Lewis County 2045

Shaping the Future of Lewis County

Lewis County Comprehensive Plan Appendices

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For appendices, page numbers may be inaccurate. The appendices are combined with other PDF documents.

Appendix A Land Capacity Analysis

Report starts on the next page.

LAND CAPCITY ANALYSIS (LCA) MEMORANDUM

To: Mindy Brooks – Lewis County Community Development Director

From: Erin O'Kelley, Planning Analyst
Clay White, Director of Planning
Kimley-Horn and Associates, Inc.

Date: August 24, 2025

Subject: Land Use Changes to Accommodate Housing and Population Allocations

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EXECUTIVE SUMMARY

Lewis County proposed zoning for the Onalaska and Packwood UGAs and with this revised zoning. Based on the proposed zoning boundaries provided in this memo, Lewis County can provide adequate land sufficient for population growth allocated through the Planned Growth Committee and approved by the Board of County Commissioners. Lewis County can provide adequate housing at all income levels within urban growth areas and rural areas. The key findings have been inserted below.

Table 1 Population, Housing, Employment Capacity

Area	2022 Population	2045 Population Allocation	20-Year Population Increase	Net Residential Capacity	Population Capacity
Onalaska UGA	562	700	138	970	2,256
Packwood UGA	910	1,200	290	1,036	2,408

Table 2 Housing Capacity by Income Band

Onalaska*	Residential Capacity	Allocation	Surplus (Deficit)
0-80% AMI Housing	459	200	**259**
80+% AMI Housing	511	0	**511**

Packwood*	Residential Capacity	Allocation	Surplus (Deficit)
0-80% AMI Housing	275	150	**125**
80+% AMI Housing	761	0	**761**

*20% of housing units provided to households 80-120% AMI is assumed to be ADUs, tiny homes, and cottage housing and shared with the households earning >50-80% AMI. Zones with capacity for 0-80% housing.

Table 3. Rural Capacity by Zones (RDD)

ZONE	Count	Acres	Critical Area Adjustment	Future public uses	Infrastructure adjustment	Market adjustment	Net Acres	Assumed density	Residential Capacity
RDD-10	1141	5847.78	4451.71	4,006.54	3,004.90	2,554.17	2,554.17	0.1	**255**
RDD-20	1284	7915.81	5631.38	4,223.53	3,590.00	3,590.00	3,590.00	0.05	**180**
RDD-5	1470	6675.98	5254.03	4,465.93	4,465.93	4,465.93	4,465.93	0.2	**893**
Totals	**3895**	**20439.57**	**15,337.12**	**12,696.00**	**11,060.84**	**10,610.10**	**10,610.10**	**du/ac**	**1,328.10**

The analysis only reviewed rural residential zones. The analysis did not account for capacity with resource lands or agricultural zones. To be conservative, only vacant lands were studied within rural residential zones.

Table 4 Dwelling units capacity in RDD Zones by Affordability

AMI	Housing types	Dwellings per unit of residential capacity	% of total capacity	Dwelling units	Allocation	Surplus (Deficit)
0-80%	co-housing, assisted living, RV unit, group homes	2.5*	7.5%	249	132	**117**
80%+	ADU, single family detached	1	92.5%	1228	0	**1228**

*This assumption is based on the housing types which have capacity for more than one household per dwelling unit. The analysis assumes a maximum of 4 households per single-family detached home and uses an average of 2.5 to estimate capacity.

Define co-housing and group homes -

RECONCILED POPULATION AND HOUSING ALLOCATIONS

Lewis County completed a final round of review to reconcile the population and housing numbers between the County and cities for accommodating growth. The final adopted numbers have been inserted below.

Table 5. Revised Housing Allocation for Lewis County

Table 6. Revised Population Allocations for Lewis County

EXISTING CAPACITY (APRIL 2024)

Lewis County completed a preliminary Land Capacity Analysis (LCA) and a Housing Needs Assessment (HNA) in May 2024, consistent with the Lewis County Countywide Planning Policies and Growth Management Act (GMA) requirements. The existing conditions LCA found that there is sufficient capacity for housing units in rural areas, but the HNA identified a deficit of 126 housing unit types for permanent supportive housing units or non-permanent supporting housing units.

Since completing the LCA and HNA in spring 2024, Lewis County has reconciled allocated growth targets, and proposed land use designations changes and zoning designations changes as part of the Comprehensive Plan Periodic Update.

LAND USE AND ZONING CHANGES TO ACCOMMODATE GROWTH

Since the land capacity and housing capacity analysis in 2024, Lewis County accomplished or is in the process of accomplishing the following actions during the periodic update to accommodate growth and plan for an accommodate housing by income bracket. The following revised land use and zoning changes have been reviewed for capacity and

1. Established a UGA Small Town land use designation to be applied to the Onalaska UGA and the Packwood UGA.
2. Established zoning designations consistent with UGA Small Towns goals and policies that provide residential housing in a variety of types. The following zones are proposed to be adopted:
    a. Residential Very Low Density (RVL)
    b. Residential Low Density (RL)
    c. Residential Medium Density (RM)
    d. Residential High Density (RH)
    e. Mixed-Use (MU)
    f. Commercial Business District (CBD)
    g. Commercial Industrial (IND)
    h. Airport District (AX)

See map exhibits of proposed zones on the next page.

Figure 1 Proposed Zoning Changes for Packwood UGA

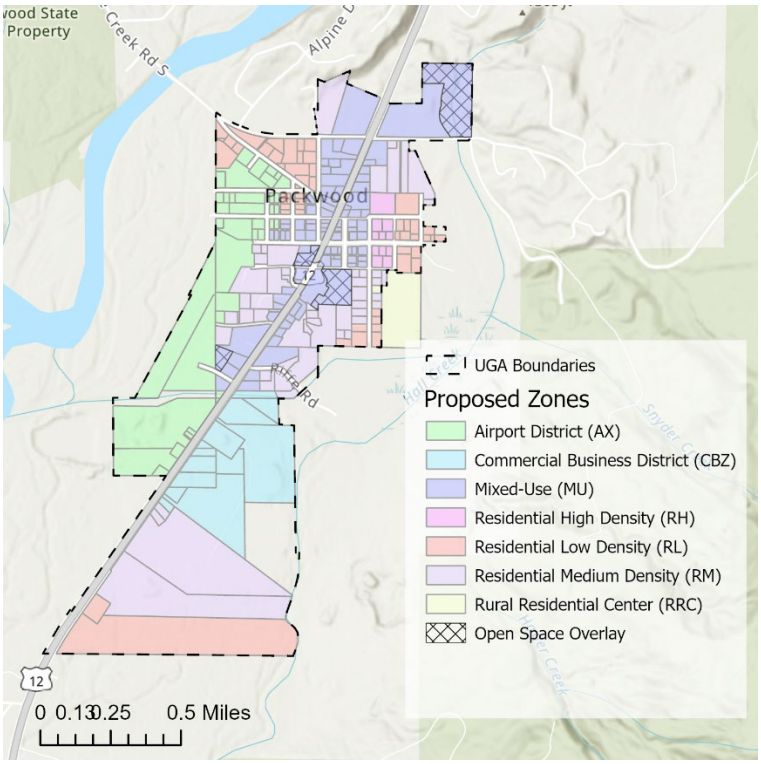
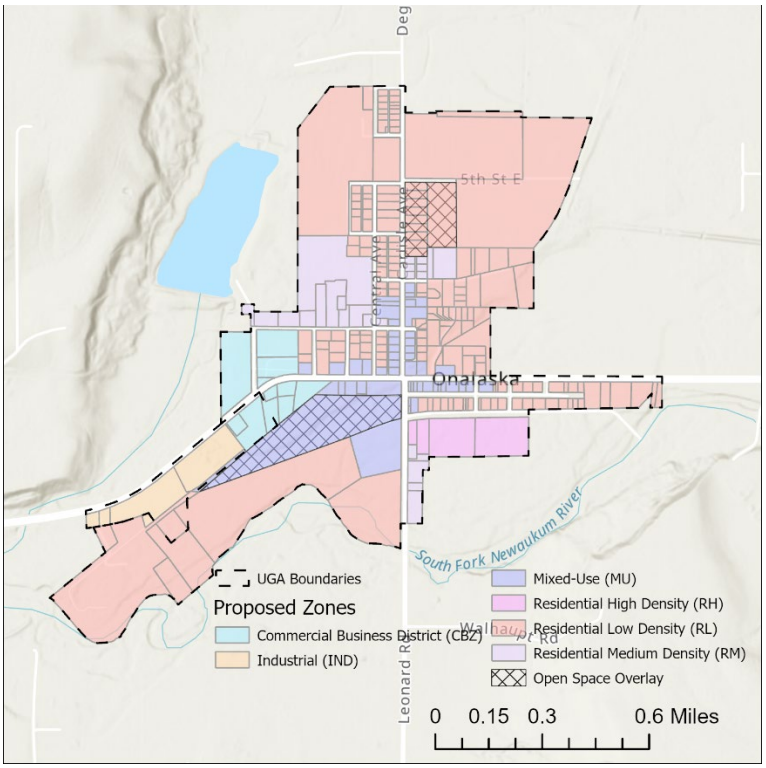


Figure 2 Proposed Zoning Changes for Onalaska UGA



Proposed Development Regulations

The following developments regulations have been proposed. The draft development regulations are currently in review by the Lewis County Planning Commission. Visit https://lewiscountywa.gov/departments/community-development/comprehensive-plan-and-development-regulation-amendments/comprehensive-plan-periodic-update/task-10-zoning-and-development-2/

Figure 3 Proposed Minimum Lot Size and Density for UGA Small Town Zones

Table 1: Lot Size and Density

	RL	RM	RH	MU	CBD	AX	IND	OS
LOT SIZE								
Minimum residential lot area (square feet)	5,000	2,500	4,000	4,000	N/A	7,500	N/A	N/A
Minimum lot width (feet)	35	25	25	25	35	N/A	N/A	N/A
DENSITY[1]								
Minimum residential density (units per acre)[2]	4	4	12	12	12	N/A	N/A	N/A
Maximum residential density (units per acre)[2]	12	16	18	26	32	3	N/A	N/A

[1] See Chapter 17.17.215 for density bonuses.

[2] Within Urban Growth Areas, Accessory Dwelling Units (ADUs) do not count towards housing density.

Figure 4 Proposed Development Standards for UGA Small Town Zones

Table 3: General Standards

Development Standard	RL	RM	RH	MU	CBD	AX	IND	OS	MID
Minimum setbacks (feet)									
Front	20	12	10	10 / 0[2]	0	10	10	10	
Rear	10	5	5	5	0	5	25	10	
v	5	5	5	5	0	5	25	5	
Maximum building Height (feet)[1]									
Habitable space	35	35	35	35	35	35	N/A	35	
Non-habitable space	50	50	50	50	50	50	N/A	50	
Minimum on-site parking									
Vehicle spaces per dwelling unit[4]	1	1	0.5	0.5	0.5	1	N/A	N/A	
Vehicle spaces for commercial uses	See Chapter 17.17.203								
Bicycle spaces per 1,000 square feet of commercial use	N/A	N/A	N/A	1	1	1	N/A	N/A	

[1] Height shall be measured as feet above the mean ground level. See Chapter 17.80, Airport Obstruction Zone, for additional requirements.

[2] See Chapter 17.17.130(3) for additional ground floor commercial setback requirements.

[4] See 17.17.210 for additional requirements Short Term Rental requirements.

REVISED LAND AND HOUSING CAPACITY (MAY 2025)

Kimley-Horn performed a revised capacity and housing analysis to identify sufficient land for suitable for development[1] and identify sufficient capacity of land for housing[2]. See methodology attached in appendix and see Lewis County Proposed Zones Capacity and Housing Excel for complete data analysis.

Figure 5 Proposed Zones and Critical Areas Packwood UGA

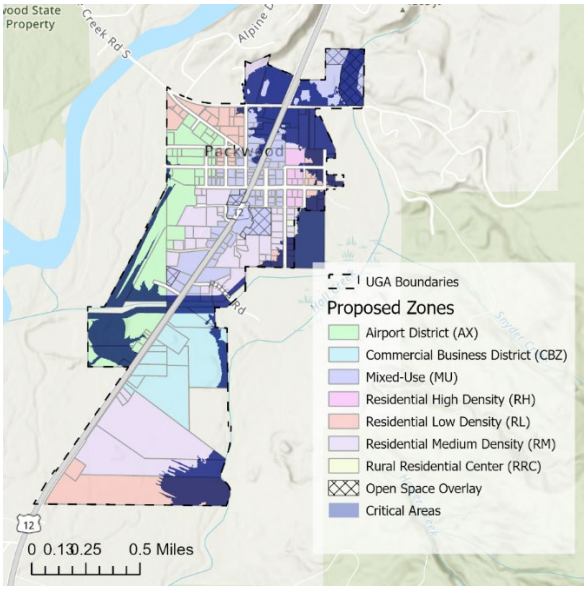
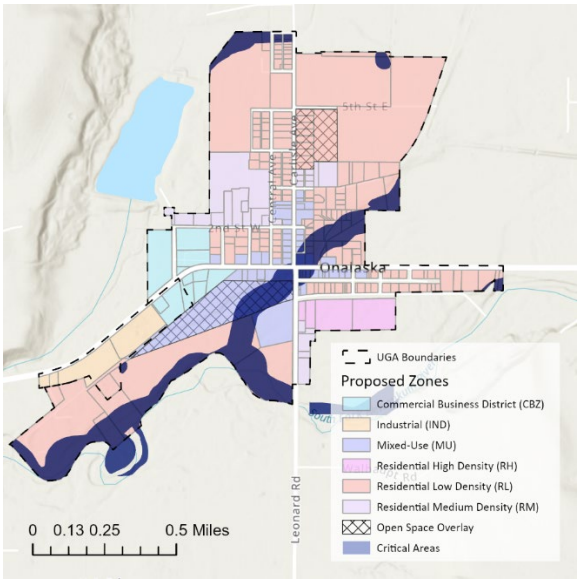


Figure 6 Proposed Zones and Critical Areas Onalaska UGA



[1] WAC 365-196-325 Providing sufficient land capacity suitable for development.

[2] RCW 36.70A.070 Comprehensive plans—Mandatory elements.

Land Capacity by UGA and Zone

Table 7 Net Residential Capacity by Zone

UGA	Zone	Net Developable Area (acres)	Assumed Density (du/ac)	Gross Residential Capacity (du)	Existing units on lot (du)	Net Residential Capacity by zone (du)	Net Residential Capacity by UGA (du)
Onalaska	RM	12.89	12	155	18	**137**	**970**
	RL	54.00	8	432	30	**402**	
	RH	16.51	14.5	239	1	**238**	
	RRC	0.00	4.356	0	0	**0**	
	MU	20.12	10	201	8	**193**	
Packwood	RM	77.02	12	924	31	**893**	**1,036**
	RL	6.62	8	53	8	**45**	
	RH	2.41	14.5	35	4	**31**	
	RRC	0.32	4.356	1	0	**1**	
	MU	7.70	10	77	12	**65**	
						Total	**2,006**

Table 8 Net Population Capacity

UGA	Net Residential Capacity	Vacancy Rate	Average person per household (S1101)	Population Capacity
Onalaska UGA	970	11.6%	2.63	**2,256**
Packwood UGA	1,036	11.6%	2.63	**2,408**
Total	2,006	11.6%	2.63	**4,663**

Table 9 Vacancy Rate

Vacancy Rate was calculated by vacant housing units divided by total housing units.

	ACS 2022 Table DP04 and Table S2501
Total housing units	36,370
Total vacant	4,221

Employment Capacity by UGA and Zone

Table 10 Net Employment Capacity

UGA	Zone	Net Developable Area (acres)	Assumed FAR	Floor Area	Apply 95% Occupancy Rate	Assumed Employment Density (sf/job)	Net Employment Capacity
Onalaska	IND	0.00	0.15	0	0	650	0
	MU	20.12	0.25	219,077	208,123	600	347
	CBD	10.10	0.25	109,995	104,495	400	261
	AX	0.00	0.15	0	0	650	0
Packwood	IND	0.00	0.15	0	0	650	0
	MU	7.70	0.25	83,859	79,666	600	133
	CBD	20.98	0.25	228,503	217,078	400	543
	AX	14.34	0.15	93,679	88,995	650	137
	Totals	**43**		**406,041**	**385,739**		**812**

Housing Capacity by UGA and Zone

The new zoning designations for UGA Small Towns allow the following housing types in proposed development regulations LCC 17.17.110 identified in Table 7: Assumed Affordability Level by Zone and Housing Types (Housing Needs Assessment, 2024)

Table 11: Assumed Affordability Level by Zone and Housing Types (Housing Needs Assessment, 2024)

Percent split	0-80%	80%+
RM	0.2	0.8
RL	0	1
RH	1	0
RRC	0	1
MU	1	0

Comp Plan Designation	Land Use Zone	Housing Type(s) Allowed	Density Category	Assumed Affordability Level
UGA Small Towns	Residential Low Density (RL)	Single-Family, Accessory Dwelling Units (ADU), Tiny Home Village	Moderate Density	Higher Income (>120% AMI)
	Residential Medium Density (RM)	Rowhouses, Fourplexes, Triplexes, Duplexes, Accessory Dwelling Units, Tiny Home Villages	Low-Rise	Moderate Income (>80-120%) May allow >50-80% with tiny homes and ADUs
	Residential High Density (RH)	Rowhouses, Fourplexes, Triplexes, Duplexes, Accessory Dwelling Units, Apartments, Condos, Hostels	Low-Rise	Moderate Income/Low Income (0-80% AMI) and PSH
	Mixed-Use (MU)	Apartments and Condos	Low-Rise	Low Income (0-80% AMI) and PSH
	Commercial Business District (CBD)	Apartments and Condos	Mid-Rise	Low Income (0-80% AMI) and PSH
	Small Town Mixed Use (STMU)	Single-Family, Duplex, Accessory Dwelling Unit	Low-Density	Higher Income (>120% or greater AMI)
Rural Small Community	Single-Family Mixed Use (STMU)	Multifamily (Multi-Residential)	Mid-Rise	Moderate Income (50-80% AMI)
	Single-Family Mixed Use (STMU)	Single-Family, Duplex, Accessory Dwelling Unit	Low-Density	Higher Income (>120% or greater AMI)

Comp Plan Designation	Land Use Zone	Housing Type(s) Allowed	Density Category	Assumed Affordability Level
	Rural Residential Center (RRC)	Single-Family Residential	Low-Density	Higher Income (>120% or greater AMI)

The housing types allowed in each zone were categorized by affordability based on guidance provided by Commerce. The RH and MU zones are most likely to allow housing types of 0-80% housing with opportunities for emergency housing, and permanent supportive housing. However, the RM and RL zones allow tiny homes, mobiles, and accessory dwelling units and so are assumed to accommodate 10-20% of the housing allocation for households earning 50-80% AMI. Table 8 Net Residential Capacity by Zone and Affordability Level shows a deficit of 17 units but shares the allocation of households earning 50-80% AMI with the RM which has a large surplus (870) of capacity at an assumed level of 10-20% within the Packwood UGA.

Table 12 Net Residential Capacity by Zone and Affordability Level

Onalaska	Residential Capacity	Allocation	Surplus (Deficit)
0-80% AMI Housing	459	18	**441**
80+% AMI Housing	511	0	**511**

Packwood	Residential Capacity	Allocation	Surplus (Deficit)
0-80% AMI Housing	275	121	**154**
80+% AMI Housing	761	0	**761**

Detailed

UGA	Zone	Affordability Level	Net Residential Capacity by zone (du)	Housing Allocated by Affordability	Housing Surplus (Deficit)
Onalaska	**RM***	>50-80%>80-120%	**137**	**16**	**121**
	RL	>120% AMI	**402**	**0**	**402**
	RH	>30-50%, >50-80%	**238**	**23 (split with MU)**	**215**
		Emergency Housing			
		PSH			
		Non-PSH			
	RRC	>120% AMI	**0**	**0**	**0**
	MU	>30-50%, >50-80%	**193**	**23**	**170**
		Emergency Housing			

		PSH Non-PSH		**(split with RH)**	
Packwood	**RM***	>50-80%, >80-120%	**893**	**25**	**870**
	RL	>120% AMI	**45**	**0**	**45**
	RH	>30-50%, >50-80% Emergency Housing PSH Non-PSH	**31**	**48**	**(17) Deficit covered in RM zone for 50-80% AMI**
	RRC	>120% AMI	**1**	**0**	**1**
	MU	>30-50%, >50-80% Emergency Housing PSH Non-PSH	**65**	**65 (split with RH)**	**-**

*RM zone allows tiny homes, mobile homes, and accessory dwelling units which may account for 10-20% of the housing allocation for households earning >50-80% AMI.

AFFORDABLE HOUSING

The proposed zones, as drafted, are intended to accommodate affordable, low-income, an subsidized housing in the RH and MU zones. Affordable housing density bonuses have been proposed for all zones which allow medium-high density residential and commercial zoning.

17.17.215 Density Bonus

Development that includes residential uses where 30 percent of the dwelling units are long term units provided at or below 80 percent Area Median Income for Lewis County shall be eligible for one of either an increased commercial or residential density bonus.

(1) A 25 percent increase in the total number of residential dwelling units rounded down to the nearest whole number. For example, a 24-unit residential building would be granted a bonus of 6 additional dwellings for a total of 30 dwellings. A 25-unit residential building would be granted a bonus of 6.25 additional dwellings. Rounded down, the total number of dwellings allowed would be 31 units.

(2) A 30 percent increase in total commercial square footage rounded down to the nearest whole number. For example, a mixed-use development with 10,000 square feet of commercial uses would be granted a bonus of 3,000 square feet for a total allotment of 13,000 square feet for the project.

APPENDICES

APPENDIX A. DATA AND GIS LAYERS

The following data used for this GIS analysis was sourced from publicly available GIS datasets provided on the Lewis County website. All data layers were reviewed and incorporated into a broader land capacity analysis, with additional GIS data processing and spatial analysis completed by Kimley-Horn. This work was conducted as part of the ongoing revision to the County's land capacity analysis to support comprehensive planning efforts.

Lewis County Data Layers

Data layers available on https://maps.lewiscountywa.gov/

Land Use and Zoning Layers

City Limits

Urban Growth Areas

Tax Parcels

Zoning

Public Facilities

Critical Areas Merged Layers

Wetlands

Steep Slopes

Erosion Hazard Areas

Stream Buffers

Shoreline Environment

Hydric Soils

Aquifer Recharge Areas – CARA Category

Aquifer Recharge Areas – CARA Soils

CMZ – Channel Migration Zones (Combined)

Hydric

Hydric Buffer

Floodway Boundary (Jan 2024)

100 yr Floodplain

500 yr Floodplain

APPENDIX B. GLOSSARY OF TERMS

Affordable Housing

The United States Department of Housing and Urban Development (HUD) considers housing to be affordable if the household is spending no more than 30 percent of its income on housing costs.

American Community Survey (ACS)

This is an ongoing nationwide survey conducted by the U.S. Census Bureau. It designed to provide communities with current data about how they are changing. The ACS collects information such as age, race, income, commute time to work, home value, veteran status, and other important data from U.S. households. ACS data is commonly used for the Community Profile section of a housing needs assessment.

Area Median Income (AMI)

This is a term that commonly refers to the area-wide median family income (MFI) calculation provided by the Department of Housing and Urban Development (HUD) for a county or metropolitan region.

Cost Burden

When a household pays more than 30 percent of their gross income on housing, including utilities, they are “cost-burdened.” When a household pays more than 50 percent of their gross income on housing, including utilities, they are “severely cost-burdened.” Or “extremely cost-burdened”.

Household

A household is a group of people living within the same housing unit.2 The people can be related, such as family. A person living alone in a housing unit, or a group of unrelated people sharing a housing unit, is also counted as a household.

U.S. Department of Housing and Urban Development (HUD)

HUD administers federal housing and urban development laws. It collects, analyzes, and distributes housing data beyond what is collected through the U.S. Census Bureau. Data produced by HUD is heavily used in the analysis in this report.

Household Income

The census defines household income as the sum of the income of all people 15 years and older living together in a household.

Income-Restricted Housing

This term refers to housing units that are only available to households with incomes at or below a set income limit and are offered for rent or sale at a below-market rates. Some income-restricted rental housing is owned by a city or housing authority, while others may be privately owned.

Low-Income

Families that are designated as low-income may qualify for income-subsidized housing units. HUD categorizes families as low-income, very low-income, or extremely low-income relative to area median family incomes (MFI), with consideration for family size.

North American Industry Classification System (NAICS)

The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy (Census.gov).

Median Family Income (MFI)

The median income of all family households in the metropolitan region or county. Analyses of housing affordability typically group all households by income level relative to area median family income. Median income of non-family households is typically lower than for family households. In this report, both MFI and AMI refer to the U.S. Department of Housing and Urban Development Area Median Family Income (HAMFI).

APPENDIX C. ASSUMED MARKET FACTORS

Land Capacity Market Factors for Urban Growth Areas

Deductions	
Future Public Use Deduction	5%
Market Factor (Vacant)	15%
Market Factor (Partially Used)	25%
Market Factor (Under Utilized)	25%
Infrastructure	25%

Market Factors for Rural Residential Zones

Critical Area Market Factor

ZONE	%
RDD-10	**23.9%**
RDD-20	**28.9%**
RDD-5	**21.3%**

Assumed Market Factors

Critical Areas	(See critical area table)
Future Public Uses	10%
Infrastructure Assumption	25%
Market Adjustment (Vacant)	15%

APPENDIX D. MEHODOLOGY FOR LCA WITH CITIES AND COUNTY

Methodology starts on the next page.

Overview

RCW 36.70A.115 requires counties and cities to ensure that, taken "...collectively, comprehensive plans and development regulations provide sufficient capacity of land suitable for development within their jurisdictions to accommodate their allocated housing and employment growth." One of the first steps in this process is to determine existing land capacity. As outlined within the Growth Management Acts (GMAs) implementing rules (WAC 365-196), the land capacity analysis is a comparison between the collective effects of all development regulations operating on development and the assumed densities established in the land use element. The land capacity analysis should evaluate what the development regulations allow, rather than what development has occurred.

> *The land capacity analysis will provide a baseline of how much population, housing, and employment capacity currently exists. This is then compared with how much capacity is necessary to accommodate the 2045 population, housing, and employment targets for each community.*

This Comprehensive Plan update process added additional complexity to the growth allocation process. Based on House Bill 1220 requirements, the county and cities worked together to allocate housing targets by income band. Those targets were adopted by Ordinance 1346 and are expressed in Table 2 below. The largest change during this Periodic Update is ensuring that any new capacity created aligns with the allocated targets.

The Housing Needs Assessment each community will produce (WAC 365-196-410) will identify the types of housing that are affordable at the different income levels in Table 2. As an example, denser housing, such as apartments, are typically what is necessary to create housing that is affordable to those making below 80% area medium income. However, the data from your Housing Needs Assessment will clarify this.

If there is a gap between the current capacity and what is needed to accommodate the 2045 growth and employment targets, the first step is to identify land use and zoning changes to create additional capacity within the **existing** city and unincorporated UGA. The new capacity created must align with the allocated housing targets. As an example, if an area needs capacity for 1,000 new housing units to accommodate its 2045 growth target and 90% of that will be below 80% AMI housing, then zoning and land use changes should be focused on creating capacity in multi-family zones. If it is not possible to create enough land use changes in the **existing** city or unincorporated UGA to accommodate the population, housing, or employment growth, then a UGA expansion can be considered.



However, any expansion cannot exceed what is necessary to accommodate the growth planned for the succeeding 20-year planning period and a reasonable land market supply factor.

In Lewis County, there is one set of allocated targets for each city and the corresponding unincorporated UGA. Collectively, the county and cities will need to demonstrate there is sufficient capacity over the 20-year planning period. Historically, the county has adopted the city's zoning designations and allowed development at urban density within the UGAs. The county has allowed cities to propose changes to UGA boundaries, while requiring that the city do the land capacity analysis to demonstrate the need and ability to provide urban services within the 20-year planning period to the UGA.

If a city proposes a change to UGA boundaries, the county is responsible for processing the request, completing the SEPA Analysis, conducting community engagement, and defending any appeals. This is why is it critically important that if any UGA modifications are requested, that the LCA methodology is followed and a complete record including supporting data is provided.

Table 1 shows the 2045 population allocations and Table 2 shows the 2045 housing allocations. The allocations of both to each city include the city limits plus the UGA. The unincorporated allocations including the rural lands outside of the city UGAs and UGAs without a city. Please refer to Lewis County Ordinance 1346, adopted on June 13, 2023, to see the methodology used to assign the allocations. When the land capacity is completed for all the jurisdictions, the total population and housing allocations must equal the totals in Table 1 and Table 2.

Methodology

It is vitally important that a consistent methodology, based upon accepted best practices, is utilized for the Land Capacity Analysis (LCA). The goal is to use a process that is as easy as possible to administer while also providing a supportable record for decisions that will be made as part of the update process. This is especially important given the cities are completing the analysis for the Unincorporated UGAs and the County must rely on that data when making decisions as part of the Comprehensive Plan update process. Counties, in coordination with cities across the state, have developed joint LCA methodologies. However, many of them are complex and would require significant GIS work.

The following LCA methodology has been adapted from the Department of Commerce UGA Guidebook. This document should be a resource to you should you have questions when completing your analysis. The Buildable Lands Guidelines is also a great resource with great graphics.

1. Base Point in Time

We will utilize January 1, 2024, from which the developable lands inventory was measured. For the LCA, all structures which have received a Certificate of Occupancy as of January 1, 2024, will be considered developed, while everything else proposed, built or occupied after that date will be counted as future capacity. This common parameter ensures consistency across jurisdictions in processing property and building activity data.

2. Study area

The Land Capacity Analysis will be done for all UGAs in Lewis County, including incorporated and unincorporated portions of each UGA. If any UGA boundary changes are proposed after completing the LCA, an LCA must be conducted for the area proposed to be included in the UGA to ensure the population, housing, and/or employment capacity does not exceed what is necessary to support the growth target. It is the responsibility of each city to conduct the LCA for the city's respective UGA and any proposed UGA boundary amendments.

3. Land Supply Analysis

3.1 Assemble Gross Developable Land Inventory

The first step in the assessment is to identify all lands within UGAs that are considered vacant, partially used, or under-utilized. These lands comprise the Gross Developable Land Inventory. Use the following steps:

Steps

1. Select all residential, commercial, and industrial parcels within UGAs. Distinguish between those parcels in unincorporated areas and those within incorporated cities.

2. Cross-reference local permit and plat data with selected parcels. Separate any parcels with multifamily permits, commercial/industrial binding site plans, and preliminary and final plats that have not received a certificate of occupancy by January 1, 2024. This includes projects that have not been completely built out but have received approval for a certain number of dwelling units or commercial/industrial square footage. Only projects that have received preliminary approval will be included in this list. These developments will be considered pending capacity and will be added to the final land capacity total at the end of the process.

3. Select developable parcels that are vacant, partially-used, or under-utilized. Use GIS processes and database queries to apply the definitional thresholds listed in Exhibit 1.

4. Make adjustments for mobile homes. The primary concern is that some mobile home parks may show up as vacant if the mobile home value is not captured in the Assessors' improvement value data. Use aerial imagery to truth check developable parcel designations against known areas with mobile home developments. If mischaracterized mobile home parks are identified, manually adjust the developable category designation in the land inventory database.

Exhibit 1

Category	Parcel type	Definition
Vacant	All residential, commercial, industrial	Improvement Value <$10,000; exclude all parcels <2,400 sq ft in size.
Partially-Used	Single-Family Not applicable for Multi-family, Commercial, and Industrial	Parcel size > 3 times minimum allowed under zoning; Don't count parcels with improvement value > 93rd percentile of jurisdiction improvement values unless the parcels sized is 3 times the minimum allowed under zoning.
Under-utilized	Multifamily, Commercial, Industrial Not applicable for single-family	1. Multifamily, commercial, and industrial zoned parcels occupied by single-family residential uses 2. Ratio between improvement value and land value <1.0 3. Cities can identify development, such as gas stations, as fully developed when the ratio of improvement value to land value is less than 1. Subtract existing floor area from database.

3.2 Standard Deductions

Steps

While the UGA Guidebook, page 96-99 provides the process for standard deductions for critical areas, future public uses, and infrastructure, the following deductions can be utilized when a jurisdiction does not have the GIS to provide the analysis provided in the UGA Guidebook. Note that even if you use Option 1 below, you will need data to support utilizing these deductions:

Option 1 (*If GIS analysis is not feasible)*

If the city or the city's consultant has GIS capabilities, then Option 1 may not be utilized. If Option 1 must be utilized, the following standard deductions must be applied:

Critical areas: 10% deduction
Future public uses: 5% deduction
Infrastructure: 25% deduction

Option 2 is the preferred methodology as it will more accurately reflect deductions that should be included for each category:

Option 2

Critical Areas and Sensitive Environmental Areas

1. Integrate local jurisdiction critical area data with County base data. The following types of critical areas will be included in the analysis.

Wetlands: The primary source of wetlands data available to the County is National Wetlands Inventory (NWI) data.

Streams: Since the ordinary high-water mark is not universally available in GIS layers, assume 25 feet of non-buildable area on either side of the centerline will be used in the analysis.

Steep Slopes and Seismic Soils: Subtract all areas with slopes greater than 35% since there are generally no restrictions on development where slopes are less than 35%.

Floodplain: All land in the floodway will be removed from the inventory. All lands within 100-year floodplains of the unincorporated portions of the Urban Growth Areas will also be removed from the inventory. All lands within floodplains of the incorporated areas will be removed from the inventory where development would be required to fill two feet above the adjacent grade, or where regulations prohibit the placement of fill in floodplains.

2. Deduct critical areas for residential parcels: Using GIS, overlay the critical areas described above on developable parcels and deduct land area where there is overlap. Critical area buffers are not deducted from residential parcels due to the variety of clustering and density transfer options available on these parcels. Later in the local jurisdiction review process, adjustments to critical area deductions can be made for cases with unique circumstances.

3. Deduct critical areas for commercial and industrial parcels: Since there are limited, if any, density transfer options for commercial and industrial parcels, critical area buffers will be deducted from these areas. Buffer distances will be based on County or city critical area ordinances and regulations.

4. The resulting selection of developable parcels unconstrained by critical areas will be used as the land base to calculate deductions for rights-of-way, other public uses, and market factors.

Future Public Uses

There are a wide range of public uses that should be deducted from developable land totals including schools, police and fire stations, recreation facilities and open space.

1. Schools, police and fire facilities, and parks are the public uses most likely to have established plans for future facility's needs. These uses will be handled separately from other public uses. Where available, review existing capital facility plans for schools, police and fire facilities, and parks and identify any confirmed parcels or areas that should be deducted from the developable land inventory. Any property already owned by public institutions for future expansion and known public uses in master planned areas should be identified. Deduct these parcels or acreage totals manually from the inventory if within a financially constrained plan.

2. If appropriate, analyze ownership information for parcels in the developable land inventory and exclude those owned by public entities and likely to be used for future public uses. This step may not be necessary if most future public use parcels were already excluded when the first residential, commercial, and industrial parcels were selected.

3. In order to account for other future public uses (e.g. community centers, daycare centers, churches, etc.) a 5% percent deduction on developable land is used. The deduction should be applied to the Developable Land Inventory after critical areas are removed but before any other deductions for infrastructure or market factors.

4. During the local jurisdiction review process, adjustments to the 5% other public uses deduction may be considered to account for local conditions and data availability.

Future Infrastructure

Deductions for future infrastructure, including rights-of-way (ROW) and other development requirements, will be based on the percentages of land dedicated to infrastructure in recent plats, permits, and developments. This percentage is calculated in the analysis of recent development activity step described below.

Because this deduction is being carried out on land not constrained by critical areas, it is important that the infrastructure percentage deduction factors also be based on land not constrained by critical areas. If there is insufficient data to calculate deduction for infrastructure, then standard deductions based on reasonable assumptions may be used within the analysis.

1. Summarize acreage of developable land minus critical area and public use deductions by zone .

2. Analyze recent development activity to determine infrastructure percentage deduction factors by zone.

3. Apply these deduction factors to the inventory of developable land unconstrained by critical areas to calculate the acreage deduction for infrastructure. The infrastructure deduction may be applied uniformly across all zones or by specific zone depending on the quantity and quality of recent development activity data.

Local Review

The city may know of parcels where there is additional information that impacts the ability of a parcel to develop or redevelop. These parcels may be removed from the total capacity. The range of additional issues that can be considered during the local jurisdiction review process includes but is not limited to the following:

- Critical areas not identified through GIS analysis.
- Known market interest in development or redevelopment of particular parcels/areas.
- Parking and outdoor storage associated with adjacent uses.
- Other associated/related uses spanning multiple parcels.
- Irregular parcel shapes making development unlikely.

Please make sure to document these sites and the rationale for deduction.

3.3 Market Factor Deductions:

The market factor is a final deduction from the net developable area to account for lands assumed not to be available for development during the planning period. It is expected that over the 20-year planning period some lands will be kept off the market due to speculative holding, land banking, and personal use, among other reasons.

Steps

1. Split between the unincorporated UGA and the incorporated city limits, summarize acreage in the Developable Land Inventory by zone, by land use (residential and commercial/industrial) and developable land designation (vacant, partially-used, and under-utilized). This acreage should represent developable land after critical areas, infrastructure, and public uses have been deducted.

2. Apply the following deduction factors to the developable acreage by zone:

- For vacant residential and commercial/industrial zones: 15% market factor
- For partially-used and under-utilized residential and commercial/industrial zones: 25% market factor

3. As a reference point, the overall average market factor for all developable land should be calculated for each City and Unincorporated UGA (total acres deducted based on market factor percentage / total acres in the Developable Land Inventory after critical areas, infrastructure, and public uses have been deducted).

4. Base market factors may be adjusted to account for local conditions and future plans. If market factors are adjusted, the final overall average market factor for a UGA should not exceed 25%. For certain areas (e.g. commercial/industrial areas in smaller outlying UGAs) market factors may exceed 25% but the jurisdiction must have well documented support for why such a deduction is appropriate.

5. The final acreage totals, split between unincorporated UGA and incorporated city limits,by zone represent the Net Developable Land Inventory – the land expected to be available to accommodate future population and employment over the planning period.

4. Development Density Assumptions

Assumptions about future development density are critical elements in the Land Capacity Analysis because they are needed to convert net developable area (acres) into future population, housing, and employment capacity.

4.1 Analysis of Recent Development History (Determine Achieved Densities)

The first step in developing density assumptions is to analyze recent development history to determine the actual densities achieved in different zones and planned land use areas. These achieved densities will serve as reference points and one of the inputs into the determination of assumed future densities in each zone.

The past five years of development activity (both plats and permits) is used to determine actual net achieved densities of development on both residential and commercial/industrial land. The net acreage must exclude the same ROWs, critical areas, and public uses excluded from the developable land supply. The final achieved densities will be expressed as dwelling units (DUs) per acre for residential parcels and floor area ratios
(FARs) for commercial and industrial parcels. Note – The data and assumptions from this analysis must be included in the LCA submitted to the County.

Steps

1. Cross-reference all plat and permit activity with the Assessors parcel data to select only those parcels that experienced development activity during the five year study period.

2. Using GIS, overlay these parcels with critical area layers and calculate the area constrained by
critical areas in each zone.

3. For all plat and permit activity, summarize the total acreage of land by zone dedicated to ROWs, infrastructure, and other public purposes.

4. Subtract the area constrained by critical areas, infrastructure, and public purposes from the gross parcel area in each zone. The resulting acreage is the net area to use in achieved density calculations.

5. Summarize the total number of lots (for single family plats), units (for multifamily residential and mixed-use building permits), and building square footage (for commercial, industrial, and mixed-use permits) for each zone in a jurisdiction.

6. Use the basic calculations listed in Exhibit 2 to calculate achieved density for each development type in each zone in each jurisdiction. Final achieved densities will be expressed in terms of DUs per acre for residential zones and FAR for commercial and industrial zones.

Calculate the percentage of gross parcel area dedicated to ROWs and other infrastructure uses in each zone and each UGA overall. This percentage is used in future land capacity calculations.

Exhibit 2

Development type	Achieved Density Calculation
Single family subdivisions	#Lots/Net Plat Area
Multi-family	#Units/Net site area
Commercial and industrial	Floor area/Net site area
Mixed use building (residential portion)	#Units/Net Residential Portion of site
Mixed use building (commercial portion)	Commercial floor area/net commercial portion of site

Note: For mixed-use buildings, the site area is apportioned between residential and commercial uses based on the share of building square footage dedicated to each use.

4.2 Assumed densities

For each zone and planned land use designation, you will develop assumed densities to be used in the LCA. These assumptions are meant to be reasonable estimates of densities to expect over the long-term planning period.

Steps

1. Assumed densities will only be used for the LCA and not to guide or influence other County or local land use policy decisions. In determining assumed densities, jurisdictions will consider the following range of inputs:

- Recent achieved densities;
- County and city land use goals and policies;
- Local knowledge of development plans and pending development;
- Other local market or policy conditions that are likely to impact future development densities.

A few of the guidelines to assist jurisdictions in determining assumed densities include:

• Use achieved densities as assumed densities if they fit within expected values for particular zones and planned land use areas. Adjustments can be made based on recommendations from local jurisdictions.
• Use a midpoint density between the maximum allowed under zoning and either the minimum allowed or achieved density. This approach may be more appropriate for multifamily zones, which often have a wide range of allowed densities.
• Use selected recent planned developments as models of future development densities in a particular zone.
• Ensure that incorporated city average assumed densities (over the entire city) that will be applied to the unincorporated UGA will remain above
accepted thresholds of urban densities. The minimum accepted threshold for urban density is 4 DUs per acre.

Below is an example table you could use for the assumed densities.

Zone or Land Use Designation		Density	Notes/Reason for Assumption

The determination of assumed densities in each zone and planned land use area in each jurisdiction is expected to be an iterative and collaborative process between the County and cities.

The process will be challenging because each jurisdiction will have its own set of issues depending on the complexity of its zoning code, other land use policies, and market conditions. In addition, the theoretical densities allowed in an area must be balanced with potentially very different achieved densities in those same zones. Although establishing one common method for determining

assumed densities is not possible, the underlying principle in this process is to develop assumed densities that are reasonable given recent development patterns and expected changes in future densities caused by market and policy factors.

5. Convert net developable area into net population, housing, and employment capacity

The final step in the land supply analysis is to convert the net developable land inventory (in acres) into population, housing, and employment capacity. A series of conversion factors are used to make these calculations, including net assumed densities of future development in each planned land use designation, average household size, and non-resident vacancy rates. The final product is an estimate of the number of people, housing units, and employees that can be accommodated on developable land in the incorporated city limits and unincorporated UGA. These estimates will be directly comparable to the forecasted population, housing, and employment totals allocated to each City and Unincorporated UGA over the 20- year planning period.

5.1 Determine Population Capacity

Determine Total Dwelling Units Capacity by Zone

1. Multiply net acres of residential developable land in each zone by the assumed density (DUs/acre) for each zone. The output will be the total dwelling units of capacity available in each zone before accounting for existing development on partially-used and under-utilized parcels.

2. Summarize total existing dwelling units on partially-used and under-utilized parcels by zone. Subtract these units from the totals from the previous step so that existing units are not counted as part of partially-used or under-utilized parcel capacity.

3. Earlier in the process, parcels with pending developments were set aside. These parcels included preliminary or final plats, permits, and binding site plans for developments that have received approval but where occupancy was not granted by January 1, 2024. The estimated capacity in these developments is more accurate than calculated theoretical capacity. Summarize total dwelling units in these pending developments by zone. Add these units to total dwelling units from Step 2. The output will be total dwelling units of capacity available in each zone.

Determine Total Occupied Dwelling Units by Zone

Steps

1. Determine occupancy rate assumptions for the incorporated city limits and unincorporated UGA using current OFM estimates. OFM does not provide reliable occupancy rates for unincorporated areas so Census data is typically used to calculate occupancy rates in unincorporated UGAs.
If more accurate occupancy rate assumptions are available from a reliable local source, these may be used instead of the OFM and Census values.

2. Multiply the total dwelling units of capacity in each zone by occupancy rate assumptions for each UGA. The output will be total occupied dwelling units in each zone. Determine Total Population Capacity by UGA.

3. Determine average household size assumptions for the incorporated city limits and unincorporated UGA by using 2008 OFM estimates. OFM does not provide reliable household size estimates for unincorporated areas so 2020 Census data are used to calculate average household sizes in unincorporated UGAs). Average household sizes for single family and multifamily households are calculated separately. If
more accurate household size assumptions are available from a reliable local source, these may be used instead of the OFM and Census values.

4. Aggregate the total dwelling units in each zone into two categories, single family and multifamily. The distinction between single family and multifamily zones is challenging because each jurisdiction may interpret "single family" and "multifamily" differently and have zoning codes that allow different levels of density in each of these categories. To improve consistency and common understanding regarding land use categories, the following single family/multifamily threshold will be used: all zones allowing more than 16 DUs/acre will be considered multifamily and all those allowing up to 16 DUs/acre will be considered single family. This means that townhome developments are considered single family.

5. Multiply total occupied dwelling units in the single family and multifamily categories in each zone by average household size assumptions for these categories. The final output will be total population capacity the incorporated city limits and unincorporated UGA.

6. The population capacity in each UGA can be compared to the population allocated to the incorporated city limits and unincorporated UGA to determine where excess or insufficient developable land capacity is an issue. As an example, if a City needs to accommodate will add 1,000 people by 2045, then the analysis is to determine if the 1,000 people can be accommodated with existing capacity.

NOTE: To provide Housing capacity by income band or Area Median Incomes (AMI) as outlined in Table 2, each jurisdiction will have to determine how existing capacity translates to the type of capacity needed for each income band. It is likely that some communities may have capacity to meet the growth target but it may not be in zones that provide the types of housing that will align with the income band/AMI in Table 2. The County and cities will need to work together to determine land use and zoning changes needed to accommodate both the population targets in Table 1 and Housing Targets in Table 2. A UGA expansion can only be considered if there is insufficient capacity after these steps are taken. This includes looking at options to increase densities in zones and rezoning property, if needed.

5.2 Determine employment capacity

This section describes how capacity to accommodate future employment growth is derived from the net developable area in commercial and industrial zones and the commercial portion of mixed-used zones.

Steps

Determine Total Square Footage Capacity by Zone

1. Multiply net acres of commercial and industrial developable land in each zone by the assumed FAR for each zone. The output will be the total square footage capacity available in each zone before accounting for existing development on partially-used and under-utilized parcels.

2. Summarize total existing commercial and industrial building square footage on partially-used and under-utilized parcels by zone. Subtract this square footage from the totals from the previous step so that existing buildings are not counted as part of partially-used or under-utilized parcel capacity.

3. Earlier in the process, parcels with pending developments were set aside. These parcels included commercial and industrial permits or binding site plans for developments that have received preliminary approval but have not been constructed by July 1, 2008. Master planned projects that have not been completely built out but have received approval for a certain amount of commercial/industrial square footage are also included. The estimated capacity in these developments is more accurate than calculated theoretical capacity.
Summarize total commercial and industrial building square footage in these pending developments by zone. Add this square footage to the totals from Step 2. The output will be total commercial and industrial square footage capacity available in each zone.

Determine Total Occupied Square Footage by Zone

1. Multiply the total square footage capacity in each zone by a 95% occupancy rate assumption. The occupancy rate assumption can be adjusted based on current and accurate data provided by local jurisdictions (e.g. annual real estate market reports). The output will be total occupied commercial and industrial square footage in each zone.

Determine Total Employment Capacity by UGA

2. Aggregate the occupied commercial and industrial square footage capacity by zone into the three categories used in the future employment allocation process: Commercial, Industrial, and Retail. These categories each include specific NAICS-based industries.

3. Determine employment density (square footage of floorspace occupied per employee) assumptions for future commercial, retail, and industrial development. The following has been utilized by communities before and can be utilized for this analysis:

- Industrial: 650 square feet per employee
- General Commercial: 400 square feet per employee
- Retail: 600 square feet per employee The final employment density assumptions can be adjusted based on local jurisdiction review.

4. Divide the total occupied commercial and industrial square footage in each category by the employment density assumptions. The final output will be total employment capacity within the incorporated city limits and unincorporated UGA.

5. The employment capacity in the incorporated city limits and unincorporated UGA can be compared to the employment allocated to each UGA to determine where excess or insufficient developable land capacity is an issue.

NOTE: Once employment capacity is determined, apply your own jobs per household ratio to determine how much additional employment capacity is needed to accommodate new jobs (if new capacity is necessary). The County and cities will need to work together to determine land use and zoning changes needed to accommodate and new employment capacity needed with Unincorporated UGAs. Any proposed UGA expansion would have to demonstrate how there is insufficient capacity for employment after any land use and zoning changes are considered.

For each UGA and City the following should be provided based on the analysis:

a. Gross developable acres
b. Acres deducted by critical areas
c. Acres deducted to public uses
d. Acres deducted for infrastructure
e. Net developable acres
f. Total after all deductions
g. Net developable acres by zone
h. Net developable acres by land use designation
i. Assumed density measured in DU per acre (for residential) FAR (for commercial and industrial) and reasoning for the assumed density by zone and land use designation.
j. Capacity for future population, housing, and employment projections by zone and land use designation

Onalaska UGA

Net Housing Capacity	Net Acreage	Assumption (Density)	Total Capacity (DU)	Existing Units	Net DU Capacity
Single-Residential	32.22	13	418	114	304
Multi-Residential	3.91	13	50	30	20
Total			468		324

Net Population Capacity	Net DU Capacity	AVG HH Occup Rate	Total Occup Units	AVG HH Size	Total Population
Single-Residential	304	.5% 2020 Decennial Cens	#VALUE!	ɔusehold for Pier	#VALUE!
Multi-Residential	20	.5% 2020 Decennial Cens	#VALUE!	ɔusehold for Pier	#VALUE!
Total					#VALUE!

Net Employment Capacity	Net Acreage	Assumed FAR	Total Capacity (SF)	Net Capacity
Commercial Industrial	5.08	1.0	221,372	221,372
Commercial Retail	3.33	1.0	144,940	144,940

Total Occupied	Total Emp Capacity
210,303	525
137,693	229
	754

Developable Areas

Critical Areas	GIS
Future Public Uses	Data from County
Infrastructure Assumption	25%
Local Review of Parcels	Data from County
Market Adjustment (Vacant)	15%
Market Adjustment (Partially-Utilized)	25%
Min Lot Size (STMU)	6,000
93rd Percentile of Jurisdiction Improvement Value	

Density Assumption

Achieved Density	
Assumed Density	13
Household Size	2.63 U.S. Census Persons per Household for Pierce County (2018-2022 Estimates)
Housing Occupancy Rate	94.5% 2020 Decennial Census
FAR Assumption (STMU)	1.0
Comm Occupancy Rate Assumption	95%
Employment Density (Industrial)	400
Employment Density (Commercial)	650
Employment Density (Retail)	600

Property Status Determination

Vacant	Improvement Value less than $10,000 and greater than 2,400 sf in size
Partially-Used	Single-family only. Parcel size greater than 3x min allowed under zoning. Remove parcels with improvement value greater than 93rd percentile for jurisdiction unless first criteria is met
Under-utilized	Multi-family, commercial, industrial only. Single-family uses on multi-family, commercial, or industrial parcels. Ratio between improvement value and land value less than 1.0.

