 1 acre requirement as meaning that the entire 1 acre of oaks must be found within the boundaries of a single parcel, regardless of whether they constitute a larger area of woodland with oaks on surrounding properties. This was seen for example most recently in the appeal regarding the Interlaaken plat (2023).

As a result, a stand of Oregon white oak woodland can always be eliminated as the result of subdivision into parcels smaller than 1 acre, which would remove any need for any critical area protections.

**Other ways in which current regulations allow for the net loss of critical areas:**

**b) Oak woodland delineation:**

The City has no definition of its own regarding how an area of Oregon white oak woodland should be measured, which has led to situations, such as at the Panattoni project on 123<sup>rd</sup> Street, in which hired consultants have measured Oregon white oak woodland in ways that divide oak woodlands into smaller patches, ignoring the fact that Oregon white oak woodland has an open canopy. This has resulted in consultants’ results showing there was less than 1 acre of oaks, when in reality it was clearly an area of Oregon white oak woodland larger than 1 acre.

**c) Insufficient compensatory mitigation:**

Oregon white oaks can be removed with insufficient compensatory mitigation. The City's requirement for tree replacement at a ratio of 2 to 1 is inadequate mitigation for an oak that is in all likelihood hundreds of years old, and does nothing to compensate for the temporal loss, thereby creating a cumulative net loss. [18A.70.330(B)(1)(a)(ii)]

**d) Temporal loss:**

Even when more mitigation is required for the cutting down of oaks in critical areas, this, too, does not account for the temporal loss (loss over time) of function. A seedling or sapling is not functionally equivalent to a mature tree for wildlife function. [14.154.080]

**e) Replacement trees unspecified:**

The mitigation system does not assure that replacement trees are "in-kind" (Oregon white oak), that they are maintained, and that they are permanently protected. [18A.70.330(B)(1)(a)(ii)]

**f) Mitigation lacking:**

When mitigation fees are required, there seems to have been no specific plan as to what to do with the money exacted for their destruction. Money in a bank account does not mitigate anything, and does not help achieve no net loss, which is theoretically the aim of collecting the mitigation fees.

From what we know about the City's tree fund, very little, if any, actual mitigation has been done since 2009 – in fact, we see that 33 trees were even cut down with \$24,000 of funds from the tree fund. (See tree fund table, current to June 30, 2023, which was provided to City Council.)

**g) Public Works Department and utilities exempt from tree preservation regulations:**

The Public Works Department and the utilities companies are exempt from any tree preservation regulations at all, including those related to Oregon white oak. This allows for a net loss of Oregon white oaks and critical areas. There is no reason why these entities should be exempt. While they may have greater leeway, this should not exempt them from the process of evaluating what their plans are and looking for less-damaging alternatives. Like others, they need to go through the mitigation sequencing process. [LMC 18A.70.310(C)]

**h) Remnant stands:** In areas where Oregon white oaks have already been removed from a larger stand of woodland, the remaining trees may no longer be protected even if the total size of the stand is less than 1 acre, and of course property lines need not be considered when assessing the extent of a natural feature. The remaining trees in such a stand should be protected as if they were still part of the larger stand. An example of this problem can be seen on Gravelly Lake Drive, where the apartment developer removed a number of Oregon white oaks first at Gravelly Lake Brownstones, and then more next door at Gravelly Lake Townhomes.

**i) Excessive destruction allowed for construction:**

LMC allows for the destruction of Oregon white oaks to construct a house, “permitted accessory structure” or detached garage. A garage in this situation should be put underground, which would allow the Oregon white oak to be saved. Reasonable use says that it is a single family dwelling, so “accessory structures” should not be permitted where an Oregon white oak is standing. Because Oregon white oaks comprise a critical area, they take precedence over overextended development plans. The concept of “reasonable use” is limited, especially in the context of critical areas that must be preserved.