Land Use Types

single-residential
multi-residential
commercial retail
commercial industrial

OBJECTID	SIZE (SF)	SIZE (AC)	PARCEL NUM	ADDRESS
9	230034.98	5.28	032803001004	0 LEONARD RD
32	12052.75	0.28	009913000000	0 MAIN ST
34	15449.27	0.36	032837003002	0 STATE ROUTE 508
35	12197.96	0.28	032837003001	0 STATE ROUTE 508
36	46312.39	1.06	032837005000	1890 STATE ROUTE 508
57	11393.07	0.26	009895003000	1810 STATE ROUTE 508
58	5920.53	0.14	009895002000	0 STATE ROUTE 508
59	3976.18	0.09	009895001000	0 MAIN ST
60	3015.71	0.07	009895000000	0 MAIN ST
61	2629.23	0.06	009894000000	0 MAIN ST
63	9022.05	0.21	011296063000	111 CARLISLE AVE
142	7206.29	0.17	011296013000	675 CARLISLE AVE
144	7083.74	0.16	011296014000	681 CARLISLE AVE
145	6763.74	0.16	011296001000	181 7TH ST W
146	24624.62	0.57	032790001000	187 7TH ST W
149	931411.19	21.38	032801001000	540 CARLISLE AVE
1	19586.31	0.45	032812005000	0 STATE ROUTE 508
2	50784.18	1.17	032844004000	143 LEONARD RD
3	12051.88	0.28	032844001000	137 LEONARD RD
4	39860.06	0.92	032843001000	133 LEONARD RD
5	10568.81	0.24	032843001003	0 LEONARD RD
6	13026.38	0.30	032843001004	128 1 LEONARD RD
8	44079.31	1.01	032843001001	102 RAILROAD ST
11	6824.57	0.16	009933000000	0 STATE ROUTE 508
13	5398.14	0.12	009931000000	0 MAIN ST
14	10220.86	0.24	009930000000	542 MAIN ST
20	8936.34	0.21	009924000000	342 MAIN ST
21	12367.79	0.28	009923001000	314 MAIN ST
26	13142.05	0.30	009921000000	272 MAIN ST
30	7454.69	0.17	009916001000	182 MAIN ST
31	14384.24	0.33	009914001000	164 MAIN ST
37	56597.50	1.30	032838001000	1884 STATE ROUTE 508
38	27028.12	0.62	032838002000	1876 STATE ROUTE 508
39	45056.48	1.03	032839000000	0 STATE ROUTE 508
40	6764.80	0.16	009909000000	0 STATE ROUTE 508
42	4822.09	0.11	009907002000	529 MAIN ST
43	16731.90	0.38	009907001000	1858 STATE ROUTE 508
45	10973.87	0.25	009905000000	429 MAIN ST
50	15642.58	0.36	009900000000	133 3RD AVE
53	13873.64	0.32	009898001000	0 STATE ROUTE 508
54	5601.26	0.13	009897002000	0 STATE ROUTE 508
55	3027.59	0.07	009896001000	1814 STATE ROUTE 508
56	5347.20	0.12	009896002000	0 STATE ROUTE 508
65	14380.98	0.33	032778005004	1827 STATE ROUTE 508
67	8370.31	0.19	011296064000	123 CARLISLE AVE
69	15512.85	0.36	032802001001	105 A CENTRAL AVE
72	82207.35	1.89	032801001007	1753 STATE ROUTE 508
73	8985.28	0.21	011296065000	145 CARLISLE AVE
76	12421.03	0.29	032802006001	133 KERR RD
77	8510.16	0.20	011296066000	167 169 CARLISLE AVE
87	9456.43	0.22	032801005000	178 WESARG RD
89	34365.96	0.79	032802004000	0 KERR RD
90	117479.51	2.70	032801001006	116 ALEXANDER RD
91	7982.95	0.18	011296054000	223 2ND ST W
94	32408.06	0.74	011296053000	256 CENTRAL AVE
96	11965.44	0.28	011296051000	267 CARLISLE AVE
97	8908.17	0.21	011296055000	0 CARLISLE AVE
99	8171.81	0.19	011296056000	289 CARLISLE AVE
103	8428.35	0.19	011296044000	331 CARLISLE AVE
107	8241.35	0.19	011296046000	361 CARLISLE AVE

USE DESCRIPTION	LU NAME	PROPERTY TYPE	EXISTING ZONE
18 Other Residential	single-residential	LWM	STMU
59 Retail - Other	commercial retail	COM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
65 Service - Professional	commercial retail	COM	STMU
64 Service - Repair	commercial retail	COM	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
58 Retail - Eating	commercial retail	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
68 Service - Education	public/quasi-public	GOV	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWM	STMU
18 Other Residential	single-residential	LWM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
15 Mobile Home Park	multi-residential	COM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
55 Retail - Auto	commercial retail	COM	STMU
65 Service - Professional	commercial retail	COM	STMU
62 Service - Personal	commercial retail	COM	STMU
62 Service - Personal	commercial retail	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
12 Two-to-Four Unit	multi-residential	RES	STMU
54 Retail - Food	commercial retail	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
12 Two-to-Four Unit	multi-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
18 Other Residential	single-residential	COM	STMU
58 Retail - Eating	commercial retail	COM	STMU
58 Retail - Eating	commercial retail	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU

EXISTING UNITS	EXISTING COMM SF	IMPROV VALUE	LAND VALUE	TOTAL VALUE
0		$373,200	$120,100	$493,300
0		$283,600	$36,300	$319,900
0		$0	$82,100	$82,100
0		$0	$13,000	$13,000
1		$130,400	$128,800	$259,200
0		$189,000	$30,000	$219,000
0		$15,200	$24,000	$39,200
0		$0	$8,000	$8,000
0		$0	$5,000	$5,000
0		$0	$5,000	$5,000
0		$120,300	$32,200	$152,500
1		$166,000	$31,600	$197,600
1		$167,800	$31,600	$199,400
1		$249,300	$31,600	$280,900
1		$325,600	$105,400	$431,000
0		$3,014,200	$190,000	$3,204,200
1		$113,600	$17,200	$130,800
1		$100,200	$75,000	$175,200
0		$252,600	$40,400	$293,000
0		$350,600	$37,000	$387,600
0		$0	$34,600	$34,600
0		$217,000	$37,200	$254,200
0		$201,000	$70,200	$271,200
0		$0	$31,600	$31,600
0		$0	$31,600	$31,600
0		$14,400	$53,600	$68,000
1		$256,300	$31,600	$287,900
1		$314,900	$57,400	$372,300
1		$132,000	$57,400	$189,400
0		$71,200	$29,400	$100,600
1		$152,700	$82,100	$234,800
1		$213,400	$194,900	$408,300
4		$111,900	$45,000	$156,900
0		$0	$128,800	$128,800
1		$158,200	$31,600	$189,800
0		$175,900	$29,400	$205,300
1		$172,000	$82,100	$254,100
1		$207,000	$57,400	$264,400
0		$62,500	$41,300	$103,800
0		$10,300	$37,500	$47,800
0		$24,400	$22,000	$46,400
0		$0	$12,000	$12,000
0		$32,100	$25,000	$57,100
1		$150,600	$82,100	$232,700
1		$278,300	$31,600	$309,900
2		$515,400	$82,100	$597,500
0		$332,700	$198,200	$530,900
1		$148,700	$31,600	$180,300
1		$364,400	$57,400	$421,800
2		$342,500	$31,600	$374,100
1		$309,400	$57,400	$366,800
0		$97,000	$54,900	$151,900
0		$444,300	$127,700	$572,000
0		$188,200	$31,800	$220,000
0		$42,000	$64,400	$106,400
0		$121,500	$24,800	$146,300
1		$214,100	$31,600	$245,700
1		$148,500	$31,600	$180,100
1		$184,100	$31,600	$215,700
1		$251,500	$31,600	$283,100

IMP/LAND VALUE RATIO	IMP VALUE > 93RD PERCENTILE	VACANT	PARTIALLY USED
3.1		FALSE	TRUE
7.8		FALSE	FALSE
0.0		TRUE	FALSE
0.0		TRUE	FALSE
1.0		FALSE	TRUE
6.3		FALSE	FALSE
0.6		FALSE	FALSE
0.0		TRUE	FALSE
0.0		TRUE	FALSE
0.0		TRUE	FALSE
3.7		FALSE	FALSE
5.3		FALSE	FALSE
5.3		FALSE	FALSE
7.9		FALSE	FALSE
3.1		FALSE	TRUE
15.9		FALSE	FALSE
6.6		FALSE	TRUE
1.3		FALSE	TRUE
6.3		FALSE	FALSE
9.5		FALSE	FALSE
0.0		TRUE	FALSE
5.8		FALSE	FALSE
2.9		FALSE	TRUE
0.0		TRUE	FALSE
0.0		TRUE	FALSE
0.3		FALSE	FALSE
8.1		FALSE	FALSE
5.5		FALSE	FALSE
2.3		FALSE	FALSE
2.4		FALSE	FALSE
1.9		FALSE	FALSE
1.1		FALSE	TRUE
2.5		FALSE	FALSE
0.0		TRUE	FALSE
5.0		FALSE	FALSE
6.0		FALSE	FALSE
2.1		FALSE	FALSE
3.6		FALSE	FALSE
1.5		FALSE	FALSE
0.3		FALSE	FALSE
1.1		FALSE	FALSE
0.0		TRUE	FALSE
1.3		FALSE	FALSE
1.8		FALSE	FALSE
8.8		FALSE	FALSE
6.3		FALSE	FALSE
1.7		FALSE	FALSE
4.7		FALSE	FALSE
6.3		FALSE	FALSE
10.8		FALSE	FALSE
5.4		FALSE	FALSE
1.8		FALSE	FALSE
3.5		FALSE	FALSE
5.9		FALSE	FALSE
0.7		FALSE	FALSE
4.9		FALSE	FALSE
6.8		FALSE	FALSE
4.7		FALSE	FALSE
5.8		FALSE	FALSE
8.0		FALSE	FALSE

UNDERUTILIZED	STATUS	FUTURE PUBLIC USE	CRIT AREAS REDUC (TOTAL)
FALSE	NON-VACANT		0.27
FALSE	NON-VACANT		0.04
FALSE	VACANT		0.24
FALSE	VACANT		0.16
FALSE	NON-VACANT		0.13
FALSE	NON-VACANT	Yes	0.09
TRUE	NON-VACANT		0.14
FALSE	VACANT		0.09
FALSE	VACANT		0.07
FALSE	VACANT		0.06
FALSE	NON-VACANT		0.02
FALSE	NON-VACANT		0.09
FALSE	NON-VACANT		0.16
FALSE	NON-VACANT		0.16
FALSE	NON-VACANT		0.34
FALSE	NON-VACANT	Yes	2.72
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	VACANT		0.00
FALSE	VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
TRUE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
TRUE	VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT	Yes	0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
TRUE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00

NET AREA AFTER CRIT AREAS REDUC	INFRA REDUC	LOCAL REVIEW	MARKET REDUC	NET DEV AREA (AC)
5.01	1.25		1.25	2.51
0.24	0.06		0.06	0.12
0.11	0.03		0.02	0.07
0.12	0.03		0.02	0.07
0.93	0.23		0.23	0.47
0.17	0.04		0.04	0.09
0.00	0.00		0.00	0.00
0.00	0.00		0.00	0.00
0.00	0.00		0.00	0.00
0.00	0.00		0.00	0.00
0.18	0.05		0.05	0.09
0.07	0.02		0.02	0.04
0.00	0.00		0.00	0.00
0.00	0.00		0.00	0.00
0.23	0.06		0.06	0.11
18.66	4.66		4.66	9.33
0.45	0.11		0.11	0.23
1.17	0.29		0.29	0.58
0.28	0.07		0.07	0.14
0.92	0.23		0.23	0.46
0.24	0.06		0.04	0.15
0.30	0.07		0.07	0.15
1.01	0.25		0.25	0.51
0.16	0.04		0.02	0.09
0.12	0.03		0.02	0.07
0.24	0.06		0.06	0.12
0.21	0.05		0.05	0.10
0.28	0.07		0.07	0.14
0.30	0.08		0.08	0.15
0.17	0.04		0.04	0.09
0.33	0.08		0.08	0.17
1.30	0.32		0.32	0.65
0.62	0.16		0.16	0.31
1.03	0.26		0.16	0.62
0.16	0.04		0.04	0.08
0.11	0.03		0.03	0.06
0.38	0.10		0.10	0.19
0.25	0.06		0.06	0.13
0.36	0.09		0.09	0.18
0.32	0.08		0.08	0.16
0.13	0.03		0.03	0.06
0.07	0.02		0.01	0.04
0.12	0.03		0.03	0.06
0.33	0.08		0.08	0.17
0.19	0.05		0.05	0.10
0.36	0.09		0.09	0.18
1.89	0.47		0.47	0.94
0.21	0.05		0.05	0.10
0.29	0.07		0.07	0.14
0.20	0.05		0.05	0.10
0.22	0.05		0.05	0.11
0.79	0.20		0.20	0.39
2.70	0.67		0.67	1.35
0.18	0.05		0.05	0.09
0.74	0.19		0.19	0.37
0.28	0.07		0.07	0.14
0.21	0.05		0.05	0.10
0.19	0.05		0.05	0.09
0.19	0.05		0.05	0.10
0.19	0.05		0.05	0.09

MIN DENSITY	MAX DENSITY
1	26
1	26
1	26

109	15045.80	0.35	032798001003	0 CENTRAL AVE
110	8263.91	0.19	011296047000	381 CARLISLE AVE
112	7983.69	0.18	011296048000	391 CARLISLE AVE
113	7149.12	0.16	011296037000	390 CENTRAL AVE
116	32662.17	0.75	011296036000	411 CARLISLE AVE
118	20083.91	0.46	011296035000	445 CARLISLE AVE
121	19974.44	0.46	011296034000	457 CARLISLE AVE
122	7696.04	0.18	011296024000	0 PENNEL AVE
124	18396.02	0.42	011296033000	479 CARLISLE AVE
128	8422.29	0.19	011296031000	461 CENTRAL AVE
130	123606.40	2.84	011296021001	540 CARLISLE AVE
132	1542.22	0.04	011296007000	0 6TH ST W
133	7564.45	0.17	011296009000	625 CARLISLE AVE
135	6630.64	0.15	011296010000	637 CARLISLE AVE
137	5754.61	0.13	011296011000	651 CARLISLE AVE
139	3655.24	0.08	011296012000	0 CARLISLE AVE
140	3780.11	0.09	011296012001	662 BUNKER AVE
150	12166.49	0.28	032801001009	316 8 2ND ST W
151	229713.30	5.27	032799005002	1733 STATE ROUTE 508
33	2031.98	0.05	009910000000	0 MAIN ST
143	6567.16	0.15	011296002000	665 BUNKER AVE
7	21986.21	0.51	032843001002	0 RAILROAD ST
10	1796.92	0.04	009912000000	111 LEONARD RD
12	5376.35	0.12	009932000000	0 STATE ROUTE 508
15	14745.03	0.34	009929000000	0 MAIN ST
16	14653.31	0.34	009928000000	492 MAIN ST
17	11981.38	0.28	009927000000	422 MAIN ST
18	12666.23	0.29	009926000000	414 MAIN ST
19	10979.24	0.25	009925000000	386 MAIN ST
22	3200.84	0.07	009923000000	0 MAIN ST
23	7099.32	0.16	009922001000	286 MAIN ST
24	2971.79	0.07	009922001001	0 MAIN ST
25	3338.87	0.08	009922000000	0 MAIN ST
27	7179.64	0.17	009920000000	242 MAIN ST
28	10347.08	0.24	009919000000	228 MAIN ST
29	10712.97	0.25	009918000000	198 MAIN ST
41	10679.04	0.25	009908000000	0 STATE ROUTE 508
44	10831.59	0.25	009906000000	487 MAIN ST
46	11529.65	0.27	009904000000	1842 STATE ROUTE 508
47	9894.89	0.23	009903001000	0 STATE ROUTE 508
48	2481.56	0.06	009903000000	0 STATE ROUTE 508
49	2789.07	0.06	009902000000	357 MAIN ST
51	8337.89	0.19	009899001000	132 3RD AVE
52	7781.24	0.18	009899000000	1822 STATE ROUTE 508
62	9350.69	0.22	032803001008	0 STATE ROUTE 508
64	9108.73	0.21	011296062000	102 CENTRAL AVE
66	16682.52	0.38	032802006002	133 KERR RD
68	8500.20	0.20	011296061000	122 CENTRAL AVE
70	7907.35	0.18	032778005005	0 STATE ROUTE 508
71	21213.58	0.49	032802000000	1783 STATE ROUTE 508
74	8456.65	0.19	032801003000	145 CENTRAL AVE
75	8782.01	0.20	011296060000	144 CENTRAL AVE
78	8330.54	0.19	011296059000	156 CENTRAL AVE
79	17004.96	0.39	032801006000	144 WESARG RD
80	12421.80	0.29	032801003002	157 CENTRAL AVE
81	9011.70	0.21	011296067000	179 CARLISLE AVE
82	8776.10	0.20	011296058000	0 CENTRAL AVE
83	9076.88	0.21	032801003001	179 CENTRAL AVE
84	7180.18	0.17	011296068000	189 CARLISLE AVE
85	6910.61	0.16	011296057000	188 CENTRAL AVE
86	5479.48	0.13	032801003003	189 CENTRAL AVE

18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	GOV	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
68 Service - Education	public/quasi-public	GOV	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWM	STMU
91 Residential Land - Undivided	undeveloped/vacant	GOV	STMU
91 Residential Land - Undivided	undeveloped/vacant	COM	STMU
18 Other Residential	single-residential	LWM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
63 Service - Business	commercial retail	COM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWB	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWB	STMU
18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	COM	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
58 Retail - Eating	commercial retail	COM	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
48 Utilities	trans/util	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
47 Communication	trans/util	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU

0	$3,600	$82,100	$85,700
1	$134,200	$31,600	$165,800
1	$168,800	$31,600	$200,400
1	$152,500	$31,600	$184,100
1	$382,100	$105,400	$487,500
1	$377,300	$82,100	$459,400
1	$185,000	$82,100	$267,100
0	$12,500	$23,500	$36,000
1	$293,700	$82,100	$375,800
0	$299,300	$31,600	$330,900
0	$1,093,500	$44,400	$1,137,900
0	$0	$7,200	$7,200
1	$172,600	$31,600	$204,200
1	$203,100	$31,600	$234,700
1	$256,600	$31,600	$288,200
0	$0	$14,700	$14,700
0	$0	$14,700	$14,700
0	$225,000	$53,600	$278,600
0	$1,724,100	$53,800	$1,777,900
0	$0	$6,900	$6,900
0	$145,800	$30,100	$175,900
0	$0	$39,200	$39,200
0	$93,100	$27,800	$120,900
0	$0	$31,600	$31,600
0	$16,300	$34,600	$50,900
0	$201,700	$76,500	$278,200
1	$218,100	$57,400	$275,500
1	$162,400	$57,400	$219,800
1	$149,400	$57,400	$206,800
0	$1,000	$14,700	$15,700
1	$234,300	$31,600	$265,900
0	$7,900	$14,700	$22,600
0	$12,200	$14,700	$26,900
1	$173,900	$31,600	$205,500
1	$205,600	$57,400	$263,000
1	$182,500	$57,400	$239,900
0	$0	$57,400	$57,400
0	$104,600	$53,600	$158,200
1	$192,800	$57,400	$250,200
1	$175,800	$57,400	$233,200
0	$6,300	$11,700	$18,000
1	$108,600	$14,700	$123,300
1	$176,600	$31,600	$208,200
1	$225,000	$31,600	$256,600
0	$0	$10,900	$10,900
1	$179,200	$31,600	$210,800
0	$39,400	$142,300	$181,700
1	$154,300	$31,600	$185,900
0	$0	$31,600	$31,600
0	$54,900	$67,100	$122,000
1	$237,900	$31,600	$269,500
0	$294,500	$29,400	$323,900
0	$0	$20,700	$20,700
1	$213,800	$82,100	$295,900
1	$228,500	$57,400	$285,900
1	$179,200	$31,600	$210,800
0	$29,700	$20,700	$50,400
1	$192,600	$31,600	$224,200
1	$207,600	$31,600	$239,200
1	$138,300	$31,600	$169,900
1	$263,400	$31,600	$295,000

0.0	TRUE	FALSE
4.2	FALSE	FALSE
5.3	FALSE	FALSE
4.8	FALSE	FALSE
3.6	FALSE	TRUE
4.6	FALSE	TRUE
2.3	FALSE	TRUE
0.5	FALSE	FALSE
3.6	FALSE	TRUE
9.5	FALSE	FALSE
24.6	FALSE	FALSE
0.0	FALSE	FALSE
5.5	FALSE	FALSE
6.4	FALSE	FALSE
8.1	FALSE	FALSE
0.0	TRUE	FALSE
0.0	TRUE	FALSE
4.2	FALSE	FALSE
32.0	FALSE	FALSE
0.0	FALSE	FALSE
4.8	FALSE	FALSE
0.0	TRUE	FALSE
3.3	FALSE	FALSE
0.0	TRUE	FALSE
0.5	FALSE	FALSE
2.6	FALSE	FALSE
3.8	FALSE	FALSE
2.8	FALSE	FALSE
2.6	FALSE	FALSE
0.1	TRUE	FALSE
7.4	FALSE	FALSE
0.5	TRUE	FALSE
0.8	FALSE	FALSE
5.5	FALSE	FALSE
3.6	FALSE	FALSE
3.2	FALSE	FALSE
0.0	TRUE	FALSE
2.0	FALSE	FALSE
3.4	FALSE	FALSE
3.1	FALSE	FALSE
0.5	TRUE	FALSE
7.4	FALSE	FALSE
5.6	FALSE	FALSE
7.1	FALSE	FALSE
0.0	TRUE	FALSE
5.7	FALSE	FALSE
0.3	FALSE	FALSE
4.9	FALSE	FALSE
0.0	TRUE	FALSE
0.8	FALSE	FALSE
7.5	FALSE	FALSE
10.0	FALSE	FALSE
0.0	TRUE	FALSE
2.6	FALSE	FALSE
4.0	FALSE	FALSE
5.7	FALSE	FALSE
1.4	FALSE	FALSE
6.1	FALSE	FALSE
6.6	FALSE	FALSE
4.4	FALSE	FALSE
8.3	FALSE	FALSE

FALSE	VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	VACANT		0.00
FALSE	VACANT		0.00
FALSE	NON-VACANT		0.00
FALSE	NON-VACANT	Yes	0.00
FALSE	NON-VACANT		0.02
FALSE	NON-VACANT		0.09
FALSE	VACANT		0.00
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FALSE	NON-VACANT		0.00

0.35	0.09	0.05	0.21
0.19	0.05	0.05	0.10
0.18	0.05	0.05	0.09
0.16	0.04	0.04	0.08
0.75	0.19	0.19	0.38
0.46	0.12	0.12	0.23
0.46	0.11	0.11	0.23
0.18	0.04	0.04	0.09
0.42	0.11	0.11	0.21
0.19	0.05	0.05	0.10
2.84	0.71	0.71	1.42
0.04	0.01	0.01	0.02
0.17	0.04	0.04	0.09
0.15	0.04	0.04	0.08
0.13	0.03	0.03	0.07
0.08	0.02	0.01	0.05
0.09	0.02	0.01	0.05
0.28	0.07	0.07	0.14
5.27	1.32	1.32	2.64
0.02	0.01	0.01	0.01
0.06	0.02	0.02	0.03
0.51	0.13	0.08	0.30
0.04	0.01	0.01	0.02
0.12	0.03	0.02	0.07
0.34	0.08	0.08	0.17
0.34	0.08	0.08	0.17
0.28	0.07	0.07	0.14
0.29	0.07	0.07	0.15
0.25	0.06	0.06	0.13
0.07	0.02	0.01	0.04
0.16	0.04	0.04	0.08
0.07	0.02	0.01	0.04
0.08	0.02	0.02	0.04
0.17	0.04	0.04	0.08
0.24	0.06	0.06	0.12
0.25	0.06	0.06	0.12
0.25	0.06	0.04	0.15
0.25	0.06	0.06	0.12
0.27	0.07	0.07	0.13
0.23	0.06	0.06	0.11
0.06	0.01	0.01	0.03
0.06	0.02	0.02	0.03
0.19	0.05	0.05	0.10
0.18	0.04	0.04	0.09
0.22	0.05	0.03	0.13
0.21	0.05	0.05	0.10
0.38	0.10	0.10	0.19
0.20	0.05	0.05	0.10
0.18	0.05	0.03	0.11
0.49	0.12	0.12	0.24
0.19	0.05	0.05	0.10
0.20	0.05	0.05	0.10
0.19	0.05	0.03	0.11
0.39	0.10	0.10	0.20
0.29	0.07	0.07	0.14
0.21	0.05	0.05	0.10
0.20	0.05	0.05	0.10
0.21	0.05	0.05	0.10
0.17	0.04	0.04	0.08
0.16	0.04	0.04	0.08
0.13	0.03	0.03	0.06

1	26
1	26
1	26

88	4499.90	0.10	032801008000	251 2ND ST W
92	576.34	0.01	011296054002	0 2ND ST W
93	8860.47	0.20	011296054001	180 CENTRAL AVE
95	10263.82	0.24	011296052000	0 CARLISLE AVE
98	8474.45	0.20	011296050000	278 CENTRAL AVE
100	7608.29	0.18	011296049000	181 3RD ST W
101	8459.62	0.19	011296043000	311 CARLISLE AVE
102	11694.51	0.27	011296042001	320 CENTRAL AVE
104	3866.94	0.09	011296041000	334 CENTRAL AVE
105	8296.46	0.19	011296045000	341 CARLISLE AVE
106	7570.97	0.17	011296040000	350 CENTRAL AVE
108	7473.03	0.17	011296039000	0 CENTRAL AVE
111	7446.20	0.17	011296038000	0 CENTRAL AVE
114	15422.28	0.35	032798001002	259 4TH ST W
115	12391.37	0.28	011296027000	210 4TH ST W
117	15182.19	0.35	011296026000	0 PENNEL AVE
119	10314.08	0.24	011296028000	417 CENTRAL AVE
120	7925.75	0.18	011296025000	0 PENNEL AVE
123	10167.33	0.23	011296029000	457 CENTRAL AVE
125	5232.41	0.12	011296030000	459 CENTRAL AVE
126	7966.68	0.18	011296023000	478 PENNEL AVE
127	20507.76	0.47	011296032000	0 CARLISLE AVE
129	8499.37	0.20	011296022000	278 5TH ST W
131	6669.05	0.15	011296008000	613 CARLISLE AVE
134	11938.95	0.27	011296006000	180 6TH ST W
136	6294.02	0.14	011296005000	637 BUNKER AVE
138	5438.31	0.13	011296004000	647 BUNKER AVE
141	7051.93	0.16	011296003000	657 BUNKER AVE
147	11696.08	0.27	032798001001	361 CENTRAL AVE
148	12065.28	0.28	032798002000	261 4TH ST W
160	1307519.48	30.02	032841000000	166 RAILROAD ST
172	86131.74	1.98	032803004006	139 ROBBINS ROOST LN
173	412581.54	9.47	032803001006	138 LEONARD RD
187	728424.92	16.72	032803009000	0 LEONARD RD
191	26606.91	0.61	032778014004	122 8 HEIGHTS LN
192	8541.70	0.20	032778014005	122 6 HEIGHTS LN
195	8132.49	0.19	032778014006	122 4 HEIGHTS LN
196	8208.99	0.19	032778014007	128 HEIGHTS LN
198	10971.25	0.25	032778014018	119 HEIGHTS LN
199	13508.10	0.31	032778014003	122 9 HEIGHTS LN
200	27799.35	0.64	032778014002	120 HEIGHTS LN
203	84875.10	1.95	032778015000	0 STATE ROUTE 508
204	48030.44	1.10	032778012000	1821 STATE ROUTE 508
205	20039.38	0.46	032778003000	1819 STATE ROUTE 508
206	7852.68	0.18	032778014019	0 HEIGHTS LN
207	17089.68	0.39	011296073000	122 CARLISLE AVE
208	15232.77	0.35	011296074000	0 STATE ROUTE 508
209	9420.11	0.22	011296075000	130 7 CARLISLE AVE
210	33275.03	0.76	032778014001	111 HEIGHTS LN
211	7131.43	0.16	011296076000	130 8 CARLISLE AVE
212	8228.43	0.19	011296077000	0 CARLISLE AVE
221	7006.67	0.16	011296072000	146 CARLISLE AVE
222	7554.82	0.17	011296071000	156 CARLISLE AVE
225	8697.36	0.20	032778014017	121 HEIGHTS LN
226	33908.20	0.78	032778002000	0 2ND ST E
236	48560.69	1.12	032772002000	0 CARLISLE AVE
237	765072.96	17.56	032786001000	540 CARLISLE AVE
261	140181.01	3.22	032778001014	198 C 3RD ST E
262	80880.86	1.86	032778001013	198 D 3RD ST E
268	285350.96	6.55	032803004013	0 STATE ROUTE 508
269	1104880.97	25.37	032803004012	0 STATE ROUTE 508

18 Other Residential	single-residential	LWM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
18 Other Residential	single-residential	LWM	STMU
12 Two-to-Four Unit	multi-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
18 Other Residential	single-residential	LWB	STMU
18 Other Residential	single-residential	LWM	STMU
18 Other Residential	single-residential	LWM	STMU
46 Trans - Parking	trans/util	GOV	STMU
18 Other Residential	single-residential	LWM	STMU
91 Residential Land - Undivided	undeveloped/vacant	GOV	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	GOV	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	GOV	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
12 Two-to-Four Unit	multi-residential	COM	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
83 Cur - Use - Ag	agriculture	AGR	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWM	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWB	STMU
91 Residential Land - Undivided	undeveloped/vacant	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
88 Designated Forest Lnd	mining/forestry		STMU
88 Designated Forest Lnd	mining/forestry		STMU

0	$191,600	$29,400	$221,000
0	$0	$100	$100
1	$254,800	$82,100	$336,900
0	$0	$66,800	$66,800
1	$139,700	$82,100	$221,800
0	$185,500	$29,400	$214,900
1	$216,700	$31,600	$248,300
0	$75,200	$53,600	$128,800
0	$12,500	$29,400	$41,900
2	$222,300	$31,600	$253,900
1	$291,800	$31,600	$323,400
0	$254,900	$30,100	$285,000
0	$29,000	$31,600	$60,600
0	$340,100	$76,500	$416,600
0	$15,200	$53,600	$68,800
0	$0	$38,100	$38,100
0	$93,400	$53,600	$147,000
0	$0	$23,500	$23,500
1	$290,100	$82,100	$372,200
1	$299,000	$31,600	$330,600
1	$35,100	$23,500	$58,600
1	$266,100	$82,100	$348,200
0	$0	$23,500	$23,500
1	$168,500	$31,600	$200,100
1	$270,000	$34,600	$304,600
1	$411,800	$31,600	$443,400
0	$0	$31,600	$31,600
2	$212,000	$24,400	$236,400
1	$201,900	$57,400	$259,300
0	$253,300	$53,600	$306,900
0	$0	$283,700	$283,700
1	$564,900	$85,500	$650,400
1	$276,400	$266,000	$542,400
0	$0	$143,700	$143,700
1	$318,300	$105,400	$423,700
0	$86,500	$31,600	$118,100
1	$293,700	$31,600	$325,300
0	$0	$31,600	$31,600
0	$0	$57,400	$57,400
0	$0	$57,400	$57,400
0	$0	$50,500	$50,500
0	$0	$92,700	$92,700
1	$246,000	$152,300	$398,300
0	$12,800	$42,700	$55,500
0	$0	$31,600	$31,600
1	$123,300	$82,100	$205,400
0	$0	$57,400	$57,400
0	$259,800	$29,000	$288,800
0	$0	$57,400	$57,400
0	$274,500	$29,400	$303,900
0	$0	$31,600	$31,600
1	$199,600	$31,600	$231,200
1	$249,200	$31,600	$280,800
0	$0	$31,600	$31,600
0	$11,100	$105,400	$116,500
0	$0	$5,000	$5,000
0	$5,458,700	$267,600	$5,726,300
1	$296,300	$234,200	$530,500
0	$333,600	$142,300	$475,900
0	$0	$22,900	$22,900
0	$0	$81,000	$81,000

6.5	FALSE	FALSE
0.0	FALSE	FALSE
3.1	FALSE	FALSE
0.0	TRUE	FALSE
1.7	FALSE	FALSE
6.3	FALSE	FALSE
6.9	FALSE	FALSE
1.4	FALSE	FALSE
0.4	FALSE	FALSE
7.0	FALSE	FALSE
9.2	FALSE	FALSE
8.5	FALSE	FALSE
0.9	FALSE	FALSE
4.4	FALSE	FALSE
0.3	FALSE	FALSE
0.0	TRUE	FALSE
1.7	FALSE	FALSE
0.0	TRUE	FALSE
3.5	FALSE	FALSE
9.5	FALSE	FALSE
1.5	FALSE	FALSE
3.2	FALSE	TRUE
0.0	TRUE	FALSE
5.3	FALSE	FALSE
7.8	FALSE	FALSE
13.0	FALSE	FALSE
0.0	TRUE	FALSE
8.7	FALSE	FALSE
3.5	FALSE	FALSE
4.7	FALSE	FALSE
0.0	TRUE	FALSE
6.6	FALSE	TRUE
1.0	FALSE	TRUE
0.0	TRUE	FALSE
3.0	FALSE	TRUE
2.7	FALSE	FALSE
9.3	FALSE	FALSE
0.0	TRUE	FALSE
0.0	TRUE	FALSE
0.0	TRUE	FALSE
0.0	TRUE	FALSE
0.0	TRUE	FALSE
1.6	FALSE	TRUE
0.3	FALSE	FALSE
0.0	TRUE	FALSE
1.5	FALSE	FALSE
0.0	TRUE	FALSE
9.0	FALSE	FALSE
0.0	TRUE	FALSE
9.3	FALSE	FALSE
0.0	TRUE	FALSE
6.3	FALSE	FALSE
7.9	FALSE	FALSE
0.0	TRUE	FALSE
0.1	FALSE	TRUE
0.0	TRUE	FALSE
20.4	FALSE	FALSE
1.3	FALSE	TRUE
2.3	FALSE	TRUE
0.0	TRUE	FALSE
0.0	TRUE	FALSE

FALSE	NON-VACANT		0.00
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FALSE	VACANT		5.42
FALSE	NON-VACANT		0.58
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FALSE	VACANT		0.04
FALSE	VACANT		0.25
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FALSE	VACANT		0.64
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FALSE	VACANT		0.14
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FALSE	VACANT		0.73
FALSE	NON-VACANT		0.16
FALSE	VACANT		0.15
FALSE	NON-VACANT		0.11
FALSE	NON-VACANT		0.04
FALSE	VACANT		0.04
FALSE	NON-VACANT		0.45
FALSE	VACANT		0.18
FALSE	NON-VACANT	Yes	0.61
FALSE	NON-VACANT		0.87
FALSE	NON-VACANT		1.17
FALSE	VACANT		3.53
FALSE	VACANT		11.09

0.10	0.03	0.03	0.05
0.01	0.00	0.00	0.01
0.20	0.05	0.05	0.10
0.24	0.06	0.04	0.14
0.20	0.05	0.05	0.10
0.18	0.04	0.04	0.09
0.19	0.05	0.05	0.10
0.27	0.07	0.07	0.13
0.09	0.02	0.02	0.04
0.19	0.05	0.05	0.10
0.17	0.04	0.04	0.09
0.17	0.04	0.04	0.09
0.17	0.04	0.04	0.09
0.35	0.09	0.09	0.18
0.28	0.07	0.07	0.14
0.35	0.09	0.05	0.21
0.24	0.06	0.06	0.12
0.18	0.05	0.03	0.11
0.23	0.06	0.06	0.12
0.12	0.03	0.03	0.06
0.18	0.05	0.05	0.09
0.47	0.12	0.12	0.24
0.20	0.05	0.03	0.12
0.15	0.04	0.04	0.08
0.27	0.07	0.07	0.14
0.14	0.04	0.04	0.07
0.13	0.03	0.02	0.08
0.16	0.04	0.04	0.08
0.27	0.07	0.07	0.13
0.28	0.07	0.07	0.14
25.28	6.32	3.79	15.17
0.27	0.07	0.07	0.13
3.74	0.94	0.94	1.87
11.30	2.83	1.70	6.78
0.03	0.01	0.01	0.02
0.05	0.01	0.01	0.02
0.08	0.02	0.02	0.04
0.14	0.04	0.02	0.09
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.64	0.16	0.10	0.39
0.68	0.17	0.17	0.34
0.45	0.11	0.11	0.23
0.04	0.01	0.01	0.03
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.04	0.01	0.01	0.02
0.00	0.00	0.00	0.00
0.04	0.01	0.01	0.02
0.05	0.01	0.01	0.02
0.13	0.03	0.03	0.07
0.16	0.04	0.02	0.10
0.32	0.08	0.08	0.16
0.93	0.23	0.14	0.56
16.95	4.24	4.24	8.48
2.34	0.59	0.59	1.17
0.69	0.17	0.17	0.34
3.02	0.75	0.45	1.81
14.28	3.57	2.14	8.57

1	26
1	26
1	26

270	872746.28	20.04	032803004014	0 STATE ROUTE 508
152	17317.69	0.40	032799007000	498 2ND ST W
153	36440.92	0.84	032801001005	0 2ND ST W
154	33786.46	0.78	032801001001	436 2ND ST W
157	40016.47	0.92	032801002001	233 CENTRAL AVE
158	20447.21	0.47	032801001008	300 2ND ST W
159	25876.21	0.59	032803003000	0 STATE ROUTE 508
161	216357.16	4.97	032840001000	314 RAILROAD ST
169	418871.23	9.62	032801004001	0 CENTRAL AVE
170	72381.49	1.66	032801004002	316 2ND ST W
175	56568.13	1.30	032803001003	0 STATE ROUTE 508
177	217900.35	5.00	032812007000	1674 STATE ROUTE 508
178	1719.89	0.04	032803010002	0 STATE ROUTE 508
179	35887.72	0.82	032803013002	1752 1 STATE ROUTE 508
180	47937.41	1.10	032803014002	1748 STATE ROUTE 508
181	13167.31	0.30	032803008000	1784 STATE ROUTE 508
184	21365.12	0.49	032804001000	1770 STATE ROUTE 508
185	59747.65	1.37	032803011000	1758 STATE ROUTE 508
186	224874.76	5.16	032803004003	1680 STATE ROUTE 508
193	7223.06	0.17	032778014013	123 4 HEIGHTS LN
194	6796.74	0.16	032778014014	123 6 HEIGHTS LN
197	8818.70	0.20	032778014012	127 HEIGHTS LN
201	24739.29	0.57	032778004000	1825 STATE ROUTE 508
215	7071.48	0.16	032778014016	123 9 HEIGHTS LN
216	9441.48	0.22	032778014015	123 8 HEIGHTS LN
217	32782.95	0.75	011296082001	244 CARLISLE AVE
218	7858.88	0.18	011296083002	151 2ND ST E
228	4398.84	0.10	011296080000	278 CARLISLE AVE
230	10971.68	0.25	032778001002	182 3RD ST E
231	14407.28	0.33	011296081000	266 CARLISLE
235	75851.88	1.74	032778001001	0 3RD ST E
243	8409.92	0.19	011296095000	340 CARLISLE AVE
244	7738.03	0.18	011296095000	340 CARLISLE AVE
251	19044.76	0.44	011296089000	446 CARLISLE AVE
252	19049.70	0.44	011296088000	0 CARLISLE AVE
255	196306.59	4.51	032778001000	0 CARLISLE AVE
257	38513.82	0.88	032778001010	199 A 3RD ST E
259	44919.87	1.03	032778001008	0 3RD ST E
260	46541.68	1.07	032778001006	198 B 3RD ST E
264	1085511.58	24.92	032780001000	0 STATE ROUTE 508
265	44112.83	1.01	032778001012	199 C 3RD ST E
271	1543.36	0.04	xxxxxx	
202	22218.86	0.51	032778010000	0 STATE ROUTE 508
213	8409.66	0.19	011296078001	166 2ND ST E
155	27237.28	0.63	032802001000	400 2ND ST W
156	12349.97	0.28	032801002002	231 CENTRAL AVE
162	16469.18	0.38	032801011001	0 2ND ST W
163	15961.12	0.37	032801011002	333 2ND ST W
164	33572.60	0.77	032802006002	133 KERR RD
165	11361.63	0.26	032802005000	166 KERR RD
166	19670.50	0.45	032801010002	167 169 WESARG RD
167	20097.13	0.46	032801009000	123 A WESARG RD
168	16275.13	0.37	032801010001	135 WESARG RD
171	45734.92	1.05	032802002000	400 2ND ST W
174	39128.75	0.90	032810003003	115 ROBBINS ROOST LN
176	18358.78	0.42	032803004008	0 STATE ROUTE 508
182	17633.65	0.41	032803010001	1772 STATE ROUTE 508
183	9835.07	0.23	032803010003	0 STATE ROUTE 508
188	7615.85	0.18	032778014008	130 HEIGHTS LN
189	7427.01	0.17	032778014009	134 HEIGHTS LN
190	9881.68	0.23	032778014010	138 HEIGHTS LN

88 Designated Forest Lnd	mining/forestry		STMU
67 Service - Governmental	public/quasi-public	COM	STMU
91 Residential Land - Undivided	undeveloped/vacant	COM	STMU
12 Two-to-Four Unit	multi-residential	RES	STMU
48 Utilities	trans/util	GOV	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STI
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
15 Mobile Home Park	multi-residential	COM	STMU
48 Utilities	trans/util	GOV	STMU
24 Manufacturing - Lumber	commercial industrial	IND	STI
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
63 Service - Business	commercial retail	COM	STMU
11 Single Unit	single-residential	RES	STMU
24 Manufacturing - Lumber	commercial industrial	IND	STI
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
49 Trans - Other	trans/util	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
18 Other Residential	single-residential	LWB	STMU
13 Five-Plus Unit	multi-residential	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
68 Service - Education	public/quasi-public	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
76 Park	public/quasi-public	GOV	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	GOV	STMU
11 Single Unit	single-residential	RES	STMU
			STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
15 Mobile Home Park	multi-residential	COM	STMU
48 Utilities	trans/util	GOV	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
12 Two-to-Four Unit	multi-residential	RES	STMU
18 Other Residential	single-residential	LWM	STMU
11 Single Unit	single-residential	RES	STMU
15 Mobile Home Park	multi-residential	COM	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STI
58 Retail - Eating	commercial retail	COM	STMU
55 Retail - Auto	commercial retail	COM	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU

0	$87,200	$104,700	$191,900
0	$101,400	$7,600	$109,000
0	$0	$17,900	$17,900
4	$542,000	$101,500	$643,500
0	$130,500	$50,100	$180,600
1	$183,100	$105,400	$288,500
1	$127,400	$82,100	$209,500
1	$447,700	$119,400	$567,100
0	$0	$234,600	$234,600
1	$223,600	$59,000	$282,600
0	$162,800	$43,600	$206,400
0	$215,400	$183,800	$399,200
0	$0	$400	$400
0	$12,500	$120,400	$132,900
1	$348,600	$47,000	$395,600
0	$47,400	$53,600	$101,000
0	$317,800	$46,900	$364,700
1	$292,900	$152,300	$445,200
0	$125,100	$57,900	$183,000
1	$301,700	$31,600	$333,300
1	$353,500	$31,600	$385,100
0	$0	$31,600	$31,600
1	$206,500	$105,400	$311,900
1	$295,200	$31,600	$326,800
1	$382,500	$57,400	$439,900
0	$65,400	$65,300	$130,700
1	$85,900	$31,600	$117,500
1	$208,800	$31,600	$240,400
0	$1,000	$53,600	$54,600
0	$5,300	$82,100	$87,400
8	$327,500	$159,400	$486,900
1	$355,600	$82,100	$437,700
1	$355,600	$82,100	$437,700
0	$0	$37,500	$37,500
0	$0	$37,500	$37,500
0	$0	$50,300	$50,300
1	$386,200	$128,800	$515,000
0	$0	$128,800	$128,800
1	$281,500	$152,300	$433,800
0	$0	$77,300	$77,300
1	$216,400	$152,300	$368,700
0	$0	$0	$0
0	$49,000	$32,300	$81,300
1	$187,100	$31,600	$218,700
2	$66,800	$35,300	$102,100
0	$36,300	$24,400	$60,700
1	$12,900	$82,100	$95,000
1	$256,700	$82,100	$338,800
0	$39,400	$142,300	$181,700
1	$281,600	$57,400	$339,000
2	$369,300	$82,100	$451,400
0	$67,900	$76,500	$144,400
1	$466,600	$82,100	$548,700
1	$19,400	$43,600	$63,000
1	$141,800	$50,200	$192,000
1	$114,200	$28,900	$143,100
0	$181,000	$59,500	$240,500
0	$0	$26,700	$26,700
1	$300,500	$31,600	$332,100
0	$0	$31,600	$31,600
0	$0	$57,400	$57,400

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13.3	FALSE	FALSE
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5.3	FALSE	FALSE
2.6	FALSE	FALSE
1.7	FALSE	TRUE
1.6	FALSE	TRUE
3.7	FALSE	TRUE
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3.8	FALSE	FALSE
3.7	FALSE	FALSE
1.2	FALSE	FALSE
0.0	FALSE	FALSE
0.1	FALSE	TRUE
7.4	FALSE	TRUE
0.9	FALSE	FALSE
6.8	FALSE	FALSE
1.9	FALSE	TRUE
2.2	FALSE	FALSE
9.5	FALSE	FALSE
11.2	FALSE	FALSE
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2.0	FALSE	TRUE
9.3	FALSE	FALSE
6.7	FALSE	FALSE
1.0	FALSE	FALSE
2.7	FALSE	FALSE
6.6	FALSE	FALSE
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2.1	FALSE	FALSE
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4.3	FALSE	FALSE
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0.0	TRUE	FALSE
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3.0	FALSE	TRUE
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1.8	FALSE	TRUE
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1.4	FALSE	TRUE
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1.5	FALSE	TRUE
5.9	FALSE	FALSE
1.9	FALSE	FALSE
1.5	FALSE	FALSE
0.2	FALSE	FALSE
3.1	FALSE	FALSE
0.3	FALSE	TRUE
4.9	FALSE	FALSE
4.5	FALSE	FALSE
0.9	FALSE	TRUE
5.7	FALSE	FALSE
0.4	FALSE	FALSE
2.8	FALSE	TRUE
4.0	FALSE	TRUE
3.0	FALSE	FALSE
0.0	TRUE	FALSE
9.5	FALSE	FALSE
0.0	TRUE	FALSE
0.0	TRUE	FALSE

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FALSE	VACANT		0.00
FALSE	VACANT		0.00

11.76	2.94	2.94	5.88
0.40	0.10	0.10	0.20
0.84	0.21	0.13	0.50
0.78	0.19	0.19	0.39
0.92	0.23	0.23	0.46
0.47	0.12	0.12	0.23
0.59	0.15	0.15	0.30
4.97	1.24	1.24	2.48
9.62	2.40	1.44	5.77
1.66	0.42	0.42	0.83
1.30	0.32	0.32	0.65
5.00	1.25	1.25	2.50
0.04	0.01	0.01	0.02
0.82	0.21	0.21	0.41
1.10	0.28	0.28	0.55
0.30	0.08	0.08	0.15
0.49	0.12	0.12	0.25
1.37	0.34	0.34	0.69
5.16	1.29	1.29	2.58
0.17	0.04	0.04	0.08
0.16	0.04	0.04	0.08
0.20	0.05	0.03	0.12
0.57	0.14	0.14	0.28
0.16	0.04	0.04	0.08
0.22	0.05	0.05	0.11
0.75	0.19	0.19	0.38
0.18	0.05	0.05	0.09
0.10	0.03	0.03	0.05
0.25	0.06	0.04	0.15
0.33	0.08	0.05	0.20
1.74	0.44	0.44	0.87
0.19	0.05	0.05	0.10
0.18	0.04	0.04	0.09
0.44	0.11	0.07	0.26
0.44	0.11	0.07	0.26
4.51	1.13	0.68	2.70
0.88	0.22	0.22	0.44
1.03	0.26	0.15	0.62
1.07	0.27	0.27	0.53
24.92	6.23	3.74	14.95
1.01	0.25	0.25	0.51
0.04	0.01	0.01	0.02
0.43	0.11	0.11	0.22
0.17	0.04	0.04	0.09
0.63	0.16	0.16	0.31
0.28	0.07	0.07	0.14
0.38	0.09	0.09	0.19
0.37	0.09	0.09	0.18
0.77	0.19	0.19	0.39
0.26	0.07	0.07	0.13
0.45	0.11	0.11	0.23
0.46	0.12	0.12	0.23
0.37	0.09	0.09	0.19
1.05	0.26	0.26	0.53
0.90	0.22	0.22	0.45
0.42	0.11	0.11	0.21
0.41	0.10	0.10	0.20
0.23	0.06	0.03	0.14
0.18	0.04	0.04	0.09
0.17	0.04	0.03	0.10
0.23	0.06	0.03	0.14

1	26
1	26
1	26

214	1445.36	0.03	011296078002	0 2ND ST E
219	2802.26	0.06	011296083003	151 2ND ST E
220	4267.40	0.10	011296083001	167 2ND ST E
223	8007.17	0.18	011296070000	178 CARLISLE AVE
224	7093.89	0.16	011296069000	188 CARLISLE AVE
227	4793.00	0.11	011296084000	0 3RD ST E
229	10080.71	0.23	011296079000	0 CARLISLE AVE
232	8113.48	0.19	011296081001	266 CARLISLE AVE
233	8159.20	0.19	011296099000	0 3RD ST E
234	33920.77	0.78	032778001005	198 A 3RD ST E
238	10906.24	0.25	011296085000	166 3RD ST E
239	33380.77	0.77	032778001016	0 3RD ST E
240	8193.56	0.19	011296097000	0 CARLISLE AVE
241	7507.70	0.17	011296097000	0 CARLISLE AVE
242	7510.06	0.17	011296096000	304 CARLISLE AVE
245	19167.86	0.44	032778008000	183 3RD ST E
246	18905.76	0.43	011296094000	0 CARLISLE AVE
247	19017.42	0.44	011296093000	0 CARLISLE AVE
248	18936.99	0.44	011296092000	0 CARLISLE AVE
249	19029.92	0.44	011296091000	0 CARLISLE AVE
250	19039.04	0.44	011296090000	0 CARLISLE AVE
253	19064.88	0.44	011296087000	0 CARLISLE AVE
254	18965.85	0.44	011296086000	0 CARLISLE AVE
256	11246.69	0.26	032778014011	142 HEIGHTS LN
258	10756.60	0.25	032778001009	0 3RD ST E
263	42557.48	0.98	032778001011	199 B 3RD ST E
266	15689.45	0.36	032803014001	1750 STATE ROUTE 508
267	26912.73	0.62	032803013001	1752 STATE ROUTE 508

91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
18 Other Residential	single-residential	LWB	STMU
69 Service - Miscellaneous	public/quasi-public	COM	STMU
52 Retail - Hardware	commercial retail	COM	STMU
18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
91 Residential Land - Undivided	undeveloped/vacant	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
68 Service - Education	public/quasi-public	GOV	STMU
91 Residential Land - Undivided	undeveloped/vacant	LND	STMU
18 Other Residential	single-residential	LWB	STMU
11 Single Unit	single-residential	RES	STMU
11 Single Unit	single-residential	RES	STMU
54 Retail - Food	commercial retail	COM	STMU

0	$0	$700	$700
0	$1,500	$1,100	$2,600
1	$242,600	$31,600	$274,200
1	$253,700	$31,600	$285,300
1	$159,100	$31,600	$190,700
0	$3,800	$31,600	$35,400
0	$116,000	$30,000	$146,000
0	$44,200	$28,400	$72,600
0	$5,300	$31,600	$36,900
1	$230,400	$130,100	$360,500
1	$238,400	$57,400	$295,800
1	$153,200	$105,400	$258,600
1	$303,500	$82,100	$385,600
1	$303,500	$82,100	$385,600
1	$192,600	$31,600	$224,200
1	$267,400	$82,100	$349,500
0	$0	$37,500	$37,500
0	$0	$37,500	$37,500
0	$0	$37,500	$37,500
0	$0	$37,600	$37,600
0	$0	$37,500	$37,500
0	$0	$50,000	$50,000
0	$0	$37,500	$37,500
0	$0	$57,400	$57,400
0	$7,300	$57,400	$64,700
1	$263,500	$152,300	$415,800
1	$331,800	$82,100	$413,900
0	$111,100	$27,900	$139,000

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7.7	FALSE	FALSE
8.0	FALSE	FALSE
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3.9	FALSE	FALSE
1.6	FALSE	FALSE
0.2	TRUE	FALSE
1.8	FALSE	TRUE
4.2	FALSE	FALSE
1.5	FALSE	TRUE
3.7	FALSE	FALSE
3.7	FALSE	FALSE
6.1	FALSE	FALSE
3.3	FALSE	TRUE
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0.0	TRUE	FALSE
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0.0	TRUE	FALSE
0.0	TRUE	FALSE
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0.1	TRUE	FALSE
1.7	FALSE	TRUE
4.0	FALSE	FALSE
4.0	FALSE	FALSE

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FALSE	VACANT	0.00
FALSE	VACANT	0.00
FALSE	NON-VACANT	0.00
FALSE	NON-VACANT	0.00
FALSE	NON-VACANT	0.00

0.03	0.01	0.01	0.02
0.06	0.02	0.01	0.04
0.10	0.02	0.02	0.05
0.18	0.05	0.05	0.09
0.16	0.04	0.04	0.08
0.11	0.03	0.02	0.07
0.23	0.06	0.06	0.12
0.19	0.05	0.05	0.09
0.19	0.05	0.03	0.11
0.78	0.19	0.19	0.39
0.25	0.06	0.06	0.13
0.77	0.19	0.19	0.38
0.19	0.05	0.05	0.09
0.17	0.04	0.04	0.09
0.17	0.04	0.04	0.09
0.44	0.11	0.11	0.22
0.43	0.11	0.07	0.26
0.44	0.11	0.07	0.26
0.44	0.11	0.07	0.26
0.44	0.11	0.07	0.26
0.44	0.11	0.07	0.26
0.44	0.11	0.07	0.26
0.44	0.11	0.07	0.26
0.26	0.06	0.04	0.15
0.25	0.06	0.04	0.15
0.98	0.24	0.24	0.49
0.36	0.09	0.09	0.18
0.62	0.15	0.15	0.31

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PIN	area
032812007000	3891.324158
032803004003	581.5702523
009897002000	1017.302009
032803004003	501.6175173
009898001000	1795.788131
032803004003	171.7564351
032801001007	198.4686966
11296053000	938.7
032812007000	285.1371489
032812007000	687.9176986
032801001007	904.1396823
032803004003	207.6742986
009895002000	2679.889664
009895003000	2131.438759
011296081001	2843.226109
032803013001	2213.971207
032802000000	3234.227897
032802000000	1255.098367
032812007000	11710.49432
032812007000	3185.423193
011296053000	1018.059011
032803011000	1446.647009
032804001000	1558.140319
032803004003	1424.192098
032803010001	2557.311357
032812007000	1946.522916
032812007000	8534.93487
032803013001	296.4802282
032803004009	314.0173234
032804001000	3217.860333
032803004003	2456.137212
011296063000	1970.420536
009913000000	4798.866446
032803004003	595.8018674
032812007000	1225.493606
011296051000	4595.503385
032803004003	697.2775375
032812007000	2766.596889
032801001007	13471.27582
009914001000	433.2256745
009896002000	926.1709545
032804001000	1352.907235
032803004003	6501.684869

Packwood LAMIRD

Net Housing Capacity	**Net Acreage**	**Assumption (Density)**	**Total Capacity**	**Existing Units**	**Net Capacity**
CBZ Central Business District	7.92	24	189	2	187
MU Mixed-Use	30.11	24	722	30	692
RVL Residential Very Low	55.53	4	222	20	202
RL Residential Low	95.95	5	479	40	439
RM Residential Medium	163.57	8	1,308	164	1,144
RH Residential High	22.32	13	290	6	284
Total	375.40	78.00	3210.00	262.00	2948.00

Net Population Capacity	**Net DU Capacity**	**AVG HH Occup Rate**	**Total Occup Units**	**AVG HH Size**	**Total Population**
CBZ Central Business District	187	94.5%	176	2.63	462
MU Mixed-Use	692	94.5%	653	2.63	1,717
RVL Residential Very Low	202	94.5%	190	2.63	499
RL Residential Low	439	94.5%	414	2.63	1,088
RM Residential Medium	1,144	94.5%	1,081	2.63	2,843
RH Residential High	284	94.5%	268	2.63	704
Total					7,313

Net Employment Capacity	**Net Acreage**	**Assumed FAR**	**Total Capacity (SF)**	**Net Capacity**	**Total Occupied**	**Total Emp Capacity**	
Commercial Industrial	13.65	1.0	594,619	594,619	564,888	1,412	
Commercial Retail	17.34	1.0	755,191	755,191	717,432	1,196	
	30.99						2,608

Developable Areas

Critical Areas	GIS	
Future Public Uses	Data from County	
Infrastructure Assumption	25%	
Local Review of Parcels	Data from County	
Market Adjustment (Vacant)	15%	
Market Adjustment (Partially-Utilized)	25%	
Min Lot Size		
CBZ - Central Business District	10,000	
MU - Mixed Use	0	
RVL - Residential Very Low	10,000	
RL - Residential Low	7,500	
RM - Residential Medium	5,000	
RH - Residential High		
93rd Percentile of Jurisdiction Improvement Value		

Density Assumption

Achieved Density		
Assumed Density		Took midpoint of densities shown in Packwoo
CBZ - Central Business District	24	
MU - Mixed Use	24	
RVL - Residential Very Low	4	
RL - Residential Low	5	
RM - Residential Medium	8	
RH - Residential High	13	
Household Size	2.63	U.S. Census Persons per Household for Pierc
Housing Occupancy Rate	94.5%	2020 Decennial Census
FAR Assumption		
CBZ - Central Business District	1.0	
MU - Mixed Use	1.0	
Comm Occupancy Rate Assumption	95%	
Employment Density (Industrial)	400	
Employment Density (Commercial)	650	
Employment Density (Retail)	600	

Property Status Determination

Vacant	Improvement Value less than $10,000 and greater than 2
Partially-Used	Single-family only. Parcel size greater than 3x min allowe
Under-utilized	Multi-family, commercial, industrial only. Single-family use

Land Use Types

single-residential
multi-residential
commercial retail
commercial industrial

d under zoning. Remove parcels with improvement value greater than 93rd percentile for jurisdiction unless first cri
es on multi-family, commercial, or industrial parcels. Ratio between improvement value and land value less than 1.(

iteria is met
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OBJECTID	SIZE (SF)	SIZE (AC)	PARCEL NUM	ADDRESS	USE DESCRIPTION
43	1,230,337	28.25	035239004003	12832 US HIGHWAY 12	18 Other Residential
47	392,318	9.01	035231006000	0 US HIGHWAY 12	88 Designated Forest Lnd
57	690,468	15.85	035231001000	0 US HIGHWAY 12	64 Service - Repair
35	2,426,677	55.71	035239004001	12832 US HIGHWAY 12	91 Residential Land - Undivided
38	1,222,594	28.07	035239004002	12832 US HIGHWAY 12	24 Manufacturing - Lumber
61	652,657	14.98	035179006002	112 NORMAN WAY	67 Service - Governmental
74	19,405	0.45	035228002020	0 PATRICIA CT	12 Two-to-Four Unit
76	24,683	0.57	035228002025	0 HAYNES AVE S	91 Residential Land - Undivided
122	494,166	11.34	035228002032	0 COWLITZ AVE S	18 Other Residential
50	247,222	5.68	035183003000	12877 US HIGHWAY 12	11 Single Unit
58	79,157	1.82	035230010002	0 US HIGHWAY 12	91 Residential Land - Undivided
59	161,892	3.72	035230003000	0 US HIGHWAY 12	64 Service - Repair
62	8,665	0.20	035230006002	0 US HIGHWAY 12	48 Utilities
63	82,180	1.89	035230006002	0 US HIGHWAY 12	48 Utilities
64	34,595	0.79	035230010001	0 US HIGHWAY 12	18 Other Residential
65	26,904	0.62	035230001000	0 US HIGHWAY 12	91 Residential Land - Undivided
67	31,099	0.71	035230012000	0 RIFFE RD	18 Other Residential
68	46,116	1.06	035230009000	120 RIFFE RD	18 Other Residential
70	29,318	0.67	035230006002	0 US HIGHWAY 12	48 Utilities
72	222,350	5.10	035230007001	0 RIFFE RD	11 Single Unit
111	427,832	9.82	035179001002	0 HUNTINGTON RD	11 Single Unit
2	53,704	1.23	035248002000	119 BELCHER RD	18 Other Residential
3	52,659	1.21	035248008000	118 BELCHER RD	18 Other Residential
4	78,422	1.80	035248009000	128 BELCHER RD	18 Other Residential
5	56,962	1.31	035248000000	104 BELCHER RD	18 Other Residential
8	16,522	0.38	035248000000	104 BELCHER RD	18 Other Residential
9	71,445	1.64	035253001000	0 BLAKELY RD	91 Residential Land - Undivided
10	43,649	1.00	035248006002	0 BLAKELY RD	18 Other Residential
13	12,373	0.28	035250005000	122 BLAKELY RD	11 Single Unit
14	74,366	1.71	035253000000	108 BLAKELY RD	11 Single Unit
18	37,379	0.86	035245005000	0 US HIGHWAY 12	18 Other Residential
19	1,197,508	27.49	035245012000	0 US HIGHWAY 12	88 Designated Forest Lnd
20	228,342	5.24	035245006000	0 US HIGHWAY 12	18 Other Residential
21	47,212	1.08	035245002000	12757 US HIGHWAY 12	11 Single Unit
22	37,221	0.85	035245007000	12757 US HIGHWAY 12	11 Single Unit
23	41,162	0.95	035245003000	123 WAPITI DR	11 Single Unit
24	117,718	2.70	035250004000	126 BLAKELY RD	18 Other Residential
27	615,672	14.13	035240000000	12773 US HIGHWAY 12	11 Single Unit
28	74,009	1.70	035245013000	12782 US HIGHWAY 12	48 Utilities
29	14,702	0.34	035240002000	12795 US HIGHWAY 12	11 Single Unit
30	73,977	1.70	035240005000	0 US HIGHWAY 12	91 Residential Land - Undivided
31	97,098	2.23	035243000000	0 US HIGHWAY 12	91 Residential Land - Undivided
32	55,341	1.27	035240004000	12799 US HIGHWAY 12	91 Residential Land - Undivided
33	108,111	2.48	035240003000	12801 US HWY 12	64 Service - Repair
36	273,768	6.29	035243001000	0 US HIGHWAY 12	91 Residential Land - Undivided
37	19,861	0.46	035187005000	0 US HIGHWAY 12	11 Single Unit
41	36,409	0.84	035187008000	12860 US HIGHWAY 12	11 Single Unit
44	106,838	2.45	035187003000	12870 US HIGHWAY 12	11 Single Unit
45	18,878	0.43	035183001000	12871 US HIGHWAY 12	11 Single Unit
46	85,922	1.97	035187001003	12880 US HIGHWAY 12	16 Hotel/Motel
48	96,768	2.22	035231002000	12886 US HIGHWAY 12	18 Other Residential
56	140,298	3.22	035231003000	0 US HIGHWAY 12	67 Service - Governmental
69	24,427	0.56	035230008000	100 RIFFE RD	11 Single Unit
71	28,698	0.66	035230014000	12931 US HIGHWAY 12	69 Service - Miscellaneous
98	104,780	2.41	035220010000	0 US HIGHWAY 12	11 Single Unit
100	30,296	0.70	035218007000	108 EDMONDS RD	18 Other Residential
101	33,837	0.78	035218006000	0 EDMONDS RD	18 Other Residential
107	20,002	0.46	035228002008	126 HAYNES AVE S	91 Residential Land - Undivided
113	59,022	1.36	035221006000	0 US HIGHWAY 12	18 Other Residential
114	28,442	0.65	035221005000	0 US HIGHWAY 12	18 Other Residential

LU NAME	PROPERTY TYPE	EXISTING ZONE	FUTURE ZONE	EXISTING UNITS
single-residential	COM	STI	RH	0
mining/forestry	TMB	STI	RM	0
commercial retail	COM	STI	RH	0
undeveloped/vacant	COM	STMU	RL	0
commercial industrial	IND	STI	RM	0
public/quasi-public	GOV	STI	AX	0
multi-residential	RES	STMU	RL	2
undeveloped/vacant	LND	STMU	RL	0
single-residential	LWB	STMU	RL	0
single-residential	RES	STMU	AX	1
undeveloped/vacant	IND	STI	CBZ	0
commercial retail	COM	STI	CBZ	0
trans/util	GOV	STI	AX	0
trans/util	GOV	STI	RM	0
single-residential	LWB	STMU	MU	0
undeveloped/vacant	LND	STMU	MU	0
single-residential	LWB	STMU	RM	0
single-residential	LWM	STMU	RM	0
trans/util	GOV	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	AX	1
single-residential	STR	STMU	RL	0
single-residential	LWM	STMU	RL	0
single-residential	LWM	STMU	RL	0
single-residential	LWM	STMU	RL	0
single-residential	LWM	STMU	RL	0
undeveloped/vacant	LND	STMU	RL	0
single-residential	LWB	STMU	RL	0
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RL	1
single-residential	LWB	STMU	RL	0
mining/forestry	TMB	STMU	RL	0
single-residential	LWB	STMU	RL	0
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RL	1
single-residential	LWM	STMU	RL	0
single-residential	RES	STMU	RL	1
trans/util	GOV	STI	RL	0
single-residential	RES	STMU	RL	1
undeveloped/vacant	LND	STMU	RL	0
undeveloped/vacant	LND	STMU	RL	0
undeveloped/vacant	LND	STMU	RL	0
commercial retail	COM	STMU	RL	0
undeveloped/vacant	LND	STMU	RL	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	CBZ	1
single-residential	RES	STMU	CBZ	1
single-residential	RES	STMU	AX	1
multi-residential	COM	STMU	CBZ	0
single-residential	LWB	STMU	CBZ	0
public/quasi-public	GOV	STMU	CBZ	0
single-residential	RES	STMU	MU	1
public/quasi-public	GOV	STMU	MU	0
single-residential	RES	STMU	RM	1
single-residential	LWM	STMU	RM	0
single-residential	LWB	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWM	STMU	RM	0
single-residential	LWB	STMU	RM	0

EXISTING COMM SF	IMPROV VALUE	LAND VALUE	TOTAL VALUE	IMP/LAND VALUE RATIO
	$155,000	$225,000	$380,000	0.7
	$0	$1,400	$1,400	0.0
	$138,300	$92,100	$230,400	1.5
	$0	$435,200	$435,200	0.0
	$215,500	$694,000	$909,500	0.3
	$33,900	$146,300	$180,200	0.2
	$478,800	$80,000	$558,800	6.0
	$0	$80,000	$80,000	0.0
	$5,300	$146,800	$152,100	0.0
	$364,300	$112,800	$477,100	3.2
	$0	$96,700	$96,700	0.0
	$71,800	$310,100	$381,900	0.2
	$5,400	$12,600	$18,000	0.4
	$5,400	$12,600	$18,000	0.4
	$5,800	$109,400	$115,200	0.1
	$0	$93,400	$93,400	0.0
	$32,500	$80,000	$112,500	0.4
	$152,600	$106,700	$259,300	1.4
	$5,400	$12,600	$18,000	0.4
	$338,200	$146,800	$485,000	2.3
	$224,200	$167,400	$391,600	1.3
	$55,200	$49,900	$105,100	1.1
	$231,800	$55,200	$287,000	4.2
	$180,200	$56,900	$237,100	3.2
	$39,400	$60,000	$99,400	0.7
	$39,400	$60,000	$99,400	0.7
	$0	$49,700	$49,700	0.0
	$21,800	$39,600	$61,400	0.6
	$203,100	$18,100	$221,200	11.2
	$275,900	$54,000	$329,900	5.1
	$32,000	$35,300	$67,300	0.9
	$0	$5,400	$5,400	0.0
	$27,700	$76,000	$103,700	0.4
	$311,200	$48,500	$359,700	6.4
	$281,800	$43,200	$325,000	6.5
	$392,500	$42,200	$434,700	9.3
	$164,500	$57,500	$222,000	2.9
	$353,500	$125,400	$478,900	2.8
	$10,700	$41,200	$51,900	0.3
	$399,300	$28,100	$427,400	14.2
	$0	$50,600	$50,600	0.0
	$0	$53,300	$53,300	0.0
	$0	$50,100	$50,100	0.0
	$70,700	$41,700	$112,400	1.7
	$0	$116,800	$116,800	0.0
	$269,800	$43,800	$313,600	6.2
	$570,500	$63,200	$633,700	9.0
	$214,700	$54,700	$269,400	3.9
	$100,000	$25,100	$125,100	4.0
	$403,700	$43,500	$447,200	9.3
	$23,100	$55,200	$78,300	0.4
	$139,800	$209,600	$349,400	0.7
	$360,100	$80,000	$440,100	4.5
	$332,300	$137,200	$469,500	2.4
	$493,700	$146,800	$640,500	3.4
	$157,100	$106,700	$263,800	1.5
	$12,500	$106,700	$119,200	0.1
	$0	$80,000	$80,000	0.0
	$373,000	$120,100	$493,100	3.1
	$800	$93,400	$94,200	0.0

IMP VALUE > 93RD PERCENTILE	VACANT	PARTIALLY USED	UNDERUTILIZED	STATUS
	FALSE	TRUE		NON-VACANT
	TRUE	FALSE		VACANT
	FALSE	FALSE		NON-VACANT
	TRUE	FALSE		VACANT
	FALSE	FALSE		NON-VACANT
	FALSE	FALSE		NON-VACANT
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	FALSE	FALSE		NON-VACANT
	FALSE	TRUE		NON-VACANT
	FALSE	TRUE		NON-VACANT
	FALSE	TRUE		NON-VACANT
	TRUE	FALSE		VACANT
	FALSE	TRUE		NON-VACANT
	TRUE	TRUE		VACANT

FUTURE PUBLIC USE	CRIT AREAS REDUC (TOTAL)	NET AREA AFTER CRIT AREAS REDUC
	3.65	24.59
	8.41	0.60
	1.72	14.13
	11.74	43.97
	0.77	27.30
Yes	9.14	5.85
	0.21	0.24
	0.16	0.41
	6.27	5.07
	0.34	5.34
	0.93	0.89
	0.59	3.12
	2.76	-2.56
	2.76	-0.87
	0.65	0.14
	0.38	0.24
	0.46	0.26
	0.58	0.48
	2.76	-2.09
	0.81	4.29
	1.54	8.29
	0.01	1.23
	0.00	1.21
	0.01	1.79
	0.03	1.28
	0.00	0.38
	0.02	1.62
	0.02	0.99
	0.03	0.26
	0.01	1.70
	0.00	0.85
	0.83	26.66
	0.07	5.17
	0.00	1.08
	0.00	0.85
	0.00	0.94
	0.05	2.65
	0.40	13.73
	0.00	1.70
	0.00	0.34
	0.00	1.70
	0.15	2.08
	0.02	1.25
	0.06	2.42
	0.18	6.10
	0.00	0.46
	0.01	0.82
	0.03	2.42
	0.00	0.43
	0.01	1.96
	0.01	2.21
	0.19	3.03
	0.01	0.56
Yes	0.00	0.66
	0.00	2.40
	0.00	0.70
	0.00	0.78
	0.00	0.46
	0.01	1.34
	0.01	0.64

INFRA REDUC	LOCAL REVIEW	MARKET REDUC	NET DEV AREA (AC)	MIN DENSITY	MAX DENSITY
6.15		6.15	12.30	1	52
0.15		0.09	0.36	1	35
3.53		3.53	7.07	1	52
10.99		6.60	26.38	1	9
6.83		6.83	13.65	1	35
1.46		1.46	2.92	1	
0.06		0.06	0.12	1	9
0.10		0.06	0.24	1	9
1.27		0.76	3.04	1	9
1.33		1.33	2.67	1	
0.22		0.13	0.53	1	
0.78		0.78	1.56	1	
-0.64		-0.38	-1.54	1	
-0.22		-0.13	-0.52	1	35
0.04		0.02	0.09	1	
0.06		0.04	0.14	1	
0.06		0.06	0.13	1	35
0.12		0.12	0.24	1	35
-0.52		-0.31	-1.25	1	35
1.07		1.07	2.15	1	35
2.07		2.07	4.14	1	
0.31		0.31	0.61	1	9
0.30		0.30	0.60	1	9
0.45		0.45	0.90	1	9
0.32		0.32	0.64	1	9
0.09		0.09	0.19	1	9
0.40		0.24	0.97	1	9
0.25		0.25	0.49	1	9
0.06		0.06	0.13	1	9
0.43		0.43	0.85	1	9
0.21		0.21	0.43	1	9
6.67		4.00	16.00	1	9
1.29		1.29	2.59	1	9
0.27		0.27	0.54	1	9
0.21		0.21	0.43	1	9
0.24		0.24	0.47	1	9
0.66		0.66	1.32	1	9
3.43		3.43	6.87	1	9
0.42		0.42	0.85	1	9
0.08		0.08	0.17	1	9
0.42		0.25	1.02	1	9
0.52		0.31	1.25	1	9
0.31		0.19	0.75	1	9
0.60		0.60	1.21	1	9
1.53		0.92	3.66	1	9
0.11		0.11	0.23	1	35
0.21		0.21	0.41	1	
0.61		0.61	1.21	1	
0.11		0.11	0.22	1	
0.49		0.49	0.98	1	
0.55		0.55	1.10	1	
0.76		0.76	1.51	1	
0.14		0.14	0.28	1	
0.16		0.16	0.33	1	
0.60		0.60	1.20	1	35
0.17		0.17	0.35	1	35
0.19		0.19	0.39	1	35
0.11		0.07	0.28	1	35
0.34		0.34	0.67	1	35
0.16		0.10	0.39	1	35

MIN LOT SIZE
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131	137,643	3.16	035219004000	12983 US HIGHWAY 12	74 Recreational
142	23,469	0.54	035219002000	126 TAHOMA ST W	11 Single Unit
147	11,361	0.26	035224000000	124 MAIN ST E	11 Single Unit
77	38,507	0.88	035228002021	146 HAYNES AVE S	11 Single Unit
60	2,461	0.06	035230005000	0 US HIGHWAY 12	45 Trans - Highway
103	150,098	3.45	035228001005	106 PATRICIA CT	11 Single Unit
1	21,386	0.49	035248003000	0 US HIGHWAY 12	48 Utilities
6	75,985	1.74	035249002000	12729 US HIGHWAY 12	16 Hotel/Motel
7	3,953	0.09	035249000000	12731 US HIGHWAY 12	18 Other Residential
11	35,205	0.81	035248006001	135 BLAKELY RD	11 Single Unit
12	12,241	0.28	035252000000	141 BLAKELY RD	11 Single Unit
15	47,414	1.09	035245010000	0 US HIGHWAY 12	91 Residential Land - Undivided
16	39,255	0.90	035250003000	128 BLAKELY RD	11 Single Unit
17	51,878	1.19	035245009000	12753 US HIGHWAY 12	12 Two-to-Four Unit
25	125,207	2.87	035250000000	132 BLAKELY RD	88 Designated Forest Lnd
26	82,494	1.89	035250001000	140 BLAKELY RD	11 Single Unit
34	42,654	0.98	035240001003	12813 US HIGHWAY 12	11 Single Unit
39	22,082	0.51	035187007001	12854 US HIGHWAY 12	11 Single Unit
40	19,677	0.45	035187006000	12856 US HIGHWAY 12	11 Single Unit
42	41,510	0.95	035186001000	12861 US HIGHWAY 12	18 Other Residential
49	29,390	0.68	035187001001	0 US HIGHWAY 12	91 Residential Land - Undivided
51	21,815	0.50	035183002000	12883 US HIGHWAY 12	18 Other Residential
52	14,181	0.33	035179002000	0 US HIGHWAY 12	91 Residential Land - Undivided
53	1,802	0.04	035179004001	0 US HIGHWAY 12	48 Utilities
54	6,312	0.15	035179004000	12973 US HIGHWAY 12	48 Utilities
55	6,674	0.15	035179006001	0 US HIGHWAY 12	48 Utilities
66	19,500	0.45	035230011000	0 RIFFE RD	18 Other Residential
73	81,716	1.88	035230013000	12935 US HIGHWAY 12	69 Service - Miscellaneous
75	18,867	0.43	035221003000	12956 US HIGHWAY 12	11 Single Unit
78	10,541	0.24	035228002019	0 PATRICIA CT	12 Two-to-Four Unit
79	12,022	0.28	035228002018	0 PATRICIA CT	12 Two-to-Four Unit
80	11,933	0.27	035221003001	12960 US HIGHWAY 12	11 Single Unit
81	12,743	0.29	035228002010	141 HAYNES AVE S	11 Single Unit
82	20,003	0.46	035228002011	0 HAYNES AVE S	42 Trans - Motor
83	48,595	1.12	035218005000	125 EDMONDS RD	11 Single Unit
84	148,668	3.41	035222000000	12953 US HIGHWAY 12	67 Service - Governmental
85	11,590	0.27	035228001004	12982 C US HIGHWAY 12	18 Other Residential
86	12,035	0.28	035220004001	12966 US HIGHWAY 12	11 Single Unit
87	14,611	0.34	035221000000	0 US HIGHWAY 12	18 Other Residential
88	12,776	0.29	035228002017	135 HAYNES AVE S	18 Other Residential
89	20,002	0.46	035228002007	131 HAYNES AVE S	11 Single Unit
90	9,896	0.23	035220001004	12968 US HIGHWAY 12	58 Retail - Eating
91	14,550	0.33	035218002000	12967 US HIGHWAY 12	18 Other Residential
92	3,772	0.09	035218008000	0 EDMONDS RD	45 Trans - Highway
93	14,926	0.34	035221001000	0 US HIGHWAY 12	91 Residential Land - Undivided
94	26,683	0.61	035218003000	120 EDMONDS RD	11 Single Unit
95	18,463	0.42	035218004000	126 EDMONDS RD	11 Single Unit
96	12,810	0.29	035228002012	133 HAYNES AVE S	11 Single Unit
97	20,002	0.46	035228002009	130 HAYNES AVE S	18 Other Residential
99	5,370	0.12	035220008000	0 US HIGHWAY 12	91 Residential Land - Undivided
102	64,031	1.47	035228001003	0 PATRICIA CT	91 Residential Land - Undivided
104	12,843	0.30	035228002001	129 HAYNES AVE S	11 Single Unit
105	8,227	0.19	035220003000	12984 7 US HIGHWAY 12	18 Other Residential
106	14,578	0.34	035220001003	12974 US HIGHWAY 12	59 Retail - Other
108	10,333	0.24	035220002002	12971 US HIGHWAY 12	11 Single Unit
109	21,898	0.50	035222002001	0 US HIGHWAY 12	63 Service - Business
110	12,877	0.30	035228002003	125 HAYNES AVE S	11 Single Unit
112	25,860	0.59	035220002001	12973 US HIGHWAY 12	11 Single Unit
115	75,027	1.72	035218001000	0 EDMONDS RD	11 Single Unit
116	36,002	0.83	035228002027	120 01 HAYNES AVE S	18 Other Residential
117	15,295	0.35	035222001000	12985 US HIGHWAY 12	15 Mobile Home Park

public/quasi-public	COM	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RH	1
single-residential	RES	STMU	RL	1
trans/util	GOV	STI	AX	0
single-residential	RES	STMU	RM	1
trans/util	GOV	STMU	RL	0
multi-residential	COM	STMU	RL	0
single-residential	LWB	STMU	RL	0
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RL	1
undeveloped/vacant	LND	STMU	RL	0
single-residential	RES	STMU	RL	1
multi-residential	RES	STMU	RL	2
mining/forestry	LWB	STMU	RL	0
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	LWM	STMU	RL	0
undeveloped/vacant	LND	STMU	CBZ	0
single-residential	COM	STMU	AX	0
undeveloped/vacant	LND	STMU	CBZ	0
trans/util	GOV	STI	AX	0
trans/util	GOV	STI	AX	0
trans/util	GOV	STI	AX	0
single-residential	LWM	STMU	RM	0
public/quasi-public	COM	STMU	MU	0
single-residential	STR	STMU	MU	1
multi-residential	RES	STMU	RM	2
multi-residential	RES	STMU	RM	2
single-residential	COM	STMU	MU	1
single-residential	RES	STMU	RL	1
trans/util	LND	STMU	RL	0
single-residential	RES	STMU	RM	1
public/quasi-public	GOV	STMU	MU	0
single-residential	LWB	STMU	RM	0
single-residential	RES	STMU	MU	1
single-residential	LWM	STMU	RM	0
single-residential	LWM	STMU	RL	0
single-residential	RES	STMU	RM	1
commercial retail	COM	STMU	MU	0
single-residential	STR	STMU	MU	0
trans/util	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	AX	1
single-residential	RES	STMU	RL	1
single-residential	LWM	STMU	RM	0
undeveloped/vacant	LND	STMU	MU	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	LWB	STMU	RM	0
commercial retail	COM	STMU	MU	0
single-residential	RES	STMU	MU	1
commercial retail	COM	STMU	MU	0
single-residential	RES	STMU	RM	1
single-residential	COM	STMU	MU	1
single-residential	RES	STMU	AX	1
single-residential	LWM	STMU	RM	0
multi-residential	LND	STMU	MU	0

$502,200	$175,100	$677,300	2.9
$343,200	$93,400	$436,600	3.7
$157,700	$22,600	$180,300	7.0
$260,900	$93,400	$354,300	2.8
$0	$2,500	$2,500	0.0
$384,200	$176,000	$560,200	2.2
$0	$14,700	$14,700	0.0
$1,301,300	$127,500	$1,428,800	10.2
$12,500	$20,200	$32,700	0.6
$533,000	$34,300	$567,300	15.5
$275,800	$15,400	$291,200	17.9
$0	$41,400	$41,400	0.0
$267,200	$39,300	$306,500	6.8
$607,700	$54,000	$661,700	11.3
$26,800	$20,100	$46,900	1.3
$464,600	$51,900	$516,500	9.0
$357,300	$64,800	$422,100	5.5
$468,800	$31,900	$500,700	14.7
$111,800	$27,300	$139,100	4.1
$26,100	$41,000	$67,100	0.6
$0	$26,800	$26,800	0.0
$131,700	$46,200	$177,900	2.9
$0	$22,700	$22,700	0.0
$0	$1,600	$1,600	0.0
$7,400	$21,800	$29,200	0.3
$7,300	$9,000	$16,300	0.8
$152,600	$80,000	$232,600	1.9
$185,700	$205,800	$391,500	0.9
$344,600	$93,200	$437,800	3.7
$469,300	$53,300	$522,600	8.8
$496,400	$80,000	$576,400	6.2
$99,800	$25,000	$124,800	4.0
$123,200	$80,000	$203,200	1.5
$0	$56,100	$56,100	0.0
$127,700	$120,100	$247,800	1.1
$913,900	$213,700	$1,127,600	4.3
$4,700	$80,000	$84,700	0.1
$168,200	$53,300	$221,500	3.2
$29,400	$80,000	$109,400	0.4
$220,300	$80,000	$300,300	2.8
$223,000	$80,000	$303,000	2.8
$91,800	$43,600	$135,400	2.1
$148,100	$132,100	$280,200	1.1
$0	$12,000	$12,000	0.0
$0	$80,000	$80,000	0.0
$255,900	$93,400	$349,300	2.7
$126,500	$80,000	$206,500	1.6
$282,900	$80,000	$362,900	3.5
$227,700	$80,000	$307,700	2.8
$0	$37,300	$37,300	0.0
$0	$120,100	$120,100	0.0
$264,800	$80,000	$344,800	3.3
$12,500	$53,300	$65,800	0.2
$171,500	$37,000	$208,500	4.6
$184,100	$80,000	$264,100	2.3
$31,200	$73,200	$104,400	0.4
$205,400	$80,000	$285,400	2.6
$31,000	$124,600	$155,600	0.2
$113,700	$133,400	$247,100	0.9
$98,900	$106,700	$205,600	0.9
$0	$80,000	$80,000	0.0

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	0.01	3.15
	0.01	0.53
	0.00	0.26
	0.24	0.64
	0.06	0.00
	0.03	3.42
		0.49
		1.74
		0.09
		0.81
		0.28
		1.09
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		0.59
		1.72
		0.83
		0.35

0.79	0.79	1.58	1	35
0.13	0.13	0.27	1	35
0.07	0.07	0.13	1	52
0.16	0.16	0.32	1	9
0.00	0.00	0.00	1	
0.85	0.85	1.71	1	35
0.12	0.07	0.29	1	9
0.44	0.44	0.87	1	9
0.02	0.02	0.05	1	9
0.20	0.20	0.40	1	9
0.07	0.07	0.14	1	9
0.27	0.16	0.65	1	9
0.23	0.23	0.45	1	9
0.30	0.30	0.60	1	9
0.72	0.72	1.44	1	9
0.47	0.47	0.95	1	9
0.24	0.24	0.49	1	9
0.13	0.13	0.25	1	35
0.11	0.11	0.23	1	35
0.24	0.24	0.48	1	9
0.17	0.10	0.41	1	
0.13	0.13	0.25	1	
0.08	0.05	0.20	1	
0.01	0.01	0.02	1	
0.04	0.02	0.09	1	
0.04	0.02	0.09	1	
0.11	0.11	0.22	1	35
0.47	0.47	0.94	1	
0.11	0.11	0.22	1	
0.06	0.06	0.12	1	35
0.07	0.07	0.14	1	35
0.07	0.07	0.14	1	
0.07	0.07	0.15	1	9
0.11	0.07	0.28	1	9
0.28	0.28	0.56	1	35
0.85	0.85	1.71	1	
0.07	0.04	0.16	1	35
0.07	0.07	0.14	1	
0.08	0.08	0.17	1	35
0.07	0.07	0.15	1	9
0.11	0.11	0.23	1	35
0.06	0.06	0.11	1	
0.08	0.08	0.17	1	
0.02	0.01	0.05	1	35
0.09	0.05	0.21	1	35
0.15	0.15	0.31	1	35
0.11	0.11	0.21	1	
0.07	0.07	0.15	1	9
0.11	0.11	0.23	1	35
0.03	0.02	0.07	1	
0.37	0.22	0.88	1	35
0.07	0.07	0.15	1	35
0.05	0.05	0.09	1	35
0.08	0.08	0.17	1	
0.06	0.06	0.12	1	
0.13	0.13	0.25	1	
0.07	0.07	0.15	1	35
0.15	0.15	0.30	1	
0.43	0.43	0.86	1	
0.21	0.21	0.41	1	35
0.09	0.05	0.21	1	

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118	4,064	0.09	035216004000	12985 US HIGHWAY 12	15 Mobile Home Park
119	12,882	0.30	035228002030	136 HAYNES AVE S	18 Other Residential
120	24,002	0.55	035228002006	116 HAYNES AVE S	11 Single Unit
121	6,654	0.15	035220007000	0 TAHOMA ST S	47 Communication
123	13,436	0.31	035228002031	134 TAHOMA ST E	18 Other Residential
124	12,978	0.30	035228002002	113 HAYNES AVE S	18 Other Residential
125	10,001	0.23	035228002004	112 HAYNES AVE S	11 Single Unit
126	10,001	0.23	035228002005	118 TAHOMA ST E	18 Other Residential
127	269,767	6.19	035226001000	12990 US HIGHWAY 12	68 Service - Education
128	20,990	0.48	035222003000	12989 US HIGHWAY 12	11 Single Unit
129	72,098	1.66	035216006000	12985 US HIGHWAY 12	15 Mobile Home Park
130	11,453	0.26	035222004000	0 TAHOMA ST W	11 Single Unit
132	5,751	0.13	011253000000	109 RAINIER AVE S	11 Single Unit
133	8,843	0.20	011260000000	125 TAHOMA ST E	18 Other Residential
134	24,239	0.56	035228002026	0 MAIN ST E	91 Residential Land - Undivided
135	13,710	0.32	011228000000	109 TAHOMA ST E	11 Single Unit
136	18,947	0.44	035228000000	137 TAHOMA ST E	11 Single Unit
137	8,211	0.19	011259000000	0 HAYES AVE S	18 Other Residential
138	10,567	0.24	011254001000	107 RAINIER AVE S	18 Other Residential
139	4,457	0.10	011227001000	104 RAINIER AVE S	11 Single Unit
140	1,869	0.04	011227000000	10912 US HIGHWAY 12	11 Single Unit
141	44,830	1.03	035228001000	0 COWLITZ AVE S	18 Other Residential
143	18,852	0.43	035228002024	142 MAIN ST E	11 Single Unit
144	18,538	0.43	035227000000	0 MAIN ST E	11 Single Unit
145	10,279	0.24	035223000000	130 MAIN ST E	11 Single Unit
146	5,621	0.13	011256000000	0 RAINIER AVE S	91 Residential Land - Undivided
148	5,130	0.12	011226000000	106 MAIN ST E	11 Single Unit
149	6,362	0.15	011257000000	112 MAIN ST E	11 Single Unit
150	11,808	0.27	035225000000	122 MAIN ST E	11 Single Unit
151	8,698	0.20	011225001000	102 MAIN ST E	11 Single Unit
262	37,368	0.86	035192000000	121 POWERHOUSE RD	11 Single Unit
161	506,932	11.64	035171000000	0 MAIN ST W	49 Trans - Other
261	49,559	1.14	035188018002	0 SNYDER RD	18 Other Residential
263	20,725	0.48	010596010000	215 SNYDER RD	11 Single Unit
264	70,904	1.63	035188010002	219 SNYDER RD	11 Single Unit
265	139,277	3.20	035188088000	0 SNYDER RD	49 Trans - Other
269	9,927	0.23	011260045000	0 POWERHOUSE RD	91 Residential Land - Undivided
271	21,842	0.50	010596006000	110 HIDEAWAY LN	18 Other Residential
272	49,798	1.14	035188024000	202 SNYDER RD	11 Single Unit
275	12,167	0.28	011260046000	0 FRANCIS ST	91 Residential Land - Undivided
276	22,318	0.51	010596007000	0 HIDEAWAY LN	18 Other Residential
284	16,801	0.39	010596008000	116 HIDEAWAY LN	18 Other Residential
285	49,479	1.14	035188015000	0 SNYDER RD	91 Residential Land - Undivided
286	73,571	1.69	035188014000	107 ROBB RD	11 Single Unit
287	40,399	0.93	010596005000	105 BURL LN	19 Vacation Home
288	26,739	0.61	011260035001	0 ROBB RD	11 Single Unit
289	12,049	0.28	011260044000	0 SNYDER RD	18 Other Residential
290	15,048	0.35	011260043000	105 FRANCIS ST	11 Single Unit
291	16,035	0.37	011260049000	102 FRANCIS ST	11 Single Unit
292	13,643	0.31	011260050000	154 SNYDER RD	11 Single Unit
293	8,449	0.19	011260038000	0 SNYDER RD	91 Residential Land - Undivided
296	24,278	0.56	035145011002	127 HIDEAWAY LN	91 Residential Land - Undivided
301	193,285	4.44	035145011020	0 HIDEAWAY LN	91 Residential Land - Undivided
156	9,105	0.21	035220006000	127 MAIN ST W	11 Single Unit
158	31,421	0.72	035188020000	0 ELK CREST RD	11 Single Unit
159	21,070	0.48	035188006000	175 POWERHOUSE RD	11 Single Unit
160	20,997	0.48	035188009000	157 POWERHOUSE RD	18 Other Residential
162	37,062	0.85	035188013006	0 ELK CREST RD	91 Residential Land - Undivided
166	72,301	1.66	035234151004	120 BEAR GRASS LN	18 Other Residential
167	44,800	1.03	035234151003	126 BEAR GRASS LN	11 Single Unit
168	29,783	0.68	035188013007	0 ELK CREST RD	91 Residential Land - Undivided

multi-residential	LND	STMU	MU	0
single-residential	LWM	STMU	RM	0
single-residential	STR	STMU	RM	1
trans/util	COM	STMU	RM	0
single-residential	LWM	STMU	RM	0
single-residential	LWB	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	LWB	STMU	RM	0
public/quasi-public	COM	STMU	MU	0
single-residential	COM	STMU	MU	1
multi-residential	COM	STMU	RM	12
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	MU	1
single-residential	LWM	STMU	MU	0
undeveloped/vacant	LND	STMU	RL	0
single-residential	RES	STMU	MU	1
single-residential	RES	STMU	RH	1
single-residential	LWM	STMU	MU	0
single-residential	LWB	STMU	MU	0
single-residential	RES	STMU	MU	1
single-residential	RES	STMU	MU	1
single-residential	LWB	STMU	RL	0
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RH	1
undeveloped/vacant	LND	STMU	MU	0
single-residential	RES	STMU	MU	1
single-residential	RES	STMU	MU	1
single-residential	RES	STMU	RH	1
single-residential	RES	STMU	MU	1
single-residential	RES	STR-4	RM	1
trans/util	GOV	STMU	AX	0
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
trans/util	LND	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	1
undeveloped/vacant	LND	STR-4	RM	0
single-residential	LWB	STR-4	RM	0
single-residential	LWM	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	STR	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
undeveloped/vacant	LND	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STR-4	RM	1
single-residential	GOV	STR-4	RM	1
single-residential	LWM	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	LWB	STMU	RM	0
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STR-4	RM	0

$0	$59,000	$59,000	0.0
$21,900	$80,000	$101,900	0.3
$344,700	$108,800	$453,500	3.2
$84,500	$37,000	$121,500	2.3
$25,000	$80,000	$105,000	0.3
$18,600	$96,000	$114,600	0.2
$158,000	$53,300	$211,300	3.0
$13,600	$53,300	$66,900	0.3
$487,600	$248,700	$736,300	2.0
$131,800	$111,100	$242,900	1.2
$650,600	$264,600	$915,200	2.5
$66,600	$80,000	$146,600	0.8
$144,800	$53,300	$198,100	2.7
$104,700	$53,300	$158,000	2.0
$0	$93,400	$93,400	0.0
$212,700	$80,000	$292,700	2.7
$368,500	$80,000	$448,500	4.6
$12,500	$53,300	$65,800	0.2
$68,400	$80,000	$148,400	0.9
$108,300	$53,300	$161,600	2.0
$120,800	$26,700	$147,500	4.5
$6,400	$106,700	$113,100	0.1
$296,900	$80,000	$376,900	3.7
$209,900	$80,000	$289,900	2.6
$166,800	$53,300	$220,100	3.1
$0	$53,300	$53,300	0.0
$141,200	$53,300	$194,500	2.6
$147,600	$53,300	$200,900	2.8
$116,700	$80,000	$196,700	1.5
$145,800	$56,600	$202,400	2.6
$226,700	$79,600	$306,300	2.8
$20,100	$79,500	$99,600	0.3
$6,200	$67,700	$73,900	0.1
$316,500	$44,800	$361,300	7.1
$388,100	$79,600	$467,700	4.9
$0	$25,000	$25,000	0.0
$0	$30,400	$30,400	0.0
$57,100	$73,800	$130,900	0.8
$390,400	$70,600	$461,000	5.5
$0	$18,100	$18,100	0.0
$3,600	$73,800	$77,400	0.0
$249,600	$73,800	$323,400	3.4
$0	$71,400	$71,400	0.0
$568,700	$144,100	$712,800	3.9
$50,400	$73,800	$124,200	0.7
$82,800	$47,700	$130,500	1.7
$9,400	$19,400	$28,800	0.5
$335,800	$33,300	$369,100	10.1
$310,100	$36,300	$346,400	8.5
$101,500	$24,800	$126,300	4.1
$0	$3,400	$3,400	0.0
$0	$52,000	$52,000	0.0
$0	$76,200	$76,200	0.0
$174,200	$53,300	$227,500	3.3
$167,300	$57,500	$224,800	2.9
$324,600	$32,000	$356,600	10.1
$286,400	$42,900	$329,300	6.7
$0	$36,800	$36,800	0.0
$12,100	$81,300	$93,400	0.1
$264,600	$147,400	$412,000	1.8
$0	$34,000	$34,000	0.0

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		0.09
		0.30
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Yes		6.19
		0.48
		1.66
		0.26
		0.13
		0.20
		0.56
		0.32
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		0.43
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		0.20
	0.55	0.31
Yes	0.79	10.84
	0.24	0.90
	0.47	0.01
	1.11	0.52
	0.52	2.68
	0.17	0.06
	0.50	0.00
	0.23	0.91
	0.11	0.17
	0.51	0.00
	0.39	0.00
	0.75	0.38
	0.41	1.28
	0.78	0.14
	0.47	0.15
	0.17	0.11
	0.17	0.18
	0.14	0.23
	0.31	0.01
	0.19	0.00
	0.31	0.25
	0.01	4.43
	0.00	0.21
	0.14	0.58
	0.14	0.34
	0.06	0.42
	0.35	0.50
	0.21	1.45
	0.05	0.98
	0.42	0.26

0.02	0.01	0.06	1	
0.07	0.07	0.15	1	35
0.14	0.14	0.28	1	35
0.04	0.04	0.08	1	35
0.08	0.08	0.15	1	35
0.07	0.07	0.15	1	35
0.06	0.06	0.12	1	35
0.06	0.06	0.12	1	35
1.55	1.55	3.10	1	
0.12	0.12	0.24	1	
0.41	0.41	0.83	1	35
0.07	0.07	0.13	1	35
0.03	0.03	0.07	1	
0.05	0.05	0.10	1	
0.14	0.08	0.33	1	9
0.08	0.08	0.16	1	
0.11	0.11	0.22	1	52
0.05	0.05	0.09	1	
0.06	0.06	0.12	1	
0.03	0.03	0.05	1	
0.01	0.01	0.02	1	
0.26	0.15	0.62	1	9
0.11	0.11	0.22	1	9
0.11	0.11	0.21	1	9
0.06	0.06	0.12	1	52
0.03	0.02	0.08	1	
0.03	0.03	0.06	1	
0.04	0.04	0.07	1	
0.07	0.07	0.14	1	52
0.05	0.05	0.10	1	
0.08	0.08	0.15	1	35
2.71	2.71	5.42	1	
0.22	0.13	0.54	1	35
0.00	0.00	0.00	1	35
0.13	0.13	0.26	1	35
0.67	0.40	1.61	1	35
0.01	0.01	0.03	1	35
0.00	0.00	0.00	1	35
0.23	0.23	0.45	1	35
0.04	0.03	0.10	1	35
0.00	0.00	0.00	1	35
0.00	0.00	0.00	1	35
0.10	0.06	0.23	1	35
0.32	0.32	0.64	1	35
0.04	0.04	0.07	1	35
0.04	0.04	0.07	1	35
0.03	0.02	0.07	1	35
0.04	0.04	0.09	1	35
0.06	0.06	0.11	1	35
0.00	0.00	0.00	1	35
0.00	0.00	0.00	1	35
0.06	0.04	0.15	1	35
1.11	0.66	2.66	1	35
0.05	0.05	0.10	1	35
0.15	0.15	0.29	1	35
0.09	0.09	0.17	1	35
0.10	0.10	0.21	1	35
0.13	0.08	0.30	1	35
0.36	0.36	0.72	1	35
0.25	0.25	0.49	1	35
0.06	0.04	0.16	1	35

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177	10,059	0.23	035188007000	155 POWERHOUSE RD	18 Other Residential
182	36,086	0.83	035188005006	155 6 POWERHOUSE RD	11 Single Unit
190	274,476	6.30	035219001000	0 MAIN ST W	49 Trans - Other
191	44,334	1.02	035234151002	130 BEAR GRASS LN	11 Single Unit
192	24,666	0.57	035188005003	122 ELK CREST RD	18 Other Residential
193	80,760	1.85	035188017000	252 SNYDER RD	11 Single Unit
194	34,269	0.79	035188004000	110 BIG BOBBIE RD	11 Single Unit
199	28,373	0.65	035188013004	108 BIG BOBBIE RD	11 Single Unit
200	33,825	0.78	035188013008	113 BIG BOBBIE RD	11 Single Unit
205	74,129	1.70	035234003000	324 SNYDER RD	11 Single Unit
214	43,116	0.99	035234015004	134 BEAR GRASS LN	91 Residential Land - Undivided
215	19,744	0.45	035188023000	0 POWERHOUSE RD	11 Single Unit
216	25,352	0.58	035188013003	0 ELK CREST RD	91 Residential Land - Undivided
222	162,197	3.72	035234151001	121 BEAR GRASS LN	91 Residential Land - Undivided
223	61,331	1.41	035188018004	110 ELK CREST RD	18 Other Residential
224	41,726	0.96	035234015005	144 BEAR GRASS LN	91 Residential Land - Undivided
228	22,097	0.51	035188013002	101 ELK CREST RD	11 Single Unit
233	63,887	1.47	010570024001	0 WILLAME ST W	67 Service - Governmental
236	25,595	0.59	035188012002	228 SNYDER RD	18 Other Residential
237	28,716	0.66	035188018001	0 SNYDER RD	91 Residential Land - Undivided
240	62,867	1.44	035188012001	250 SNYDER RD	11 Single Unit
241	18,657	0.43	035188008002	0 POWERHOUSE RD	11 Single Unit
243	110,501	2.54	035188008001	0 POWERHOUSE RD	11 Single Unit
246	43,085	0.99	035188018003	104 ELK CREST RD	11 Single Unit
249	7,833	0.18	011260019000	117 TUMAC ST W	11 Single Unit
251	88,207	2.03	035234014000	126 44 HIDEAWAY LN	11 Single Unit
256	23,956	0.55	035190002000	0 ROBB RD	91 Residential Land - Undivided
257	33,817	0.78	035190003001	0 POWERHOUSE RD	91 Residential Land - Undivided
259	13,511	0.31	011260031000	0 ROBB RD	18 Other Residential
260	53,499	1.23	035188001000	204 SNYDER RD	11 Single Unit
267	3,197	0.07	035188026000	0 ROBB RD	91 Residential Land - Undivided
270	20,273	0.47	011260032001	0 ROBB RD	18 Other Residential
274	37,989	0.87	011260041001	109 FRANCIS ST	11 Single Unit
278	20,272	0.47	011260034001	102 ROBB RD	11 Single Unit
280	13,508	0.31	011260042000	0 FRANCIS ST	11 Single Unit
295	20,546	0.47	035145011003	127 61 HIDEAWAY LN	91 Residential Land - Undivided
297	16,972	0.39	035145011004	112 7 BURL LN	91 Residential Land - Undivided
298	19,330	0.44	035145011009	102 BELLE LN	18 Other Residential
299	39,643	0.91	035141008000	124 BEGONIA LN	11 Single Unit
300	77,803	1.79	035115003001	180 HIDEAWAY LN	11 Single Unit
302	26,621	0.61	035145011013	112 BELLE LN	11 Single Unit
225	78,755	1.81	011031002002	110 HUNTINGTON AVE N	18 Other Residential
235	10,411	0.24	011031001000	0 HUNTINGTON AVE N	91 Residential Land - Undivided
163	12,121	0.28	035189007002	0 HUNTINGTON AVE N	91 Residential Land - Undivided
164	4,114	0.09	035189001000	0 HUNTINGTON AVE N	18 Other Residential
183	15,207	0.35	035189005000	0 HUNTINGTON AVE N	91 Residential Land - Undivided
242	83,747	1.92	035195001000	0 WILLAME ST E	91 Residential Land - Undivided
152	13,098	0.30	011258000000	114 MAIN ST E	11 Single Unit
153	7,962	0.18	011220000000	13006 US HIGHWAY 12	59 Retail - Other
154	63,256	1.45	035216005000	109 MAIN ST W	67 Service - Governmental
155	99,725	2.29	035216006000	12985 US HIGHWAY 12	15 Mobile Home Park
157	12,990	0.30	035219003000	0 MAIN ST W	18 Other Residential
165	7,962	0.18	011031008002	102 HUNTINGTON AVE N	11 Single Unit
169	12,455	0.29	011240001003	105 MAIN ST E	51 Wholesale
170	13,439	0.31	011250000000	117 MAIN ST E	18 Other Residential
171	11,012	0.25	011247002000	113 MAIN ST E	11 Single Unit
172	2,137	0.05	011244000000	0 MAIN ST E	52 Retail - Hardware
173	4,430	0.10	011232001000	0 SMITH RD	61 Service - Finance
174	1,560	0.04	011240001001	0 US HIGHWAY 12	91 Residential Land - Undivided
175	8,226	0.19	011260007000	116 MAIN ST W	11 Single Unit
176	18,410	0.42	011260001000	0 MAIN ST W	16 Hotel/Motel

single-residential	LWB	STR-4	RM	0
single-residential	STR	STR-4	RM	1
trans/util	GOV	STMU	AX	0
single-residential	RES	STMU	RM	1
single-residential	LWB	STR-4	RM	0
single-residential	STR	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STR-4	RM	1
undeveloped/vacant	LND	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWM	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STR-4	RM	1
public/quasi-public	GOV	STMU	AX	0
single-residential	LWM	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	STR	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STMU	AX	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	LWM	STR-4	RM	0
single-residential	RES	STR-4	RM	1
undeveloped/vacant	LND	STR-4	RM	0
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWB	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	LWM	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWB	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	MU	1
commercial retail	COM	STMU	MU	0
public/quasi-public	GOV	STMU	MU	0
multi-residential	COM	STMU	RM	0
single-residential	LWM	STMU	RM	0
single-residential	RES	STMU	RM	1
commercial retail	COM	STMU	MU	0
single-residential	LWM	STMU	MU	0
single-residential	RES	STMU	MU	1
commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
undeveloped/vacant	COM	STMU	MU	0
single-residential	RES	STMU	MU	1
multi-residential	COM	STMU	MU	0