*3. Single-Family Property. If the presence of the priority Oregon white oak woodland renders the development of a house or permitted accessory structure infeasible, and the application of incentives in LMC [18A.70.320\(J\)](#) is insufficient to result in a feasible development, the City may allow removal or*

*trimming of priority Oregon white oak trees and woodlands in order to allow a maximum building footprint of 1,500 square feet for a single-family residence, 1,000 square feet for an accessory dwelling unit, and 1,000 square feet for a detached garage.”*

[https://lakewood.municipal.codes/LMC/14.154.080\(C\)\(3\)](https://lakewood.municipal.codes/LMC/14.154.080(C)(3))

**j) Loss through ignorance and neglect:**

Loss of Oregon white oaks and critical areas – whose decline can take many decades to become apparent – by failing to insure that the oaks have the conditions necessary to thrive. The City code, for example, does not require property owners, residential, commercial and industrial, to insure survival of Oregon white oak by forbidding the paving of areas within the oaks’ driplines (as per LMC 18A.70.330(E)), and requiring the removal of existing pavement, as well as by maintaining healthy soil and understory vegetation – i.e., healthy plant communities.

**k) Loss of critical area due to incompetent arborists and “pruning”:**

Loss of Oregon white oaks due to a lack of proper regulation of arborists, pruning and other work on oaks in the city. Oaks are lost as a result of mutilation from “pruning”, whether by commercial property owners or individuals, or utility companies, due to a lack of requirement that only true arborist experts be allowed to work on Oregon white oaks in the City, guided by best available science. An example of this is at the commercial property adjacent to the post office at 9881 Bridgeport Way SW, Lakewood, WA 98499.

**l) Loss of critical areas due to inadequate Biological Site Assessments:**

Loss of Oregon white oaks due to a lack of proper Biological Site Assessments, resulting in a failure to recognize Oregon white oaks as critical areas, requiring proper mitigation sequencing.

**m) Biological Site Assessments by unqualified individuals:**

The LMC allows biological site assessments of critical areas and priority habitat to be conducted by a certified arborist, rather than a habitat biologist: “The report and mitigation prepared by a qualified biologist or certified arborist demonstrate to the satisfaction of the Director that mitigation addresses impacts to priority Oregon white oak trees and woodlands consistent with the provisions of this chapter.” (LMC 14.154.080(C)(5)(c))

Because the assessment of a priority habitat for the presence of wildlife and especially priority species would necessitate the expertise of a habitat biologist, who would carry out wildlife and bird surveys and create species lists, for example, it is inappropriate to allow such a biological site assessment to be carried out by a certified arborist. As we saw in the Interlaaken appeal (2023), the arborist carrying out the biological site assessment admitted himself to knowing virtually nothing about birds or animals.

By allowing unqualified individuals to make judgments as to the habitat value, there is the real danger that important information will be overlooked and the habitat will as a result not be protected, which will ultimately end in a net loss of critical area. Examples of such deficient Biological Site Assessments are those submitted for the Connie Kay shortplat on Alfaretta, and for the Interlaaken shortplat.

**n) Damage and loss through failure to protect during construction:**

Damage and loss of Oregon white oaks is possible and probable due to a failure to properly protect them with fences and signage during construction work, and by allowing foundations to be dug within their critical root zones. We see no fences or signage at the construction sites at the corner of Dekoven and Mount Tacoma Drive, nor at the Gravelly Lake Townhomes project. (LMC 18A.70.330(C))  
Although this regulation exists in the code, it has not been adopted in practice.



**o) Loss from ivy:**

Loss of Oregon white oaks due to a failure to regulate their protection from invasive English ivy or other vegetation, and failure to prosecute property owners allowing their oaks to become smothered by invasive English ivy or other vines, which leads to their eventual death. An example of this is the property at the corner of 112<sup>th</sup> and Interlaaken.

**p) Loss from nailing:**

Failure to regulate the damaging practice of nailing signs or other objects into Oregon white oaks, which can compromise their integrity and introduce pathogens. Although this is regulated in Pierce County code, it is not in LMC.

**q) Smaller oaks not protected – failure to recruit:**

By failing to afford Oregon white oaks with diameters smaller than 4” DBH any protection at all, the City is contributing to a net loss of Oregon white oak woodland in the City, since young Oregon white oak are rare and should be preserved. Without recruitment, it is clearly foreseeable that the next generation will not grow.