$21,400	$23,700	$45,100	0.9
$300,900	$69,100	$370,000	4.4
$59,100	$58,500	$117,600	1.0
$751,600	$147,400	$899,000	5.1
$29,700	$54,900	$84,600	0.5
$360,100	$96,600	$456,700	3.7
$243,600	$81,400	$325,000	3.0
$150,700	$77,000	$227,700	2.0
$408,500	$94,300	$502,800	4.3
$495,300	$86,800	$582,100	5.7
$0	$134,000	$134,000	0.0
$169,500	$47,700	$217,200	3.6
$0	$49,300	$49,300	0.0
$0	$154,200	$154,200	0.0
$160,600	$78,800	$239,400	2.0
$0	$134,000	$134,000	0.0
$322,800	$44,100	$366,900	7.3
$0	$90,000	$90,000	0.0
$277,100	$54,700	$331,800	5.1
$0	$54,900	$54,900	0.0
$586,900	$137,300	$724,200	4.3
$300,400	$40,100	$340,500	7.5
$510,900	$91,200	$602,100	5.6
$376,300	$62,100	$438,400	6.1
$240,300	$53,300	$293,600	4.5
$178,500	$86,500	$265,000	2.1
$0	$28,600	$28,600	0.0
$0	$32,500	$32,500	0.0
$176,500	$37,300	$213,800	4.7
$459,900	$71,800	$531,700	6.4
$0	$800	$800	0.0
$42,600	$42,900	$85,500	1.0
$341,200	$49,300	$390,500	6.9
$296,900	$42,900	$339,800	6.9
$212,200	$30,400	$242,600	7.0
$0	$45,000	$45,000	0.0
$0	$73,800	$73,800	0.0
$20,000	$93,800	$113,800	0.2
$292,100	$61,400	$353,500	4.8
$195,800	$86,600	$282,400	2.3
$287,000	$93,800	$380,800	3.1
$305,100	$133,400	$438,500	2.3
$0	$56,100	$56,100	0.0
$0	$56,100	$56,100	0.0
$3,900	$37,300	$41,200	0.1
$0	$56,100	$56,100	0.0
$0	$146,800	$146,800	0.0
$227,300	$80,000	$307,300	2.8
$135,700	$47,900	$183,600	2.8
$138,700	$198,600	$337,300	0.7
$650,600	$264,600	$915,200	2.5
$367,900	$80,000	$447,900	4.6
$427,100	$53,300	$480,400	8.0
$128,400	$63,800	$192,200	2.0
$398,200	$80,000	$478,200	5.0
$264,700	$80,000	$344,700	3.3
$110,700	$15,000	$125,700	7.4
$316,600	$39,200	$355,800	8.1
$3,300	$11,500	$14,800	0.3
$246,700	$53,300	$300,000	4.6
$465,700	$79,800	$545,500	5.8

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	0.06	0.17
	0.19	0.64
	0.00	6.30
	0.12	0.90
	0.14	0.42
	0.69	1.16
	0.08	0.71
	0.02	0.63
	0.23	0.55
	0.31	1.39
	0.15	0.84
	0.13	0.32
	0.01	0.57
	0.44	3.28
	0.19	1.21
	0.11	0.85
	0.04	0.47
	0.00	1.47
	0.17	0.41
	0.03	0.63
	0.65	0.79
	0.04	0.38
	0.41	2.13
	0.18	0.80
	0.00	0.18
	0.32	1.70
	0.02	0.53
	0.12	0.65
	0.05	0.26
	0.04	1.19
	0.00	0.07
	0.17	0.29
	0.17	0.70
	0.08	0.39
	0.04	0.27
	0.08	0.40
	0.03	0.36
	0.00	0.44
	0.17	0.74
	0.02	1.77
	0.09	0.52
	1.45	0.36
	0.24	0.00
	0.25	0.02
	0.00	0.09
	0.29	0.06
	0.84	1.08
		0.30
		0.18
Yes		1.45
		2.29
		0.30
		0.18
		0.29
		0.31
		0.25
		0.05
		0.10
		0.04
		0.19
		0.42

0.04	0.04	0.09	1	35
0.16	0.16	0.32	1	35
1.58	1.58	3.15	1	
0.23	0.23	0.45	1	35
0.11	0.11	0.21	1	35
0.29	0.29	0.58	1	35
0.18	0.18	0.35	1	35
0.16	0.16	0.31	1	35
0.14	0.14	0.28	1	35
0.35	0.35	0.70	1	35
0.21	0.13	0.51	1	35
0.08	0.08	0.16	1	35
0.14	0.09	0.34	1	35
0.82	0.49	1.97	1	35
0.30	0.30	0.61	1	35
0.21	0.13	0.51	1	35
0.12	0.12	0.23	1	35
0.37	0.22	0.88	1	
0.10	0.10	0.21	1	35
0.16	0.09	0.38	1	35
0.20	0.20	0.40	1	35
0.10	0.10	0.19	1	35
0.53	0.53	1.06	1	35
0.20	0.20	0.40	1	35
0.04	0.04	0.09	1	
0.43	0.43	0.85	1	35
0.13	0.08	0.32	1	35
0.16	0.10	0.39	1	35
0.06	0.06	0.13	1	35
0.30	0.30	0.60	1	35
0.02	0.01	0.04	1	35
0.07	0.07	0.15	1	35
0.17	0.17	0.35	1	35
0.10	0.10	0.19	1	35
0.07	0.07	0.13	1	35
0.10	0.06	0.24	1	35
0.09	0.05	0.21	1	35
0.11	0.11	0.22	1	35
0.19	0.19	0.37	1	35
0.44	0.44	0.88	1	35
0.13	0.13	0.26	1	35
0.09	0.09	0.18	1	35
0.00	0.00	0.00	1	35
0.01	0.00	0.01	1	35
0.02	0.01	0.06	1	35
0.01	0.01	0.03	1	35
0.27	0.16	0.65	1	35
0.08	0.08	0.15	1	
0.05	0.05	0.09	1	
0.36	0.36	0.73	1	
0.57	0.57	1.14	1	35
0.07	0.07	0.15	1	35
0.05	0.05	0.09	1	35
0.07	0.07	0.14	1	
0.08	0.08	0.15	1	
0.06	0.06	0.13	1	
0.01	0.01	0.02	1	
0.03	0.03	0.05	1	
0.01	0.01	0.02	1	
0.05	0.05	0.09	1	
0.11	0.11	0.21	1	

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178	7,914	0.18	011260008000	0 MAIN ST W	91 Residential Land - Undivided
179	17,933	0.41	011260002000	0 MAIN ST W	91 Residential Land - Undivided
180	7,961	0.18	011260009000	120 MAIN ST W	11 Single Unit
181	7,745	0.18	011260010000	124 MAIN ST W	11 Single Unit
184	11,981	0.28	010570035000	0 MAIN ST W	91 Residential Land - Undivided
185	10,539	0.24	010570036000	103 DIXON AVE N	11 Single Unit
186	15,596	0.36	011031008001	0 HUNTINGTON AVE N	18 Other Residential
187	3,809	0.09	011235000000	0 US HIGHWAY 12	58 Retail - Eating
188	6,950	0.16	011243002000	104 RAINIER AVE N	52 Retail - Hardware
189	4,205	0.10	011241000000	13016 US HIGHWAY 12	58 Retail - Eating
195	5,638	0.13	011231000000	0 US HIGHWAY 12	64 Service - Repair
196	11,144	0.26	011260006001	107 SMITH RD	11 Single Unit
197	8,243	0.19	011260014000	107 TATOOSH AVE N	11 Single Unit
198	20,667	0.47	035195004000	138 WILLAME ST E	11 Single Unit
201	20,018	0.46	011252000000	107 HAYES AVE N	18 Other Residential
202	11,435	0.26	011243001000	0 RAINIER AVE N	59 Retail - Other
203	5,121	0.12	011242000000	13020 US HIGHWAY 12	56 Retail - Apparel
204	5,944	0.14	011230000000	0 US HIGHWAY 12	64 Service - Repair
206	7,320	0.17	011260005000	109 SMITH RD	11 Single Unit
207	17,749	0.41	011260003000	117 TATOOSH AVE N	11 Single Unit
208	8,166	0.19	011260013000	109 TATOOSH AVE N	11 Single Unit
209	8,074	0.19	011260012000	0 WILLAME ST W	91 Residential Land - Undivided
210	7,712	0.18	011260011000	129 WILLAME ST W	11 Single Unit
211	21,840	0.50	010570037001	135 WILLAME ST W	11 Single Unit
212	94,193	2.16	010570039002	0 MAIN ST W	67 Service - Governmental
213	12,978	0.30	010570027000	155 WILLAME ST W	11 Single Unit
217	10,553	0.24	035206000000	115 WILLAME ST E	18 Other Residential
218	16,043	0.37	035207000000	111 WILLAME ST E	11 Single Unit
219	9,083	0.21	035208000000	13028 US HIGHWAY 12	58 Retail - Eating
220	7,686	0.18	011260016000	113 TATOOSH AVE N	12 Two-to-Four Unit
221	8,269	0.19	011260026000	116 WILLAME ST W	11 Single Unit
226	4,436	0.10	035213002000	0 US HIGHWAY 12	91 Residential Land - Undivided
227	15,579	0.36	011260024001	111 SMITH RD	67 Service - Governmental
229	8,031	0.18	011260017000	0 WILLAME ST W	18 Other Residential
230	8,520	0.20	011260027000	114 TATOOSH AVE N	11 Single Unit
231	7,664	0.18	011260018000	0 DIXON AVE N	11 Single Unit
232	9,290	0.21	011260015000	115 TATOOSH AVE N	12 Two-to-Four Unit
234	24,875	0.57	010570026001	152 WILLAME ST W	11 Single Unit
238	9,361	0.22	011260028000	118 TATOOSH AVE N	11 Single Unit
239	9,076	0.21	011260023002	0 TATOOSH AVE N	18 Other Residential
244	12,099	0.28	011260030000	101 COMBS RD	18 Other Residential
245	8,845	0.20	011260029000	103 TUMAC ST W	11 Single Unit
247	8,634	0.20	011260023001	108 TUMAC ST W	11 Single Unit
248	8,368	0.19	011260021000	0 TUMAC ST W	18 Other Residential
250	51,285	1.18	010570018001	0 TUMAC ST W	67 Service - Governmental
252	9,816	0.23	010570013000	135 TUMAC ST W	11 Single Unit
253	9,740	0.22	010570012000	0 TUMAC ST W	91 Residential Land - Undivided
254	13,345	0.31	010570011000	0 TUMAC ST W	11 Single Unit
255	694	0.02	035215004000	0 COMBS RD	61 Service - Finance
258	2,775	0.06	035215002000	0 COMBS RD	91 Residential Land - Undivided
266	15,429	0.35	035215001001	131 SMITH RD	61 Service - Finance
268	17,930	0.41	035215001003	106 COMBS RD	61 Service - Finance
273	26,258	0.60	035215006001	144 TUMAC ST W	11 Single Unit
277	12,788	0.29	035213001000	123 SMITH RD	11 Single Unit
279	15,237	0.35	035215001002	133 SMITH RD	91 Residential Land - Undivided
281	45,897	1.05	035215001004	110 COMBS RD	61 Service - Finance
282	5,442	0.13	035215003000	0 COMBS RD	91 Residential Land - Undivided
283	11,813	0.27	035210001000	0 US HIGHWAY 12	53 Retail - General Mrchds
294	23,602	0.54	035217001003	134 COMBS RD	11 Single Unit
307	19,587	0.45	011260060000	125 SHADY ACRES RD	11 Single Unit
311	16,398	0.38	011260060001	0 SHADY ACRES RD	11 Single Unit

undeveloped/vacant	LND	STMU	MU	0
undeveloped/vacant	COM	STMU	MU	0
single-residential	RES	STMU	MU	1
single-residential	STR	STMU	MU	1
undeveloped/vacant	LND	STMU	AX	0
single-residential	RES	STMU	AX	1
single-residential	LWB	STMU	RM	0
commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
single-residential	RES	STMU	MU	1
single-residential	RES	STMU	MU	1
single-residential	STR	STMU	RL	1
single-residential	LWM	STMU	MU	0
commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
single-residential	STR	STMU	MU	1
single-residential	RES	STMU	MU	1
single-residential	RES	STMU	MU	1
undeveloped/vacant	LND	STMU	AX	0
single-residential	RES	STMU	AX	1
single-residential	RES	STMU	AX	1
public/quasi-public	GOV	STMU	AX	0
single-residential	RES	STMU	AX	1
single-residential	LWB	STMU	MU	0
single-residential	RES	STMU	MU	1
commercial retail	COM	STMU	MU	0
multi-residential	RES	STMU	RL	2
single-residential	RES	STMU	RL	1
undeveloped/vacant	COM	STMU	MU	0
public/quasi-public	COM	STMU	MU	0
single-residential	LWB	STMU	AX	0
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	AX	1
multi-residential	STR	STMU	RL	2
single-residential	RES	STMU	AX	1
single-residential	RES	STMU	RL	1
single-residential	LWB	STMU	RL	0
single-residential	LWB	STMU	MU	0
single-residential	RES	STMU	RL	1
single-residential	RES	STMU	RL	1
single-residential	LWB	STMU	AX	0
public/quasi-public	GOV	STMU	AX	0
single-residential	RES	STMU	AX	1
undeveloped/vacant	LND	STMU	AX	0
single-residential	RES	STMU	AX	1
commercial retail	GOV	STMU	RL	0
undeveloped/vacant	LND	STMU	RL	0
commercial retail	COM	STMU	RL	0
commercial retail	COM	STMU	RM	0
single-residential	RES	STMU	AX	1
single-residential	RES	STMU	MU	1
undeveloped/vacant	COM	STMU	RM	0
commercial retail	COM	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
commercial retail	COM	STMU	MU	0
single-residential	RES	STMU	RM	1
single-residential	RES	RDD-5	RVL	1
single-residential	RES	RDD-5	RVL	1

$0	$53,300	$53,300	0.0
$0	$74,800	$74,800	0.0
$246,500	$53,300	$299,800	4.6
$431,800	$52,100	$483,900	8.3
$0	$40,100	$40,100	0.0
$427,400	$40,100	$467,500	10.7
$12,500	$96,000	$108,500	0.1
$53,200	$26,900	$80,100	2.0
$315,000	$36,000	$351,000	8.8
$240,100	$20,000	$260,100	12.0
$17,400	$13,700	$31,100	1.3
$250,400	$53,300	$303,700	4.7
$326,100	$53,300	$379,400	6.1
$357,200	$93,200	$450,400	3.8
$281,300	$80,000	$361,300	3.5
$6,400	$46,100	$52,500	0.1
$166,500	$40,300	$206,800	4.1
$60,300	$14,400	$74,700	4.2
$137,600	$52,100	$189,700	2.6
$301,300	$80,000	$381,300	3.8
$258,000	$53,300	$311,300	4.8
$0	$53,300	$53,300	0.0
$286,300	$53,300	$339,600	5.4
$220,700	$80,000	$300,700	2.8
$0	$110,000	$110,000	0.0
$304,500	$80,000	$384,500	3.8
$30,300	$53,300	$83,600	0.6
$180,200	$80,000	$260,200	2.3
$374,400	$32,700	$407,100	11.4
$156,100	$53,300	$209,400	2.9
$180,600	$53,300	$233,900	3.4
$0	$21,000	$21,000	0.0
$200,700	$70,300	$271,000	2.9
$4,700	$53,300	$58,000	0.1
$165,500	$53,300	$218,800	3.1
$210,500	$53,300	$263,800	3.9
$172,900	$62,100	$235,000	2.8
$218,400	$93,400	$311,800	2.3
$270,600	$53,300	$323,900	5.1
$11,900	$53,300	$65,200	0.2
$12,500	$80,000	$92,500	0.2
$296,400	$53,300	$349,700	5.6
$227,300	$53,300	$280,600	4.3
$6,600	$53,300	$59,900	0.1
$0	$100,800	$100,800	0.0
$309,700	$53,300	$363,000	5.8
$0	$53,300	$53,300	0.0
$324,400	$80,000	$404,400	4.1
$0	$4,500	$4,500	0.0
$0	$11,700	$11,700	0.0
$0	$59,200	$59,200	0.0
$83,500	$54,000	$137,500	1.5
$312,800	$93,400	$406,200	3.3
$166,700	$80,000	$246,700	2.1
$0	$59,200	$59,200	0.0
$4,200	$81,000	$85,200	0.1
$0	$7,300	$7,300	0.0
$145,200	$63,200	$208,400	2.3
$217,400	$93,400	$310,800	2.3
$158,600	$24,200	$182,800	6.6
$216,200	$38,600	$254,800	5.6

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		0.19
		0.47
		0.46
		0.26
		0.12
		0.14
		0.17
		0.41
		0.19
		0.19
		0.18
		0.50
		2.16
		0.30
		0.24
		0.37
		0.21
		0.18
		0.19
		0.10
Yes		0.36
		0.18
		0.20
		0.18
		0.21
		0.57
		0.22
		0.21
		0.28
		0.20
		0.20
		0.19
		1.18
		0.23
		0.22
		0.31
		0.02
		0.06
		0.35
		0.41
		0.60
		0.29
		0.35
		1.05
		0.13
		0.27
		0.54
	0.45	0.00
	0.34	0.04

0.05	0.03	0.11	1	
0.10	0.06	0.25	1	
0.05	0.05	0.09	1	
0.04	0.04	0.09	1	
0.07	0.04	0.17	1	
0.06	0.06	0.12	1	
0.09	0.09	0.18	1	35
0.02	0.02	0.04	1	
0.04	0.04	0.08	1	
0.02	0.02	0.05	1	
0.03	0.03	0.06	1	
0.06	0.06	0.13	1	
0.05	0.05	0.09	1	
0.12	0.12	0.24	1	9
0.12	0.12	0.23	1	
0.07	0.04	0.16	1	
0.03	0.03	0.06	1	
0.03	0.03	0.07	1	
0.04	0.04	0.08	1	
0.10	0.10	0.20	1	
0.05	0.05	0.09	1	
0.05	0.03	0.11	1	
0.04	0.04	0.09	1	
0.13	0.13	0.25	1	
0.54	0.32	1.30	1	
0.07	0.07	0.15	1	
0.06	0.06	0.12	1	
0.09	0.09	0.18	1	
0.05	0.05	0.10	1	
0.04	0.04	0.09	1	9
0.05	0.05	0.10	1	9
0.03	0.02	0.06	1	
0.09	0.09	0.18	1	
0.05	0.03	0.11	1	
0.05	0.05	0.10	1	9
0.04	0.04	0.09	1	
0.05	0.05	0.11	1	9
0.14	0.14	0.29	1	
0.05	0.05	0.11	1	9
0.05	0.05	0.10	1	9
0.07	0.07	0.14	1	
0.05	0.05	0.10	1	9
0.05	0.05	0.10	1	9
0.05	0.03	0.12	1	
0.29	0.18	0.71	1	
0.06	0.06	0.11	1	
0.06	0.03	0.13	1	
0.08	0.08	0.15	1	
0.00	0.00	0.01	1	9
0.02	0.01	0.04	1	9
0.09	0.05	0.21	1	9
0.10	0.10	0.21	1	35
0.15	0.15	0.30	1	
0.07	0.07	0.15	1	
0.09	0.05	0.21	1	35
0.26	0.16	0.63	1	35
0.03	0.02	0.08	1	35
0.07	0.07	0.14	1	
0.14	0.14	0.27	1	35
0.00	0.00	0.00	1	9
0.01	0.01	0.02	1	9

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314	27,335	0.63	011260061000	119 SHADY ACRES RD	11 Single Unit
318	45,158	1.04	011260062001	111 SHADY ACRES RD	11 Single Unit
321	44,030	1.01	011260064001	223 SKATE CREEK RD S	11 Single Unit
348	34,800	0.80	035129004000	139 TURNER RD	18 Other Residential
474	222,520	5.11	035130012002	123 TURNER RD	11 Single Unit
478	50,497	1.16	035146001000	216 SKATE CREEK RD S	11 Single Unit
488	37,760	0.87	035146002000	122 ALDER ST	91 Residential Land - Undivided
530	318,209	7.31	035230018001	0 RIFFE RD	88 Designated Forest Lnd
539	38,212	0.88	035192000000	121 POWERHOUSE RD	11 Single Unit
540	9,821	0.23	035192001000	0 POWERHOUSE RD	91 Residential Land - Undivided
590	340,992	7.83	035191001002	134 SNYDER RD	11 Single Unit
591	131,794	3.03	035191001001	0 HUNTINGTON AVE N	91 Residential Land - Undivided
350	29,469	0.68	035129009000	141 18 TURNER RD	18 Other Residential
352	27,601	0.63	035129002000	141 TURNER RD	11 Single Unit
354	32,971	0.76	035129006000	147 TURNER RD	18 Other Residential
355	153,197	3.52	035121002004	140 TURNER RD	91 Residential Land - Undivided
401	17,030	0.39	010125179000	117 ALTA DR	19 Vacation Home
405	77,376	1.78	035132005005	105 ALTA DR	91 Residential Land - Undivided
407	20,676	0.48	010125180000	119 ALTA DR	19 Vacation Home
411	19,429	0.45	010125181000	121 ALTA DR	19 Vacation Home
413	15,641	0.36	010125182000	125 ALTA DR	19 Vacation Home
417	15,780	0.36	010125183000	127 ALTA DR	19 Vacation Home
422	20,091	0.46	010125184000	129 ALTA DR	18 Other Residential
592	37,286	0.86	035191001003	0 SNYDER RD	11 Single Unit
306	15,035	0.35	035145063003	0 SHADY ACRES RD	11 Single Unit
316	225,838	5.19	035145005000	0 HIDEAWAY LN	91 Residential Land - Undivided
565	219,844	5.05	035145004002	181 E HIDEAWAY LN	11 Single Unit
626	226,792	5.21	035115007000	163 HIDEAWAY LN	11 Single Unit
630	86,726	1.99	035115003007	0 HIDEAWAY LN	91 Residential Land - Undivided
308	15,950	0.37	035145063002	0 SHADY ACRES RD	18 Other Residential
328	228,191	5.24	035115001000	0 HIDEAWAY LN	91 Residential Land - Undivided
329	221,483	5.09	035115004000	181 38 HIDEAWAY LN	11 Single Unit
334	22,076	0.51	010125154000	0 ALPINE DR	19 Vacation Home
335	11,220	0.26	035130008000	0 ALPINE DR	19 Vacation Home
340	14,482	0.33	035130002002	0 ALPINE DR	19 Vacation Home
341	13,528	0.31	035130005001	189 ALPINE DR	19 Vacation Home
342	10,474	0.24	035130007000	0 ALPINE DR	19 Vacation Home
343	5,630	0.13	035130001000	0 ALPINE DR	19 Vacation Home
344	5,279	0.12	035130006000	0 ALPINE DR	19 Vacation Home
353	29,724	0.68	035129005000	145 TURNER RD	11 Single Unit
360	35,098	0.81	010125160002	0 ALTA DR	19 Vacation Home
361	55,013	1.26	010125160001	0 ALPINE DR	19 Vacation Home
363	19,876	0.46	010125188000	149 ALTA DR	11 Single Unit
364	13,298	0.31	011260047000	0 FRANCIS ST	18 Other Residential
365	16,804	0.39	011260049001	109 POWERHOUSE RD	11 Single Unit
394	13,639	0.31	010125178000	115 ALTA DR	19 Vacation Home
425	21,371	0.49	010125185000	141 ALTA DR	11 Single Unit
426	12,489	0.29	010125186000	145 ALTA DR	19 Vacation Home
428	12,485	0.29	010125187000	147 ALTA DR	11 Single Unit
434	31,293	0.72	010125158000	157 ALPINE DR	19 Vacation Home
435	31,623	0.73	010125157000	159 ALPINE DR	11 Single Unit
436	27,036	0.62	010125156000	161 ALPINE DR	11 Single Unit
437	25,999	0.60	010125155000	163 ALPINE DR	19 Vacation Home
438	10,903	0.25	010125079000	177 ALPINE DR	19 Vacation Home
443	10,488	0.24	035130004000	0 ALPINE DR	19 Vacation Home
448	12,230	0.28	035130002001	0 ALPINE DR	19 Vacation Home
455	18,015	0.41	035130005000	0 ALPINE DR	18 Other Residential
477	57,905	1.33	035141002003	0 BONNIE SUE LN	91 Residential Land - Undivided
518	26,117	0.60	010596001000	119 HIDEAWAY LN	18 Other Residential
520	32,759	0.75	035145011001	109 HIDEAWAY LN	11 Single Unit
521	51,211	1.18	010596004000	0 SNYDER RD	18 Other Residential

single-residential	RES	RDD-5	RVL	1
single-residential	RES	RDD-5	RVL	1
single-residential	RES	RDD-5	RVL	1
single-residential	STR	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	RDD-5	RVL	1
undeveloped/vacant	LND	RDD-5	RVL	0
mining/forestry	LND	STI	RM	0
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RL	0
single-residential	LWB	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	LWM	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STR-4	RM	0
undeveloped/vacant	GOV	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LWB	STR-4	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	RDD-5	RVL	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWB	RDD-5	RVL	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LWB	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWM	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LWB	STR-4	RM	0

$494,800	$49,300	$544,100	10.0
$519,300	$72,200	$591,500	7.2
$665,600	$90,200	$755,800	7.4
$157,100	$78,400	$235,500	2.0
$511,200	$203,300	$714,500	2.5
$186,400	$97,200	$283,600	1.9
$0	$63,200	$63,200	0.0
$0	$7,000	$7,000	0.0
$226,700	$79,600	$306,300	2.8
$0	$7,300	$7,300	0.0
$321,800	$95,600	$417,400	3.4
$0	$63,700	$63,700	0.0
$20,000	$62,200	$82,200	0.3
$374,700	$79,500	$454,200	4.7
$199,300	$83,100	$282,400	2.4
$0	$157,400	$157,400	0.0
$360,700	$100,000	$460,700	3.6
$0	$22,600	$22,600	0.0
$559,900	$100,000	$659,900	5.6
$620,000	$100,000	$720,000	6.2
$396,100	$100,000	$496,100	4.0
$685,900	$100,000	$785,900	6.9
$49,000	$100,000	$149,000	0.5
$264,900	$39,600	$304,500	6.7
$370,400	$30,400	$400,800	12.2
$0	$78,300	$78,300	0.0
$328,400	$179,400	$507,800	1.8
$612,500	$115,400	$727,900	5.3
$0	$74,800	$74,800	0.0
$0	$41,100	$41,100	0.0
$0	$108,400	$108,400	0.0
$730,500	$108,400	$838,900	6.7
$0	$113,300	$113,300	0.0
$0	$6,600	$6,600	0.0
$0	$6,600	$6,600	0.0
$0	$6,600	$6,600	0.0
$0	$6,600	$6,600	0.0
$0	$6,600	$6,600	0.0
$0	$6,600	$6,600	0.0
$227,600	$81,800	$309,400	2.8
$67,500	$113,300	$180,800	0.6
$531,000	$170,000	$701,000	3.1
$333,000	$113,300	$446,300	2.9
$121,000	$16,600	$137,600	7.3
$147,900	$38,400	$186,300	3.9
$520,000	$100,000	$620,000	5.2
$143,700	$113,300	$257,000	1.3
$448,200	$113,300	$561,500	4.0
$602,900	$113,300	$716,200	5.3
$0	$113,300	$113,300	0.0
$1,135,400	$113,300	$1,248,700	10.0
$286,600	$113,300	$399,900	2.5
$273,200	$113,300	$386,500	2.4
$499,500	$106,700	$606,200	4.7
$0	$6,600	$6,600	0.0
$0	$6,600	$6,600	0.0
$18,500	$6,600	$25,100	2.8
$0	$73,500	$73,500	0.0
$21,600	$73,800	$95,400	0.3
$280,800	$58,700	$339,500	4.8
$300	$55,700	$56,000	0.0

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0.45	0.17
0.68	0.35
0.60	0.42
0.68	0.11
3.98	1.13
0.57	0.59
0.14	0.73
2.34	4.96
0.88	0.00
0.23	0.00
6.58	1.25
3.03	0.00
0.58	0.10
0.49	0.14
0.54	0.22
0.89	2.63
0.14	0.25
0.39	1.39
0.28	0.19
0.36	0.09
0.34	0.02
0.36	0.00
0.46	0.00
0.86	0.00
0.15	0.20
1.75	3.43
4.69	0.36
4.53	0.68
0.91	1.08
0.01	0.36
1.83	3.41
3.05	2.04
0.22	0.28
0.26	0.00
0.33	0.00
0.23	0.08
0.05	0.19
0.02	0.11
0.02	0.10
0.45	0.24
0.22	0.59
0.36	0.91
0.29	0.17
0.05	0.25
0.12	0.27
0.02	0.29
0.43	0.06
0.21	0.07
0.20	0.09
0.19	0.53
0.23	0.49
0.22	0.40
0.25	0.35
0.02	0.23
0.23	0.01
0.27	0.01
0.15	0.27
0.81	0.51
0.20	0.40
0.00	0.75
0.72	0.46

0.04	0.04	0.09	1	9
0.09	0.09	0.18	1	9
0.10	0.10	0.21	1	9
0.03	0.03	0.06	1	35
0.28	0.28	0.56	1	35
0.15	0.15	0.29	1	9
0.18	0.11	0.44	1	9
1.24	0.74	2.98	1	35
0.00	0.00	0.00	1	35
0.00	0.00	0.00	1	35
0.31	0.31	0.62	1	35
0.00	0.00	0.00	1	9
0.02	0.02	0.05	1	35
0.04	0.04	0.07	1	35
0.05	0.05	0.11	1	35
0.66	0.39	1.58	1	35
0.06	0.06	0.13	1	35
0.35	0.21	0.83	1	35
0.05	0.05	0.10	1	35
0.02	0.02	0.04	1	35
0.01	0.01	0.01	1	35
0.00	0.00	0.00	1	35
0.00	0.00	0.00	1	35
0.00	0.00	0.00	1	35
0.05	0.05	0.10	1	9
0.86	0.52	2.06	1	35
0.09	0.09	0.18	1	35
0.17	0.17	0.34	1	35
0.27	0.16	0.65	1	35
0.09	0.05	0.21	1	9
0.85	0.51	2.04	1	35
0.51	0.51	1.02	1	35
0.07	0.04	0.17	1	35
0.00	0.00	0.00	1	35
0.00	0.00	0.00	1	35
0.02	0.01	0.05	1	35
0.05	0.03	0.11	1	35
0.03	0.02	0.07	1	35
0.02	0.01	0.06	1	35
0.06	0.06	0.12	1	35
0.15	0.15	0.30	1	35
0.23	0.23	0.45	1	35
0.04	0.04	0.08	1	35
0.06	0.06	0.13	1	35
0.07	0.07	0.13	1	35
0.07	0.07	0.14	1	35
0.02	0.02	0.03	1	35
0.02	0.02	0.04	1	35
0.02	0.02	0.04	1	35
0.13	0.08	0.32	1	35
0.12	0.12	0.25	1	35
0.10	0.10	0.20	1	35
0.09	0.09	0.18	1	35
0.06	0.06	0.11	1	35
0.00	0.00	0.01	1	35
0.00	0.00	0.01	1	35
0.07	0.07	0.13	1	35
0.13	0.08	0.31	1	35
0.10	0.10	0.20	1	35
0.19	0.19	0.37	1	35
0.12	0.07	0.28	1	35

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522	6,952	0.16	011260037000	0 SNYDER RD	91 Residential Land - Undivided
523	22,182	0.51	035145011021	0 SNYDER RD	91 Residential Land - Undivided
526	209,951	4.82	035141001000	0 SNYDER RD	91 Residential Land - Undivided
529	829,641	19.05	035142001000	13068 US HIGHWAY 12	67 Service - Governmental
551	221,209	5.08	035234004000	126 77 HIDEAWAY LN	11 Single Unit
560	458,630	10.53	035145001003	153 BURL LN	11 Single Unit
564	212,556	4.88	035141003000	149 BEGONIA LN	18 Other Residential
566	69,656	1.60	035141002004	0 BONNIE SUE LN	91 Residential Land - Undivided
567	106,416	2.44	035145011019	0 BURL LN	45 Trans - Highway
568	146,056	3.35	035145001004	128 SPYGLASS LN	11 Single Unit
581	27,291	0.63	035142062007	101 BEGONIA LN	11 Single Unit
582	12,192	0.28	035142007000	100 BEGONIA LN	11 Single Unit
583	79,690	1.83	035141005000	113 BEGONIA LN	11 Single Unit
585	13,156	0.30	035142062006	122 BONNIE SUE LN	11 Single Unit
618	13,631	0.31	035142062002	119 BONNIE SUE LN	11 Single Unit
621	188,574	4.33	035140005002	142 HELLEM DR	11 Single Unit
622	46,476	1.07	035141002001	0 LEWIS RD	91 Residential Land - Undivided
623	48,611	1.12	035141002002	0 LEWIS RD	91 Residential Land - Undivided
625	46,071	1.06	035142002001	136 BONNIE SUE LN	11 Single Unit
628	227,032	5.21	035115009000	181 16 HIDEAWAY LN	11 Single Unit
629	52,275	1.20	035115003006	181 F HIDEAWAY LN	18 Other Residential
631	223,497	5.13	035115003008	181 C HIDEAWAY LN	11 Single Unit
632	122,716	2.82	035234009004	0 HIDEAWAY LN	91 Residential Land - Undivided
646	201,731	4.63	035115003003	0 HIDEAWAY LN	91 Residential Land - Undivided
650	45,405	1.04	035190003002	0 POWERHOUSE RD	91 Residential Land - Undivided
651	53,788	1.24	035234071002	126 HIDEAWAY LN	18 Other Residential
652	42,499	0.98	035234007002	126 A HIDEAWAY LN	18 Other Residential
653	131,189	3.01	035115008000	152 HIDEAWAY LN	11 Single Unit
655	253,526	5.82	035234012000	0 SNYDER RD	11 Single Unit
656	64,363	1.48	035234071001	120 HIDEAWAY LN	18 Other Residential
303	22,633	0.52	035145011014	107 BELLE LN	91 Residential Land - Undivided
304	22,427	0.52	035145011015	103 BELLE LN	91 Residential Land - Undivided
305	23,730	0.55	035141011000	118 BEGONIA LN	11 Single Unit
309	22,822	0.52	035145011017	150 BURL LN	11 Single Unit
310	21,649	0.50	035145011016	154 BURL LN	11 Single Unit
312	12,459	0.29	010125177000	109 ALTA DR	19 Vacation Home
315	12,356	0.28	010125175000	0 ALTA DR	19 Vacation Home
317	13,453	0.31	011260054000	0 SHADY ACRES RD	11 Single Unit
319	16,471	0.38	010125173000	128 ALTA DR	19 Vacation Home
322	11,637	0.27	010125171000	134 ALTA DR	19 Vacation Home
324	11,480	0.26	010125170000	138 ALTA DR	11 Single Unit
325	11,252	0.26	010125169000	142 ALTA DR	11 Single Unit
330	14,544	0.33	010125138000	162 ALPINE DR	19 Vacation Home
331	19,513	0.45	010125137000	164 ALPINE DR	19 Vacation Home
332	9,330	0.21	010125119000	0 ALPINE DR	19 Vacation Home
333	15,439	0.35	010125120000	178 ALPINE DR	19 Vacation Home
336	10,605	0.24	010125125000	0 ALPINE DR	19 Vacation Home
337	43,679	1.00	035140001011	131 HELLEM DR	11 Single Unit
338	9,604	0.22	010125126000	0 ALPINE DR	19 Vacation Home
339	9,222	0.21	010125127000	0 ALPINE DR	19 Vacation Home
345	228,720	5.25	035140007000	0 US HIGHWAY 12	91 Residential Land - Undivided
346	80,132	1.84	035136000000	13163 US HIGHWAY 12	16 Hotel/Motel
347	44,870	1.03	035129008000	0 TURNER RD	91 Residential Land - Undivided
349	114,909	2.64	035120000000	13173 US HIGHWAY 12	65 Service - Professional
351	94,407	2.17	035129011000	133 TURNER RD	11 Single Unit
356	3,124,994	71.74	035145062002	111 FAWN RD	18 Other Residential
358	1,028,578	23.61	035145006001	112 SILVER RD	NEW
359	59,300	1.36	035145006001	112 SILVER RD	92 Non-Commercial Forest
362	12,199	0.28	010125168000	0 ALTA DR	18 Other Residential
369	27,959	0.64	035217001001	0 SKATE CREEK RD S	91 Residential Land - Undivided
370	22,916	0.53	035131006000	159 COMBS RD	18 Other Residential

undeveloped/vacant	LND	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
public/quasi-public	COM	STMU	MU	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	LWB	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
trans/util	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	STR	STMU	RM	1
single-residential	STR	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	STR	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	LWM	STMU	RM	0
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	LWM	STMU	RM	0
single-residential	LWM	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STR-4	RM	1
single-residential	LWM	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	RDD-5	RVL	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	STR	STR-4	RM	1
single-residential	STR	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	STR	STMU	RM	1
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
multi-residential	COM	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
commercial retail	GOV	STMU	RM	0
single-residential	STR	STMU	RM	1
single-residential	LWB	RDD-5	RVL	0
mining/forestry	GOV	Park	Open Space	0
mining/forestry	GOV	Park	Open Space	0
single-residential	LWB	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWM	STMU	RM	0

$0	$3,200	$3,200	0.0
$0	$73,800	$73,800	0.0
$0	$78,700	$78,700	0.0
$570,000	$468,300	$1,038,300	1.2
$268,400	$183,200	$451,600	1.5
$367,000	$294,200	$661,200	1.2
$23,300	$179,200	$202,500	0.1
$0	$48,100	$48,100	0.0
$0	$33,600	$33,600	0.0
$512,800	$235,700	$748,500	2.2
$212,400	$63,100	$275,500	3.4
$348,500	$46,500	$395,000	7.5
$304,500	$85,700	$390,200	3.6
$132,600	$37,700	$170,300	3.5
$490,700	$38,600	$529,300	12.7
$776,900	$196,100	$973,000	4.0
$0	$37,600	$37,600	0.0
$0	$38,400	$38,400	0.0
$324,000	$66,400	$390,400	4.9
$1,287,700	$108,400	$1,396,100	11.9
$277,000	$63,800	$340,800	4.3
$444,500	$97,300	$541,800	4.6
$0	$79,600	$79,600	0.0
$0	$106,000	$106,000	0.0
$0	$37,900	$37,900	0.0
$109,300	$40,500	$149,800	2.7
$127,000	$54,700	$181,700	2.3
$260,400	$93,800	$354,200	2.8
$214,700	$115,900	$330,600	1.9
$208,400	$73,800	$282,200	2.8
$0	$117,900	$117,900	0.0
$0	$93,800	$93,800	0.0
$381,500	$46,700	$428,200	8.2
$524,700	$117,900	$642,600	4.5
$523,300	$117,900	$641,200	4.4
$629,500	$100,000	$729,500	6.3
$0	$60,000	$60,000	0.0
$226,000	$26,800	$252,800	8.4
$452,400	$60,000	$512,400	7.5
$339,100	$60,000	$399,100	5.7
$607,400	$69,900	$677,300	8.7
$404,200	$69,900	$474,100	5.8
$440,300	$60,000	$500,300	7.3
$395,300	$60,000	$455,300	6.6
$0	$60,000	$60,000	0.0
$481,600	$60,000	$541,600	8.0
$0	$60,000	$60,000	0.0
$836,000	$85,200	$921,200	9.8
$329,900	$60,000	$389,900	5.5
$0	$60,000	$60,000	0.0
$0	$178,300	$178,300	0.0
$648,000	$240,500	$888,500	2.7
$0	$63,000	$63,000	0.0
$140,900	$42,900	$183,800	3.3
$620,800	$98,300	$719,100	6.3
$1,461,900	$384,200	$1,846,100	3.8
$101,900	$115,500	$217,400	0.9
$101,900	$115,500	$217,400	0.9
$11,100	$60,000	$71,100	0.2
$0	$93,400	$93,400	0.0
$280,900	$80,000	$360,900	3.5

TRUE	FALSE	VACANT
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	0.16	0.00
	0.37	0.14
	2.66	2.16
Yes	7.71	11.34
	2.02	3.05
	2.31	8.22
	1.58	3.30
	1.40	0.20
	0.16	2.28
	0.91	2.45
	0.55	0.08
	0.26	0.02
	1.64	0.19
	0.19	0.11
	0.02	0.30
	0.09	4.24
	0.63	0.43
	0.90	0.22
	0.46	0.60
	1.03	4.18
	0.20	1.00
	0.92	4.21
	0.36	2.46
	1.56	3.07
	0.36	0.69
	0.24	1.00
	0.01	0.97
	1.98	1.03
	1.48	4.34
	1.13	0.35
	0.06	0.46
	0.00	0.51
	0.14	0.40
	0.12	0.40
	0.00	0.50
	0.00	0.29
	0.00	0.28
	0.00	0.31
	0.01	0.37
	0.05	0.21
	0.05	0.21
	0.00	0.26
	0.00	0.33
	0.00	0.44
	0.03	0.18
	0.06	0.29
	0.01	0.23
	0.21	0.79
	0.03	0.19
	0.06	0.15
	1.17	4.08
	0.04	1.80
	0.10	0.93
	0.04	2.60
	0.10	2.07
	1.02	70.72
Yes	0.28	23.33
	0.28	1.08
	0.02	0.26
	0.00	0.64
	0.00	0.52

0.00	0.00	0.00	1	35
0.03	0.02	0.08	1	35
0.54	0.32	1.29	1	35
2.83	2.83	5.67	1	
0.76	0.76	1.53	1	35
2.05	2.05	4.11	1	35
0.83	0.83	1.65	1	35
0.05	0.03	0.12	1	35
0.57	0.34	1.37	1	35
0.61	0.61	1.22	1	35
0.02	0.02	0.04	1	35
0.01	0.01	0.01	1	35
0.05	0.05	0.10	1	35
0.03	0.03	0.05	1	35
0.07	0.07	0.15	1	35
1.06	1.06	2.12	1	35
0.11	0.06	0.26	1	35
0.05	0.03	0.13	1	35
0.15	0.15	0.30	1	35
1.05	1.05	2.09	1	35
0.25	0.25	0.50	1	35
1.05	1.05	2.11	1	35
0.61	0.37	1.47	1	35
0.77	0.46	1.84	1	35
0.17	0.10	0.41	1	35
0.25	0.25	0.50	1	35
0.24	0.24	0.49	1	35
0.26	0.26	0.52	1	35
1.09	1.09	2.17	1	35
0.09	0.09	0.18	1	35
0.12	0.07	0.28	1	35
0.13	0.08	0.31	1	35
0.10	0.10	0.20	1	35
0.10	0.10	0.20	1	35
0.12	0.12	0.25	1	35
0.07	0.07	0.14	1	35
0.07	0.04	0.17	1	35
0.08	0.08	0.15	1	9
0.09	0.09	0.19	1	35
0.05	0.05	0.11	1	35
0.05	0.05	0.11	1	35
0.06	0.06	0.13	1	35
0.08	0.08	0.17	1	35
0.11	0.11	0.22	1	35
0.04	0.03	0.11	1	35
0.07	0.07	0.14	1	35
0.06	0.03	0.14	1	35
0.20	0.20	0.40	1	35
0.05	0.05	0.09	1	35
0.04	0.02	0.09	1	35
1.02	0.61	2.45	1	35
0.45	0.45	0.90	1	35
0.23	0.14	0.56	1	35
0.65	0.65	1.30	1	35
0.52	0.52	1.04	1	35
17.68	17.68	35.36	1	9
5.83	5.83	11.67	1	
0.27	0.27	0.54	1	
0.06	0.06	0.13	1	35
0.16	0.10	0.38	1	35
0.13	0.13	0.26	1	35

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371	43,685	1.00	035214004001	13051 US HIGHWAY 12	53 Retail - General Mrchds
375	48,008	1.10	035197001000	13053 US HIGHWAY 12	59 Retail - Other
386	73,532	1.69	035217003004	0 COMBS RD	18 Other Residential
391	64,331	1.48	035131003000	0 ALTA DR	19 Vacation Home
392	13,424	0.31	010125176000	118 ALTA DR	19 Vacation Home
393	14,971	0.34	010125161000	0 ALPINE DR	19 Vacation Home
395	14,241	0.33	010125162000	0 ALPINE DR	19 Vacation Home
396	36,848	0.85	010125145001	112 ALTA LN	11 Single Unit
397	13,442	0.31	010125174000	0 ALTA DR	19 Vacation Home
398	12,128	0.28	010125163000	133 ALPINE DR	11 Single Unit
400	15,759	0.36	010125146000	116 ALTA LN	11 Single Unit
402	10,076	0.23	010125164000	135 ALPINE DR	18 Other Residential
403	16,512	0.38	010125142000	104 ALTA LN	19 Vacation Home
404	10,381	0.24	010125165000	0 ALPINE DR	19 Vacation Home
406	22,326	0.51	035142006004	118 6 BONNIE SUE LN	11 Single Unit
408	16,678	0.38	010125141000	144 ALPINE DR	11 Single Unit
409	11,353	0.26	010125166000	139 ALPINE DR	11 Single Unit
410	16,095	0.37	010125172000	132 ALTA DR	19 Vacation Home
412	12,730	0.29	010125153000	0 ALTA LN	19 Vacation Home
415	21,664	0.50	010125150000	124 ALTA LN	19 Vacation Home
416	12,406	0.29	010125167000	0 ALPINE DR	19 Vacation Home
418	30,150	0.69	035142006001	118 BONNIE SUE LN	11 Single Unit
419	18,251	0.42	010125152000	121 ALTA LN	19 Vacation Home
420	12,513	0.29	010125130000	247 ALPINE DR	19 Vacation Home
421	13,189	0.30	010125129000	245 ALPINE DR	11 Single Unit
423	19,575	0.45	010125151000	0 ALTA LN	19 Vacation Home
424	11,438	0.26	010125128000	243 ALPINE DR	11 Single Unit
427	18,519	0.43	010125136000	166 ALPINE DR	19 Vacation Home
429	13,164	0.30	010125133000	242 ALPINE DR	19 Vacation Home
430	121,180	2.78	035142004000	13050 US HIGHWAY 12	91 Residential Land - Undivided
431	18,345	0.42	010125134000	172 ALPINE DR	19 Vacation Home
432	12,725	0.29	010125104000	231 ALPINE DR	19 Vacation Home
433	7,385	0.17	010125119001	0 ALPINE DR	19 Vacation Home
439	8,767	0.20	010125101000	223 ALPINE DR	11 Single Unit
441	7,805	0.18	010125081000	183 ALPINE DR	19 Vacation Home
442	8,924	0.21	010125111000	220 ALPINE DR	19 Vacation Home
444	16,498	0.38	010125100000	219 ALPINE DR	19 Vacation Home
445	6,572	0.15	010125082000	187 ALPINE DR	19 Vacation Home
446	8,039	0.19	010125110000	220 ALPINE DR	19 Vacation Home
447	7,451	0.17	010125083000	189 ALPINE DR	19 Vacation Home
449	36,180	0.83	035140001009	109 HELLEM DR	11 Single Unit
450	12,063	0.28	010125109000	214 ALPINE DR	19 Vacation Home
451	9,113	0.21	010125084000	191 ALPINE DR	19 Vacation Home
452	3,917	0.09	035130001001	0 ALPINE DR	19 Vacation Home
454	12,454	0.29	010125085000	195 ALPINE DR	19 Vacation Home
456	8,456	0.19	010125088000	203 ALPINE DR	19 Vacation Home
457	13,618	0.31	010125086000	197 ALPINE DR	19 Vacation Home
458	12,753	0.29	010125089000	0 ALPINE DR	19 Vacation Home
459	11,352	0.26	010125097000	100 COTTONWOOD DR	19 Vacation Home
460	9,655	0.22	010125090000	0 COTTONWOOD DR	19 Vacation Home
461	17,391	0.40	010125087000	199 ALPINE DR	11 Single Unit
462	10,292	0.24	010125096000	0 COTTONWOOD DR	19 Vacation Home
463	9,364	0.22	010125091000	0 COTTONWOOD DR	19 Vacation Home
464	13,146	0.30	010125095000	0 COTTONWOOD DR	19 Vacation Home
465	3,319	0.08	035130009000	0 COTTONWOOD DR	19 Vacation Home
466	14,146	0.33	010125094000	108 COTTONWOOD DR	19 Vacation Home
467	11,475	0.26	010125092001	111 COTTONWOOD DR	18 Other Residential
468	8,633	0.20	010125093001	110 COTTONWOOD DR	11 Single Unit
469	407,061	9.35	035140009000	136 LEWIS RD	88 Designated Forest Lnd
470	20,964	0.48	010125148001	118 ALTA LN	19 Vacation Home
471	265,976	6.11	035132004000	13069 US HIGHWAY 12	16 Hotel/Motel

commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
single-residential	LWB	STMU	RL	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STMU	RM	1
single-residential	STR	STR-4	RM	1
single-residential	STR	STR-4	RM	1
single-residential	STR	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STMU	RM	1
single-residential	STR	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	LND	STR-4	RM	0
single-residential	STR	STR-4	RM	0
single-residential	LWB	STR-4	RM	0
single-residential	RES	STR-4	RM	1
mining/forestry	RES	STMU	RM	0
single-residential	STR	STR-4	RM	0
multi-residential	COM	STMU	MU	0