**r) Public education:**

Although the LMC mentions a “voluntary education program” to educate the public about the need to protect critical areas, no such education program has been apparent. LMC 14.154.030(A)

**s) Requirement that threatened or endangered species be observed in the Oregon white oaks in order for them to be protected:**

During oak-related appeals, we have seen that the City interprets the section of its code where it refers to Oregon white oaks that are “used by priority species” (14.165.010) – where PHS uses the much more all-encompassing phrase “particularly valuable to fish and wildlife” – to mean that an appellant must personally see and document the present of threatened or endangered species on the Oregon white oak in question in order for that tree to qualify for protection. (See for example Connie Kay appeal (2022).)

By excluding large Oregon white oaks like this from the designation of critical area, both availability and potential are being removed. When not protected and cut down, it is a certainty that no species will use that tree, thereby contributing to the endangerment of even more birds and animals.

Species make use of certain habitat, including oaks, at certain times. If you cut it down now, that means that it won’t be available later when the species needs it. The fact that one doesn’t see it in March or June doesn’t mean that the species doesn’t use it. This requirement is inconsistent with PHS standards and will result in a net loss.

This fails to follow Best Available Science, and allows for a net loss of critical areas in Lakewood.

**t) Lack of an inventory:**

Lakewood’s lack of an inventory of its Oregon white oaks means that there continues to be no way to track its critical area or loss thereof.

These policies, regulations, and “interpretations” result in a failure to include the best available science and to achieve no net loss of ecosystem function; therefore, they violate GMA’s critical area protection requirement. As noted in the multiple specifics outlined above, Lakewood’s code as currently presented fails the best available science standard and mitigation sequencing, and results in a net loss. The code needs thorough-going amendments to address these serious shortcomings.

Sincerely,

A handwritten signature in cursive script that reads "Christina Manetti".

Christina Manetti, Ph.D.

President, Garry Oak Coalition (501c3)

**From:** Tricia Parsons <[hi@triciaparsons.com](mailto:hi@triciaparsons.com)>  
**Sent:** Wednesday, June 5, 2024 1:56 PM  
**To:** Karen Devereaux <[kdevereaux@cityoflakewood.us](mailto:kdevereaux@cityoflakewood.us)>  
**Subject:** Planning Commission Comments Re: Comp Plan June 5th, 2024

Letter 10

Thanks Karen. :)

My name is Tricia Parsons, I'm a Lakewood Resident and my family has been in Lakewood for almost 60 years. I'd like to comment on the Comprehensive Plan. I think there are positives in this Comprehensive Plan, however, I think it's important to truly recognize the areas within our city that could benefit from some help and focus heavily on improving those to entice residents that will also love (or at least "like") and care about our city. It's important that we keep the environmental impact with any of these changes at top of mind. We're a city with creeks, lakes, and beautiful old growth trees, but our creeks are running dry earlier each year, our lakes are lower and more polluted each year, and we're removing trees faster than ever before. For the city to be successful we must pay attention to these, we are LAKE - WOOD and it's in the city's vision statement "characterized by the beauty of its lakes, parks and natural environment." The vision statement does not make mention of a "city characterized by cheap cookie-cutter developments with sidewalks and pavement instead of trees."

We must keep this at top of mind as all these development requirements from the state come into play. How can we protect these creeks, lakes and trees and make their preservation a priority for Lakewood? Developments around these areas should be reconsidered - with a focus more on development in areas that truly have a need which points to this vision statement "Known for its safe and attractive neighborhoods, vibrant downtown, active arts and cultural communities" This is not currently a reality, it's close, but not quite there, and the focus could really be on the Town Center area, north of Gravelly Lake Drive (which is a pavement wasteland at the moment), and east of the Town Center along Bridgeport Way and Pacific Highway. I wouldn't say I feel "safe" in these areas currently, but I know we can get there if we focus our energy here instead of other areas of the city, focus on making these areas better. Can we develop Architectural guidelines to avoid building tomorrow's slums? Can we use developers that are local and care about the impact to our city? Can create better Garry oak protections, prevent critical area loss by subdividing properties with Garry oaks, prohibiting citizens from allowing trees to be covered in ivy (other jurisdictions do this, and it keeps trees alive). I have faith in Lakewood and I know there are other citizens out there that want to see it thrive again.

Best,

Tricia Parsons

--

---

**Tricia Parsons** | Art Director - Designer | [www.triciaparsons.com](http://www.triciaparsons.com)

## DON RUSSELL COMMENT ON THE CITY OF LAKEWOOD 2019 SHORELINE MASTER PROGRAM

### Preface

This paper reviews provisions of the City of Lakewood's 2019 Shoreline Master Program in *italics* and provides my commentary in regular print.

### **Requirements of the Shoreline Management Act**

*...to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines.*

*...the Act's three broad policies:*

*1. Encourage water-dependent uses, preferably those "consistent with control of pollution and prevention of damage to the natural environment, or unique to or dependent upon use of the state's shorelines";*

*2. Protect shoreline natural resources, including "the land and its vegetation and wildlife, and the waters of the state and their aquatic life"; and*

*3. Promote public access: "the public's opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest extent feasible consistent with the overall best interest of the state and the people generally."*

*This Act recognizes that shorelines are among the most valuable and fragile of the state's resources. The Act and the City of Lakewood recognize and protect private property rights along the shoreline, while aiming to preserve the quality of this unique resource for all state residents.*

*The primary purpose of the Act is to provide for the management and protection of the state's shoreline resources by planning for reasonable and appropriate uses. In order to protect the public interest in preserving these shorelines, the Act establishes a coordinated planning program between the state and local jurisdictions to address the types and effects of development occurring along the state's shorelines. By law, the City is responsible for the following:*

*1. Developing an inventory of the natural characteristics and land use patterns along shorelines covered by the act.*

*2. Preparing a Shoreline Master Program (SMP) to determine the future of the shorelines.*

*3. Preparing a cumulative impact analysis to demonstrate that reasonably foreseeable development under the SMP will not result in a net loss of ecological function.*

*4. Developing a permit system to further the goals and policies of both the Act and the SMP.*

5. *Developing a Restoration Plan that includes goals, policies, and actions to restore impaired shoreline ecological functions.*

***Shoreline Master Program Development and Public Participation***

*The City obtained a grant from the Washington Department of Ecology (Ecology) in 2009 to conduct a comprehensive SMP update. The first step of the update process was to inventory the City's shorelines as defined by the Act, Chapter 90.58 RCW. American Lake, Gravelly Lake, Lake Louise, Lake Steilacoom, Waughop Lake, Chambers Creek, and Clover Creek comprise the City's SMA shorelines. The inventory describes existing biological and physical conditions. These conditions were then analyzed and characterized to create a baseline from which future development actions in the shoreline will be measured. The City identified environmental designations for the different shorelines, and policies and regulations for each were developed.*

**Comment**

All the above assumes that the Washington State Department of Ecology and Lakewood's two consultants OTAK and AHBL did a thorough job of creating a scientifically credible City of Lakewood Shoreline Master Program.

I would argue that OTAK and AHBL failed to accomplish what is required of the City of Lakewood in the above ***Shoreline Master Program Development and Public Participation Chapter 90.58 RCW. stated*** requirements.

The inventory was incomplete. It did not accurately describe existing biological and physical conditions. Nor did it correctly analyze and characterize existing biological and physical conditions to create a baseline for each shoreline. Accordingly, the policies and regulations developed were deficient to accomplish the above stated *...the Act's three broad policies.*

The City of Lakewood is consistently in arrears in meeting RCW and WAC ***Public Participation*** requirements. This case is no exception.

Don Russell

June 20, 2024

**From:** Don Russell <krdr1@juno.com>  
**Sent:** Wednesday, June 26, 2024 7:58 AM  
**To:** Tiffany Speir <tspeir@cityoflakewood.us>  
**Cc:** City Council <CityCouncil@cityoflakewood.us>; John Caulfield <JCaulfield@cityoflakewood.us>; Heather.Bartlett@ecy.wa.gov  
**Subject:** City of Lakewood's 2024 Periodic Review of its Comprehensive Plan

You don't often get email from [krdr1@juno.com](mailto:krdr1@juno.com). [Learn why this is important](#)

**This email originated outside the City of Lakewood.**

Use caution when following links or opening attachments as they could lead to malicious code or infected web sites. When in doubt, please contact the HelpDesk.