$704,200	$130,700	$834,900	5.4
$652,900	$150,000	$802,900	4.4
$600	$133,400	$134,000	0.0
$0	$90,000	$90,000	0.0
$360,100	$60,000	$420,100	6.0
$0	$60,000	$60,000	0.0
$0	$60,000	$60,000	0.0
$693,700	$100,000	$793,700	6.9
$0	$60,000	$60,000	0.0
$526,300	$60,000	$586,300	8.8
$611,800	$100,000	$711,800	6.1
$51,400	$60,000	$111,400	0.9
$295,200	$60,000	$355,200	4.9
$0	$60,000	$60,000	0.0
$534,500	$58,800	$593,300	9.1
$332,900	$69,900	$402,800	4.8
$469,700	$69,900	$539,600	6.7
$230,800	$69,900	$300,700	3.3
$0	$60,000	$60,000	0.0
$439,600	$100,000	$539,600	4.4
$480,000	$60,000	$540,000	8.0
$530,000	$81,400	$611,400	6.5
$466,000	$60,000	$526,000	7.8
$0	$100,000	$100,000	0.0
$689,500	$100,000	$789,500	6.9
$0	$60,000	$60,000	0.0
$560,000	$100,000	$660,000	5.6
$0	$60,000	$60,000	0.0
$0	$60,000	$60,000	0.0
$0	$90,900	$90,900	0.0
$189,500	$60,000	$249,500	3.2
$391,100	$100,000	$491,100	3.9
$0	$60,000	$60,000	0.0
$439,000	$100,000	$539,000	4.4
$275,500	$106,700	$382,200	2.6
$20,000	$60,000	$80,000	0.3
$458,100	$60,000	$518,100	7.6
$296,600	$106,700	$403,300	2.8
$360,200	$60,000	$420,200	6.0
$0	$106,700	$106,700	0.0
$523,600	$75,700	$599,300	6.9
$314,700	$69,900	$384,600	4.5
$699,100	$106,700	$805,800	6.6
$0	$2,200	$2,200	0.0
$93,800	$106,700	$200,500	0.9
$406,400	$100,000	$506,400	4.1
$718,500	$106,700	$825,200	6.7
$0	$60,000	$60,000	0.0
$828,200	$60,000	$888,200	13.8
$0	$60,000	$60,000	0.0
$461,400	$106,700	$568,100	4.3
$0	$60,000	$60,000	0.0
$208,500	$106,700	$315,200	2.0
$0	$60,000	$60,000	0.0
$0	$6,600	$6,600	0.0
$306,300	$132,100	$438,400	2.3
$7,500	$113,300	$120,800	0.1
$518,800	$113,300	$632,100	4.6
$1,016,100	$43,600	$1,059,700	23.3
$506,500	$116,600	$623,100	4.3
$1,378,000	$785,400	$2,163,400	1.8

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0.01	1.68
0.00	1.47
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0.00	0.32
0.29	0.55
0.00	0.31
0.01	0.26
0.15	0.21
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0.00	0.38
0.03	0.21
0.06	0.45
0.01	0.37
0.02	0.24
0.05	0.32
0.00	0.29
0.09	0.40
0.01	0.28
0.11	0.58
0.02	0.40
0.04	0.25
0.01	0.29
0.07	0.38
0.05	0.21
0.03	0.40
0.09	0.21
0.44	2.34
0.06	0.37
0.03	0.27
0.03	0.14
0.01	0.19
0.00	0.18
0.09	0.11
0.11	0.27
0.02	0.13
0.03	0.16
0.05	0.13
0.15	0.68
0.12	0.16
0.07	0.14
0.07	0.02
0.13	0.15
0.05	0.15
0.13	0.18
0.03	0.26
0.02	0.24
0.07	0.15
0.11	0.29
0.00	0.23
0.02	0.20
0.04	0.26
0.04	0.04
0.09	0.23
0.15	0.11
0.05	0.15
2.07	7.27
0.16	0.32
0.02	6.09

0.25	0.25	0.50	1	
0.28	0.28	0.55	1	
0.42	0.25	1.01	1	9
0.37	0.22	0.88	1	35
0.08	0.08	0.15	1	35
0.09	0.05	0.21	1	35
0.08	0.05	0.19	1	35
0.14	0.14	0.28	1	35
0.08	0.05	0.18	1	35
0.07	0.07	0.13	1	35
0.05	0.05	0.11	1	35
0.06	0.06	0.11	1	35
0.09	0.09	0.19	1	35
0.05	0.03	0.13	1	35
0.11	0.11	0.23	1	35
0.09	0.09	0.19	1	35
0.06	0.06	0.12	1	35
0.08	0.08	0.16	1	35
0.07	0.04	0.17	1	35
0.10	0.10	0.20	1	35
0.07	0.07	0.14	1	35
0.15	0.15	0.29	1	35
0.10	0.10	0.20	1	35
0.06	0.04	0.15	1	35
0.07	0.07	0.15	1	35
0.10	0.06	0.23	1	35
0.05	0.05	0.11	1	35
0.10	0.06	0.24	1	35
0.05	0.03	0.12	1	35
0.59	0.35	1.41	1	35
0.09	0.09	0.18	1	35
0.07	0.07	0.13	1	35
0.04	0.02	0.08	1	35
0.05	0.05	0.09	1	35
0.04	0.04	0.09	1	35
0.03	0.03	0.06	1	35
0.07	0.07	0.13	1	35
0.03	0.03	0.06	1	35
0.04	0.04	0.08	1	35
0.03	0.02	0.08	1	35
0.17	0.17	0.34	1	35
0.04	0.04	0.08	1	35
0.03	0.03	0.07	1	35
0.01	0.00	0.01	1	35
0.04	0.04	0.08	1	35
0.04	0.04	0.07	1	35
0.04	0.04	0.09	1	35
0.07	0.04	0.16	1	35
0.06	0.06	0.12	1	35
0.04	0.02	0.09	1	35
0.07	0.07	0.14	1	35
0.06	0.03	0.14	1	35
0.05	0.05	0.10	1	35
0.07	0.04	0.16	1	35
0.01	0.01	0.02	1	35
0.06	0.06	0.12	1	35
0.03	0.02	0.07	1	35
0.04	0.04	0.08	1	35
1.82	1.82	3.64	1	35
0.08	0.08	0.16	1	35
1.52	1.52	3.04	1	

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472	9,914	0.23	010125102000	225 ALPINE DR	19 Vacation Home
473	13,337	0.31	010125099001	213 ALPINE DR	11 Single Unit
475	17,484	0.40	010125149000	122 ALTA LN	19 Vacation Home
476	12,687	0.29	010125103000	227 ALPINE DR	19 Vacation Home
480	38,538	0.89	035146007000	235 SKATE CREEK RD S	11 Single Unit
481	10,662	0.25	035146011000	0 SKATE CREEK RD S	91 Residential Land - Undivided
483	94,979	2.18	035147006001	162 RIVERVIEW DR	11 Single Unit
485	129,456	2.97	035146005000	0 FIR ST	91 Residential Land - Undivided
486	153,797	3.53	035146004000	0 FIR ST	11 Single Unit
487	45,425	1.04	035146003000	0 SKATE CREEK RD S	91 Residential Land - Undivided
489	93,856	2.16	035146016002	136 ALDER ST	11 Single Unit
491	248,516	5.71	035146013000	111 FIR ST	91 Residential Land - Undivided
492	41,321	0.95	009800035000	102 CEDAR ST	18 Other Residential
493	39,389	0.90	009800040000	102 FIR ST	19 Vacation Home
494	36,705	0.84	009800039000	0 CEDAR ST	18 Other Residential
495	38,918	0.89	009800034000	105 ALDER ST	18 Other Residential
496	102,072	2.34	035146016003	138 ALDER ST	18 Other Residential
497	39,225	0.90	035146015000	0 ALDER ST	11 Single Unit
498	86,661	1.99	009800031001	108 ALDER ST	11 Single Unit
499	19,526	0.45	009800037000	118 CEDAR ST	18 Other Residential
500	19,555	0.45	009800037001	120 CEDAR ST	11 Single Unit
501	39,107	0.90	009800036000	112 CEDAR ST	11 Single Unit
502	37,159	0.85	009800032000	119 ALDER ST	18 Other Residential
503	36,747	0.84	009800033000	109 ALDER ST	18 Other Residential
504	76,031	1.75	035146016001	140 ALDER ST	18 Other Residential
505	18,355	0.42	009800038000	117 CEDAR ST	11 Single Unit
506	18,391	0.42	009800038001	0 CEDAR ST	91 Residential Land - Undivided
515	12,379	0.28	010125106000	237 ALPINE DR	11 Single Unit
516	13,666	0.31	010125105000	235 ALPINE DR	19 Vacation Home
517	390,228	8.96	035132005001	13097 US HIGHWAY 12	91 Residential Land - Undivided
519	25,323	0.58	010596023001	0 HIDEAWAY LN	11 Single Unit
524	17,878	0.41	035145011022	0 BURL LN	91 Residential Land - Undivided
525	33,665	0.77	035145011005	112 BURL LN	11 Single Unit
527	63,374	1.46	035197003000	0 US HIGHWAY 12	43 Trans - Aircraft
531	327,657	7.52	035185001000	0 US HIGHWAY 12	18 Other Residential
532	265,575	6.10	035185002000	0 US HIGHWAY 12	91 Residential Land - Undivided
533	74,281	1.71	035242000000	12821 US HIGHWAY 12	12 Two-to-Four Unit
534	45,052	1.03	035240001002	12813 17 US HIGHWAY 12	18 Other Residential
536	28,118	0.65	035140001010	120 LEWIS RD	18 Other Residential
537	89,672	2.06	035140001002	112 LEWIS RD	69 Service - Miscellaneous
538	36,342	0.83	035140001007	113 HELLEM DR	91 Residential Land - Undivided
542	12,704	0.29	010125131000	246 ALPINE DR	11 Single Unit
543	14,019	0.32	010125132000	0 ALPINE DR	19 Vacation Home
544	18,400	0.42	010125135000	170 ALPINE DR	19 Vacation Home
545	18,637	0.43	035145011006	118 BURL LN	11 Single Unit
546	24,262	0.56	035145011024	106 BELLE LN	11 Single Unit
547	17,124	0.39	035145011025	120 BURL LN	11 Single Unit
549	17,229	0.40	035145011008	126 BURL LN	11 Single Unit
550	44,914	1.03	035145011012	108 BELLE LN	11 Single Unit
558	20,716	0.48	035145001005	139 BURL LN	11 Single Unit
559	23,107	0.53	035145001006	110 SPYGLASS LN	11 Single Unit
561	58,935	1.35	035141009000	128 BEGONIA LN	11 Single Unit
562	90,975	2.09	035141010000	0 BEGONIA LN	91 Residential Land - Undivided
563	27,637	0.63	035145011018	156 BURL LN	11 Single Unit
569	14,282	0.33	010125115001	230 ALPINE DR	11 Single Unit
570	14,521	0.33	010125115002	232 ALPINE DR	11 Single Unit
571	15,668	0.36	010125121000	0 ALPINE DR	19 Vacation Home
572	16,113	0.37	010125122000	186 ALPINE DR	11 Single Unit
573	24,285	0.56	010125113000	228 ALPINE DR	11 Single Unit
574	12,606	0.29	010125123000	190 ALPINE DR	19 Vacation Home
575	12,083	0.28	010125124000	194 ALPINE DR	19 Vacation Home

single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	RDD-5	RVL	1
undeveloped/vacant	LND	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	1
undeveloped/vacant	LND	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	1
undeveloped/vacant	LND	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	1
undeveloped/vacant	LND	RDD-5	RVL	0
single-residential	LWM	RDD-5	RVL	0
single-residential	LND	RDD-5	RVL	0
single-residential	LWB	RDD-5	RVL	0
single-residential	LWB	RDD-5	RVL	0
single-residential	LWM	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	1
single-residential	RES	RDD-5	RVL	1
single-residential	LWB	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	1
single-residential	RES	RDD-5	RVL	1
single-residential	LWB	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	0
single-residential	LWM	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	1
undeveloped/vacant	LND	RDD-5	RVL	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STR-4	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
trans/util	COM	STMU	MU	0
single-residential	LWB	STMU	RL	0
undeveloped/vacant	LND	STMU	RL	0
multi-residential	RES	STMU	RL	3
single-residential	LWM	STMU	RL	0
single-residential	LWB	STMU	RM	0
public/quasi-public	COM	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	1
single-residential	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0

$736,200	$100,000	$836,200	7.4
$437,000	$60,000	$497,000	7.3
$363,200	$100,000	$463,200	3.6
$330,800	$100,000	$430,800	3.3
$490,200	$61,000	$551,200	8.0
$0	$12,900	$12,900	0.0
$159,200	$91,500	$250,700	1.7
$0	$59,500	$59,500	0.0
$217,400	$101,200	$318,600	2.1
$0	$67,100	$67,100	0.0
$431,600	$87,800	$519,400	4.9
$0	$115,500	$115,500	0.0
$25,000	$63,600	$88,600	0.4
$0	$63,600	$63,600	0.0
$30,200	$63,600	$93,800	0.5
$28,800	$64,400	$93,200	0.4
$252,100	$83,000	$335,100	3.0
$192,400	$63,000	$255,400	3.1
$495,700	$83,500	$579,200	5.9
$35,000	$40,100	$75,100	0.9
$49,800	$40,100	$89,900	1.2
$126,000	$63,600	$189,600	2.0
$12,500	$64,400	$76,900	0.2
$101,800	$64,400	$166,200	1.6
$104,700	$84,000	$188,700	1.2
$257,200	$37,200	$294,400	6.9
$0	$37,200	$37,200	0.0
$467,600	$100,000	$567,600	4.7
$751,700	$100,000	$851,700	7.5
$0	$180,100	$180,100	0.0
$455,900	$49,300	$505,200	9.2
$0	$4,600	$4,600	0.0
$479,900	$73,800	$553,700	6.5
$0	$31,500	$31,500	0.0
$13,600	$88,200	$101,800	0.2
$0	$77,000	$77,000	0.0
$528,200	$83,000	$611,200	6.4
$257,700	$42,200	$299,900	6.1
$20,000	$57,500	$77,500	0.3
$207,200	$59,500	$266,700	3.5
$0	$63,200	$63,200	0.0
$364,500	$60,000	$424,500	6.1
$242,900	$60,000	$302,900	4.0
$692,900	$60,000	$752,900	11.5
$463,900	$73,800	$537,700	6.3
$754,000	$112,500	$866,500	6.7
$631,600	$93,800	$725,400	6.7
$513,300	$93,800	$607,100	5.5
$71,200	$121,500	$192,700	0.6
$591,200	$117,900	$709,100	5.0
$670,000	$117,900	$787,900	5.7
$412,800	$78,300	$491,100	5.3
$0	$88,500	$88,500	0.0
$712,000	$117,900	$829,900	6.0
$523,000	$100,000	$623,000	5.2
$618,000	$100,000	$718,000	6.2
$0	$60,000	$60,000	0.0
$556,900	$60,000	$616,900	9.3
$655,700	$90,000	$745,700	7.3
$0	$60,000	$60,000	0.0
$336,400	$60,000	$396,400	5.6

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0.05	0.18
0.01	0.29
0.02	0.38
0.04	0.25
0.00	0.88
0.03	0.21
0.05	2.13
0.03	2.94
0.05	3.48
0.00	1.04
0.25	1.91
0.21	5.49
0.01	0.94
0.01	0.90
0.02	0.82
0.02	0.87
0.01	2.33
0.03	0.87
0.01	1.98
0.00	0.45
0.01	0.44
0.01	0.89
0.00	0.85
0.02	0.82
0.06	1.68
0.01	0.41
0.04	0.38
0.01	0.27
0.03	0.29
4.65	4.30
0.07	0.51
0.27	0.14
0.08	0.69
0.00	1.45
0.03	7.49
0.02	6.08
0.00	1.70
0.03	1.01
0.10	0.55
0.11	1.95
0.14	0.69
0.11	0.18
0.15	0.17
0.02	0.40
0.03	0.40
0.06	0.50
0.00	0.39
0.00	0.40
0.20	0.83
0.00	0.47
0.01	0.52
0.13	1.22
0.22	1.87
0.02	0.61
0.06	0.27
0.09	0.25
0.08	0.28
0.09	0.28
0.19	0.36
0.04	0.25
0.01	0.27

0.05	0.05	0.09	1	35
0.07	0.07	0.15	1	35
0.09	0.09	0.19	1	35
0.06	0.06	0.12	1	35
0.22	0.22	0.44	1	9
0.05	0.03	0.13	1	9
0.53	0.53	1.06	1	9
0.74	0.44	1.76	1	9
0.87	0.87	1.74	1	9
0.26	0.16	0.62	1	9
0.48	0.48	0.95	1	9
1.37	0.82	3.30	1	9
0.24	0.24	0.47	1	9
0.22	0.13	0.54	1	9
0.21	0.21	0.41	1	9
0.22	0.22	0.44	1	9
0.58	0.58	1.16	1	9
0.22	0.22	0.44	1	9
0.50	0.50	0.99	1	9
0.11	0.11	0.22	1	9
0.11	0.11	0.22	1	9
0.22	0.22	0.44	1	9
0.21	0.21	0.42	1	9
0.21	0.21	0.41	1	9
0.42	0.42	0.84	1	9
0.10	0.10	0.21	1	9
0.10	0.06	0.23	1	9
0.07	0.07	0.13	1	35
0.07	0.07	0.14	1	35
1.08	0.65	2.58	1	35
0.13	0.13	0.26	1	35
0.03	0.02	0.08	1	35
0.17	0.17	0.35	1	35
0.36	0.22	0.87	1	
1.87	1.87	3.75	1	9
1.52	0.91	3.65	1	9
0.43	0.43	0.85	1	9
0.25	0.25	0.50	1	9
0.14	0.14	0.27	1	35
0.49	0.49	0.98	1	35
0.17	0.10	0.42	1	35
0.05	0.05	0.09	1	35
0.04	0.04	0.09	1	35
0.10	0.10	0.20	1	35
0.10	0.10	0.20	1	35
0.13	0.13	0.25	1	35
0.10	0.10	0.20	1	35
0.10	0.10	0.20	1	35
0.21	0.21	0.42	1	35
0.12	0.12	0.24	1	35
0.13	0.13	0.26	1	35
0.31	0.31	0.61	1	35
0.47	0.28	1.12	1	35
0.15	0.15	0.31	1	35
0.07	0.07	0.13	1	35
0.06	0.06	0.12	1	35
0.07	0.04	0.17	1	35
0.07	0.07	0.14	1	35
0.09	0.09	0.18	1	35
0.06	0.04	0.15	1	35
0.07	0.07	0.14	1	35

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576	13,194	0.30	010125107000	239 ALPINE DR	19 Vacation Home
577	13,607	0.31	010125108000	241 ALPINE DR	19 Vacation Home
578	14,852	0.34	010125118000	240 ALPINE DR	11 Single Unit
579	12,456	0.29	010125117000	238 ALPINE DR	19 Vacation Home
580	13,491	0.31	010125116000	236 ALPINE DR	19 Vacation Home
584	23,950	0.55	035142062004	0 BONNIE SUE LN	91 Residential Land - Undivided
586	17,082	0.39	035142062005	124 BONNIE SUE LN	11 Single Unit
587	100,416	2.31	035140005001	132 HELLEM DR	11 Single Unit
599	15,125	0.35	035132053005	140 BUGLE LN	11 Single Unit
600	15,106	0.35	035132053006	136 BUGLE LN	91 Residential Land - Undivided
607	15,124	0.35	035132053013	118 BUGLE LN	11 Single Unit
617	219,052	5.03	035132005002	120 SKATE CREEK RD S	18 Other Residential
619	192,254	4.41	035132002000	0 US HIGHWAY 12	69 Service - Miscellaneous
620	12,459	0.29	035142062003	118 04 A BONNIE SUE LN	91 Residential Land - Undivided
624	47,601	1.09	035140001006	122 HELLEM DR	11 Single Unit
627	70,908	1.63	035115003004	181 HIDEAWAY LN	91 Residential Land - Undivided
633	93,868	2.16	035234009003	0 HIDEAWAY LN	91 Residential Land - Undivided
634	41,767	0.96	035234015006	148 BEAR GRASS LN	91 Residential Land - Undivided
635	93,816	2.15	035234015003	139 BEAR GRASS LN	91 Residential Land - Undivided
636	19,486	0.45	035131002002	128 ALPINE DR	91 Residential Land - Undivided
637	18,789	0.43	035131002003	136 ALPINE DR	91 Residential Land - Undivided
638	17,043	0.39	035131002004	138 ALPINE DR	91 Residential Land - Undivided
639	116,851	2.68	035131002001	124 SKATE CREEK RD	11 Single Unit
645	53,697	1.23	035217013001	138 COMBS RD	11 Single Unit
647	22,548	0.52	035230007002	0 RIFFE RD	11 Single Unit
648	12,352	0.28	035190003004	0 POWERHOUSE RD	91 Residential Land - Undivided
649	22,773	0.52	035190003003	0 POWERHOUSE RD	91 Residential Land - Undivided
654	138,099	3.17	035234009001	126 40 HIDEAWAY LN	18 Other Residential
666	14,015	0.32	xxxxxx		
667	2,954	0.07	xxxxxx		
668	901	0.02	xxxxxx		
380	62,206	1.43	035213003002	0 SNYDER RD	91 Residential Land - Undivided
381	10,161	0.23	035213003003	0 SNYDER RD	91 Residential Land - Undivided
382	99,212	2.28	035213003001	114 SNYDER RD	11 Single Unit
541	54,596	1.25	035193000000	120 SNYDER RD	11 Single Unit
313	15,719	0.36	035145063001	0 SHADY ACRES RD	19 Vacation Home
320	10,191	0.23	011260053000	0 SHADY ACRES RD	11 Single Unit
323	8,951	0.21	011260052000	106 SHADY ACRES RD	11 Single Unit
326	9,960	0.23	011260051000	100 SHADY ACRES RD	11 Single Unit
327	15,695	0.36	010125139000	158 ALPINE DR	19 Vacation Home
366	25,458	0.58	035217010004	143 SMITH RD	18 Other Residential
367	14,219	0.33	035217010003	133 SKATE CREEK RD S	91 Residential Land - Undivided
368	57,624	1.32	035217014000	0 SKATE CREEK RD S	18 Other Residential
372	17,350	0.40	035198000000	0 SMITH RD	11 Single Unit
373	9,014	0.21	035212000000	136 SMITH RD	11 Single Unit
374	21,205	0.49	035197002000	113 SKATE CREEK RD S	53 Retail - General Mrchds
376	27,084	0.62	035217010002	141 SMITH RD	11 Single Unit
377	11,997	0.28	035217012000	112 COMBS RD	11 Single Unit
378	24,865	0.57	035217001002	0 COMBS RD	91 Residential Land - Undivided
379	34,102	0.78	035217016000	143 COMBS RD	11 Single Unit
383	12,414	0.29	035214006000	110 SNYDER RD	11 Single Unit
384	70,841	1.63	035196000000	0 SNYDER RD	59 Retail - Other
385	14,707	0.34	035217003005	145 COMBS RD	11 Single Unit
387	2,735	0.06	035217003002	0 COMBS RD	18 Other Residential
388	29,636	0.68	035132005007	101 ALPINE DR	91 Residential Land - Undivided
389	29,733	0.68	035132005006	103 ALPINE DR	91 Residential Land - Undivided
390	29,613	0.68	035132005008	174 SKATE CREEK RD S	91 Residential Land - Undivided
399	13,140	0.30	010125143000	106 ALTA LN	19 Vacation Home
414	9,763	0.22	010125140000	154 ALPINE DR	11 Single Unit
440	9,423	0.22	010125080000	181 ALPINE DR	19 Vacation Home
453	4,721	0.11	010125098001	0 ALPINE DR	19 Vacation Home

single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	STR	STMU	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	STR	STMU	RM	1
single-residential	STR	STMU	RM	0
public/quasi-public	COM	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	LWM	STMU	RM	0
		STMU	RL	0
		STMU	RM	0
		STMU	MU	0
undeveloped/vacant	LND	STMU	RL	0
undeveloped/vacant	LND	STMU	RL	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RL	1
single-residential	RES	RDD-5	RVL	0
single-residential	RES	RDD-5	RVL	1
single-residential	RES	RDD-5	RVL	1
single-residential	RES	RDD-5	RVL	1
single-residential	RES	STR-4	RM	0
single-residential	LWM	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWB	STMU	RM	0
single-residential	RES	STMU	MU	1
single-residential	STR	STMU	MU	1
commercial retail	COM	STMU	MU	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	AX	1
single-residential	RES	STMU	RM	1
commercial retail	COM	STMU	MU	0
single-residential	RES	STMU	RM	1
single-residential	LWB	STMU	RM	0
undeveloped/vacant	LND	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
undeveloped/vacant	LND	STR-4	RM	0
single-residential	RES	STR-4	RM	0
single-residential	RES	STR-4	RM	1
single-residential	RES	STR-4	RM	0
single-residential	LND	STR-4	RM	0

$509,600	$100,000	$609,600	5.1
$819,000	$100,000	$919,000	8.2
$732,900	$100,000	$832,900	7.3
$478,400	$100,000	$578,400	4.8
$154,800	$100,000	$254,800	1.5
$0	$49,900	$49,900	0.0
$189,900	$33,400	$223,300	5.7
$1,009,000	$182,900	$1,191,900	5.5
$424,400	$90,700	$515,100	4.7
$0	$90,700	$90,700	0.0
$474,800	$105,700	$580,500	4.5
$176,400	$678,000	$854,400	0.3
$167,000	$258,600	$425,600	0.6
$0	$29,500	$29,500	0.0
$354,500	$73,100	$427,600	4.8
$0	$81,300	$81,300	0.0
$0	$73,400	$73,400	0.0
$0	$134,000	$134,000	0.0
$0	$154,200	$154,200	0.0
$0	$55,300	$55,300	0.0
$0	$55,300	$55,300	0.0
$0	$55,300	$55,300	0.0
$692,300	$80,800	$773,100	8.6
$327,200	$103,900	$431,100	3.1
$149,400	$80,000	$229,400	1.9
$0	$46,700	$46,700	0.0
$0	$35,600	$35,600	0.0
$212,300	$71,900	$284,200	3.0
$0	$0	$0	0.0
$0	$0	$0	0.0
$0	$0	$0	0.0
$0	$120,100	$120,100	0.0
$0	$13,400	$13,400	0.0
$374,900	$146,800	$521,700	2.6
$181,700	$96,000	$277,700	1.9
$62,900	$41,100	$104,000	1.5
$144,200	$22,700	$166,900	6.4
$177,100	$22,700	$199,800	7.8
$302,000	$32,400	$334,400	9.3
$582,400	$60,000	$642,400	9.7
$388,100	$93,400	$481,500	4.2
$0	$53,300	$53,300	0.0
$5,800	$120,100	$125,900	0.0
$68,200	$80,000	$148,200	0.9
$231,700	$62,100	$293,800	3.7
$69,500	$54,000	$123,500	1.3
$338,700	$93,400	$432,100	3.6
$345,500	$80,000	$425,500	4.3
$0	$93,400	$93,400	0.0
$131,600	$106,700	$238,300	1.2
$220,100	$80,000	$300,100	2.8
$6,800	$169,900	$176,700	0.0
$112,100	$80,000	$192,100	1.4
$15,100	$18,700	$33,800	0.8
$0	$90,000	$90,000	0.0
$0	$90,000	$90,000	0.0
$0	$90,000	$90,000	0.0
$300,900	$60,000	$360,900	5.0
$337,900	$60,000	$397,900	5.6
$537,500	$106,700	$644,200	5.0
$0	$30,100	$30,100	0.0

FALSE	FALSE	NON-VACANT
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0.05	0.25
0.06	0.26
0.06	0.28
0.07	0.22
0.08	0.23
0.03	0.52
0.11	0.28
0.42	1.89
0.00	0.35
0.00	0.35
0.00	0.35
0.73	4.30
0.32	4.10
0.02	0.27
0.23	0.86
0.04	1.59
0.13	2.02
0.10	0.86
0.09	2.06
0.02	0.43
0.00	0.43
0.01	0.38
0.05	2.63
0.00	1.23
0.00	0.51
0.01	0.28
0.16	0.37
0.58	2.59
0.05	0.27
0.05	0.02
0.05	-0.03
0.54	0.89
0.03	0.20
0.03	2.25
0.83	0.42
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0.06	0.06	0.13	1	35
0.06	0.06	0.13	1	35
0.07	0.07	0.14	1	35
0.05	0.05	0.11	1	35
0.06	0.06	0.12	1	35
0.13	0.08	0.31	1	35
0.07	0.07	0.14	1	35
0.47	0.47	0.94	1	35
0.09	0.09	0.17	1	35
0.09	0.05	0.21	1	35
0.09	0.09	0.17	1	35
1.08	1.08	2.15	1	35
1.02	1.02	2.05	1	35
0.07	0.04	0.16	1	35
0.22	0.22	0.43	1	35
0.40	0.24	0.95	1	35
0.51	0.30	1.21	1	35
0.22	0.13	0.52	1	35
0.52	0.31	1.24	1	35
0.11	0.06	0.26	1	35
0.11	0.06	0.26	1	35
0.10	0.06	0.23	1	35
0.66	0.66	1.32	1	35
0.31	0.31	0.62	1	35
0.13	0.13	0.26	1	35
0.07	0.04	0.17	1	35
0.09	0.06	0.22	1	35
0.65	0.65	1.29	1	35
0.07	0.04	0.16	1	9
0.01	0.00	0.01	1	35
-0.01	-0.01	-0.01	1	
0.22	0.13	0.53	1	9
0.05	0.03	0.12	1	9
0.56	0.56	1.13	1	35
0.11	0.11	0.21	1	9
0.09	0.09	0.18	1	9
0.06	0.06	0.12	1	9
0.05	0.05	0.10	1	9
0.06	0.06	0.11	1	9
0.09	0.09	0.18	1	35
0.15	0.15	0.29	1	35
0.08	0.05	0.20	1	35
0.33	0.20	0.79	1	35
0.10	0.10	0.20	1	
0.05	0.05	0.10	1	
0.12	0.12	0.24	1	
0.16	0.16	0.31	1	35
0.07	0.07	0.14	1	35
0.14	0.09	0.34	1	35
0.20	0.20	0.39	1	
0.07	0.07	0.14	1	35
0.41	0.24	0.98	1	
0.08	0.08	0.17	1	35
0.02	0.02	0.03	1	35
0.17	0.10	0.41	1	35
0.17	0.10	0.41	1	35
0.17	0.10	0.41	1	35
0.08	0.08	0.15	1	35
0.06	0.06	0.11	1	35
0.05	0.05	0.11	1	35
0.03	0.02	0.06	1	35

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479	37,073	0.85	035146006000	0 SKATE CREEK RD S	18 Other Residential
507	90,530	2.08	035214001000	127 WILLAME ST E	91 Residential Land - Undivided
508	76,802	1.76	035213000000	13052 US HIGHWAY 12	11 Single Unit
509	13,436	0.31	035202000000	13050 US HIGHWAY 12	11 Single Unit
510	17,977	0.41	035204001002	13044 US HIGHWAY 12	59 Retail - Other
511	29,844	0.69	035204001003	13040 US HIGHWAY 12	54 Retail - Food
512	61,565	1.41	035205000000	0 US HIGHWAY 12	16 Hotel/Motel
513	20,960	0.48	011217000000	12998 US HIGHWAY 12	54 Retail - Food
514	21,366	0.49	035225001001	109 HAYNES AVE S	18 Other Residential
528	16,849	0.39	035217003003	149 COMBS RD	18 Other Residential
535	108,336	2.49	035186002000	12853 US HIGHWAY 12	11 Single Unit
548	17,704	0.41	035145011026	0 BURL LN	91 Residential Land - Undivided
552	6,930	0.16	035217008000	119 COMBS RD	18 Other Residential
553	13,608	0.31	035217002000	125 COMBS RD	11 Single Unit
554	26,317	0.60	035215007000	0 COMBS RD	63 Service - Business
555	27,699	0.64	035217007000		
556	37,510	0.86	035217009002	129 COMBS RD	11 Single Unit
557	126,766	2.91	035215006002	0 COMBS RD	91 Residential Land - Undivided
588	15,321	0.35	035211005000	13019 US HIGHWAY 12	58 Retail - Eating
589	19,151	0.44	035211004000	0 US HIGHWAY 12	91 Residential Land - Undivided
593	14,863	0.34	035132053017	108 BUGLE LN	11 Single Unit
594	16,722	0.38	035132053018	106 BUGLE LN	11 Single Unit
595	16,640	0.38	035132053001	152 BUGLE LN	11 Single Unit
596	15,116	0.35	035132053002	148 BUGLE LN	11 Single Unit
597	15,157	0.35	035132053003	146 BUGLE LN	18 Other Residential
598	15,204	0.35	035132053004	144 BUGLE LN	19 Vacation Home
601	14,982	0.34	035132053007	132 BUGLE LN	18 Other Residential
602	19,189	0.44	035132053008	130 BUGLE LN	91 Residential Land - Undivided
603	19,328	0.44	035132053009	128 BUGLE LN	11 Single Unit
604	19,236	0.44	035132053010	126 BUGLE LN	11 Single Unit
605	15,068	0.35	035132053011	124 BUGLE LN	11 Single Unit
606	15,057	0.35	035132053012	122 BUGLE LN	91 Residential Land - Undivided
608	15,105	0.35	035132053014	114 BUGLE LN	11 Single Unit
609	15,066	0.35	035132053015	112 BUGLE LN	11 Single Unit
610	15,230	0.35	035132053016	110 BUGLE LN	11 Single Unit
611	15,456	0.36	035132053022	133 BUGLE LN	91 Residential Land - Undivided
612	21,180	0.49	035132053023	123 BUGLE LN	18 Other Residential
613	14,984	0.34	035132053021	141 BUGLE LN	91 Residential Land - Undivided
614	17,246	0.40	035132053020	149 BUGLE LN	11 Single Unit
615	17,417	0.40	035132053019	113 BUGLE LN	11 Single Unit
616	15,868	0.36	035132053024	115 BUGLE LN	11 Single Unit
640	15,479	0.36	035195001006	137 MAIN ST E	11 Single Unit
641	7,370	0.17	035195001005	135 MAIN ST E	11 Single Unit
642	8,573	0.20	035195003000	141 MAIN ST E	11 Single Unit
643	12,919	0.30	035195001003	134 WILLAME ST E	18 Other Residential
644	15,220	0.35	035195001002	110 WILLAME ST E	11 Single Unit
657	10,016	0.23	035210002000	131 MAIN ST E	69 Service - Miscellaneous
658	9,439	0.22	035214005000	129 MAIN ST E	18 Other Residential
659	9,493	0.22	035210000000	123 MAIN ST E	11 Single Unit
660	21,969	0.50	035209000000	0 HAYNES AVE	18 Other Residential
661	22,889	0.53	035214000000	107 COWLITZ AVE N	11 Single Unit
662	15,175	0.35	035211003000	0 SMITH RD	11 Single Unit
663	17,735	0.41	035211002000	0 SMITH RD	11 Single Unit
664	23,639	0.54	035211001000	122 SMITH RD	11 Single Unit
665	51,157	1.17	035200000000	13049 US HIGHWAY 12	91 Residential Land - Undivided

single-residential	LWB	RDD-5	RVL	0
undeveloped/vacant	LND	STMU	RH	0
single-residential	COM	STMU	RM	1
single-residential	RES	STMU	MU	1
commercial retail	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
multi-residential	COM	STMU	MU	0
commercial retail	COM	STMU	MU	0
single-residential	LWM	STMU	RH	0
single-residential	LWB	STMU	RM	0
single-residential	RES	STMU	RL	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWB	STMU	AX	0
single-residential	RES	STMU	AX	1
commercial retail	COM	STMU	AX	0
		STMU	AX	0
single-residential	RES	STMU	AX	1
undeveloped/vacant	LND	STMU	AX	0
commercial retail	COM	STMU	MU	0
undeveloped/vacant	COM	STMU	MU	0
single-residential	STR	STMU	RM	1
single-residential	STR	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	STR	STMU	RM	1
single-residential	LWB	STMU	RM	0
single-residential	LND	STMU	RM	0
single-residential	LWB	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	STR	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	STR	STMU	RM	1
single-residential	STR	STMU	RM	1
single-residential	STR	STMU	RM	1
undeveloped/vacant	LND	STMU	RM	0
single-residential	LWB	STMU	RM	0
undeveloped/vacant	LND	STMU	RM	0
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	RES	STMU	RM	1
single-residential	STR	STMU	RL	1
single-residential	LND	STMU	RL	1
single-residential	RES	STMU	RL	1
single-residential	LWM	STMU	RL	0
single-residential	STR	STMU	RL	1
public/quasi-public	STR	STMU	RH	0
single-residential	STR	STMU	RH	0
single-residential	RES	STMU	RH	1
single-residential	LWM	STMU	RH	0
single-residential	RES	STMU	RH	1
single-residential	LND	STMU	MU	0
single-residential	LND	STMU	MU	0
single-residential	RES	STMU	MU	1
undeveloped/vacant	COM	STMU	MU	0

$1,400	$61,400	$62,800	0.0
$0	$146,800	$146,800	0.0
$109,000	$238,900	$347,900	0.5
$114,500	$80,000	$194,500	1.4
$53,300	$88,900	$142,200	0.6
$783,500	$131,700	$915,200	5.9
$654,500	$190,800	$845,300	3.4
$389,600	$57,200	$446,800	6.8
$88,200	$80,000	$168,200	1.1
$191,300	$80,000	$271,300	2.4
$275,100	$91,200	$366,300	3.0
$0	$93,800	$93,800	0.0
$13,900	$53,300	$67,200	0.3
$207,800	$80,000	$287,800	2.6
$92,300	$63,000	$155,300	1.5
$0	$0	$0	0.0
$337,000	$93,400	$430,400	3.6
$0	$146,800	$146,800	0.0
$186,700	$60,000	$246,700	3.1
$0	$66,200	$66,200	0.0
$479,600	$105,700	$585,300	4.5
$365,100	$88,600	$453,700	4.1
$447,100	$90,700	$537,800	4.9
$401,400	$88,600	$490,000	4.5
$20,000	$90,700	$110,700	0.2
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$20,000	$90,700	$110,700	0.2
$0	$90,700	$90,700	0.0
$536,300	$105,700	$642,000	5.1
$597,900	$90,700	$688,600	6.6
$586,400	$90,700	$677,100	6.5
$0	$90,700	$90,700	0.0
$480,700	$105,700	$586,400	4.5
$471,100	$88,600	$559,700	5.3
$616,600	$88,600	$705,200	7.0
$0	$90,700	$90,700	0.0
$22,600	$90,700	$113,300	0.2
$0	$90,700	$90,700	0.0
$1,182,700	$90,700	$1,273,400	13.0
$337,300	$90,700	$428,000	3.7
$297,000	$90,700	$387,700	3.3
$274,300	$67,600	$341,900	4.1
$212,700	$46,200	$258,900	4.6
$215,700	$53,300	$269,000	4.0
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$456,700	$93,200	$549,900	4.9
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$0	$80,000	$80,000	0.0
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$6,700	$129,600	$136,300	0.1

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FINAL DRAFT MEMORANDUM

Date: May 7, 2024

To: Paul Dennis, Senior Planner – Jackson Civil

From: Eli Mulberry, AICP – Planner

Subject: Housing Needs and Land Capacity Summary – City of Mossyrock

1. Background

This memo discusses the results of Mossyrock's Land Capacity analysis to determine housing, population, and employment land capacities. This helps determine whether the jurisdiction has adequate land densities and buildable lands to accommodate future growth. This analysis used the GIS option and methods established by Lewis County, supplemented with guidance for the Department of Commerce for allocating housing by income bracket.

This study analyzed housing capacity according to new 2021 Washington House Bill 1220 requirements, which updated the Growth Management Act (GMA). The new legislation requires that jurisdictions plan for very low-, low-, and moderate-income housing needs when conducting their Comprehensive Plan updates. Jurisdictions are required to demonstrate that land capacity exists in their Urban Growth Areas for housing types that meet these income needs. In other words, *do the current zoning and development regulations allow housing types and quantities that meet need by income bracket*. Whether development occurs to meet this need ultimately depends on private market trends.

This analysis finds that the City has sufficient buildable lands to meet population and housing. However, the City has a slight insufficiency of land for employment, with a projected estimated deficit of 13 jobs (see Exhibit 12)**.**

The following Exhibits show the Lewis County provided population and housing targets.

Exhibit 1 – Population Targets

City (Incorporated + UGA)	2022 Total Population	2045 Population Allocation	20-Year Population Increase	20-Year Growth Rate
Mossyrock	906	1,058	152	16.78%

Exhibit 2 – Housing Targets

Total 2045 Population = 104,951			Permanent Housing Needs by % of Area Median Income							EH
			0-30%							
		Total	Non-PSH	PSH	>30-50%	>50-80%	>80-100%	>100-120%	>120%	
Unincorporated Lewis County	Estimated Housing Supply (2020)	19,519	667	25	3,146	4,704	2,798	2,016	6,163	0
	Allocation Method C (2020-2045)	403	88	38	115	58	28	23	53	21
City of Centralia	Estimated Housing Supply (2020)	7,593	578	14	1,614	3,154	1,153	302	778	38
	Allocation Method C (2020-2045)	767	227	184	0	0	0	134	222	78
City of Chehalis	Estimated Housing Supply (2020)	3,139	140	0	442	1,537	509	140	371	22
	Allocation Method C (2020-2045)	6,215	1,390	563	1,000	900	425	280	1,657	332
City of Morton	Estimated Housing Supply (2020)	506	16	0	167	221	69	8	25	0
	Allocation Method C (2020-2045)	23	5	1	4	3	2	1	7	1
City of Mossyrock	Estimated Housing Supply (2020)	322	10	0	160	108	14	7	23	0
	Allocation Method C (2020-2045)	72	16	5	12	7	5	4	24	4
City of Napavine	Estimated Housing Supply (2020)	718	11	0	135	286	120	42	124	0
	Allocation Method C (2020-2045)	477	89	28	90	75	28	32	135	16
City of Pe Ell	Estimated Housing Supply (2020)	284	6	0	90	157	9	6	16	0
	Allocation Method C (2020-2045)	10	2	1	2	1	1	1	3	1
City of Toledo	Estimated Housing Supply (2020)	303	5	0	64	152	30	13	39	0
	Allocation Method C (2020-2045)	845	92	27	139	210	125	40	211	16
City of Vader	Estimated Housing Supply (2020)	257	0	0	100	90	43	6	18	0
	Allocation Method C (2020-2045)	100	30	7	0	6	2	10	45	5
City of Winlock	Estimated Housing Supply (2020)	564	30	0	121	323	32	16	42	0
	Allocation Method C (2020-2045)	1,248	271	115	282	210	83	50	237	67
Total	**Sum of Allocations to Jurisdictions**	**10,160**	**2,210**	**969**	**1,643**	**1,471**	**698**	**575**	**2,594**	**542**
	Percent of Sum of Allocations to Jurisdictions	**100.00%**	**21.75%**	**9.54%**	**16.17%**	**14.48%**	**6.87%**	**5.66%**	**25.53%**	**5.33%**

2. Housing Capacity Analysis

2.1 Housing Assumptions

To determine the number of units that can reasonably be accommodated under the land capacity, this analysis uses an assumed density, rather than the maximum zoned density. An assumed density considers both the existing built density and likely density of further development.[1] Where there was a choice, or a scale of possible densities, we selected the most conservative number. The following, Exhibit 3, establishes the assumed housing densities for this analysis. This analysis split areas considered zoned lands in incorporated limits and the Urban Growth Area (UGA) separately, as noted by the zoning designation in the analysis.

[1] Department of Commerce. "Draft Guidance for Evaluating Land Capacity to Meet All Housing Needs." Washington State Department of Commerce, 2022 https://deptofcommerce.app.box.com/s/k14gbqe7z8d7ek6z8ibui79zb7bo9vpa.

Exhibit 3 – Assumed Housing Densities

Zone	Assumed density (du/acre)	Comments
Neighborhood	2	Based on local achieved densities.
Neighborhood – UGA	2	Based on local achieved densities.

Under the Commerce guidance, to compare land capacity with housing need by income band, the analysis needs to assume, based on existing housing diversity and local conditions, what income levels the existing zones reasonably accommodate.[2] For example, if a single-family residential zone has land values and home costs that would not be affordable to lower income brackets, the analysis allocates the capacity in that zone to higher income brackets using a ratio. Some zones may have housing types that serve multiple income brackets. The analysis adjusted the ratio weights to reflect this. The following Exhibit lists each bracket and the zones that the zones that provide housing affordable to this level. Appendix A discloses the exact allocation ratios by zone and Area Median Income (AMI) level.

Exhibit 4 – Assumed Zones Serving Income Levels

Income Level	Income Bracket	Zones with Housing Serving Each Income Level
0-30% AMI	$0 - $20,174	Neighborhood, Neighborhood - UGA
30-50% AMI	$20,174 - $33,624	Neighborhood, Neighborhood - UGA
50-80% AMI	$33,624 - $53,798	Neighborhood, Neighborhood - UGA
80-100% AMI	$53,798 - $67,247	Neighborhood, Neighborhood - UGA
100-120% AMI	$67,247 - $80,696	Neighborhood, Neighborhood - UGA
>120% AMI	$80,696+	Neighborhood, Neighborhood - UGA

2.2 Housing Capacity Results

To determine the total net residential acreage, we first deducted critical areas and percentage deduction factors for infrastructure, future public uses, and market forces. We then converted acreage to housing units based on the assumed density by zone. The results of this analysis are summarized in the following Exhibit 5. See Appendix B for the full deduction factors and calculations.

Exhibit 5 – Housing Capacity

Zone	Net Developable Acres	Residential Capacity (units)
Neighborhood	91.5	183
Neighborhood - UGA	31.0	62
Total	**122.4**	**245**

[2] Department of Commerce. "Draft Guidance for Evaluating Land Capacity to Meet All Housing Needs." Washington State Department of Commerce, 2022 https://deptofcommerce.app.box.com/s/k14gbqe7z8d7ek6z8ibui79zb7bo9vpa.

To assess whether this unit capacity could potentially ensure sufficient housing for population growth, the analysis deducted units based on the local occupancy rates and converted units to individuals based on the local average household size. The US Census Bureau provides the data for census places and tracts for occupancy and household size statistics. We then compared the future population demand target established in Exhibit 1 with the total population capacity to determine whether the jurisdiction has sufficient capacity for future population growth, as seen below in Exhibit 6.

Exhibit 6 – Population Capacity Results

Zone	Total Unit Capacity	Occupancy Rate*	Total Occupied Units	Population Capacity (persons)+
Neighborhood	183	90%	164	511
Neighborhood - UGA	62	90%	56	174
			Incorporated Population Capacity	**511**
			UGA Population Capacity	**174**
			Total	**685**
			Target	*152*
			Projected Surplus/ (Deficit)	**533**

*Based on latest OFM and Census estimates.

+Based on the latest Census estimate for the local average household size of 3.11.

After allocating housing capacity based on our housing affordability assumptions, we can determine whether there is sufficient land and density to accommodate housing demands by income level. This analysis ran two scenarios: (1) where housing growth occurs in both incorporated and UGA areas, seen in Exhibit 7; and (2) if the housing growth only occurs in the incorporated area, shown in Exhibit 8.

Exhibit 7 – UGA+Incorporated: Housing Need Surplus/Deficit Results

Income Level	Income Bracket	Zones Serving Income Levels	Projected Housing Need	Allocated Units	Surplus/ (Deficit)
0-30% AMI	$0 - $20,174	Neighborhood, Neighborhood - UGA	21	41	20
30-50% AMI	$20,174 - $33,624	Neighborhood, Neighborhood - UGA	12	41	29
50-80% AMI	$33,624 - $53,798	Neighborhood, Neighborhood - UGA	7	41	34
80-100% AMI	$53,798 - $67,247	Neighborhood, Neighborhood - UGA	5	41	36

Income Level	Income Bracket	Zones Serving Income Levels	Projected Housing Need	Allocated Units	Surplus/ (Deficit)
100-120% AMI	$67,247 - $80,696	Neighborhood, Neighborhood - UGA	4	41	37
>120% AMI*	$80,696+	Neighborhood, Neighborhood - UGA	24	41	17
Total			**73**	**245**	**172**

*HB 1220 does not require jurisdictions to demonstrate policy changes to meet sufficient capacity for upper incomes.

Exhibit 8 – Incorporated Only: Housing Need Surplus/Deficit Results

Income Level	Income Bracket	Zones Serving Income Levels	Projected Housing Need	Allocated Units	Surplus/ (Deficit)
0-30% AMI	$0 - $20,174	Neighborhood	21	30	9
30-50% AMI	$20,174 - $33,624	Neighborhood	12	30	18
50-80% AMI	$33,624 - $53,798	Neighborhood	7	30	23
80-100% AMI	$53,798 - $67,247	Neighborhood	5	30	25
100-120% AMI	$67,247 - $80,696	Neighborhood	4	30	26
>120% AMI*	$80,696+	Neighborhood	24	30	6
Total			**73**	**183**	**110**

*HB 1220 does not require jurisdictions to demonstrate policy changes to meet sufficient capacity for upper incomes.

3. Employment Capacity Analysis

3.1 Employment Assumptions

To convert total land area into net employment capacity area, we must make a few assumptions. First is the assumed density for employment area. We used Floor Area Ratio (FAR) as our measure of employment density. The assumed FAR by zone used in the analysis are established below in Exhibit 9.

Exhibit 9 – Assumed Employment Densities

Zone	Assumed FAR	Comments
Market	0.4	We are assuming low-density, one-story buildings in their market district. While some older buildings have higher FARs, parking areas tend to drive this down.
Market - UGA	-	No zoned Market designations in the UGA.

This analysis divides job calculations into three employment sectors: industrial, general commercial, and retail. To estimate employment capacity, we follow the Lewis County methodology for Land Capacity Analysis, which allocates square footage per employee as follows: 650 square feet for industrial jobs, 400 square feet for general commercial jobs, and 600 square feet for retail jobs.

Given that nonresidential zones can host multiple types of businesses, we've used allocation ratios to distribute the employment capacity among the three sectors. As a starting point, these ratios were derived by analyzing developed parcels within each zone, identifying the proportion of parcels engaged in industrial, commercial, or retail activities. This approach is based on the premise that the distribution of future jobs will mirror the current pattern of employment across these sectors within the area. These ratios were then adjusted based on a review of the jurisdictions' permitted use table to best reflect the intent of the zone, rather than existing uses alone. Exhibit 10 provides a detailed breakdown of these assumptions.