- [helpdesk@cityoflakewood.us](mailto:helpdesk@cityoflakewood.us) ext. 4357

Dear Ms. Speir,

As an American Lake shoreline owner I received a post card indicating that the Lakewood Planning Commission wants to hear from citizen private property owners of land within 200 feet of a lake (and associated wetlands) and stream shoreline. Presumably as our private property's use and development will be impacted by provisions of the Federal Shoreline Management Act and the City of Lakewood /Shoreline Master Program update portion of the City of Lakewood's 2024 Comprehensive Plan.

The City of Lakewood postcard provided a link on that post card that outlined the rules and buffer widths for remodeling and new development on our private property.

The Shoreline Management Act provisions apply to all streams with a mean annual flow greater than 20 cubic feet per second and lakes greater than 20 acres and all lands within 200 feet of the ordinary high water mark.

Yet the City of Lakewood post card's link references a Map of Water Body Types in Lakewood and a Water Type, Buffer Widths and designated Water Bodies listing that of streams do not have flows greater than 20 cubic feet per second and lakes (and associated wetlands) that are less than 20 acres in size.

Furthermore, the listing for those lakes that are more than 20 acres in size under provisions of the Shoreline Management Act **have buffers less than 200 feet from their ordinary high water mark**, which itself is questionable given the extreme range in groundwater level fluctuations that these lakes reflect.

It is obvious that the City of Lakewood pays no attention to citizen's expressed concerns about the way the City fails to apply and enforce Shoreline Management Act and Shoreline Master Program prescribed environmental regulations, or for that matter State surface and groundwater quality standards as they apply to the water in its wetlands, streams and lakes and in its sole source aquifer.

Don Russell

Sent from [Mail](#) for Windows

**Lakewood Planning Commission  
June 5, 2024 Meeting Minutes**

**WELCOME/CALL TO ORDER**

Mr. Philip Combs, Vice Chair, called the meeting to order at 6:30 p.m.

**ROLL CALL**

**Planning Commission Members Present** Robert Estrada, Chair; Phillip Combs, Vice Chair; Linn Larsen, Mark Herr, Ellen Talbo, and Philip Lindholm

**Planning Commission Members Excused** Sharon Wallace

**Planning Commission Members Absent** None.

**Staff** Tiffany Speir, Long Range & Strategic Planning Manager; and Karen Devereaux, Administrative Assistant

**Youth Council Liaison** None in attendance.

**Council Liaison** Councilmember Paul Bocchi was present.

**APPROVAL OF MINUTES**

The minutes of the meeting held on May 15, 2024, were approved by voice vote 5-0 as written. M/S/C Larsen/Lindholm. (Ellen Talbo arrived after the vote was completed.)

**AGENDA UPDATES** None.

**PUBLIC COMMENT** None.

**PUBLIC HEARING** 2024 Comprehensive Plan Periodic Review

Ms. Speir reviewed the 24CPPR Package which includes a) 2024 Policy and Plan Updates of a reorganized Comprehensive Plan with updated goals, policies, zoning, background documents and appendices, and policy audit; b) The 2024 Development Regulations Updates which include Critical Areas Ordinance (CAO) amendments in LMC Title 14; other 24CPPR required regulation amendments in LMC Titles 18A, 18B, and/or 18C; Short Term Rental regulations; and Public Noticing regulations (HB1105); and c) The 2024 Supplemental Environment Impact Statement with a focus on transportation and parking impacts from housing densification, and information regarding Downtown Subarea Transportation Mitigation Fee (TMF) Program.

Ms. Speir noted that staff recommendations include holding the public hearing open until Commissioners will take action on July 10. A request will be made to City Council if



adopted in July, to wait until January 1, 2025, to put it into effect so that staff can prepare for all the changes.

Mr. Robert Estrada, Chair, opened the floor for public comment from online viewers first.

Christinia Manetti, Lakewood resident, spoke in favor of saving the Garry Oak populations throughout Lakewood.

Walter Neary, Lakewood resident, spoke regarding the good communication practice of sending our postcards to alert residents to the public hearing and the opportunity to have their concerns heard.