Exhibit 10 – Assumed Employment Allocation Ratios

Zone	Industrial	General Commercial	Retail
Market	0%	50%	50%
Market - UGA	0%	50%	50%

Numbers total to 100% by row

3.2 Employment Capacity Results

This analysis determined the total net developable land by deducting critical areas and percentage deduction factors for infrastructure, future public uses, and market forces. We then multiplied this net capacity with our assumed densities from Exhibit 9 to find net capacity square footage. Lastly, to consider occupancy and vacancy rates for businesses and leasing space, we assumed a 95% occupancy rate to find the total occupied capacity square footage, found in the following Exhibit 10. See Appendix B for the full deduction factors and calculations.

To convert square footage capacity into jobs, we first allocated a percentage of the square footage capacity into each of the employment sectors for analysis: industrial, general commercial, and retail using the assumptions established in Exhibit 10. We then converted square footage into jobs by dividing by our assumed square footage per employee. The total job capacity for each zone is shown in Exhibit 11.

Exhibit 11 – Employment Capacity Results

Zone	Total Occupied Sq. Ft. Capacity	Industrial		General Commercial		Retail		Total Job Capacity
		Land Capacity (sq. ft)	*Jobs*	*Land Capacity (sq. ft)*	*Jobs*	*Land Capacity (sq. ft)*	*Jobs*	
Market	30,677	-	-	15,338	38	15,338	26	**64**
Market - UGA	-	-	-	-	-	-	-	-

Given that we know the projected housing unit demand, we can then use the American Community Survey's estimates for job status by households and family to find an average jobs per household number.[3] We then multiplied this rate with housing unit demand to determine employment demand.

To determine the projected employment capacity surplus or deficit, we then subtracted demand from total employment capacity, shown in the following Exhibit 12.

Exhibit 12 – Employment Demand Surplus/ Deficit Results

Employment Demand	
20-Year Housing Unit Demand Increase (dwelling units)	73
Assumed jobs / household	1.05
20-year employment demand (jobs)	**77**
Total Employment Capacity (jobs)	
Incorporated job capacity	64
UGA job capacity	-
Total job capacity (Incorporated + UGA)	**64**
Projected Surplus/ (Deficit)	
Incorporated only scenario (jobs)	**(13)**
Incorporated + UGA scenario (jobs)	**(13)**

[3] 2022 ACS, Household Size by Number of Workers.

Appendix A

The following table shows the allocation ratios used to allocate zoned capacity to income bracket. This method recognizes that zones can accommodate more than a single income level or bracket. Ratios add up to 100% by row. The ratios are multiplied with the zone's unit capacity to determine the estimated units at each income level.

Assumed Housing Allocation Ratios Table

Residential Zones	0-30% AMI	30-50% AMI	50-80% AMI	80-100% AMI	100-120% AMI	>120% AMI
LDR 10	0.166667	0.166667	0.166667	0.166667	0.166667	0.166667
LDR 6	0.166667	0.166667	0.166667	0.166667	0.166667	0.166667

Appendix B

Formulas and calculations:

Critical areas were deducted in GIS.

Net Developable = ((*Gross Dev. Land minus critical areas* * (1- *Future Use Deduction*)) * (1 – *Infrastructure Deduction*)) * (1 – *Market Factor Deduction*)

*Total Capacity = Net Developable acres * Assumed Density*

*Total Occupied Employment Capacity (sq. ft) = Total Sq. Foot Capacity * Occupancy Rate.* We used an occupancy rate of 95%.

Buildable Acre Capacities and Deductions - Housing

Zone	Gross Developable Land minus critical areas (acres)			Future Public Use Deduction			Infrastructure Deduction			Market Factor Deductions			Net Developable Land (acres)				Total Dwelling Unit Capacity
	Vacant	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	***Total***	
Neighborhood	138.37	0.00	14.33	5%	5%	5%	25%	25%	25%	15%	25%	25%	83.8	0.0	7.7	91.5	183
Neighborhood - UGA	31.63	0.00	22.12	5%	5%	5%	25%	25%	25%	15%	25%	25%	19.2	0.0	11.8	31.0	62

Residential Deduction Summary	
Total gross developable land (minus critical areas)	206.5
Future Public Use - total acres deducted	10.3
Infrastructure - total acres deducted	49.0
Market Factor - total acres deducted	24.7
Total net developable acres	122.4
Total dwelling unit land capacity	245
Total pipeline units	-
Grand total units	245

Buildable Acre Capacities and Deductions – Employment

Zone	Gross Developable Land minus critical areas (acres)			Future Public Use Deduction			Infrastructure Deduction			Market Factor Deductions			Net Developable Land (acres)				Total Sq. Foot Capacity	Total Occupied Employment Capacity (sq. ft)
	Vacant	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	***Total***		
Market	1.01	0.00	1.67	5%	5%	5%	25%	25%	25%	15%	25%	25%	0.6	0.0	0.9	1.5	0.4	30,677
Market - UGA	0.00	0.00	0.00	5%	5%	5%	25%	25%	25%	15%	25%	25%	0.00	0.00	0.00	0.00	0.00	0.00

Employment Deduction Summary	
Total gross developable land (minus critical areas)	2.7
Future Public Use - total acres deducted	0.1
Infrastructure - total acres deducted	0.6
Market Factor - total acres deducted	0.4
Total net developable acres	1.5
Total Sq. Foot Capacity	32,291
Total occupied sq. ft. land capacity	30,677
Total pipeline sq. ft.	-
Grand total employment capacity (sq. ft)	30,677

Appendix C

This appendix lists this analysis' assumptions and disclosures when implementing the methodology. It also includes disclosures of data limitations.

GIS Analysis Process Assumptions and Data Limitations

- Mossyrock floodplain data. FEMA provides incomplete floodway data. For example, parcel #008701052005 has a stream running through it, but FEMA does not provide any floodway data in the incorporated boundary of the city for it.
- Critical area buffers for deducting nonresidential parcels. All jurisdictions do not have a published critical areas code chapter on their respective code publishing or municode websites. Or, they adopt the County codes by reference. This analysis therefore used county buffer distances for all analysis jurisdictions. The adopted county codes for wetland and stream buffers are based on category and impact.
    - Since the wetland database does not include wetland category or score, nor are we able to identify impact level without a site-level biological study, we took an average buffer size of 120 feet to apply for simplicity to avoid doing a site-by-site GIS analysis.
    - Using DNR stream data, we applied a buffer distance of 150 feet for Fish-containing streams, which is the buffer distance for Type F waters under Lewis County Code 17.38.420. For unknown, non-fish, and waters with no type or designation, we used a buffer distance of 75 feet based on LCC.
- There are several parcels in all cities that are split by zone. To control this, this analysis split these parcels using an intersect geoprocess in GIS to find the gross acreage by zone.
- There are several parcels in all cities that straddle the boundary. Like zoning, these parcels were split using an intersect to only calculate areas within the city boundary and UGA.

Deductions and Assumed Densities

- The criterion for partially-used in the Lewis County methodology has conflicting logic: "Don't count parcels with improvement values >93rd percentile of jurisdiction improvement values unless the parcel is sized 3 times the minimum allowed under zoning." This is the same criteria as is applied for the rest: "Parcel size >3 times the minimum allowed under zoning." We applied this literally and counted all parcels >3 times the minimum.
- For determining a reasonable allocation ratio for jobs under industrial, retail, and general commercial, we assumed that capacity would be split across these sectors consistent with existing splits. To determine existing splits, we isolated developed parcels and used assessor land use codes to classify them under these three categories. The ratios were then adjusted based on the permitted use tables in the development regulations to better reflect intended uses in each zone.
    - Industrial included codes related to manufacturing, transportation, and resource extraction
        - 21-49
        - 81-89

- General commercial included codes related to services:
  - 61-69
- Retail included codes related to trades:
  - 50-59

The following tables disclose acreage of critical area lands that were deducted in GIS.

Residential Zones	City	UGA	Grand Total
NEIGHBORHOOD	76.5	74.3	150.8

Commercial Zones	City	UGA	Grand Total
MARKET	39	0	39

The following parcels were identified as buildable under the analysis methodology but excluded. The reasons for each are described below.

Parcel	City	Use	Reason For Exclusion
800015002	Mossyrock	commercial	Current use like an easement
8700020005	Mossyrock	commercial	Owned by business on west side, used currently as a drive though
8700020006	Mossyrock	commercial	Used by business on the east side as an outdoor eating area
8701052005	Mossyrock	public/utility/easement	Entrance to the park
8701059000	Mossyrock	public/utility/easement	Property of TDS, maintenance bldg. on north side of property
8701064003	Mossyrock	public/utility/easement	City Hall, shop and work area
8700056001	Mossyrock	public/utility/easement	Parking lot for the church on east side
8701078001	Mossyrock	public/utility/easement	Local cemetery
8701077002	Mossyrock	public/utility/easement	City Reservoir
8701077003	Mossyrock	public/utility/easement	City Reservoir Buffer zone
29127001101	Mossyrock	public/utility/easement	Vacant and wetlands
29121007000	Mossyrock	public/utility/easement	Mostly wetland and pastureland, sliver has single family home on it
29121008000	Mossyrock	public/utility/easement	Pasture land. Extends into the UGA and unlikely to develop
29135005000	Mossyrock	residential	Home and trees
29135011000	Mossyrock	residential	Home and trees
29134016001	Mossyrock	public/utility/easement	right of way, easement
8701084007	Mossyrock	public/utility/easement	FFA Field related to school
8701083000	Mossyrock	public/utility/easement	School track
8701078003	Mossyrock	public/utility/easement	School track

Parcel	City	Use	Reason For Exclusion
28536006000	Mossyrock	public/utility/easement	Road/transportation
008701052005	Mossyrock	public/utility/easement	City Park
028529011000	Mossyrock	residential	Developed residence
028528016000	Mossyrock	residential	Developed residence
028528015000	Mossyrock	residential	Developed residence
028528017000	Mossyrock	residential	Developed residence

FINAL DRAFT MEMORANDUM

Date: May 7, 2024

To: Paul Dennis, Senior Planner – Jackson Civil

From: Eli Mulberry, AICP – Planner

Subject: Housing Needs and Land Capacity Summary – City of Napavine

1. Background

This memo discusses the results of Napavine's Land Capacity analysis to determine housing, population, and employment land capacities. This helps determine whether the jurisdiction has adequate land densities and buildable lands to accommodate future growth. This analysis used the GIS option and methods established by Lewis County, supplemented with guidance for the Department of Commerce for allocating housing by income bracket.

This study analyzed housing capacity according to new 2021 Washington House Bill 1220 requirements, which updated the Growth Management Act (GMA). The new legislation requires that jurisdictions plan for very low-, low-, and moderate-income housing needs when conducting their Comprehensive Plan updates. Jurisdictions are required to demonstrate that land capacity exists in their Urban Growth Areas for housing types that meet these income needs. In other words, *do the current zoning and development regulations allow housing types and quantities that meet need by income bracket*. Whether development occurs to meet this need ultimately depends on private market trends.

This analysis finds that the City has sufficient buildable lands to meet population, housing, and employment targets. However, the City may consider policy changes to meet affordability targets for the 0-30% AMI bracket, as seen in Exhibit 8.

The following Exhibits show the Lewis County provided population and housing targets.

Exhibit 1 – Population Targets

City (Incorporated + UGA)	2022 Total Population	2045 Population Allocation	20-Year Population Increase	20-Year Growth Rate
Napavine	1,969	2,978	1,009	51.24%

Exhibit 2 – Housing Targets

Total 2045 Population = 104,951			Permanent Housing Needs by % of Area Median Income							EH
			0-30%							
		Total	Non-PSH	PSH	>30-50%	>50-80%	>80-100%	>100-120%	>120%	
Unincorporated Lewis County	Estimated Housing Supply (2020)	19,519	667	25	3,146	4,704	2,798	2,016	6,163	0
	Allocation Method C (2020-2045)	403	88	38	115	58	28	23	53	21
City of Centralia	Estimated Housing Supply (2020)	7,593	578	14	1,614	3,154	1,153	302	778	38
	Allocation Method C (2020-2045)	767	227	184	0	0	0	134	222	78
City of Chehalis	Estimated Housing Supply (2020)	3,139	140	0	442	1,537	509	140	371	22
	Allocation Method C (2020-2045)	6,215	1,390	563	1,000	900	425	280	1,657	332
City of Morton	Estimated Housing Supply (2020)	506	16	0	167	221	69	8	25	0
	Allocation Method C (2020-2045)	23	5	1	4	3	2	1	7	1
City of Mossyrock	Estimated Housing Supply (2020)	322	10	0	160	108	14	7	23	0
	Allocation Method C (2020-2045)	72	16	5	12	7	5	4	24	4
City of Napavine	Estimated Housing Supply (2020)	718	11	0	135	286	120	42	124	0
	Allocation Method C (2020-2045)	477	89	28	90	75	28	32	135	16
City of Pe Ell	Estimated Housing Supply (2020)	284	6	0	90	157	9	6	16	0
	Allocation Method C (2020-2045)	10	2	1	2	1	1	1	3	1
City of Toledo	Estimated Housing Supply (2020)	303	5	0	64	152	30	13	39	0
	Allocation Method C (2020-2045)	845	92	27	139	210	125	40	211	16
City of Vader	Estimated Housing Supply (2020)	257	0	0	100	90	43	6	18	0
	Allocation Method C (2020-2045)	100	30	7	0	6	2	10	45	5
City of Winlock	Estimated Housing Supply (2020)	564	30	0	121	323	32	16	42	0
	Allocation Method C (2020-2045)	1,248	271	115	282	210	83	50	237	67
Total	**Sum of Allocations to Jurisdictions**	**10,160**	**2,210**	**969**	**1,643**	**1,471**	**698**	**575**	**2,594**	**542**
	Percent of Sum of Allocations to Jurisdictions	**100.00%**	**21.75%**	**9.54%**	**16.17%**	**14.48%**	**6.87%**	**5.66%**	**25.53%**	**5.33%**

2. Housing Capacity Analysis

2.1 Housing Assumptions

To determine the number of units that can reasonably be accommodated under the land capacity, this analysis uses an assumed density, rather than the maximum zoned density. An assumed density considers both the existing built density and likely density of further development.[1] Where there was a choice, or a scale of possible densities, we selected the most conservative number. The following, Exhibit 3, establishes the assumed housing densities for this analysis. This analysis split areas considered zoned lands in incorporated limits and the Urban Growth Area (UGA) separately, as noted by the zoning designation in the analysis.

[1] Department of Commerce. "Draft Guidance for Evaluating Land Capacity to Meet All Housing Needs." Washington State Department of Commerce, 2022 https://deptofcommerce.app.box.com/s/k14gbqe7z8d7ek6z8ibui79zb7bo9vpa.

Exhibit 3 – Assumed Housing Densities

Zone	Assumed density (du/acre)	Comments
R2	5	The zoning is cumulative. The assumed density is based on weighted density averages of existing densities.
R3	6	The zoning is cumulative. The assumed density is based on weighted density averages of existing densities.
R2 - UGA	5	Same as incorporated.
R3 - UGA	6	Same as incorporated.

Under the Commerce guidance, to compare land capacity with housing need by income band, the analysis needs to assume, based on existing housing diversity and local conditions, what income levels the existing zones reasonably accommodate.[2] For example, if a single-family residential zone has land values and home costs that would not be affordable to lower income brackets, the analysis allocates the capacity in that zone to higher income brackets using a ratio. Some zones may have housing types that serve multiple income brackets. The analysis adjusted the ratio weights to reflect this. The following Exhibit lists each bracket and the zones that the zones that provide housing affordable to this level. Appendix A discloses the exact allocation ratios by zone and Area Median Income (AMI) level.

Exhibit 4 – Assumed Zones Serving Income Levels

Income Level	Income Bracket	Zones with Housing Serving Each Income Level
0-30% AMI	$0 - $20,174	R3, R3- UGA
30-50% AMI	$20,174 - $33,624	R3, R3 – UGA
50-80% AMI	$33,624 - $53,798	R3, R3 – UGA
80-100% AMI	$53,798 - $67,247	R2, R2 – UGA
100-120% AMI	$67,247 - $80,696	R2, R2- UGA
>120% AMI	$80,696+	R2, R2 – UGA

2.2 Housing Capacity Results

To determine the total net residential acreage, we first deducted critical areas and percentage deduction factors for infrastructure, future public uses, and market forces. We then converted acreage to housing units based on the assumed density by zone. The results of this analysis are summarized in the following Exhibit 5. See Appendix B for the full deduction factors and calculations.

[2] Department of Commerce. "Draft Guidance for Evaluating Land Capacity to Meet All Housing Needs." Washington State Department of Commerce, 2022 https://deptofcommerce.app.box.com/s/k14gbqe7z8d7ek6z8ibui79zb7bo9vpa.

Exhibit 5 – Housing Capacity

Zone	Net Developable Acres	Residential Capacity (units)
R2	155.8	779
R3	85.9	515
R2 - UGA	5.3	26
R3 - UGA	14.7	88
Total	**261.6**	**1,409**

To assess whether this unit capacity could potentially ensure sufficient housing for population growth, the analysis deducted units based on the local occupancy rates and converted units to individuals based on the local average household size. The US Census Bureau provides the data for census places and tracts for occupancy and household size statistics. We then compared the future population demand target established in Exhibit 1 with the total population capacity to determine whether the jurisdiction has sufficient capacity for future population growth, as seen below in Exhibit 6.

Exhibit 6 – Population Capacity Results

Zone	Total Unit Capacity	Occupancy Rate*	Total Occupied Units	Population Capacity (persons)+
R2	779	94%	732	1,941
R3	515	94%	484	1,284
R2 - UGA	26	94%	25	66
R3 - UGA	88	94%	83	220
			Incorporated Population Capacity	**3,225**
			UGA Population Capacity	**286**
			Total	**3,511**
			Target	*1,009*
			Projected Surplus/ (Deficit)	**2,502**

*Based on latest OFM and Census estimates.

+Based on the latest Census estimate for the local average household size of 3.26.

After allocating housing capacity based on our housing affordability assumptions, we can determine whether there is sufficient land and density to accommodate housing demands by income level. This analysis ran two scenarios: (1) where housing growth occurs in both incorporated and UGA areas, seen in Exhibit 7; and (2) if the housing growth only occurs in the incorporated area, shown in Exhibit 8.

Exhibit 7 – UGA+Incorporated: Housing Need Surplus/Deficit Results

Income Level	Income Bracket	Zones Serving Income Levels	Projected Housing Need	Allocated Units	Surplus/ (Deficit)
0-30% AMI	$0 - $20,174	R3, R3 - UGA	117	121	4
30-50% AMI	$20,174 - $33,624	R3, R3 - UGA	90	121	31
50-80% AMI	$33,624 - $53,798	R3, R3 - UGA	75	121	46
80-100% AMI	$53,798 - $67,247	R2, R3, R2 - UGA, R3 - UGA	28	322	294
100-120% AMI	$67,247 - $80,696	R2, R3, R2 - UGA, R3 - UGA	32	322	290
>120% AMI*	$80,696+	R2, R2 - UGA	135	403	268
Total			**477**	**1,409**	**932**

*HB 1220 does not require jurisdictions to demonstrate policy changes to meet sufficient capacity for upper incomes.

Exhibit 8 – Incorporated Only: Housing Need Surplus/Deficit Results

Income Level	Income Bracket	Zones Serving Income Levels	Projected Housing Need	Allocated Units	Surplus/ (Deficit)
0-30% AMI	$0 - $20,174	R3	117	103	(14)
30-50% AMI	$20,174 - $33,624	R3	90	103	13
50-80% AMI	$33,624 - $53,798	R3	75	103	28
80-100% AMI	$53,798 - $67,247	R2, R3	28	298	270
100-120% AMI	$67,247 - $80,696	R2, R3	32	298	266
>120% AMI*	$80,696+	R2	135	389	254
Total			**477**	**1,294**	**817**

*HB 1220 does not require jurisdictions to demonstrate policy changes to meet sufficient capacity for upper incomes.

3. Employment Capacity Analysis

3.1 Employment Assumptions

To convert total land area into net employment capacity area, we must make a few assumptions. First is the assumed density for employment area. We used Floor Area Ratio (FAR) as our measure of employment density. The assumed FAR by zone used in the analysis are established below in Exhibit 9.

Exhibit 9 – Assumed Employment Densities

Zone	Assumed FAR	Comments
C	0.5	Downtown density/building types. Determined by sampling existing structures and through audit of zoning regulations.
C/I	0.1	Currently mostly large lots and low density. Mostly storage and fast-food uses with abundant parking, storage, and light industrial uses.
C - UGA	0.5	Same as incorporated.
C/I - UGA	0.1	Same as incorporated.

This analysis divides job calculations into three employment sectors: industrial, general commercial, and retail. To estimate employment capacity, we follow the Lewis County methodology for Land Capacity Analysis, which allocates square footage per employee as follows: 650 square feet for industrial jobs, 400 square feet for general commercial jobs, and 600 square feet for retail jobs.

Given that nonresidential zones can host multiple types of businesses, we've used allocation ratios to distribute the employment capacity among the three sectors. As a starting point, these ratios were derived by analyzing developed parcels within each zone, identifying the proportion of parcels engaged in industrial, commercial, or retail activities. This approach is based on the premise that the distribution of future jobs will mirror the current pattern of employment across these sectors within the area. These ratios were then adjusted based on a review of the jurisdictions' permitted use table to best reflect the intent of the zone, rather than existing uses alone. Exhibit 10 provides a detailed breakdown of these assumptions.

Exhibit 10 – Assumed Employment Allocation Ratios

Zone	Industrial	General Commercial	Retail
C	0%	50%	50%
C/I	50%	25%	25%
C - UGA	0%	50%	50%
C/I - UGA	50%	25%	25%

Numbers total to 100% by row

3.2 Employment Capacity Results

This analysis determined the total net developable land by deducting critical areas and percentage deduction factors for infrastructure, future public uses, and market forces. We then multiplied this net capacity with our assumed densities from Exhibit 9 to find net capacity square footage. Lastly, to consider occupancy and vacancy rates for businesses and leasing space, we assumed a 95% occupancy rate to find the total occupied capacity square footage, found in the following Exhibit 10. See Appendix B for the full deduction factors and calculations.

To convert square footage capacity into jobs, we first allocated a percentage of the square footage capacity into each of the employment sectors for analysis: industrial, general commercial, and retail using the assumptions established in Exhibit 10. We then converted square footage into jobs by dividing by our assumed square footage per employee. The total job capacity for each zone is shown in Exhibit 10.

Exhibit 11 – Employment Capacity Results

Zone	Total Occupied Sq. Ft. Capacity	Industrial		General Commercial		Retail		Total Job Capacity
		Land Capacity (sq. ft)	*Jobs*	*Land Capacity (sq. ft)*	*Jobs*	*Land Capacity (sq. ft)*	*Jobs*	
C	1,710,583	-	-	855,291	2,138	855,291	1,425	**3,564**
C/I	932,674	466,337	717	233,169	583	233,169	389	**1,689**
C - UGA	-	-	-	-	-	-	-	-
C/I - UGA	-	-	-	-	-	-	-	-

Given that we know the projected housing unit demand, we can then use the American Community Survey's estimates for job status by households and family to find an average jobs per household number.[3] We then multiplied this rate with housing unit demand to determine employment demand.

To determine the projected employment capacity surplus or deficit, we then subtracted demand from total employment capacity, shown in the following Exhibit 12.

Exhibit 12 – Employment Demand Surplus/ Deficit Results

Employment Demand	
20-Year Housing Unit Demand Increase (dwelling units)	477
Assumed jobs / household	1.17
20-year employment demand (jobs)	**558**
Total Employment Capacity (jobs)	
Incorporated job capacity	5,253
UGA job capacity	0
Total job capacity (Incorporated + UGA)	**5,253**

[3] 2022 ACS, Household Size by Number of Workers.

Projected Surplus/ (Deficit)	
Incorporated only scenario (jobs)	4,695
Incorporated + UGA scenario (jobs)	4,695

Appendix A

The following table shows the allocation ratios used to allocate zoned capacity to income bracket. This method recognizes that zones can accommodate more than a single income level or bracket. Ratios add up to 100% by row. The ratios are multiplied with the zone's unit capacity to determine the estimated units at each income level.

Assumed Housing Allocation Ratios Table

Residential Zones	0-30% AMI	30-50% AMI	50-80% AMI	80-100% AMI	100-120% AMI	>120% AMI
R2				0.25	0.25	0.50
R3	0.20	0.20	0.20	0.20	0.20	
R2 - UGA				0.25	0.25	0.50
R3 - UGA	0.20	0.20	0.20	0.20	0.20	

Appendix B

Formulas and calculations:

Critical areas were deducted in GIS.

Net Developable = ((*Gross Dev. Land minus critical areas* * (1- *Future Use Deduction*)) * (1 – *Infrastructure Deduction*)) * (1 – *Market Factor Deduction*)

*Total Capacity = Net Developable acres * Assumed Density*

*Total Occupied Employment Capacity (sq. ft) = Total Sq. Foot Capacity * Occupancy Rate.* We used an occupancy rate of 95%.

Buildable Acre Capacities and Deductions - Housing

Zone	Gross Developable Land minus critical areas (acres)			Future Public Use Deduction			Infrastructure Deduction			Market Factor Deductions			Net Developable Land (acres)				Total Dwelling Unit Capacity
	Vacant	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	***Total***	
R2	196.07	66.54	2.77	5%	5%	5%	25%	25%	25%	15%	25%	25%	118.7	35.6	1.5	155.8	779
R3	51.96	0.00	101.83	5%	5%	5%	25%	25%	25%	15%	25%	25%	31.5	0.0	54.4	85.9	515
R2 - UGA	1.32	8.39	0.00	5%	5%	5%	25%	25%	25%	15%	25%	25%	0.8	4.5	0.0	5.3	26
R3 - UGA	24.22	0.00	0.00	5%	5%	5%	25%	25%	25%	15%	25%	25%	14.7	0.0	0.0	14.7	88

Residential Deductions Summary	
Total gross developable land (minus critical areas)	453.1
Future Public Use - total acres deducted	22.7
Infrastructure - total acres deducted	107.6
Market Factor - total acres deducted	61.2
Total net developable acres	261.6
Total dwelling unit land capacity	1,409
Total pipeline units	-
Grand total units	1,409

Buildable Acre Capacities and Deductions – Employment

Zone	Gross Developable Land minus critical areas (acres)			Future Public Use Deduction			Infrastructure Deduction			Market Factor Deductions			Net Developable Land (acres)				Total Sq. Foot Capacity	Total Occupied Employment Capacity (sq. ft)
	Vacant	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	***Total***		
C	36.45	0.00	84.52	5%	5%	5%	25%	25%	25%	15%	25%	25%	22.1	0.0	45.2	67.2	1,800,614	1,710,583
C/I	238.94	0.00	72.22	5%	5%	5%	25%	25%	25%	15%	25%	25%	144.7	0.0	38.6	183.3	981,762	932,674
C - UGA	0.00	0.00	0.00	5%	5%	5%	25%	25%	25%	15%	25%	25%	0.0	0.0	0.0	0.0	0.0	0.0
C/I - UGA	0.00	0.00	0.00	5%	5%	5%	25%	25%	25%	15%	25%	25%	0.0	0.0	0.0	0.0	0.0	0.0

Employment Deductions Summary	
Total gross developable land (minus critical areas)	432.1
Future Public Use - total acres deducted	21.6
Infrastructure - total acres deducted	102.6
Market Factor - total acres deducted	57.4
Total net developable acres	250.5
Total Sq. Foot Capacity	2,782,376
Total occupied sq. ft. land capacity	2,643,257
Total pipeline sq. ft.	-
Grand total employment capacity (sq. ft)	2,643,257

Appendix C

This appendix lists this analysis' assumptions and disclosures when implementing the methodology in GIS. It also includes disclosures of data limitations.

GIS Analysis Process Assumptions and Data Limitations

- Critical area buffers for deducting nonresidential parcels. All jurisdictions do not have a published critical areas code chapter on their respective code publishing or municode websites. Or, they adopt the County codes by reference. This analysis therefore used county buffer distances for all analysis jurisdictions. The adopted county codes for wetland and stream buffers are based on category and impact.
    - Since the wetland database does not include wetland category or score, nor are we able to identify impact level without a site-level biological study, we took an average buffer size of 120 feet to apply for simplicity to avoid doing a site-by-site GIS analysis.
    - Using DNR stream data, we applied a buffer distance of 150 feet for Fish-containing streams, which is the buffer distance for Type F waters under Lewis County Code 17.38.420. For unknown, non-fish, and waters with no type or designation, we used a buffer distance of 75 feet based on LCC.
    - Shoreline buffers. For streams that are designated shorelines, this analysis used the buffer areas identified in the local Napavine and Winlock SMP's.
        - Napavine Shoreline buffer for Urban Conservancy: 150 feet
        - Winlock Shoreline buffer for High Intensity: 250 feet. While a buffer of 100 feet is allowed for water-related structures, we used 250 feet for a more conservative estimate. No buffer for Shoreline Residential District and Urban Conservancy.
- There are several parcels in all cities that are split by zone. To control this, this analysis split these parcels using an intersect geoprocess in GIS to find the gross acreage by zone.
- There are several parcels in all cities that straddle the boundary. Like zoning, these parcels were split using an intersect to only calculate areas within the city boundary and UGA.

Deductions and Assumed Densities

- The criterion for partially-used in the Lewis County methodology has conflicting logic: "Don't count parcels with improvement values >93rd percentile of jurisdiction improvement values unless the parcel is sized 3 times the minimum allowed under zoning." This is the same criteria as is applied for the rest: "Parcel size >3 times the minimum allowed under zoning." We applied this literally and counted all parcels >3 times the minimum.
- For determining a reasonable allocation ratio for jobs under industrial, retail, and general commercial, we assumed that capacity would be split across these sectors consistent with existing splits. To determine existing splits, we isolated developed parcels and used assessor land use codes to classify them under these three categories. The ratios were then adjusted based on the permitted use tables in the development regulations to better reflect intended uses in each zone.

- Industrial included codes related to manufacturing, transportation, and resource extraction
  - 21-49
  - 81-89
- General commercial included codes related to services:
  - 61-69
- Retail included codes related to trades:
  - 50-59

The following tables disclose acreage deducted in GIS for critical areas.

Commercial Zones	**City**	**UGA**	**Total**
C	492	0	492
C/I	399	0	399
Total	**891**	**0**	**891**

Residential Zones	**City**	**UGA**	**Total**
CS	16.3		16.3
R2	194.6	43.4	237.9
R3	232.9	57.0	289.9
Total	**443.8**	**100.4**	**544.1**

The following parcels were excluded from the analysis based on site reviews and discussions.

Parcel	**City**	**Use**	**Development Name / Notes**
8382001050	Napavine	public/utility/easement	Retention pond
8201000000	Napavine	public/utility/easement	School
8245000000	Napavine	public/utility/easement	School
8306005002	Napavine	residential	Developed SFH
8306006000	Napavine	residential	Developed SFH
8306001000	Napavine	residential	Developed SFH
8306002000	Napavine	residential	Developed SFH
8306004000	Napavine	residential	Developed SFH

FINAL DRAFT MEMORANDUM

Date: May 7, 2024

To: Paul Dennis, Senior Planner – Jackson Civil

From: Eli Mulberry, AICP – Planner

Subject: Housing Needs and Land Capacity Summary – City of Winlock

1. Background

This memo discusses the results of Winlock's Land Capacity analysis to determine housing, population, and employment land capacities. This helps determine whether the jurisdiction has adequate land densities and buildable lands to accommodate future growth. This analysis used the GIS option and methods established by Lewis County, supplemented with guidance for the Department of Commerce for allocating housing by income bracket.

This study analyzed housing capacity according to new 2021 Washington House Bill 1220 requirements, which updated the Growth Management Act (GMA). The new legislation requires that jurisdictions plan for very low-, low-, and moderate-income housing needs when conducting their Comprehensive Plan updates. Jurisdictions are required to demonstrate that land capacity exists in their Urban Growth Areas for housing types that meet these income needs. In other words, *do the current zoning and development regulations allow housing types and quantities that meet need by income bracket*. Whether development occurs to meet this need ultimately depends on private market trends.

This analysis finds that the City has sufficient buildable lands to meet population, housing, and employment targets.

The following Exhibits show the Lewis County provided population and housing targets.

Exhibit 1 – Population Targets

City (Incorporated + UGA)	2022 Total Population	2045 Population Allocation	20-Year Population Increase	20-Year Growth Rate
Winlock	2,115	4,756	2,641	124.87%

Exhibit 2 – Housing Targets

Total 2045 Population = 104,951			Permanent Housing Needs by % of Area Median Income							EH
			0-30%							
		Total	Non-PSH	PSH	>30-50%	>50-80%	>80-100%	>100-120%	>120%	
Unincorporated Lewis County	Estimated Housing Supply (2020)	19,519	667	25	3,146	4,704	2,798	2,016	6,163	0
	Allocation Method C (2020-2045)	403	88	38	115	58	28	23	53	21
City of Centralia	Estimated Housing Supply (2020)	7,593	578	14	1,614	3,154	1,153	302	778	38
	Allocation Method C (2020-2045)	767	227	184	0	0	0	134	222	78
City of Chehalis	Estimated Housing Supply (2020)	3,139	140	0	442	1,537	509	140	371	22
	Allocation Method C (2020-2045)	6,215	1,390	563	1,000	900	425	280	1,657	332
City of Morton	Estimated Housing Supply (2020)	506	16	0	167	221	69	8	25	0
	Allocation Method C (2020-2045)	23	5	1	4	3	2	1	7	1
City of Mossyrock	Estimated Housing Supply (2020)	322	10	0	160	108	14	7	23	0
	Allocation Method C (2020-2045)	72	16	5	12	7	5	4	24	4
City of Napavine	Estimated Housing Supply (2020)	718	11	0	135	286	120	42	124	0
	Allocation Method C (2020-2045)	477	89	28	90	75	28	32	135	16
City of Pe Ell	Estimated Housing Supply (2020)	284	6	0	90	157	9	6	16	0
	Allocation Method C (2020-2045)	10	2	1	2	1	1	1	3	1
City of Toledo	Estimated Housing Supply (2020)	303	5	0	64	152	30	13	39	0
	Allocation Method C (2020-2045)	845	92	27	139	210	125	40	211	16
City of Vader	Estimated Housing Supply (2020)	257	0	0	100	90	43	6	18	0
	Allocation Method C (2020-2045)	100	30	7	0	6	2	10	45	5
City of Winlock	Estimated Housing Supply (2020)	564	30	0	121	323	32	16	42	0
	Allocation Method C (2020-2045)	1,248	271	115	282	210	83	50	237	67
Total	**Sum of Allocations to Jurisdictions**	**10,160**	**2,210**	**969**	**1,643**	**1,471**	**698**	**575**	**2,594**	**542**
	Percent of Sum of Allocations to Jurisdictions	**100.00%**	**21.75%**	**9.54%**	**16.17%**	**14.48%**	**6.87%**	**5.66%**	**25.53%**	**5.33%**

2. Housing Capacity Analysis

2.1 Housing Assumptions

To determine the number of units that can reasonably be accommodated under the land capacity, this analysis uses an assumed density, rather than the maximum zoned density. An assumed density considers both the existing built density and likely density of further development.[1] Where there was a choice, or a scale of possible densities, we selected the most conservative number. The following, Exhibit 3, establishes the assumed housing densities for this analysis. Considering recent annexations, this analysis combined both UGA and incorporated lands.

[1] Department of Commerce. "Draft Guidance for Evaluating Land Capacity to Meet All Housing Needs." Washington State Department of Commerce, 2022 https://deptofcommerce.app.box.com/s/k14gbqe7z8d7ek6z8ibui79zb7bo9vpa.

Exhibit 3 – Assumed Housing Densities

Zone	Assumed density (du/acre)	Comments
LDR 10	4	Minimum density established under zoning.
LDR 6	4	Minimum density established under zoning.
MDR	8	Minimum density established under zoning.
MX	8	Minimum density established under zoning. This is the du/acre of the entire site despite being mixed use, based on local zoning code.

Under the Commerce guidance, to compare land capacity with housing need by income band, the analysis needs to assume, based on existing housing diversity and local conditions, what income levels the existing zones reasonably accommodate.[2] For example, if a single-family residential zone has land values and home costs that would not be affordable to lower income brackets, the analysis allocates the capacity in that zone to higher income brackets using a ratio. Some zones may have housing types that serve multiple income brackets. The analysis adjusted the ratio weights to reflect this. The following Exhibit lists each bracket and the zones that the zones that provide housing affordable to this level. Appendix A discloses the exact allocation ratios by zone and Area Median Income (AMI) level.

Exhibit 4 – Assumed Zones Serving Income Levels

Income Level	Income Bracket	Zones with Housing Serving Each Income Level
0-30% AMI	$0 - $20,174	MDR, MX
30-50% AMI	$20,174 - $33,624	MDR, MX
50-80% AMI	$33,624 - $53,798	MDR, MX
80-100% AMI	$53,798 - $67,247	LDR 6, MDR, MX
100-120% AMI	$67,247 - $80,696	LDR 10, LDR 6
>120% AMI	$80,696+	LDR 10, LDR 6

2.2 Housing Capacity Results

To determine the total net residential acreage, we first deducted critical areas and percentage deduction factors for infrastructure, future public uses, and market forces. We then converted acreage to housing units based on the assumed density by zone. The results of this analysis are summarized in the following Exhibit 5. See Appendix B for the full deduction factors and calculations.

[2] Department of Commerce. "Draft Guidance for Evaluating Land Capacity to Meet All Housing Needs." Washington State Department of Commerce, 2022 https://deptofcommerce.app.box.com/s/k14gbqe7z8d7ek6z8ibui79zb7bo9vpa.

Exhibit 5 – Housing Capacity

Zone	Net Developable Acres	Residential Capacity (units)	Pipeline Units	Total Units (Capacity + Pipeline)
LDR 10	191.4	766	0	766
LDR 6	70.9	284	630	914
MDR	93.0	744	426	1,170
MX	60.7	486	334	820
Total	**416.0**	**2,279**	**1390**	**3,669**

To assess whether this unit capacity could potentially ensure sufficient housing for population growth, the analysis deducted units based on the local occupancy rates and converted units to individuals based on the local average household size. The US Census Bureau provides the data for census places and tracts for occupancy and household size statistics. We then compared the future population demand target established in Exhibit 1 with the total population capacity to determine whether the jurisdiction has sufficient capacity for future population growth, as seen below in Exhibit 6.

Exhibit 6 – Population Capacity Results

Zone	Total Unit Capacity	Occupancy Rate*	Total Occupied Units	Population Capacity (persons)+
LDR 10	766	93%	709	2,312
LDR 6	914	93%	846	2,759
MDR	1,170	93%	1,083	3,532
MX	820	93%	759	2,474
			Population Capacity	**11,077**
			Target	*2,641*
			Projected Surplus/ (Deficit)	**8,436**

*Based on latest OFM and Census estimates.

+Based on the latest Census estimate for the local average household size of 2.65.

After allocating housing capacity based on our housing affordability assumptions, we can determine whether there is sufficient land and density to accommodate housing demands by income level, shown in. Exhibit 7.

Exhibit 7 – UGA+Incorporated: Housing Need Surplus/Deficit Results

Income Level	Income Bracket	Zones Serving Income Levels	Projected Housing Need	Allocated Units	Surplus/ (Deficit)
0-30% AMI	$0 - $20,174	MDR, MX	386	497	111
30-50% AMI	$20,174 - $33,624	MDR, MX	282	497	215
50-80% AMI	$33,624 - $53,798	MDR, MX	210	497	287
80-100% AMI	$53,798 - $67,247	LDR 6, MDR, MX	83	726	643
100-120% AMI	$67,247 - $80,696	LDR 10, LDR 6	50	611	561
>120% AMI*	$80,696+	LDR 10, LDR 6	237	840	603
Total			**1,248**	**3,669**	**2,421**

*HB 1220 does not require jurisdictions to demonstrate policy changes to meet sufficient capacity for upper incomes.

3. Employment Capacity Analysis

3.1 Employment Assumptions

To convert total land area into net employment capacity area, we must make a few assumptions. First is the assumed density for employment area. We used Floor Area Ratio (FAR) as our measure of employment density. The assumed FAR by zone used in the analysis are established below in Exhibit 8.

Exhibit 8 – Assumed Employment Densities

Zone	Assumed FAR	Comments
C1	0.6	This zone covers much of the jurisdiction's downtown businesses. A lot of the older buildings appear to be FAR 1. However, given their code's requirements on landscaping and parking, these would likely be unallowed under the current zoning, so this has been reduced.
C2	0.3	This is zoned by the interchange, so we examined nearby examples from adjacent interchanges. Uses are dominated by low density business uses such as fast-food retail and gas stations.
LI	0.3	Based on zoning, a max would be a FAR .5, assuming one story. Existing local buildings are a bit less based on assessor data.
MX	0.6	This zone currently has a lot of vacant land. Assuming most buildings are one-story developments given local building patterns and based on development regulations, the zoned max would be a 0.85 FAR. However, we reduced this to be more conservative.

This analysis divides job calculations into three employment sectors: industrial, general commercial, and retail. To estimate employment capacity, we follow the Lewis County methodology for Land Capacity Analysis, which allocates square footage per employee as follows: 650 square feet for industrial jobs, 400 square feet for general commercial jobs, and 600 square feet for retail jobs.

Given that nonresidential zones can host multiple types of businesses, we've used allocation ratios to distribute the employment capacity among the three sectors. As a starting point, these ratios were derived by analyzing developed parcels within each zone, identifying the proportion of parcels engaged in industrial, commercial, or retail activities. This approach is based on the premise that the distribution of future jobs will mirror the current pattern of employment across these sectors within the area. These ratios were then adjusted based on a review of the jurisdictions' permitted use table to best reflect the intent of the zone, rather than existing uses alone. Exhibit 9 provides a detailed breakdown of these assumptions.

Exhibit 9 – Assumed Employment Allocation Ratios

Zone	Industrial	General Commercial	Retail
C1	0%	50%	50%
C2	0%	0%	100%
LI	100%	0%	0%
MX	0%	50%	50%

Numbers total to 100% by row

3.2 Employment Capacity Results

This analysis determined the total net developable land by deducting critical areas and percentage deduction factors for infrastructure, future public uses, and market forces. We then multiplied this net capacity with our assumed densities from Exhibit 8 to find net capacity square footage. Lastly, to consider occupancy and vacancy rates for businesses and leasing space, we assumed a 95% occupancy rate to find the total occupied capacity square footage, found in the following Exhibit 10. See Appendix B for the full deduction factors and calculations.

To convert square footage capacity into jobs, we first allocated a percentage of the square footage capacity into each of the employment sectors for analysis: industrial, general commercial, and retail using the assumptions established in Exhibit 9. We then converted square footage into jobs by dividing by our assumed square footage per employee. The total job capacity for each zone is shown in Exhibit 10.

Exhibit 10 – Employment Capacity Results

Zone	Total Occupied Sq. Ft. Capacity	Industrial		General Commercial		Retail		Total Job Capacity
		Land Capacity (sq. ft)	*Jobs*	*Land Capacity (sq. ft)*	*Jobs*	*Land Capacity (sq. ft)*	*Jobs*	
C1	186,404	-	-	93,202	233	93,202	155	**388**
C2	501,698	-	-	-	-	501,698	836	**836**
LI	3,818,298	3,818,298	5,874	-	-	-	-	**5,874**
MX	1,944,806	-	-	972,403	2,431	972,403	1,621	**4,052**

Given that we know the projected housing unit demand, we can then use the American Community Survey's estimates for job status by households and family to find an average jobs per household number.[3] We then multiplied this rate with housing unit demand to determine employment demand.

To determine the projected employment capacity surplus or deficit, we then subtracted demand from total employment capacity, shown in the following Exhibit 11.

Exhibit 11 – Employment Demand Surplus/ Deficit Results

Employment Demand	
20-Year Housing Unit Demand Increase (dwelling units)	1,248
Assumed jobs / household	1.22
20-year employment demand (jobs)	**1,523**
Total Employment Capacity (jobs)	
Total job capacity (Incorporated + UGA)	**11,150**
Projected Surplus/ (Deficit)	
Total surplus/ (deficit) (jobs)	**9,628**

[3] 2022 ACS, Employment Characteristics of Families (S2302). Family and household are not counted the same by the US Census, but we used family as a proxy.

Appendix A

The following table shows the allocation ratios used to allocate zoned capacity to income bracket. This method recognizes that zones can accommodate more than a single income level or bracket. Ratios add up to 100% by row. The ratios are multiplied with the zone's unit capacity to determine the estimated units at each income level.

Assumed Housing Allocation Ratios Table

Residential Zones	0-30% AMI	30-50% AMI	50-80% AMI	80-100% AMI	100-120% AMI	>120% AMI
LDR 10					0.50	0.50
LDR 6				0.25	0.25	0.50
MDR	0.25	0.25	0.25	0.25		
MX	0.25	0.25	0.25	0.25		

Appendix B

Formulas and calculations:

Critical areas were deducted in GIS.

Net Developable = ((*Gross Dev. Land minus critical areas* * (1- *Future Use Deduction*)) * (1 – *Infrastructure Deduction*)) * (1 – *Market Factor Deduction*)

*Total Capacity = Net Developable acres * Assumed Density*

*Total Occupied Employment Capacity (sq. ft) = Total Sq. Foot Capacity * Occupancy Rate.* We used an occupancy rate of 95%.

Buildable Acre Capacities and Deductions - Housing

Zone	Gross Developable Land minus critical areas (acres)			Future Public Use Deduction			Infrastructure Deduction			Market Factor Deductions			Net Developable Land (acres)				Total Dwelling Unit Capacity	Pipeline/ Recently Built	Total Units (Capacity + Pipeline)
	Vacant	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Total*			
LDR 10	100.10	244.48	0.31	5%	5%	5%	25%	25%	25%	15%	25%	25%	60.6	130.6	0.2	191.4	766	0	766
LDR 6	82.52	36.86	2.33	5%	5%	5%	25%	25%	25%	15%	25%	25%	50.0	19.7	1.2	70.9	284	630	914
MDR	74.37	0.00	89.75	5%	5%	5%	25%	25%	25%	15%	25%	25%	45.0	0.0	48.0	93.0	744	426	1170
MX	31.25	0.00	78.16	5%	5%	5%	25%	25%	25%	15%	25%	25%	18.9	0.0	41.8	60.7	486	334	820

Residential Deductions Summary	
Total gross developable land (minus critical areas)	740.2
Future Public Use - total acres deducted	37.0
Infrastructure - total acres deducted	175.8
Market Factor - total acres deducted	111.3
Total net developable acres	416.1
Total dwelling unit land capacity	2,279
Total pipeline units	1,390
Grand total units	3,669

Buildable Acre Capacities and Deductions – Employment

Zone	Gross Developable Land minus critical areas (acres)			Future Public Use Deduction			Infrastructure Deduction			Market Factor Deductions			Net Developable Land (acres)				Total Sq. Foot Capacity	Total Occupied Employment Capacity (sq. ft)	Pipeline Employment Sq. Footage	Total Employment Capacity (sq. ft)
	Vacant	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Vacant*	*Partially-utilized*	*Under-utilized*	*Total*				
C1	8.33	0.00	1.95	5%	5%	5%	25%	25%	25%	15%	25%	25%	5.0	0.0	1.0	6.1	195,585	185,806	599	186,404
C2	51.97	0.00	2.56	5%	5%	5%	25%	25%	25%	15%	25%	25%	31.5	0.0	1.4	32.8	527,677	501,293	405	501,698
LI	328.20	0.00	96.10	5%	5%	5%	25%	25%	25%	15%	25%	25%	198.8	0.0	51.4	250.1	4,018,927	3,817,981	317	3,818,298
MX	54.90	0.00	56.99	5%	5%	5%	25%	25%	25%	15%	25%	25%	33.2	0.0	30.5	63.7	2,047,164	1,944,806	-	1,944,806

Employment Deductions Summary	
Total gross developable land (minus critical areas)	601.0
Future Public Use - total acres deducted	30.0
Infrastructure - total acres deducted	142.7
Market Factor - total acres deducted	75.5
Total net developable acres	352.7
Total Sq. Foot Capacity	6,789,353
Total occupied sq. ft. land capacity	6,789,353
Total pipeline sq. ft.	1,321
Grand total employment capacity (sq. ft)	6,451,206

Appendix C

This appendix lists this analysis' assumptions and disclosures when implementing the methodology. It also includes disclosures of data limitations.

GIS Analysis Process Assumptions and Data Limitations

- Critical area buffers for deducting nonresidential parcels. All jurisdictions do not have a published critical areas code chapter on their respective code publishing or municode websites. Or, they adopt the County codes by reference. This analysis therefore used county buffer distances for all analysis jurisdictions. The adopted county codes for wetland and stream buffers are based on category and impact.
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- There are several parcels in all cities that straddle the boundary. Like zoning, these parcels were split using an intersect to only calculate areas within the city boundary and UGA.

Deductions and Assumed Densities

- The criterion for partially-used in the Lewis County methodology has conflicting logic: "Don't count parcels with improvement values >93rd percentile of jurisdiction improvement values unless the parcel is sized 3 times the minimum allowed under zoning." This is the same criteria as is applied for the rest: "Parcel size >3 times the minimum allowed under zoning." We applied this literally and counted all parcels >3 times the minimum.
- For determining a reasonable allocation ratio for jobs under industrial, retail, and general commercial, we assumed that capacity would be split across these sectors consistent with existing splits. To determine existing splits, we isolated developed parcels and used assessor land use codes to classify them under these three categories. The ratios were then adjusted based on the permitted use tables in the development regulations to better reflect intended uses in each zone.
    - Industrial included codes related to manufacturing, transportation, and resource extraction

        - 21-49
        - 81-89
    - General commercial included codes related to services:
        - 61-69
    - Retail included codes related to trades:
        - 50-59

The following tables disclose acreage deducted in GIS for critical areas.

Residential Zone	City	UGA	Total
LDR 10	18.2	215.6	233.9
LDR 6	428.3	78.1	506.5
MDR	274.9	40.8	315.7
MX	39.6	93.1	132.7
PF	130.0	2.6	132.6
Total	**891.1**	**430.2**	**1,321.4**

Commercial Zones	City	UGA	Total
C1	305	0	305
C2	0	187	187
LI	296	92	387
MX	46	109	155
Grand Total	**647**	**387**	**1,034**

The following parcels were identified as being built or having active plats/plans to develop. These were excluded from the model and included as "pipeline" capacity.