Cindy Gardner, Lakewood resident, stated she did not receive a postcard. Ms. Gardner noted she had sent a letter with questions and wanted them answered, but staff had not yet received her inquiry.

Jan Cheer, Lakewood resident, spoke about creating community zones and building a focus core center.

Vicky Stanish, Lakewood resident, spoke in favor of daylighting the creek which flows under the Barnes & Noble property in the Lakewood Towne Center.

Phillip Fedderly, Lakewood resident, commented that the city is over-taxing businesses while streets are crumbling, adding that the focus should be on beautifying the community.

Shawn Ehlers, Lakewood resident, spoke against the residential zoning changes allowing so many structures upon one parcel, feeling that community will be lost.

The Chair closed the public hearing for the evening noting the hearing would be kept open and allow public comment through the June 26<sup>th</sup> meeting.

Ms. Speir reiterated that the commission should consider the three topics City Council specifically requested they review (Transportation Mitigation Fees, Short Term Rentals, and Parking Regulations) and state in their findings of fact why they voted on each topic and support each decision they recommend to City Council.

**UNFINISHED BUSINESS** None.

**NEW BUSINESS**

*Preview of work to update Shoreline Master Program for consistency with 2024 Critical Areas Regulation Amendments*

Ms. Speir noted that no materials had been submitted for this discussion.

## **REPORTS**

### **Council Liaison Comments**

Councilmember Bocchi updated Commissioners on the following topics:

City Council had passed the project to complete a tree inventory with funds of \$150,000 last year. Once completed, the inventory would analyze the current tree canopy and identify areas that need more trees, as well as looking at significant trees, such as Garry Oaks.

Councilmember Bocchi thanked the residents in attendance at the public hearing for their participation in the evening's meeting.

**City Staff Comments** None.

### **Future Meetings (Special Schedule)**

6/12	Discussion of 24CPPR Package
6/19	City Hall Closed
6/26	Discussion of 24 CPPR Package
7/10	Action on 24CPPR Package

**NEXT MEETING** The Planning Commission would next meet on June 12, 2024.

**ADJOURNMENT** Meeting adjourned at 7:50 p.m.

---

Robert Estrada, Chair

---

Karen Devereaux, Clerk

**Lakewood Planning Commission  
June 12, 2024 Meeting Minutes****WELCOME/CALL TO ORDER**

Robert Estrada, Chair, called the meeting to order at 6:30 pm.

**ROLL CALL**

Present: Robert Estrada, Chair; Mark Herr, Linn Larsen, Philip Lindholm, and Sharon Wallace.

Excused: Phillip Combs, Vice-Chair

Absent: None.

Youth Council Liaison: None

City Council Liaison: Paul Bocchi

Staff Present: Tiffany Speir, Long Range & Strategic Planning Manager; Karen Devereaux, Administrative Assistant

**APPROVAL OF MINUTES**

The meeting minutes for June 5, 2024 were approved as presented by voice vote 6-0.

**AGENDA UPDATES** None.

**PUBLIC COMMENT** None.

**PUBLIC HEARING**2024 Comprehensive Plan Periodic Review

Ms. Speir introduced the continued public hearing on the 2024 Comprehensive Plan periodic review and focused on draft changes to critical area and riparian buffer widths.

Written testimony was received from Trish Parsons, the Department of Natural Resources, Derek Mai, and the Chambers Clover Creek Watershed Council.

Chair Estrada continued to the public hearing through the June 26 Commission meeting.

Ms. Speir stated that the City would provide responses to all public comments received through June 26 as part of the July 10 Planning Commission materials.

**UNFINISHED BUSINESS**Discussion of Draft Comprehensive plan Periodic Review

The Planning Commission discussed various issues related to the draft 24CPPR package.