Parcel	City	Use	Development Name / Notes
15436002000	Winlock	residential	Mitchel Homes
15413002003	Winlock	residential	Mitchel Homes
6292002000	Winlock	residential	Grant Ave homes
6291002000	Winlock	residential	Grant Ave homes
6290002000	Winlock	residential	Grant Ave homes
15419001000	Winlock	residential	Hidden highlands
15634001001	Winlock	public/utility/easement	public/utility/easement
15634001002	Winlock	public/utility/easement	public/utility/easement
15634013067	Winlock	public/utility/easement	public/utility/easement
6526009000	Winlock	commercial	mini storage
15384015000	Winlock	residential	Winlock Heights
6526014000	Winlock	residential	Creswood Heights
15638007009	Winlock	commercial	storage
15638007008	Winlock	commercial	storage
15638007007	Winlock	commercial	storage
15589000000	Winlock	public/utility/easement	PUD substation

Parcel	City	Use	Development Name / Notes
15631008001	Winlock	residential	Hilltop Meadows
15631008002	Winlock	residential	Hilltop Meadows
15354001010	Winlock	both	water tower
15633008000	Winlock	mixed	Skyhawk Summit. 5.41 acres commercial
6523003002	Winlock	residential	Heights of Winlock
6438000000	Winlock	residential	Double H Investments
6435000000	Winlock	residential	Double H Investments
6487000000	Winlock	residential	Window Short Plat
6201001000	Winlock	residential	Winlock Estates (Tapani)
6201002000	Winlock	residential	Winlock Estates (Tapani)
6200000000	Winlock	residential	Winlock Estates (Tapani)
6202000000	Winlock	residential	Winlock Estates (Tapani)
6209000000	Winlock	residential	Winlock Estates (Tapani)
6213000000	Winlock	residential	Winlock Estates (Tapani)
6296002000	Winlock	residential	Graham Acres
6306002000	Winlock	residential	Graham Acres
15591002000	Winlock	residential	Bear Creek Landing
15588001000	Winlock	residential	Bear Creek Landing
6282004000	Winlock	residential	Shannon Lewis mobile homes
6543001016	Winlock	residential	Hawks View Lane subdivision
6543001017	Winlock	residential	Hawks View Lane subdivision
6543001018	Winlock	residential	Hawks View Lane subdivision
6543001019	Winlock	residential	Hawks View Lane subdivision
6543001020	Winlock	residential	Hawks View Lane subdivision
6543001021	Winlock	residential	Hawks View Lane subdivision
6543001022	Winlock	residential	Hawks View Lane subdivision
6543001023	Winlock	residential	Hawks View Lane subdivision
6543001024	Winlock	residential	Hawks View Lane subdivision
6543001025	Winlock	residential	Hawks View Lane subdivision
6543001026	Winlock	residential	Hawks View Lane subdivision
6543001027	Winlock	residential	Hawks View Lane subdivision
6543001028	Winlock	residential	Hawks View Lane subdivision
6543001015	Winlock	residential	Hawks View Lane subdivision
6543001003	Winlock	residential	Hawks View Lane subdivision
6543001014	Winlock	residential	Hawks View Lane subdivision
6543001013	Winlock	residential	Hawks View Lane subdivision
6543001012	Winlock	residential	Hawks View Lane subdivision
6543001011	Winlock	residential	Hawks View Lane subdivision
6543001010	Winlock	residential	Hawks View Lane subdivision
6543001009	Winlock	residential	Hawks View Lane subdivision
6543001008	Winlock	residential	Hawks View Lane subdivision
6543001007	Winlock	residential	Hawks View Lane subdivision

Parcel	City	Use	Development Name / Notes
6543001006	Winlock	residential	Hawks View Lane subdivision
6543001005	Winlock	residential	Hawks View Lane subdivision
6543001004	Winlock	residential	Hawks View Lane subdivision
15625002005	Winlock	residential	Martin Development
15625002003	Winlock	residential	Martin Development
15625002004	Winlock	residential	Martin Development
15588003001	Winlock	commercial	Frogmore
15384020059	Winlock	commercial	Peregrine Place
11966003003	Winlock	commercial	Shell expansion
15354001009	Winlock	commercial	Benaroya/Crow
15354001002	Winlock	commercial	Benaroya/Crow

DRAFT April 11, 2024

											PPH (#13)	2.41	Population based on the Available Land		
Land Use Catagories	**Comp Plan/Zoning**	**U/A[4]**	**Gross Acres[1]**	**Critical Areas Deductions[7] (.30 used for LDR, VLDR, RR, .10 for MDR, MHDR, HDR)**		**Committed Land**	**Net Acres**	**25% Market Factor[11]**	**Infrastructure Residential[5,6]**	**Infrastructure Commercial[6]**	**Available Land (acres)**	**Households (units)**	**Pop: Low[14]**	**Pop: Med[14]**	**Pop: High[14]**
				-10%	-30%	-25%		-25%	-25%	-10%			30%	50%	80%
Residential High - 20 du/acre[4]	HDR/R:20	20	66.25	(6.63)		(16.56)	43.06	(10.77)	(12.92)		19.38	387.56	280.21	337.65	650.99
Residential Medium High - 15 du/acre[4]	MHDR/R:15	15	130.07	(13.01)		(32.52)	84.55	(21.14)	(25.36)		38.05	570.68	412.60	497.19	958.58
Residential Medium - 8 du/acre[4]	MDR/R:8	8	969.38	(96.94)		(242.35)	630.10	(157.52)	(189.03)		283.54	2,268.35	1,640.02	1,976.22	3,810.15
Residential Low - 4 du/acre[4]	LDR/R:4	4	1,396.91		(419.07)	(349.23)	628.61	(157.15)	(157.15)		314.30	1,257.22	908.97	1,095.31	2,111.75
Residential Very Low – min 2 du/acre[5]	VLDR/R:2	2	645.94		(193.78)	(161.49)	290.67	(72.67)	(72.67)		145.34	290.67	210.16	253.24	488.24
Med Rural Res - min 2 acre parcel	Med. Rural Res./R-2A	0.5	1,026.49		(307.95)	(256.62)	461.92	(115.48)	(115.48)		230.96	115.48	83.49	100.61	193.97
Rural Res - Rural – min 5 acre parcel[5]	Rural Residential/R-5A	0.2	241.10		(72.33)	(60.28)	108.50	(27.12)	(27.12)		54.25	10.85	7.84	9.45	18.22
Com. - General Commercial	GC/C-1	1	221.92	(22.19)		(55.48)	144.25	(36.06)	-	(14.42)	93.76	93.76	67.79	81.69	157.49
Com. - Highway Commercial	HC/C-2	1	92.91	(9.29)		(23.23)	60.39	(15.10)		(6.04)	39.25	39.25	28.38	34.20	65.94
Com. - Core Commercial	CBD/C-3	5	50.98	-		(12.75)	38.24	(9.56)			28.68	143.38	103.66	124.92	240.84
Com. - Limited Business District	LBD	3	50.51	(5.05)		(12.63)	32.83	(8.21)		(3.28)	21.34	64.02	46.29	55.78	107.54
Com. - Gateway Commercial	GCD	1	64.13	-		(16.03)	48.10	(12.02)	-	(4.81)	31.26	31.26	22.60	27.24	52.51
	TOTALS		**4,956.59**				**2,571.21**				**1,300**	**5,272**	**3,812**	**4,593**	**8,856**
									-30%						
					Centralia Population Projection 2025-2045								**Low - 30%**	**Med - 50%**	**High - 80%**
			City Pop 2022	**UGA Pop 2022**	**Low**	**Medium**	**High**				**2022 UGA (existing) Pop**		**22,376**	**22,376**	**22,376**
	Population[3]		18,360	22,378	**24,000**	**28,000**	**32,000**				**2045 UGA (new) Pop**		26,188	26,969	31,232
	# Units @ PPH 2.41		7,618.26	9,285	**9,959**	**11,618**	**13,278**				Diff in Population 2022-2045		3,812	4,593	8,856
	Difference in Population 2022 & Proj. 2045				**1,622**	**5,622**	**9,622**				**2045 Proj. Total # of Units**		**10,866**	**11,191**	**12,959**

The following footnotes apply to the tables for both the incorporated and unincorporated areas:

1. Land base accounts for all residential areas within Urban Growth Boundary (UGB).
2. The Land Base Reduction Factors allow for the calculation of net available residential land for future development.
3. Annual growth of approximately 2% resulting in Washington State Office of Financial Management (OFM) 20-year population projection of approximately 1,622 additional residents for Centralia (total 24,000) by 2045 (based on June 2023 Office of Financial Management total population of 18,360 & 2022 UGA Pop. 22,378).
4. Low Residential 4 dwelling units per acre, Medium Density Residential 8 dwelling units per acre, Medium-High Density Residential 15 units per acre, and High Density Residential 20 units per acre. These residential designations are assumed to have full urban services including public water and sewer service with connection requirements based on city water and sewer availability.
5. Very Low Density Residential and Rural Residentials areas will typically not have community water or sewer systems. Streets will be paved, but curb, gutter, and sidewalk will usually not be in place. These areas include land that may have the presence of critical areas.
6. A 25% infrastructure deduction for roads and utilities is included for residential densities of four or fewer dwelling units per acre based on larger lot size and smaller road standards (LDR,VLDR, RR). A 30% infrastructure deduction was used for five or more dwelling units per acre based on smaller lots sizes and greater imperious surface ratios(MDR, MHDR, HDR, LBD). CBD used a 0% based on ROW existing
7. Undevelopable critical areas to include Federal Emergency Management Agency (FEMA 100-year floodplains, National Wetland Inventory (NWI) wetlands, Oregon White Oak, & steepslopes of 30% and greater. (.30 used for LDR, VLDR, RR, .10 for MDR, MHDR, HDR)
8. The City has an Interlocal agreement with the County for governmental jurisdiction in the Urban Growth Areas (UGA).
9. Existing legal lots of record in the Urban Growth Area (UGA) (outside City limits) will not be required to subdivide; however, they will be redesignated with a residential comprehensive plan that may allow for greater residential density when rezoned by the City.
10. Based on recent platting patterns in the City, the medium density projections are more likely to occur than the higher density projections and infill development is expected to continue into the future at higher densities.
11. The 25% market factor accounts for properties that are eligible for further land division, but that may not be potentially divided based on property owner decisions to not further divide property, even though eligible to do so under proposed residential zoning.
12. Committed land include existing lots that are not eligible to be further divided based on minimum lot requirements under proposed residential zoning.
13. Population projection based on 2.41 persons per household 3/29/2024 US Census 2017-2022
14. Low Density - 30%, Medium 50%, High 80%

Land Use Designations	Comp Plan or Zoning	U/A	Gross Acres	Critical Areas Deductions[7]		Committed Land	Net Acres	25% Market Factor	Infrastructure Residential[6]	Infrastructure Commercial[6]	Available Land	Jobs Low	Jobs Medium	Jobs High	
				-10%	-30%	-25%		-25%	-25%	-10%		2	5	10	
Commercial	**C**		**480.45**	**-48.05**		**-120.11**	**312.29**	**-78.07**		**-31.23**	**202.99**	**405.98**	**1014.95**	**2029.90**	
Com. - General Commercial	GC/C-1		221.92	**-22.19**		-55.48	144.25	**-36.06**		**-14.42**	**93.76**	**187.52**	**468.81**	**937.61**	
Com. - Highway Commercial	HC/C-2		92.91	**-9.29**		-23.23	60.39	**-15.10**		**-6.04**	**39.25**	**78.51**	**196.27**	**392.54**	
Com. - Core Commercial	CBD/C-3		50.98	**-5.10**		-12.75	33.14	**-8.28**			**24.85**	**49.71**	**124.26**	**248.53**	
Com. - Limited Business District	LBD		50.51	**-5.05**		-12.63	32.83	**-8.21**		**-3.28**	**21.34**	**42.68**	**106.70**	**213.40**	
Com. - Gateway Commercial	GCD		64.13	**-6.41**		-16.03	41.68	**-10.42**		**-4.17**	**27.09**	**54.19**	**135.47**	**270.95**	
Industrial	**I**		**1,513.17**	**-151.32**		**-378.29**	**983.56**	**-245.89**		**-98.36**	**639.31**	**1278.63**	**3196.57**	**6393.14**	
Industrial - Light Industrial	M-1 (Zoning)		380.84	**-38.08**		-95.21	247.55	**-61.89**		**-24.75**	**160.90**	**321.81**	**804.52**	**1609.05**	
Industrial - Heavy Industrial	M-2 (Zoning)		559.64	**-55.96**		-139.91	363.77	**-90.94**		**-36.38**	**236.45**	**472.90**	**1182.24**	**2364.48**	
Port Master Plan	PMP		572.69	**-57.27**		-143.17	372.25	**-93.06**		**-37.22**	**241.96**	**483.92**	**1209.81**	**2419.62**	
Medical/Health Care	**H-1 (Zoning)**		**85.31**	**-8.53**		**-21.33**	**55.45**	**-13.86**		**-5.55**	**36.04**	**72.09**	**180.22**	**360.43**	
	TOTALS		2,078.93				1,351.30				878.35	1,756.70	4,391.74	8,783.48	

The following footnotes apply to the tables for both the incorporated and unincorporated areas:

1. Land base accounts for all Commercial, Industrial, Medical areas within Urban Growth Boundary (UGB).
2. The Land Base Reduction Factors allow for the calculation of net available commercial/industrial/medical land for future development.
3. Annual growth of approximately 2% resulting in Washington State Office of Financial Management (OFM) 20-year population projection of approximately 1,622 additional residents for Centralia (total 24,000) by 2045 (based on June 2023 Office of Financial Management total population of 18,360).
4. These designations are assumed to have full urban services including public water and sewer service with connection requirements based on city water and sewer availability.
5. Streets will be paved, but curb, gutter, and sidewalk will usually not be in place. These areas include land that may have the presence of critical areas.
6. A 10% infrastructure deduction for roads and utilities is included for based on larger lot size and smaller road standards;CBD used a 0% based on existing ROW
7. Undevelopable critical areas to include Federal Emergency Management Agency (FEMA 100-year floodplains, National Wetland Inventory (NWI) wetlands, Oregon White Oak, & steepslopes of 30% and greater. (.10 used for LU Designations)
8. The City has an Interlocal agreement with the County for governmental jurisdiction in the Urban Growth Areas (UGA).
9. Existing legal lots of record in the Urban Growth Area (UGA) will not be required to subdivide.
10. Based on recent platting patterns in the City, infill development is expected to continue into the future.
11. The 25% market factor accounts for properties that are eligible for further land division, but that may not be potentially divided based on property owner decisions to not further divide or develop property, even though eligible.
12. Committed land include existing lots that are not eligible to be further divided based on minimum lot requirements under zoning.

						City Limits	UGA	CL + UGA		CAO	New ROW				
Comprehensive Plan Designation	Actual Density	Low Density	Med. Density	High Density	2025 Zoning	Acres	Acres	Total Acres	Percent of Total	15%	15%	Actual Land for Dev.	Units Low	Units Med	Units High
Right-of-way (current) ROW					ROW	703.22	203.69	**906.91**	10.26%						
Railroad right-of-way RROW					RR ROW	158.48	56.95	**215.43**	2.44%						
Hydro (Chehalis & Skookumchuck rivers)								**189.08**	2.14%						
Open Space					OS	429.09	0	429.09	4.85%						
Public Facilities					PF	606.25	3.49	609.74	6.89%						
Port Master Plan					PMP	359.57	213.12	572.69	6.48%						
Light Industrial					M:1	302.75	78.09	380.84	4.31%						
Heavy Industrial					M:2	473.17	86.47	559.64	6.33%						
Medical/health care					H:1	81.26	4.05	85.31	0.96%						
Commercial general district (GC)					C:1	221.92	0	221.92	2.51%		0		0	0	0
Highway commercial district (C-2)					C:2	92.91	0	92.91	1.05%		0		0	0	0
Commercial central business district (CBD)	5.17				C:3	50.98	0	50.98	0.58%		0		0	0	0
Limited business district (LBD)	3.22		5.00	8.00	LBD	42.14	8.37	50.51	0.57%		0		163	253	404
Gateway commercial district (GCD)					GCD	64.13	0	64.13	0.73%		0		0	0	0
High-density residential (HDR)				20.00	R:20	41.04	25.21	66.25	0.75%		0				1,325
Medium-high-density residential (M-HDR)	7.74			15.00	R:15	130.07	0	130.07	1.47%		0		1007		1,951
Medium-density residential (MDR)	3.89		5.00	8.00	R:8	966.13	3.25	969.38	10.96%		0		3771	4847	7,755
Low-density residential (LDR)	1.2			4.00	R:4	1063.93	332.98	1396.91	15.80%	209.5365	209.5365	977.837	1173		3,911
Very low-density residential (VLDR)				2.00	R:2	624.63	0	645.94	7.30%	96.891	96.89	452.16			904
Semi-rural residential (R2A) - 1 unit per 2 ac				0.50	R:2A	775.28	251.21	1026.49	11.61%	153.9735	153.97	718.54			359
Rural residential (R5A) - 1 unit per 5 ac	0.21			0.20	R:5A	200.63	40.47	241.1	2.73%	36.165		204.935			41
					Tot. Zoned Ac	**6,525.88**	**1,046.71**	**7,593.90**							
											Total # Units				16,651
							7/1/2023	**Centralia PPH 2018-2022**		**2.41**		**Low Pop**	**Med Pop**	**High Pop**	
											Total Population			**40,129.13**	
						2023	2024	Diff. (ac)							
					UGA	9,692.34	8,843.46	848.88							
					City Limits	5,052.35	5,052.35	0							

CITY OF CHEHALIS
Where Heart and History Shape Our Future

Community Development Department
1321 S. Market Blvd., Chehalis, WA 98532
360. 345.2229/Fax: 360.345.1039
www.ci.chehalis.wa.us email: comdev@ci.chehalis.wa.us

March 15, 2023

RE: 2023 Population projection methodology for Chehalis, Washington

Background

The Office of Financial Management for the State of Washington (OFM) disseminates population projections for each county in Washington State every ten years. OFM's population estimate for the city of Chehalis is 11,289 for 2045, showing an increase of 1,444 people over the next 22 years.

Below is the city's estimate and methodology for that same period.

Methodology

Staff analyzed the four (4) largest projects currently in various stages of planning within our city limits and urban growth area. A table containing acreage and final calculations are shown below. With the exception of one development, the remaining three (3) plan to include commercial uses and a large water tower to accommodate their needs. The fourth site, while having no commercial activity is planned to have 280 garden style apartments and as such this actual number was used.

Staff took the total acreage for each site multiplied that number by 24 units per acre, which is the highest density the city currently has. This number was then multiplied by 2.5, the average household size for Lewis County. This brought the total number of new residents to 62,043. Since the majority of the developers are planning on large infrastructure projects and commercial retail within their development, staff proposes the use of fifty (50) percent of this number for a total of 31,202 new residents over the next ten (10) years.

40	0 CENTRALIA ALPHA RD	RAINDROP PROPERTIES LLC,	
27.85	2095 NE KRESKY AVE	RAINDROP PROPERTIES LLC	
39.01	0 CENTRALIA ALPHA RD	RAINDROP PROPERTIES LLC,	
5	0 NE KRESKY AVE	RAINDROP PROPERTIES LLC,	
5	0 NE KRESKY AVE	RAINDROP PROPERTIES LLC,	
5	0 NE KRESKY AVE	RAINDROP PROPERTIES LLC,	
24.41	0 NE KRESKY AVE	RAINDROP PROPERTIES LLC	
39.88	0 CENTRALIA ALPHA RD	RAINDROP PROPERTIES LLC,	
502	0 CENTRALIA ALPHA RD	RAINDROP PROPERTIES LLC,	
688.15	688.15 acres @ 24 units per acre=		16515.6
			41289
		41,289 new residents	

1.02	3090 B JACKSON HWY	BAKER, RONALD S & JACKELENE M	
1.97	3080 E JACKSON HWY	ALLEN FAMILY TRUST	
6.29	0 JACKSON HWY	NEWAUKUM VENTURES, LLC	
45.16	167 KIRKLAND RD	ROSE, JO H & JERRY L	
124.9	153 NEWAUKUM GOLF DR	NEWAUKUM VENTURES, LLC	
63.08	0 JACKSON HWY	NEWAUKUM VENTURES, LLC	
242.42	242.42 acres @ 24 units per acre=		5818.08
			14545.2
		14,545 new residents	

0.23	0 JACKSON HWY	BLUE CREEK INVESTMENTS LLC	
8.34	2945 JACKSON HWY	BLUE CREEK INVESTMENTS LLC	
9.58	121 YATES RD	NW GREEN CONSTRUCTION INC	
5	2951 JACKSON HWY	NW GREEN CONSTRUCTION INC	
23.15	23.15 acres @24 units per acre=		280
			700
		700 new residents	

5.39	0 JACKSON HWY	LAKEWOOD INVESTORS LLC	
11.26	0 KENNICOTT RD	LAKEWOOD INVESTORS LLC	
5.05	0 JACKSON HWY	LAKEWOOD INVESTORS LLC	
39.91	0 KENNICOTT RD	LAKEWOOD INVESTORS LLC	
15.57	0 KENNICOTT RD	LAKEWOOD INVESTORS LLC	
10.42	2517 JACKSON HWY	LAKEWOOD INVESTORS LLC	
4.22	2505 JACKSON HWY	LAKEWOOD INVESTORS LLC	
91.82	91.82 acres @ 24 units per acre=		2203.68
			5509.2
		5,509 new residents	

	Total increase of population in the next 20 years	62043.4
	62,043 new residents	

OFM prediction for 2045 is	11,289
current population est	9,845
total new residents predicted	1,444
our prediction of new residents	31,202
OFM prediction of new residents	1,444
Difference	29,758

50% of 62,403 =	31,202

JACKSONCIVIL

704 E MAIN STREET, STE 103
P.O. BOX 1748
BATTLE GROUND, WA 98604
(360) 723-0381

May 7, 2024

Lewis County
Community Development Department
2025 NE Kresky Ave
Chehalis, WA 98532
Attn: Mindy Brooks

RE: Land Capacity Analysis for Mossyrock, Napavine, and Winlock

Attached is a copy of the Land Capacity Analysis (LCA) for the cities of Mossyrock, Napavine, and Winlock. We provided preliminary results to each jurisdiction for their review. We received feedback from each along with parcel specific corrections. Appropriate adjustments have been made with the **draft** results now being transmitted to you.

We anticipate other adjustments being made as we guide each community through their Comprehensive Plan, Development, code, and Critical Area Ordinance updates. This will undoubtably lead to additional revisions to the LCA. Some of these revisions will be a result of regulation changes and others due to additional ground truthing of site-specific existing conditions and ability to develop.

Again, please treat this results as draft knowing that revisions will likely occur. We will reach out soon to schedule a meeting with you and your consultant. In the meantime, if you have questions please feel free to contact me out in advance.

Sincerely,

Paul Dennis
Senior Planner

Morton Land Use and Housing Analysis

In preparation for the 2025 Morton Comprehensive Plan update, land use and housing statistics have been computed. The goal of these computations is to show that the City has sufficient developable land for projected growth as well as the assigned housing allocation established in 2023.

The following factors were taken into account during the analysis process.

- Infrastructure is not included in land use calculations.
- Land owned by the federal, state, and local government are zoned Public Community and are not included in other zoning classifications.
- Land within the critical areas is included in the land use calculations. Gross acreage is used to determine density. This is done because, while critical areas will impact development, they do not preclude development. Generally speaking, gross land is used to determine density but development must occur compliant with any conditions determined during the time of development.
- The Urban Growth Area (UGA) is 992 acres. Residentially zoned properties are not included. Residential zoning is as follows:
    - RSF, Residential Single Family- minimum lot size 20,000 sq ft; 2u/a
    - RMD, Residential Medium Density-minimum lot size 7,500 sq ft; 5u/a
    - RMF, Residential Multifamily-minimum lot size 5,000 sq ft; 12u/a
- Since Lewis County will be calculating the housing allocation for the UGA it has been removed.
- SD zoning classification stands for Special District. This land entails all governmentally owned property as well as churches and other properties not anticipated to be developed.

Morton's acreage by zoning classification within City Limits

	Totals by acre
RSF (20,000; 2u/a)	361.75
RMD (7,500; 5u/a)	789.73
RMF (5,000; 12 u/a)	891.12
Total Residential=	**2042.60**
Special District=	169.09
Total Special District=	**169.09**
Commercial=	65.79
Total Commercial=	**65.79**
Industrial=	10.20
Total Industrial=	**10.20**
Total acreage=	**649.43**

At this time the City of Morton is entertaining the possibility that a portion of the UGA will be turned back to Lewis County. This land is located west of the West Fork of the Tilton River and the City is unable to serve it with urban amenities such as sewer and water. This land totals 57.853373 acres. This acreage is not included in any of the zoning designations.

The two remaining zoning classifications are C, Commercial and I, Industrial.

	Total Acres
RSF (20,000; 2u/a) =	272.23
RMD (7,500; 5u/a) =	233.41
RMF (5,000; 12 u/a) =	73.76
Total Residential=	**579.398554**
C =	3.69
I =	257.42
Remove =	57.85
SD =	94.00
Total=	**992.85**

Morton's acreage by zoning classification within the UGA

Combined acres for the City limits and UGA are shown in the chart below. Again, residentially zoned land is totaled separately from the commercial, industrial, special district, and proposed land to be removed from the UGA.

City limit and UGA	Acres
RSF (20,000; 2u/a) =	438.81
RMD (7,500; 5u/a) =	369.38
RMF (5,000; 12 u/a) =	176.05
Total Residential=	**984.25**
C =	69.48
I =	267.62
Remove =	57.85
SD =	263.09
Total=	**1642.28**

Morton's total acres by zoning classification

Housing allocation

Housing allocations were established through a public process in 2023. They have been adopted by Lewis County Commissioners and cities. Cities within Lewis County will use these numbers to calculate compliance with housing requirements.

Housing allocations are intended to project the housing demand for the City of Morton through the year 2045.

Housing allocations for the City of Morton as established by Lewis County Commissioners in 2023.

	Total	0-30% Non-PSH	PSH	>30%-50%	>50%-80%	>80%-100%	>100%-120%	>120%	Emergency Housing
Estimated Housing Supply (2020)	506	16	0	167	221	69	8	25	0
Allocation Method C (2020-2045)	23	5	1	4	1	2	1	7	1
								Current residential land use capacity=	2042
								Bulk total housing needed by 2045=	529
								Bulk Surplus Housing Capacity	**1513**

After calculations of the housing allocations, the City must demonstrate that there is sufficient land within each residential zoning classification to accommodate the housing allocations. Below are the calculations used to determine total units per acre, combining both current and projected.

Total units per acre available by residential zoning classification			Calculation formulas
	Total acreage	Units per zone	
RSF (20,000; 2u/a) =	166.09	361.75	*Residential RSF, minimum lot size 20,000 sq ft, 2 units per acr Calculation for Units per zone= (43560/20000)*166.09
RMD (7,500; 5u/a) =	135.97	789.73	**Residential RMD, minimum lot size 75000 sq ft, 4 units per acr Calculation for Units per zone= (43560/7500)*135.97
RMF (5,000; 12 u/a) =	102.29	891.12	***Residential R1-15, minimum lot size 15,000 sq ft. 4 units per acr Calculation for Units per acre= (43560/5000)*102.29
Total Residential=	**404.35**	**2042.60**	

RSF	361.75
>120%	32
>100%-120%	9
Surplus capacity	**340.42**
RMD	789.73
>80%-100%	72
>50%-80%	224
Surplus capacity	**493.73**
R1-5	891.12
>30%-50%	171
PSH	1
Non-PSH	21
Emergency Housing	1
Surplus capacity	**697.12**

Current and projected housing allocations by zoning classification

The units per zone were then applied to the housing allocation by income. Allocation and income dictate the type of housing typically used. For example, wage earners with over 120% of the County's median income typically seek single family housing on larger lots. Conversely, households with wage earnings at 30% to 50% typically utilize multifamily housing which is developed at a higher density.

Calculations combine current with projected to determine land capacity analysis. This method allows for property owners to change property lines and thereby change available buildable lands as they deem necessary, so long as it complies with the underlying zoning.

PeEll Land Use and Housing Analysis

In preparation for the 2025 PeEll Comprehensive Plan update, land use and housing statistics have been computed. The goal of these computations is to show that the Town has sufficient developable land for projected growth as well as the assigned housing allocation established in 2023.

The following factors were taken into account during the analysis process.

- Infrastructure is not included in land use calculations.
- Land owned by the federal, state, and local government are zoned Public Community and are not included in other zoning classifications.
- Land within the critical areas is included in the land use calculations. Gross acreage is used to determine density. This is done because, while critical areas will impact development, they do not preclude development. Generally speaking, gross land is used to determine density but development must occur compliant with any conditions determined during the time of development.
- The Urban Growth Area (UGA) is 12.64 acres and is not included in the calculations as the entire area is zoned R1-5, with minimum lot size of 5,000 sq ft and a maximum density of 8 units per acre. Since Lewis County will be calculating the housing allocation for the UGA it has been removed.

PeEll's acreage by zoning classification

	Totals by acre
*Residential R1-5 =	113.00
**Residential R1-10=	62.81
***Residential R1-15=	57.88
Total Residential=	**233.69**
Public Community=	48.86
Total Public Community=	**48.86**
Commercial=	8.80
Total Commercial=	**8.80**
Industrial=	4.12
Total Industrial=	**4.12**
Total acreage=	**295.48**

Housing allocation

Housing allocations were established through a public process in 2022. They have been adopted by Lewis County Commissioners and cities and towns within Lewis County will use these numbers to calculate compliance with housing requirements.

Housing allocations are intended to project the housing demand for the Town of PeEll through the year 2045.

Housing allocations for the Town of PeEll as established by Lewis County Commissioners in 2023.

	Total	0-30% Non-PSH	PSH	>30%-50%	>50%-80%	>80%-100%	>100%-120%	>120%	Emergency Housing
Estimated Housing Supply (2020)	284	6	0	90	157	9	6	16	0
Allocation Method C (2020-2045)	10	2	1	2	1	1	1	3	1

Current residential land use capacity=	1510
Bulk total housing needed by 2045=	296
Bulk Surplus Housing Capacity	**1214**

After calculations of the housing allocations, the Town must demonstrate that there is sufficient land within each residential zoning classification to accommodate the housing allocations. Below are the calculations used to determine total units per acre.

Total units per acre available by residential zoning classification		
	Totals by acreage	Units per zone
*Residential R1-5 =	113.00	984.48
**Residential R1-10=	62.81	273.61
***Residential R1-15=	57.88	252.12
Total Residential=	**233.69**	**1510.21**

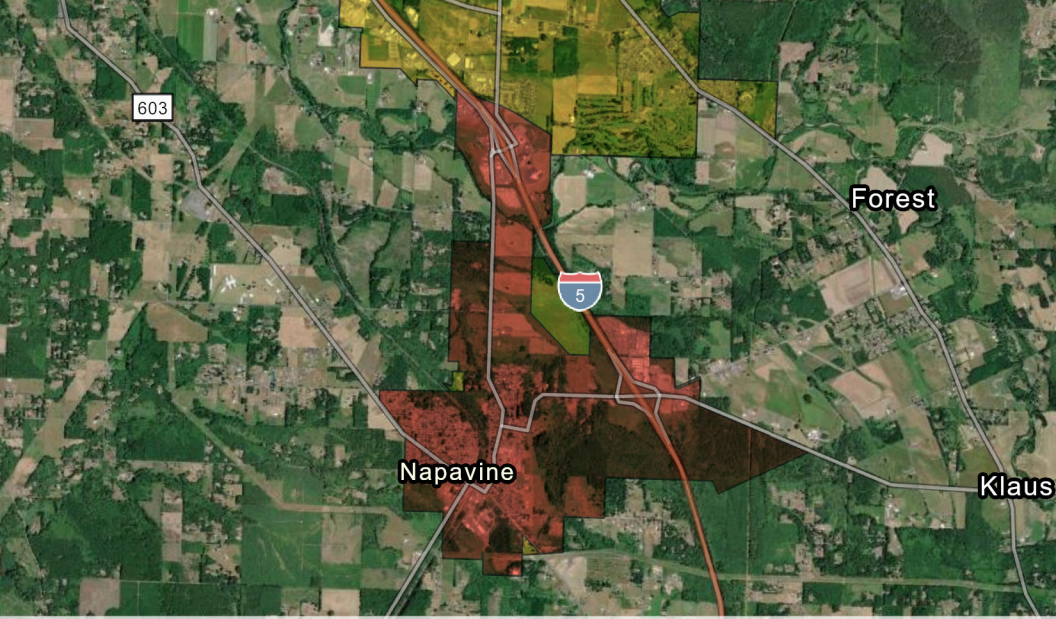
Calculation formulas
*Residential R1-5, minimum lot size 5,000 sq ft, 8 units per a Calculation for Units per zone= (43560/5000)*113.00
**Residential R1-10, minimum lot size 10,000 sq ft, 4 units per a Calculation for Units per zone=(43560/10000)*62.81
***Residential R1-15, minimum lot size 15,000 sq ft. 4 units per a Calculation for Units per acre=(43560/10000)*57.88

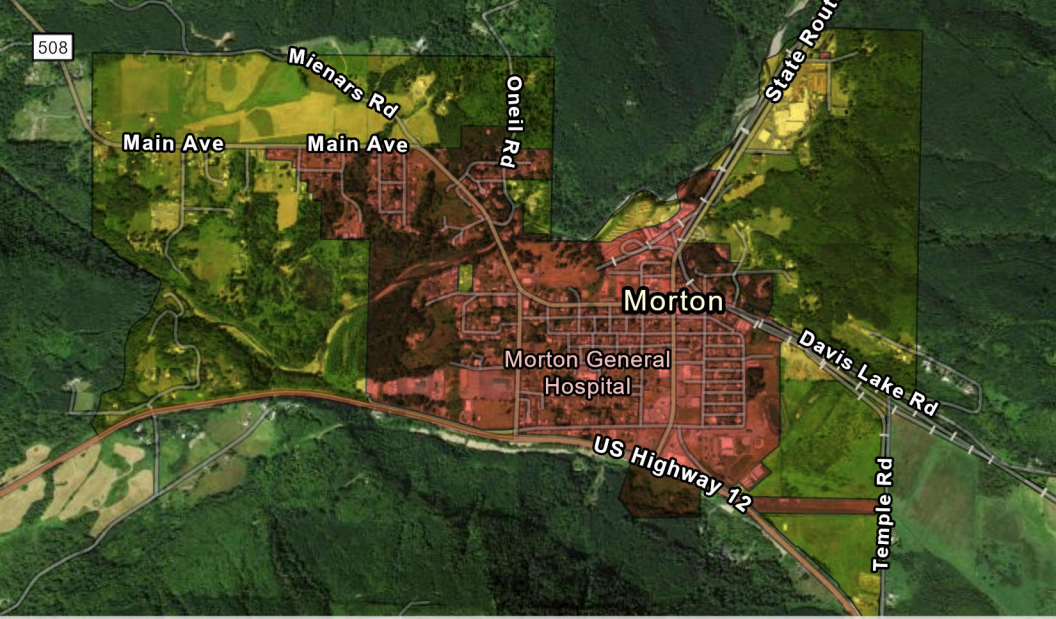
The units per zone were then applied to the housing allocation by income. Allocation and income dictate the type of housing typically used. For example, wage earners with over 120% of the County's median income typically seek single family housing on larger lots. Conversely, households with wage earnings at 30% to 50% typically utilize multifamily housing which is developed at a higher density.

R1-15	252.12
>120%	19
>100%-120%	7
Surplus capacity	**226.12**
R1-10	273.61
>80%-100%	10
>50%-80%	158
Surplus capacity	**105.61**
R1-5	984.48
>30%-50%	92
PSH	1
Non-PSH	8
Emergency Housing	1
Surplus capacity	**882.48**

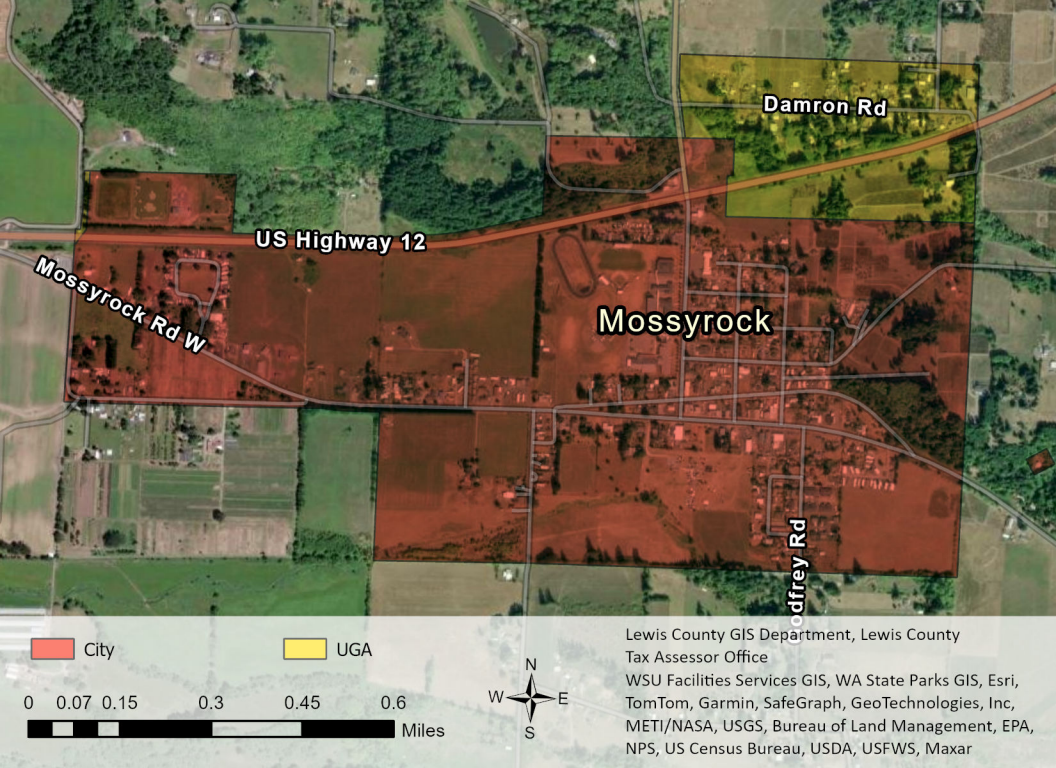
Calculations combine current with projected to determine land capacity analysis. This method allows for property owners to change property lines and thereby change available buildable lands as they deem necessary, so long as it complies with the underlying zoning.

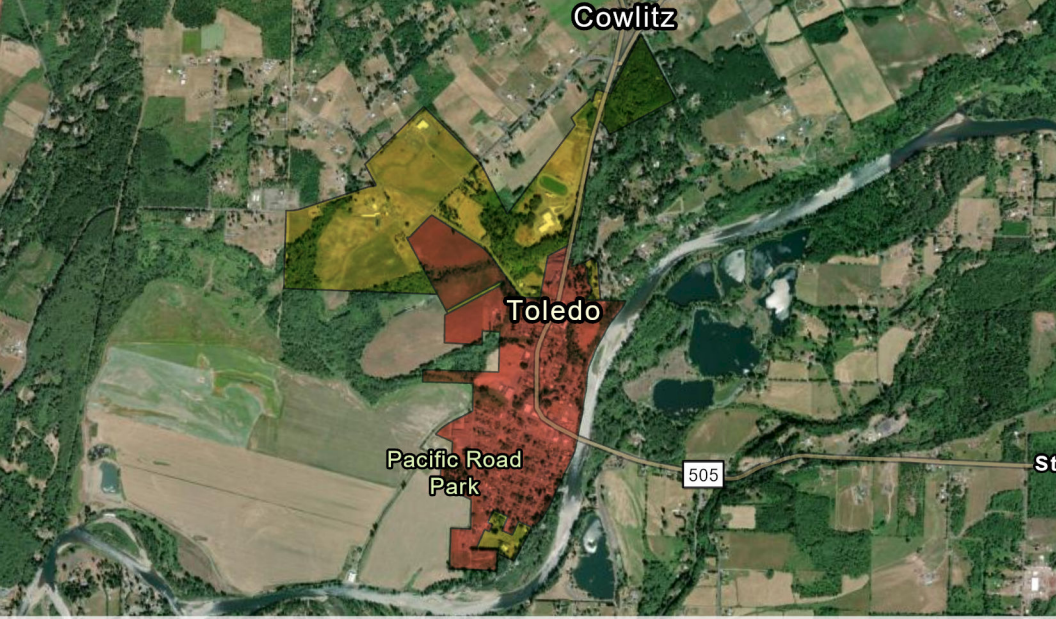
Current and projected housing allocations by zoning classification

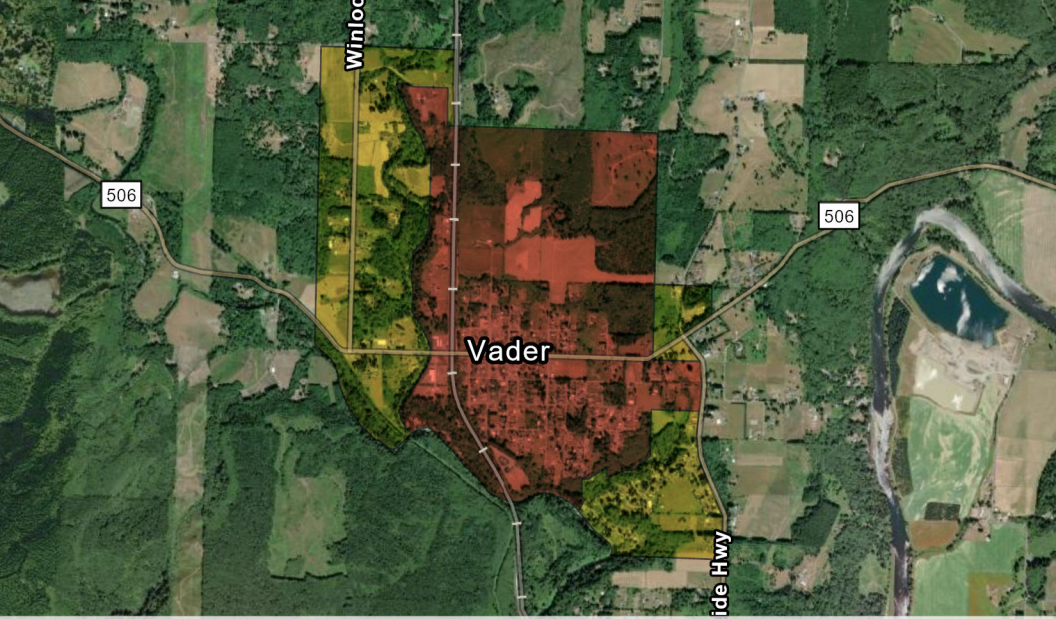

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Lewis County GIS Department, Lewis County Tax Assessor Office
WSU Facilities Services GIS, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Source: Esri,

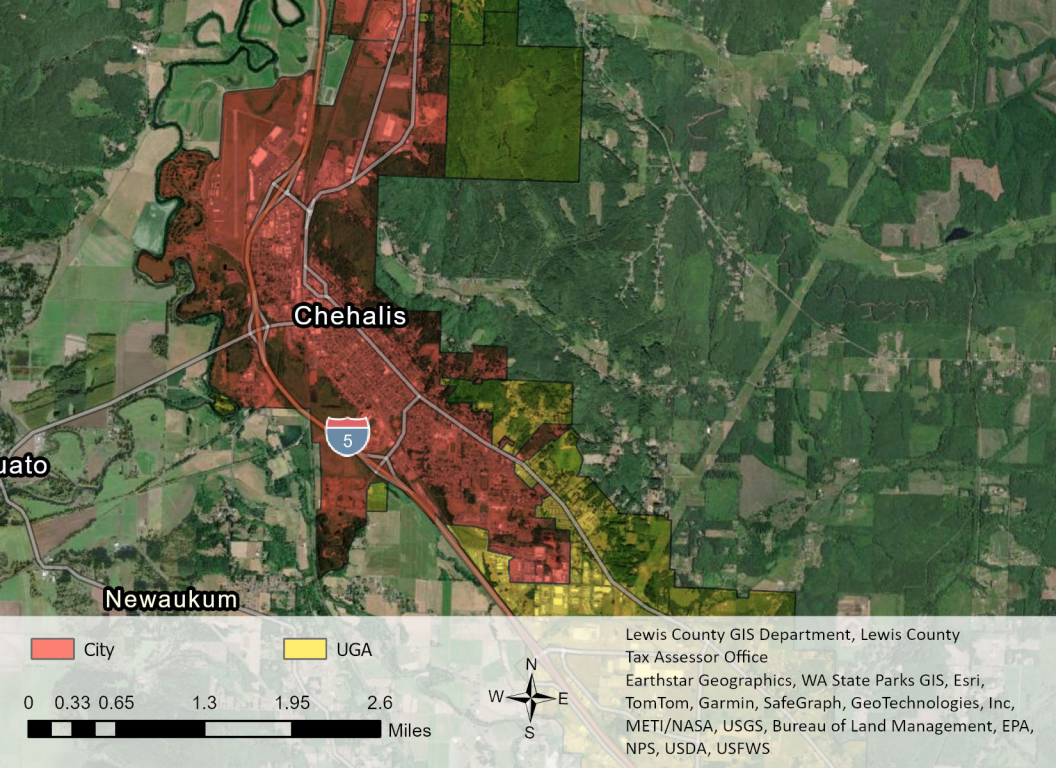

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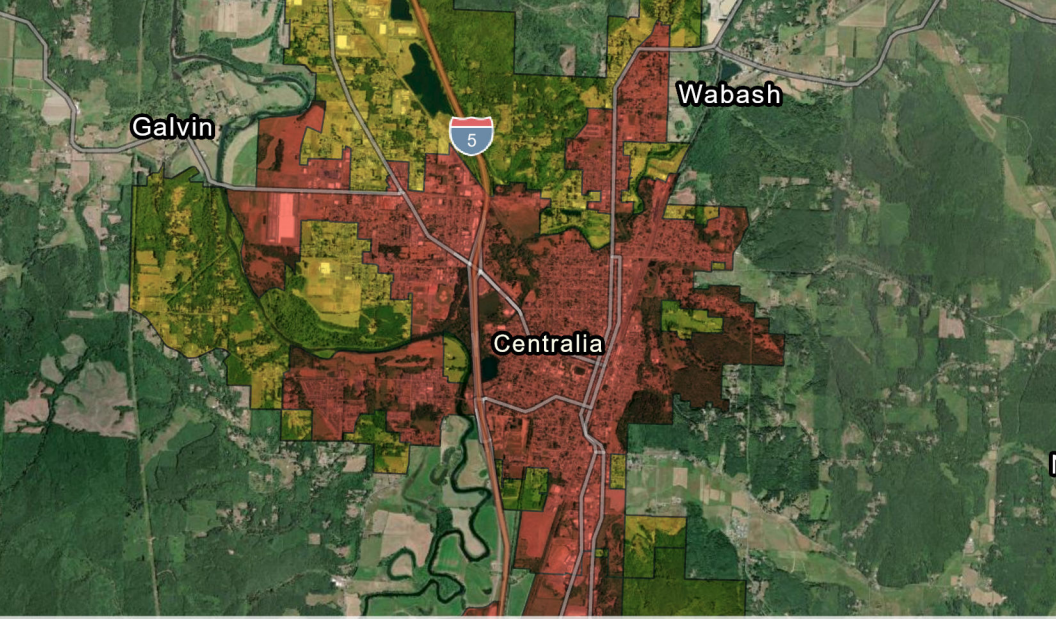

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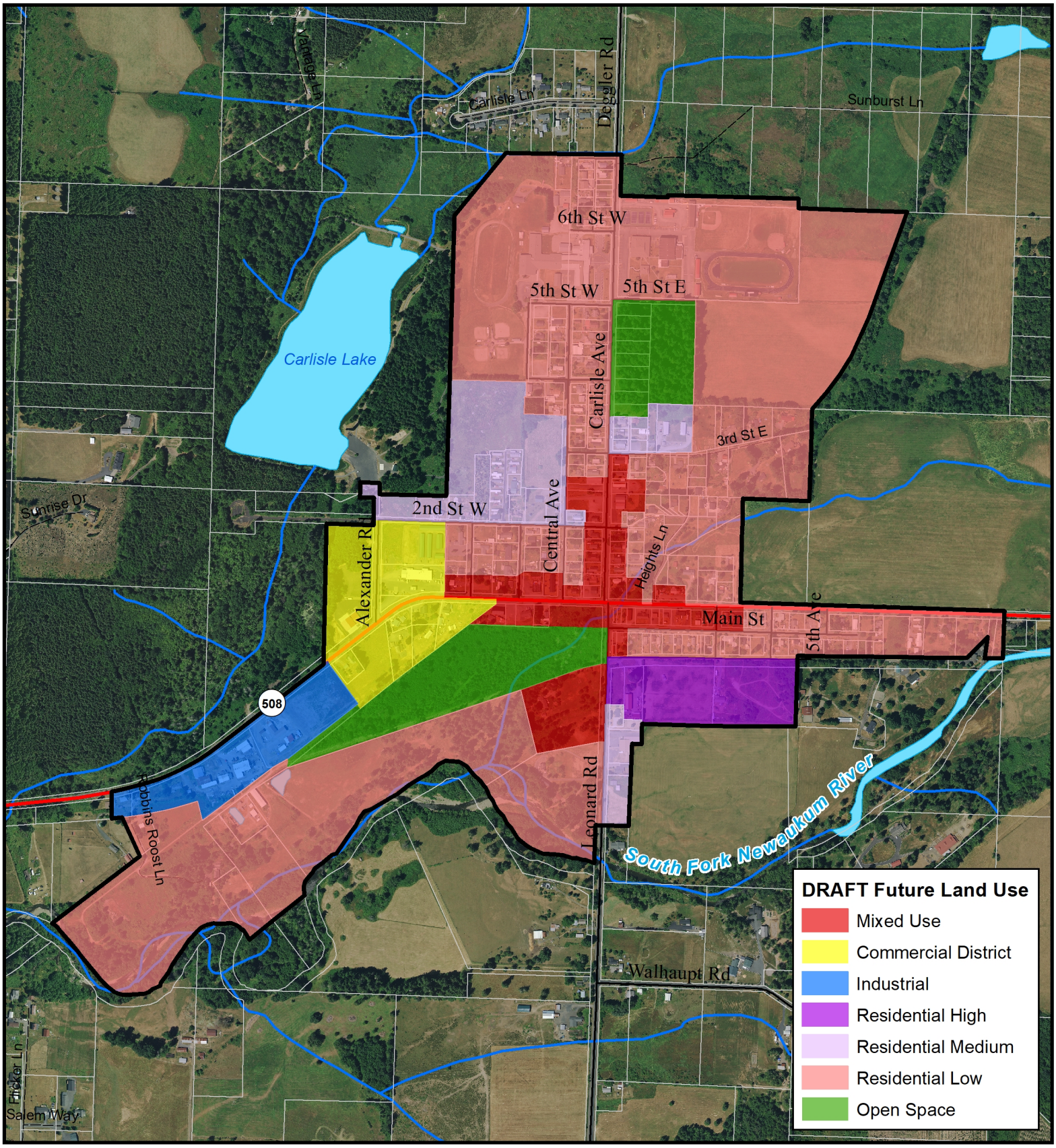

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Lewis County GIS Department, Lewis County Tax Assessor Office
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Onalaska Subarea Plan

DRAFT Future Land Use

Subarea Boundary
SR 508
Roads
Parcels
Waterbodies
Streams

Updated 4/16/2024

Planning Division, Community Development

0 0.075 0.15 0.3 Miles

N

LEWIS COUNTY
Washington's First County

This map was created by Lewis County Geographic Information System. The accuracy of the map has not been verified and should be used for informational purposes only. Any possible discrepancies should be brought to the attention of Lewis County GIS.
State Plane Washington South FIPS 4602
North American Datum 1983
North American Vertical Datum 1988 (Topography)

Appendix B Housing Capacity and Housing Needs Assessment

Report starts on next page.



Lewis County 2045

Shaping the Future of Lewis County



Comprehensive Plan Periodic Update

Housing Needs Assessment

Updated August 2025

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Findings from Land Capacity and Housing Needs ..... **Error! Bookmark not defined.**

Executive Summary

This executive summary presents findings from a comprehensive assessment of current demographic data in Lewis County aimed at understanding the community's housing needs. The analysis indicates several key challenges and opportunities for addressing housing affordability and suitability within the county.