**NEW BUSINESS** None.

**REPORTS**

**Council Liaison Comments** None.

**City Staff Comments** None.

**Future Meetings (Special Schedule)**

- 6/19 City Hall Closed
- 6/26 Continued Public hearing for and discussion of 24CPPR Package
- 7/10 Action on 24CPPRPackage

**NEXT MEETING** The Planning Commission would next meet on June 26, 2024.

**ADJOURNMENT** Meeting adjourned at 7:50 p.m.

---

Robert Estrada, Chair

---

Karen Devereaux, Clerk

**Lakewood Planning Commission  
June 26, 2024 Meeting Minutes****WELCOME/CALL TO ORDER**

Robert Estrada, Chair, called the meeting to order at 6:30 p.m.

**ROLL CALL**

**Planning Commission Members Present** Robert Estrada, Chair; Phillip Combs, Vice Chair; Mark Herr, Ellen Talbo, Sharon Wallace, and Linn Larsen

**Planning Commission Members Excused** Philip Lindholm

**Planning Commission Members Absent** None

**Staff** Jeff Rimack, Planning and Public Works Director; Tiffany Speir, Long Range & Strategic Planning Manager; Angie Silva, Planning Manager, and Karen Devereaux, Administrative Assistant

**Youth Council Liaison** None in attendance.

**Council Liaison** Councilmember Paul Bocchi was present.

**APPROVAL OF MINUTES**

The minutes of the meeting held on June 12, 2024, were approved by voice vote 6-0 as written. M/S/C Herr/Talbo.

**AGENDA UPDATES** None

**PUBLIC COMMENT** None

**PUBLIC HEARING****2024 Comprehensive Plan Periodic Review (24CPPR)**

Ms. Tiffany Speir gave an overview for the listening audience on the process and policy of the 2024 Comprehensive Plan Periodic Review (24CPPR), focusing on pending changes to the regulation of lake and stream shorelands and riparian areas.

Kim Underwood, Lakewood resident representing Chambers Clover Creek Watershed Council read a public comment letter submitted on June 10, 2024 urging commissioners to amend the shoreline buffers to expand widths to enhance water quality and flow.

Jeanna Ehlers, Lakewood resident, encouraged the commissioners to think about existing cul-de-sac communities and the impacts of higher densities when changing living environments by doing away with single residence properties.

Christina Manetti, Lakewood resident, representing the Gary Oak Coalition named several concerns of protecting Garry Oak trees in Lakewood. Two points were made regarding the possible inventory of all Garry Oak in the City and that cement around

the trees in urban areas should be removed to allow the tree more growth opportunity.

James Dunlop, Lakewood resident, voiced concerns over the lack of documentation of what percentage of canopy or coverage has been lost since incorporation of the city in 1996. Mr. Dunlop urged the commissioners to begin record keeping and consider a 50 to 100-year window to be recorded.

Mr. Robert Estrada, Chair, closed the public hearing. Ms. Speir noted the commissioners would receive copies of all written comments collected since the 6/5/2024 start of the public hearing in the meeting materials for the July 10, 2024 meeting.

## **UNFINISHED BUSINESS**

### Discussion of Draft Comprehensive Plan Periodic Review

Planning Commission members discussed potential amendments to the 24CPPR package they may wish to make when approving their Resolution recommending action to the City Council.

**Mr. Larsen made the motion to approve the Tillicum-Woodbrook Subarea Plan as presented. M/S/P, Larsen/Combs, 6-0.**

**NEW BUSINESS** None

## **REPORTS**

**Council Liaison Comments** None

### **City Staff Comments**

Ms. Speir reviewed the specific topics the Council had asked the Planning Commission to provide recommendations about in addition to the 24CPPR package: the proposed Residential Target Area (RTA) map for the Downtown MFTE area; Parking Policies and Regulations in anticipation of densification in the city's historically single family areas; and the Downtown Subarea Transportation Mitigation Fee (TMF) Program.

### **Future Meetings**

7/10/24 (Special date)	Action on 24CPPR Package Resolutions.
8/7/24	Cancelled to allow for summer break.
8/21/24	Cancelled to allow for summer break.
9/4/24	Regularly scheduled meetings would resume the 1 <sup>st</sup> and 3 <sup>rd</sup> Wednesdays at 6:30 pm.

**NEXT MEETING** September 4, 2024.

**ADJOURNMENT** Meeting adjourned at 8:30 p.m.

---

Robert Estrada, Chair

---

Karen Devereaux, Clerk