Households are Cost-Burdened:

Approximately 27% of households in Lewis County are identified as cost-burdened, meaning they allocate more than 30% of their income towards housing expenses. Notably, 82% of these cost-burdened households fall within the 0-80% area median income range. This suggests a significant portion of the population faces challenges in affording homeownership, highlighting the pressing need for affordable housing solutions. See a further analysis of affordability by housing type and income level on page 21.

Mismatch Between Housing Stock and Population:

The assessment reveals a significant mismatch between the existing housing stock and the demographic composition of the population. Currently, 80% of the housing units in Lewis County are single-family detached homes, while 50% of these units are three-bedroom properties. However, 58% of households consist of only 1-2 persons. This incongruence indicates that a substantial portion of the housing inventory may not be suitable or affordable for much of the population, particularly considering the significant commute distances for many workers. See further data in household inventory on page 13.

Lack of Multi-Unit Construction:

Historical analysis of building permit data underscores a lack of diversity in housing construction within Lewis County, with the majority of developments comprising single-family detached dwellings. However, population projections suggest a growing demand for smaller units, including studios, one-bedroom, and two-bedroom apartments, particularly within middle or multi-family developments. The absence of such options constrains housing affordability and fails to align with the evolving needs of the community. See further details about affordability by housing type on page 20.

Revised Land Capacity and Housing Needs (August 2025)

A revised land capacity and housing capacity memo was completed in August of 2025 and found that Lewis County can provide sufficient housing for Onalaska UGA, Packwood UGA, and other rural areas allocated 0-80% AMI. See the revised Land Capacity Analysis memorandum in Appendix A of the Comprehensive Plan volume 1.

Terminology and Acronyms

The following definitions were pulled from the Department of Commerce housing resources:

Affordable Housing	The United States Department of Housing and Urban Development (HUD) considers housing to be affordable if the household is spending no more than 30 percent of its income on housing costs.
American Community Survey (ACS)	This is an ongoing nationwide survey conducted by the U.S. Census Bureau. It designed to provide communities with current data about how they are changing. The ACS collects information such as age, race, income, commute time to work, home value, veteran status, and other important data from U.S. households. ACS data is commonly used for the Community Profile section of a housing needs assessment.
Area Median Income (AMI)	This is a term that commonly refers to the area-wide median family income (MFI) calculation provided by the Department of Housing and Urban Development (HUD) for a county or metropolitan region.
Cost Burden	When a household pays more than 30 percent of their gross income on housing, including utilities, they are "cost-burdened." When a household pays more than 50 percent of their gross income on housing, including utilities, they are "severely cost-burdened." Or "extremely cost-burdened".
Household	A household is a group of people living within the same housing unit.2 The people can be related, such as family. A person living alone in a housing unit, or a group of unrelated people sharing a housing unit, is also counted as a household.
U.S. Department of Housing and Urban Development (HUD)	HUD administers federal housing and urban development laws. It collects, analyzes, and distributes housing data beyond what is collected through the U.S. Census Bureau. Data produced by HUD is heavily used in the analysis in this report.
Household Income	The census defines household income as the sum of the income of all people 15 years and older living together in a household.
Income-Restricted Housing	This term refers to housing units that are only available to households with incomes at or below a set income limit and are offered for rent or sale at a below-market rates. Some income-restricted rental housing is owned by a city or housing authority, while others may be privately owned.
Low-Income	Families that are designated as low-income may qualify for income-subsidized housing units. HUD categorizes families as low-income,

	very low-income, or extremely low-income relative to area median family incomes (MFI), with consideration for family size.
North American Industry Classification System (NAICS)	The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy (Census.gov).
Median Family Income (MFI)	The median income of all family households in the metropolitan region or county. Analyses of housing affordability typically group all households by income level relative to area median family income. Median income of non-family households is typically lower than for family households. In this report, both MFI and AMI refer to the U.S. Department of Housing and Urban Development Area Median Family Income (HAMFI).
Co-Housing/group homes	Means a residential development with sleeping units that are independently rented and lockable and provide living and sleeping space, and residents share kitchen facilities with other sleeping units in the building. Multiple co-housing units may be in one single-family home following the definition of "Family" in Lewis County Code and applicable building occupancy standards. RCW 36.70A.535

Planning Context

Growth Management Act (GMA) Requirements

The GMA dictates generally the purpose, process, and outcomes of the housing needs assessment (HNA), also called the housing needs analysis under RCW 36.70A.070, and further discussed in WAC 365-196-410. The housing need assessment is used to help determine recommended policies in the housing and land use elements of the comprehensive plan. The County's ability to meet their growth targets, which is identified in the Land Capacity Analysis (LCA), is used to estimate the type and density of future housing types that can be provided to meet the population projection if it is determined the County is lacking sufficient available land with appropriate zoning. As of the adoption of new housing legislation in 2024, it is necessary to look at the types of housing that can be provided to accommodate residents' needs at a range of income categories. Providing a variety of housing types accessible to residents of all income levels can assist the community in improving overall affordability.

The purpose of the housing needs assessment is to provide:

1) an inventory and analysis of existing and projected housing needs that identifies the number of housing units necessary to manage projected growth;
2) goals, policies, objectives and mandatory provisions for the preservation, improvement, and development of housing, including single family residences;
3) identification of sufficient land for housing including, but not limited to, government-assisted housing, housing for low-income families, manufactured housing, multifamily housing, group homes and foster care facilities; and
4) adequate provisions for existing and projected needs for all segments of the community.

RCW 36.70A.070(2), RCW 36.70A.210, Commerce Guidance for Developing a Housing Needs Assessment

Consistency with Countywide Planning Policies

A policy gap analysis, performed at the beginning of the comprehensive plan periodic update, reviewed the County's current countywide policies to ensure consistency with the comprehensive plan and identify needs to align policies. Countywide planning policies will continue to be reviewed as the County works through proposed revisions to policies for the comprehensive plan periodic update as required by WAC 365-196-410.

Population and Projected Population

Based on the requirements in WAC 365-196-410 for the housing needs assessment, the County must analyze housing data based on the most recent 20-year population allocation. The County and cities allocated population and housing. The revised allocations can be found in the Countywide Planning Policies document on Lewis County's website.

Methodology

This housing needs assessment assembles the most current demographic data available from the American Community Survey, Department of Housing and Urban Development, and the State of Washington and other sources as cited. All relevant data has been included in the appendix of this document. Where assumptions have been made due to lack of data, assumptions are cited throughout the document. Data highlighted in tables and graphics is meant to illustrate the unique characteristics of the community that may contribute to understanding housing needs which will build feasible policies and actions in the comprehensive plan.

Community Profile

The community profile is important in understanding the historic, current, and projected make up of residents that collectively build the community's identity. By understanding who residents are, the jurisdiction can better predict their future housing needs and implement policies and plans to provide housing for future generations.

Community Profile - Quick Facts	
Total Population	83,446
Projected Population Growth	21,505
Median Household Income	69,067

Table 3. U.S. Census Bureau ACS Table S1901 2022

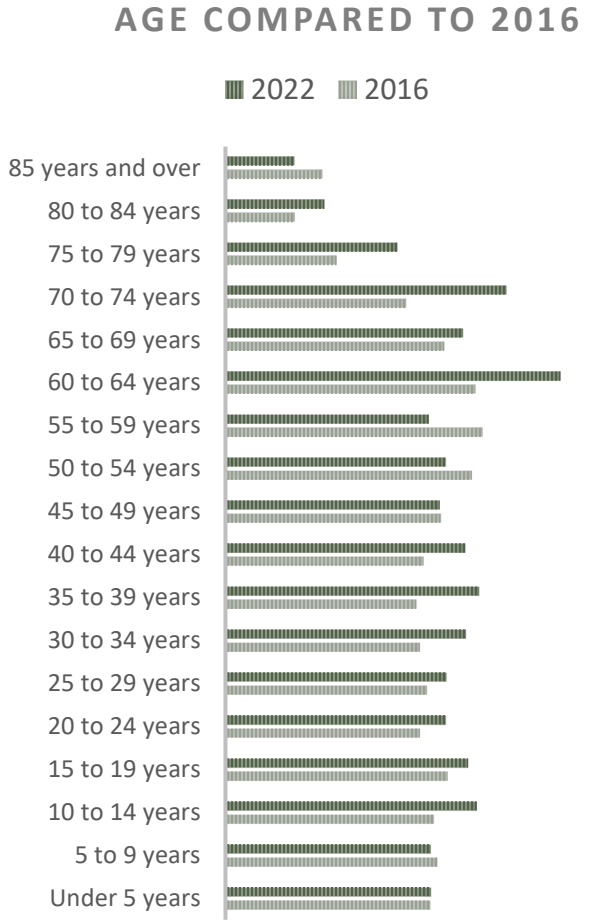


Figure 1 Age Compared to 2016 for Lewis County ACS Table S1101

Since 2016, Lewis County saw a large an increase in populations between 60-79 years old. Households with one or more person 60 years or old account for 54% of the population (ACS Table S1101). For these populations, it is likely they own their home and aging in place can improve quality of life, if the home can be modified for special housing needs. Transportation options become more important for these populations to continue to access community amenities.

Family households (households with children under 18) have decreased very slightly compared to 2016 data. Currently in 2021, 6,215 households have children under 18, which is 19% of the total households in Lewis County.

In the Packwood LAMIRD and Onalaska UGA, census data is more limited than in established cities or urban areas. The trends for Lewis County appear like that of the County as a

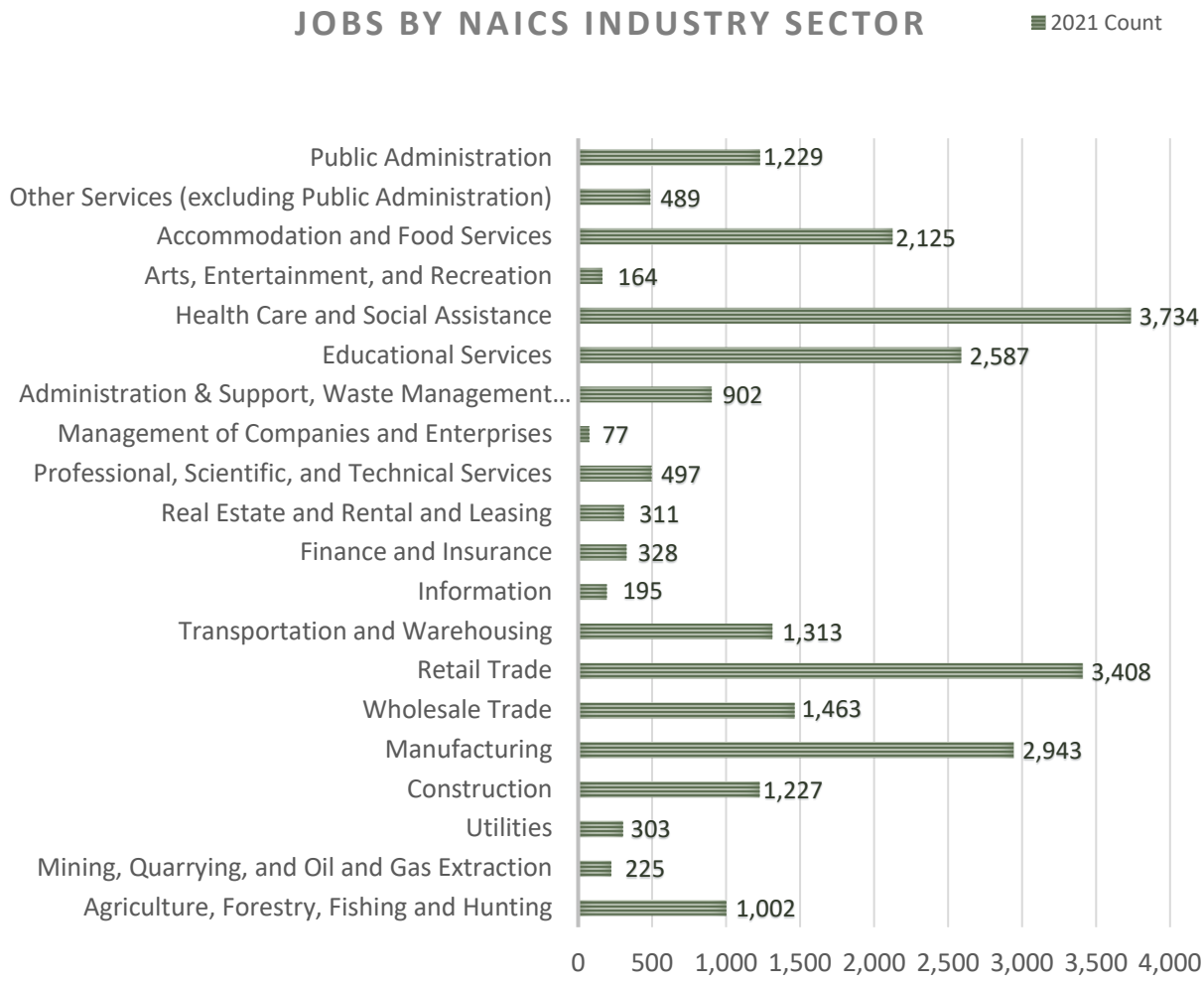
whole, including incorporated cities. 62% of households in Packwood have one or more person over 60 years old.

Workforce Profile

There are several demographic factors related to the workforce that can further help identify future housing needs of the community and barriers to housing affordability. The jurisdiction must analyze data related to the community's employment centers, industries, and nature of work that may also help the jurisdiction predict future housing needs.

Workforce Profile – Quick Facts	
Total Jobs	24,522
Male	12,505
Female	11,784
Jobs by Earnings Per Month	
$1,250 or less	4,429
$1,250 to $3,333	7,670
$3,330 or more	12,423
Jobs by Age	
29 or younger	5,731
30 to 54	12,526
55 or older	6,265

Table 4. U.S. Census Bureau On The Map, 2021



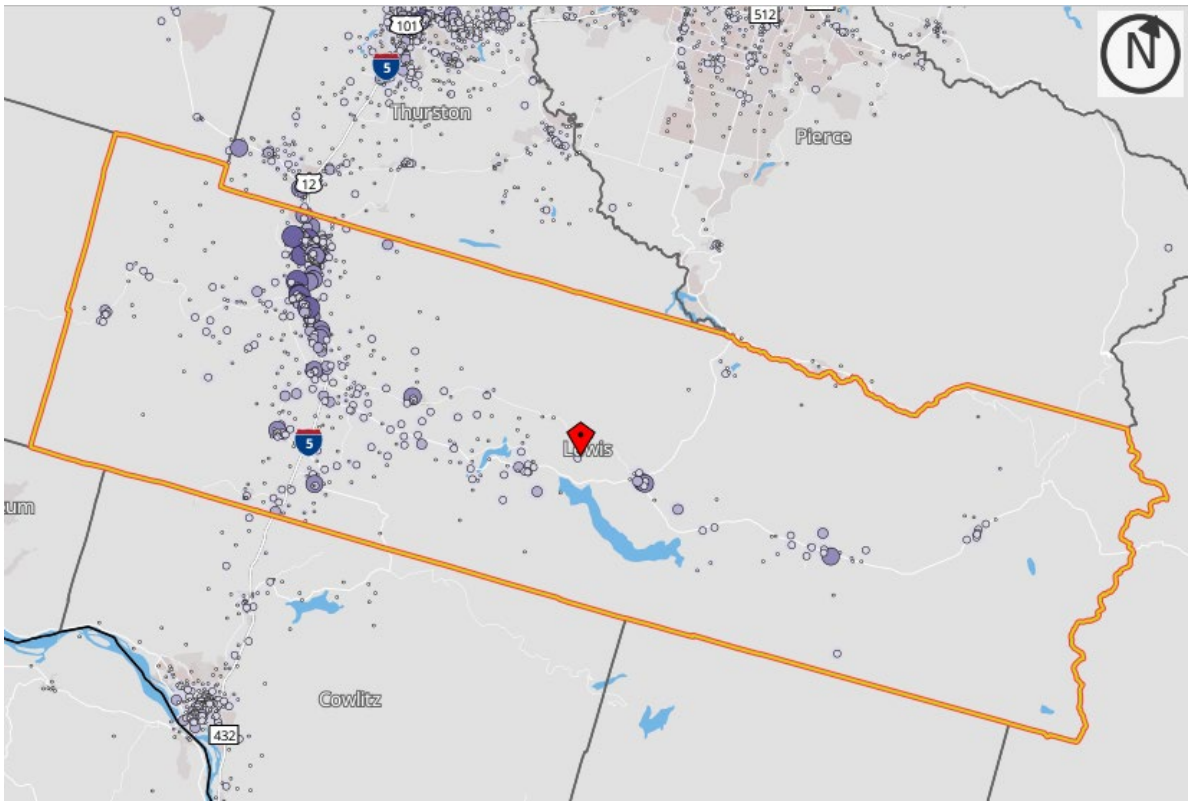
Jobs by NAICS Industry Sector, U.S. Census Bureau On the Map, 2021 The NAICS industry sector is the North American Industry Classification System use by the U.S. Census Bureau and is a standard in classifying business establishments.

The largest job industries in Lewis County are health care and social assistance, retail trade, manufacturing, and educational services. General jobs that fall under these categories are nurses and physicians, tourism, merchandise dealers of furniture, motor vehicles, and apparel, factory workers, and teachers. These account for 52% of the jobs in Lewis County.

Table 5. Examples of Incomes for Major NAICS Sectors in Lewis County		
NAICS Sector	**Average Salary**	**Monthly Income**
Health Care and Social Assistance	$ 60,077	$5,006
Retail Trade	$ 36,690	$3,057
Manufacturing	$ 41,400	$3,450
Educational Services	$110,000 - $40,000	Varies

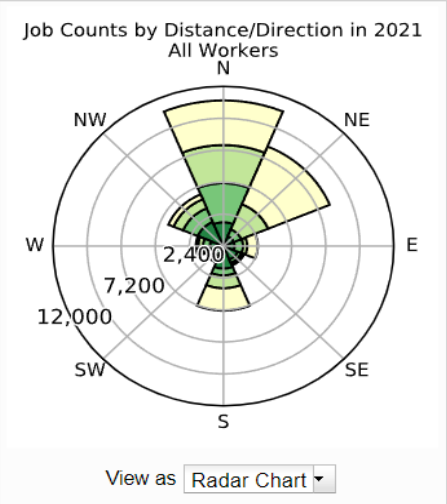
Table 5. U.S. Bureau of Labor Statistics 2023, U.S. Census Bureau American Community Survey, 2021 National Estimates

Workers Living in Lewis County



Home Location of People Who Work in Lewis County, U.S. Census Bureau On The Map, 2021

32% of the total workers in Lewis County have home locations greater than 50 miles from their workplace. With most residents traveling north to larger employment centers in the Thurston, Pierce, and King County. This transportation pattern can impact the residents' overall costs which can lower the ability to pay for housing without going over 30% of their monthly income. These patterns can result in an increase in cost burdened households and can increase housing affordability issues over time. Large densities of residents that work outside of Lewis County can be seen around Centralia and Chehalis urban growth areas. If housing prices for both renters and owners continue to increase most residents will move even further away and choose to spend more on transportation costs.

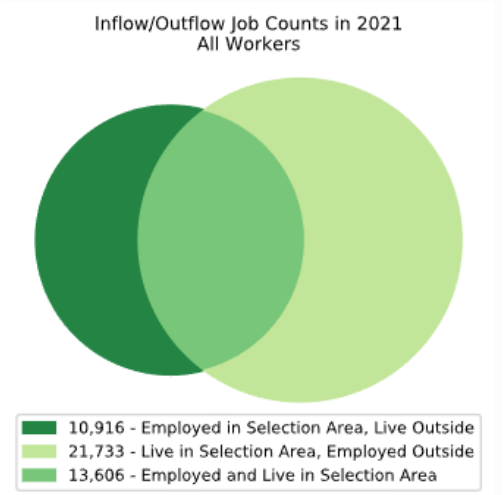


Jobs by Distance - Home Census Block to Work Census Block

	2021 Count	Share
Total All Jobs	35,339	100.0%
Less than 10 miles	9,731	27.5%
10 to 24 miles	6,634	18.8%
25 to 50 miles	7,534	21.3%
Greater than 50 miles	11,440	32.4%

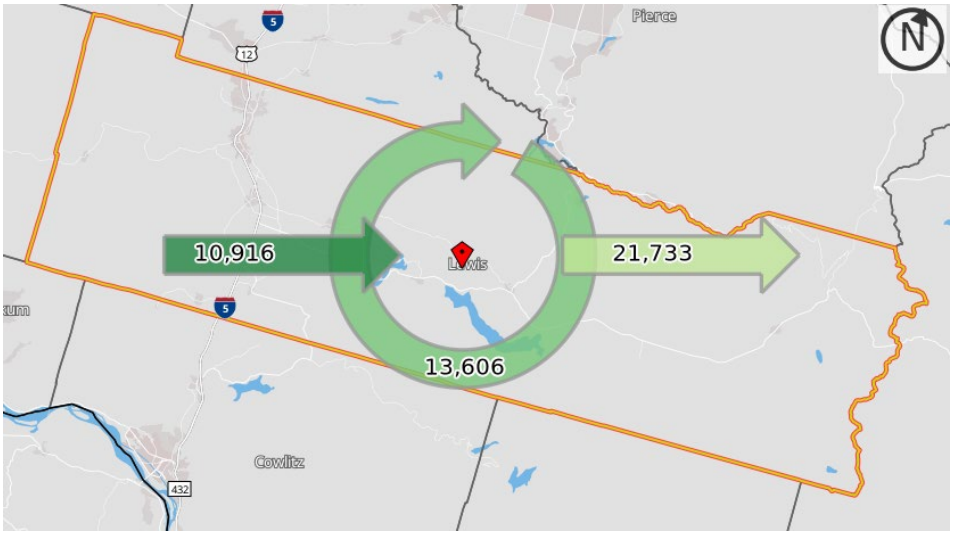
Inflow and Outflow Analysis in Lewis County

The inflow and outflow analysis can provide insight ony whether the jobs provided in Lewis County are meeting the needs of residents in Lewis County. In Year, 10,916 people employed in Lewis County live outside of the county and need to travel in for work, while 21,733 people who live in Lewis County are employed somewhere else and leave the county to work. Only 13,606 people employed in Lewis County also work within Lewis County. This trend is common around large metropolitan areas where the urban centers provide higher paying jobs, and the outer suburban areas or adjacent counties provide more affordable housing. But similar to the statistics measured above, populations that travel long distances to work are less stable in their housing situation because of time and money needed to work farther away. Meanwhile, employees that are traveling to work in Lewis County could be an opportunity to provide new housing options suited for these groups and continue to build stable housing communities where residents and can live and work. These numbers number may increase over time as the County plans how to provide housing at a variety of income levels. Working in or near the same place that you live provides greater opportunities for residents by reducing transportation costs, improving social life, and providing more time in their daily lives.



Inflow/Outflow Job Counts (All Jobs)

	2021 Count	Share
Employed in the Selection Area	24,522	100.0%
Employed in the Selection Area but Living Outside	10,916	44.5%
Employed and Living in the Selection Area	13,606	55.5%
Living in the Selection Area	35,339	100.0%
Living in the Selection Area but Employed Outside	21,733	61.5%
Living and Employed in the Selection Area	13,606	38.5%



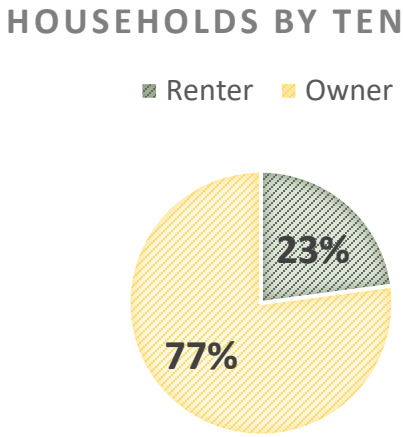
U.S. Census Bureau On The Map online Web Application, 2021

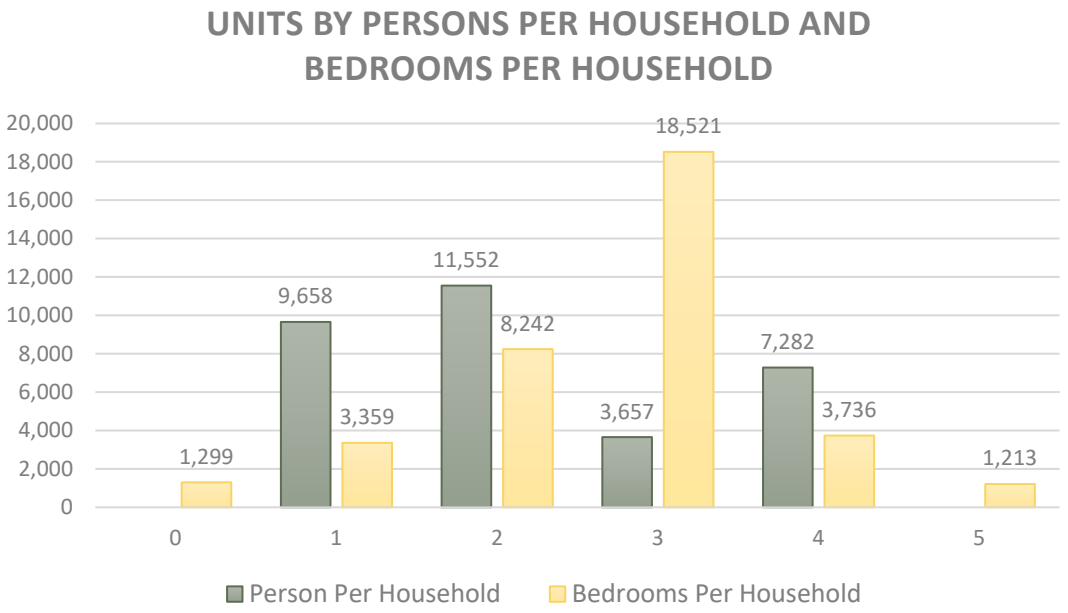
Housing Inventory

Over 70% of the current housing stock in Lewis County is single-family. The average unit size by bedrooms is three rooms. However, almost 60% of households are 1 to 2 persons per household which indicates that current housing stock is not proportionate to the needs of the current population. Based on the current total occupied housing units in Lewis County and the average household size Lewis County, existing housing stock is currently providing an estimated 83,446 people with housing.

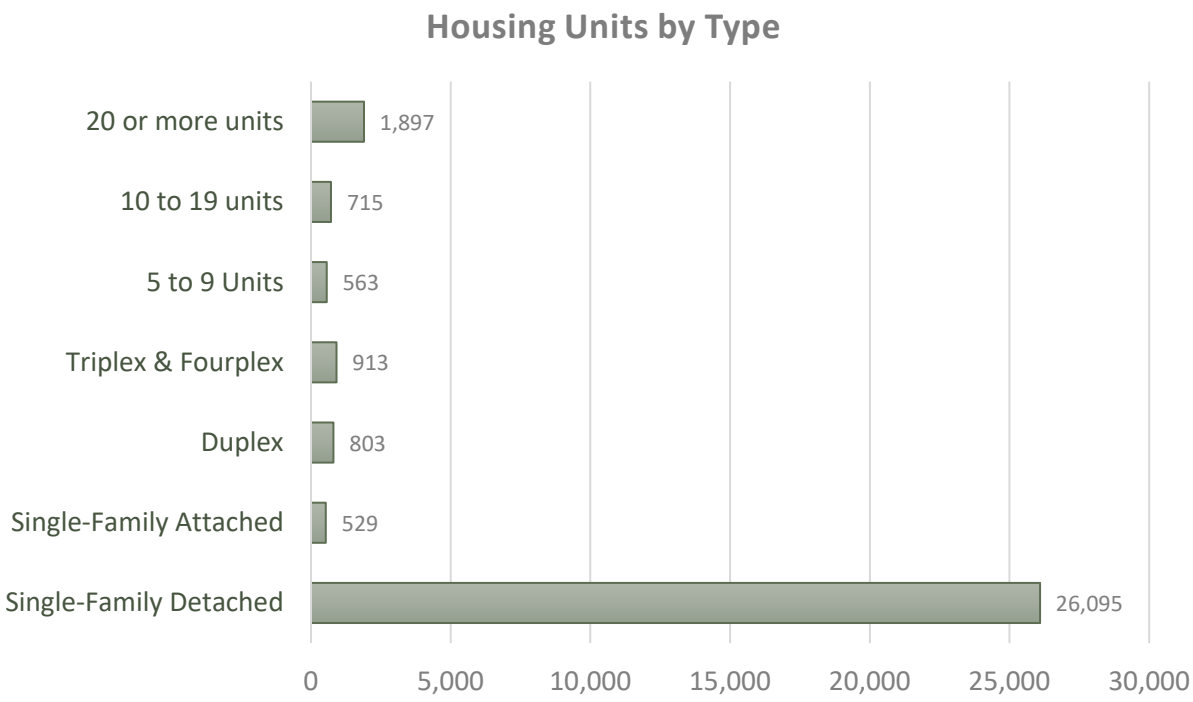
Housing Characteristics – Quick Facts	
Total Housing Units	36,370
Occupied Housing Units	32,149
Average Household Size	2.63
Vacant Units	4,221
Homeowner Vacancy Rate	2.9
Rental Vacancy Rate	10.9

ACS 2022 Table DP04 and Table S2501

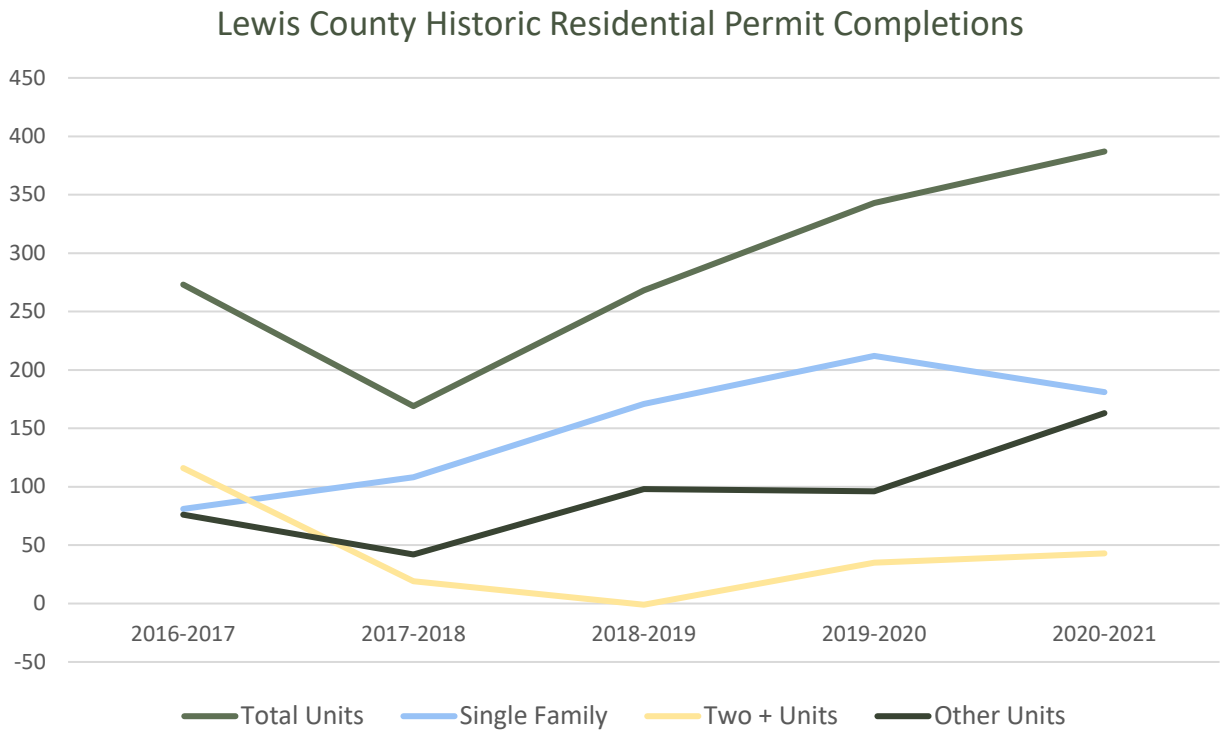




U.S. Census Bureau American Community Survey 2022 Table DP04 and Table S2501



U.S. Census Bureau American Community Survey 2022 Table DP04



Housing Affordability

$369,300
Median Single-Family Home Price 2023

$290,000
Median Condominium Price

$2424.00
Estimated Monthly Mortgage

$1273.50
Average Rent 2023-2024

Washington Center for Real Estate Research 2024, Fannie Mae Mortgage Calculator Assumes 20% down payment and 30-year mortgage at 6% interest rate. Zillow Observed Rental Index 2024.

Table 6. Lewis County Housing Affordability Index

	Q2 2023	Q3 2023	Q4 2023
Median Buyer	73	71	71
First Time Buyers	52	51	51
Median Renter	175	184	179
Transitional Renter	119	119	125

Table 6. Washington Center for Real Estate Research Housing Affordability Index, 2024 A transitional renter is a household temporarily staying somewhere before moving to permanent housing..

Compared to the 2021 Lewis County Housing Situation Assessment, the affordability index for median home buyers decreased from 92 to 71 in Q4 2023. The affordability index measures the ability of a middle-income family to make mortgage payments on a median price resale home. Based on the median income and median home prices in Lewis County, buying a home is currently extremely unaffordable. Meanwhile, median renters and transitional renters in Lewis County are finding affordable housing. However, since more populations will need to rely on renting in the community, increasing rental options will be important in retaining existing residents as Lewis County's population grows.

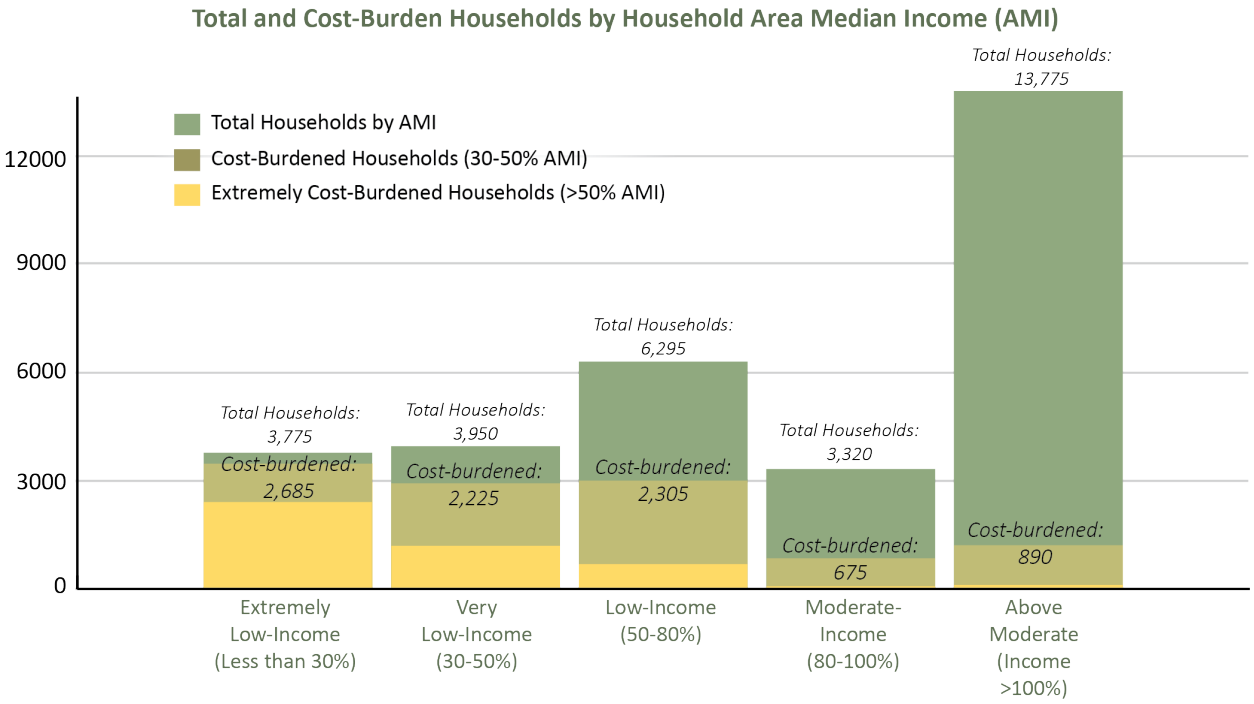
Data Notes from the Washington Center for Real Estate Research Affordability Index:

Median Income Buyer Index: A value of 100 means that a household with the county's median income has exactly enough income to qualify for a mortgage on a home priced at the median for that county. Values above 100 mean that the household has more than enough income, while values below 100 mean that the household does not have enough income.

First Time Buyer Index: A value of 100 means that a household with 70% of the county's median income has exactly enough income to qualify for a mortgage on a home priced at 85% of the median for that county. Values above 100 indicate that the household has more than enough income, while values below 100 indicate that the household does not have enough income.

Median Income Renter Index: A value of 100 indicates that a household earning the county's median income can afford an average priced rental apartment without being overburdened. Values above 100 indicate that the household has more than enough income, while values below 100 indicate that the household does not have enough income. Renters are defined as being overburdened when rent exceeds 30% of gross household income.

Transitional Renter Index: A value of 100 indicates that a household earning 70% of the county's median household income can afford to pay the average rent without being overburdened. Values above 100 indicate that the household has more than enough income, while values below 100 indicate that the household does not have enough income.



U.S. Department of Urban Development Comprehensive Housing Affordability Strategy, 2016-2020. Data is summarizing households for owners and renters.

Subsidized Housing

Some subsidized housing is present in Lewis County with high concentrations of subsidized housing around the cities of Chehalis and Centralia. These housing units are not located within the Onalaska UGA or the Packwood LAMIRD and cannot be counted towards capacity in this analysis. This leaves a large gap of affordable housing needs for lower income brackets in Eastern Lewis County, as most housing at market rate is not affordable to cost-burdened households with less than 50% AMI. Based on the adopted housing allocations for unincorporated Lewis County, and the land capacity analysis and housing needs in this report, there is currently a gap of 126 units for populations with earning less than 30% AMI. For these populations, market rent rental units are still not affordable and should be subsidized.

Estimated Total Subsidized Units	Studio	One Bedroom	Two Bedroom	Three Bedroom	Four Bedroom	Unknown
1,163	0	213	215	192	58	485

Table Washington Center for Real Estate Research Subsidized Housing Inventory in Lewis County, 2023

Additional Data and Analysis

In 2021, Lewis County performed a Housing Situation Assessment that summarized the housing market in Lewis County. The data reviewed in the assessment yielded similar results to the analysis performed in this HNA only a few years later. Some of the larger findings in the Housing Situation Assessment applicable to this HNA were:

- By a large margin, the housing inventory in Lewis County is single-family detached homes.
- The second largest production of homes in Lewis County were manufactured homes.
- The construction of new homes in Lewis County between 2010 to 2020 was overwhelmingly single-family accounting for 61% of all permits.
- The supply of single-family homes in Lewis County for sale decreased by 69% between 2012 and 2021.
- The housing affordability index from 2017 to 2019 decreased from 115 to 92. The decline is still reflective in the housing affordability index presented in this assessment for 2023.
- 62% of residents had workplace locations outside the county according to data provided in 2018.
- The assessment summarized that most building permit activity occurred in unincorporated areas in the county indicating a potential barrier to increasing housing supply in urban areas.

Housing Gap Analysis

The housing gap analysis identifies the difference between the population projections and the housing inventory identified in previous sections. It is necessary to understand whether current conditions are providing the right environment that yields adequate housing stock for all residents with differing needs and income levels. To meet the requirements of recent legislative changes it is important to look at housing stock by specific income bands and whether the right amount of housing can or will be provided for the population projection by income band, see Table 2 of this report.

Based on the current demographic and housing data the following housing gaps have been identified.

- Of the 32,149 occupied housing units in Lewis County, 8,780 are cost-burdened and fall between the 0-80% area median income range. It is likely these households would not be able to qualify for a mortgage to purchase a home.
- There are only 5,420 housing units in Lewis County that are not single-family detached. These units are assumed to be market rate and are likely to still be unaffordable to households that fall within the 0-50% area median income.

Based on the projected housing needs and population projections the following housing gaps have been identified.

- The projected population will grow by 21,505 people or 10,160 households based on the adopted housing allocations. The housing allocations identify the amount of housing to be provided by income bracket and location with each UGA in Lewis County.
- In Unincorporated Lewis County 432 new housing units were allocated to the jurisdiction and assigned by income bracket.

Findings from Housing Data Review

Households are Cost-Burdened

27% of the current households in Lewis County are cost-burdened. 82% of the cost-burdened households fall between 0-80% area median income. This indicates that a large portion of households within Lewis County cannot afford to purchase homes.

Existing Units not Suited for Current Populations

80% of the housing stock in Lewis County is single-family detached. 50% of the housing units are three-bedroom units. However, 58% of households are 1-2 per person. Since a large portion of the workforce cannot work from home and travels greater than 50 miles to work, it is unlikely that a three-bedroom unit is affordable for more than half of the population.

Lack of Multi-Unit Construction

Historical building permit data shows most of the household construction in Lewis County is single-family detached. Population projections indicate studios, one-bedroom, and two-bedroom units, most likely in middle or multi-family developments, would be more affordable and appropriate for current and future populations.

Land Capacity Analysis and Housing Needs

The tables below were made following instructions from the Department of Commerce, based on the new law, HB 1220. Jurisdictions must now collect the results of the land capacity analysis for projected housing units and allocate to the income bracket most likely to afford the unit. Based on the type of housing units that are provided under the county's current zoning designations each zone was determined to provide housing for a specific affordability level. This helps the County identify what types of housing needs to be provided for specific households earning a certain area median income.

Based on the guidance from Commerce the methodology to assign housing by income bracket can be summarized in the following steps:

1. Summarize the land capacity by zone. This was completed in the land capacity analysis report.
2. Categorize zones by allowed housing types and density level.
3. Relate zone categories to potential income levels and housing types served.
4. Summarize the capacity by zone category.

5. Compare projected housing needs to capacity.
6. If a deficit is found implement actions to increase capacity for one or more housing needs.

To categorize allowed types and density. Each zone was listed with all permitted housing types currently allowed under the Lewis County Code. For the Packwood LAMIRD, the housing types listed were pulled from Packwood's adopted subarea plan. The density category assigned to each zone followed the guidance from Commerce. Based on the land capacity analysis, a high percentage of properties that allowed single-family housing were developed as detached single-family properties. As a result, any zone that allows detached single-family homes in the Lewis County Code was assumed to be low density. Any zone that allows middle housing (townhomes, duplex, triplex, and fourplex) was assumed to be moderate density. Any zone that allows apartments and condominiums with a maximum height of 3 floors was assumed to be low-rise.

Table 7 and Table 8 demonstrate the realistic monthly costs for different housing types in Lewis County. Based on the average housing costs by unit type and the estimated monthly income the table shows the percentage of monthly income to going towards housing costs. Per federal standards for housing affordability, any percentage of monthly income above 30% going towards housing costs in unaffordable (shown in red).

Table 7. Affordability of Housing Types in Lewis County by NAICS Sectors Average Monthly Income

		Monthly Housing Costs by Housing Type and Ownership				
NAICS Sector	**Monthly Income**	Single-Family Detached Mortgage	Condominium Mortgage	Average Rent for All Unit Types	Two-Bedroom Rental Unit	One-Bedroom Rental Unit
-	-	$2,424	$2,376	$1,020	$1,052	$822
Retail Trade	$3,057	79%	77%	33%	34%	26%
Manufacturing	$3,450	70%	68%	29%	30%	23%
Health Care and Social Assistance	$5,006	48%	47%	20%	21%	16%
Educational Services	$5,416	44%	43%	18%	19%	15%

Washington Center for Real Estate Research 2024, Fannie Mae Mortgage Calculator Assumes 20% down payment and 30-year mortgage at 6% interest rate. Zillow Observed Rental Index 2024. Condominium price listed is the average condominium sale price in Centralia, WA from 2021 to 2023 from WCRER.

Table 8. Affordability of Housing Types in Lewis County by NAICS Sectors Average Monthly Income

		Monthly Housing Costs by Housing Type and Ownership				
Income Bracket	**Monthly Income**	Single-Family Detached Mortgage	Condominium Mortgage	Average Rent for All Unit Types	Two-Bedroom Rental Unit	One-Bedroom Rental Unit
-	-	$2,424	$2,376	$1,020	$1,052	$822
0-30% AMI	$2,225	108%	106%	45%	47%	36%
>30-50% AMI	$2,966	81%	80%	34%	35%	27%
>50-80% AMI	$4,079	59%	58%	25%	25%	20%
>80-120% AMI	$7,416	32%	32%	13%	14%	11%

Washington Center for Real Estate Research 2024, Fannie Mae Mortgage Calculator Assumes 20% down payment and 30-year mortgage at 6% interest rate. Zillow Observed Rental Index 2024. Condominium price listed is the average condominium sale price in Centralia, WA from 2021 to 2023 from WCRER. Area Median Income from FY 2024 Income Limits Documentation Housing and Urban Development.

For Table 8 calculations, the annual income for less than 30% AMI was assumed to be $26,700 based on the most recent median family income reported from HUD for Lewis County in 2024. AMI between 30-50% was assumed to be $35,600. 50-80% AMI annual income was assumed to be $48,950. 80-125% AMI was assumed to be $89,000.

For the final column in table 9, the zone categories were related to potential income levels to assess affordability by housing type. Based on the affordability shown in Table 9 the income brackets were assigned to the zones that allowed the housing types they could afford. It should be stated that income levels lower than 30% were combined with the income levels 50-80% and assigned to the same housing types. This is because all of these income brackets can only afford an apartment option.

Table 9. Assumed Affordability Level by Zone and Housing Types

Land Use Zone	Housing Type(s) Allowed	Density Category	Assumed Affordability Level for Capacity Analysis
Residential Very Low Density (RVL)	Single-Family, Duplex, Accessory Dwelling Units (ADU), Tiny Home Village	Low Density	Higher Income (>120% AMI)
Residential Low Density (RL)	Single-Family, Accessory Dwelling Units (ADU), Tiny Home Village		
Residential Medium Density (RM)	Rowhouses, Fourplexes, Triplexes, Duplexes, Accessory Dwelling Units, Tiny Home Villages	Moderate Density	Moderate Income (>80-120%)

Residential High Density (RH)	Rowhouses, Fourplexes, Triplexes, Duplexes, Accessory Dwelling Units, Apartments, Condos, Hostels	Low-Rise	Low Income (0-80% AMI) and PSH
Mixed Use (MU)	Apartments and Condos	Low-Rise	Low Income (0-80% AMI) and PSH
Commercial Business District	Apartments and Condos	Mid-Rise	Low Income (0-80% AMI) and PSH
Small Town Mixed Use (STMU)	Single-Family, Duplex, Accessory Dwelling Unit	Low Density	Higher Income (>120% or greater AMI)
Small Town Mixed Use (STMU)	Multifamily *(Multi-Residential)*	Mid-Rise	Moderate Income (50-80% AMI)

High-rise or tower development is not allowed in any zones in Lewis County's Onalaska UGA or Packwood LAMIRD, so it was not defined in the table. According to guidance from the State Department of Commerce, high-rise would be identified in zones that allow for buildings with 7 or more floors or greater than 75 feet. For the comprehensive plan policies and development regulations modified as part of the comprehensive plan update, the county will need to ensure development regulations correlate with these assumptions to adequately allow for the correct housing types in zones.

Table 8. Projected Housing Needs and Capacity

Income Level (% AMI) and Special Needs Housing	Projected Housing Allocation	Zone Categories Serving These Needs	Aggregated Housing Needs	Capacity	Capacity Surplus or Deficit
0-30% PSH	88	None	126	0	126 (deficit)
0-30% Other	38	None			
>30-50%	115	Mid-Rise	115	187	72
>50-80%	58	Low-Rise	58	284	226
>80-100%	28	Moderate Density	28	1,144	1,116
>100-120%	23	Low Density	78	945	867
>120%	55				
Total	**403**		**403**		

Summary Level: County
Data for: Lewis County; Washington
Year Selected: 2016-2020 ACS

Income Distribution Overview	Owner	Renter	Total
Household Income <= 30% HAMFI	1,510	2,265	3,775
Household Income >30% to <=50% HAMF	2,005	1,945	3,950
Household Income >50% to <=80% HAMF	4,300	1,995	6,295
Household Income >80% to <=100% HAM	2,335	985	3,320
Household Income >100% HAMFI	11,755	2,020	13,775
Total	21,905	9,215	31,120

Housing Problems Overview 1	Owner	Renter	Total
Household has at least 1 of 4 Housing Pro	5,270	4,375	9,645
Household has none of 4 Housing Probler	16,630	4,840	21,470
Total	21,905	9,215	31,120

Severe Housing Problems Overview 2	Owner	Renter	Total
Household has at least 1 of 4 Severe Hous	2,245	2,630	4,875
Household has none of 4 Severe Housing	19,655	6,585	26,240
Total	21,905	9,215	31,120

Housing Cost Burden Overview 3	Owner	Renter	Total
Cost Burden <=30%	16,920	5,200	22,120
Cost Burden >30% to <=50%	3,130	2,010	5,140
Cost Burden >50%	1,705	1,920	3,625
Cost Burden not available	150	70	220
Total	21,905	9,215	31,120

Income by Housing Problems (Owners an	Household has at least 1 of 4 Housing Pro	Household has none of 4 Housing Probler	Total
Household Income <= 30% HAMFI	2,705	1,070	3,775
Household Income >30% to <=50% HAMF	2,330	1,625	3,950
Household Income >50% to <=80% HAMF	2,485	3,810	6,295
Household Income >80% to <=100% HAM	850	2,475	3,320
Household Income >100% HAMFI	1,280	12,495	13,775
Total	9,645	21,470	31,120

Income by Housing Problems (Renters on	Household has at least 1 of 4 Housing Pro	Household has none of 4 Housing Probler	Total
Household Income <= 30% HAMFI	1,720	545	2,265
Household Income >30% to <=50% HAMF	1,360	590	1,945
Household Income >50% to <=80% HAMF	955	1,040	1,995
Household Income >80% to <=100% HAM	165	825	985
Household Income >100% HAMFI	180	1,840	2,020
Total	4,375	4,840	9,215

Income by Housing Problems (Owners on	Household has at least 1 of 4 Housing Pro	Household has none of 4 Housing Probler	Total
Household Income <= 30% HAMFI	985	525	1,510
Household Income >30% to <=50% HAMF	970	1,035	2,005

Household Income >50% to <=80% HAMF	1,530	2,770	4,300
Household Income >80% to <=100% HAM	685	1,650	2,335
Household Income >100% HAMFI	1,100	10,655	11,755
Total	5,270	16,630	21,905

Income by Cost Burden (Owners and Rent	Cost burden > 30%	Cost burden > 50%	Total
Household Income <= 30% HAMFI	2,685	2,010	3,775
Household Income >30% to <=50% HAMF	2,225	980	3,950
Household Income >50% to <=80% HAMF	2,305	550	6,295
Household Income >80% to <=100% HAM	675	30	3,320
Household Income >100% HAMFI	890	60	13,775
Total	8,780	3,625	31,120

Income by Cost Burden (Renters only)	Cost burden > 30%	Cost burden > 50%	Total
Household Income <= 30% HAMFI	1,695	1,300	2,265
Household Income >30% to <=50% HAMF	1,250	495	1,945
Household Income >50% to <=80% HAMF	865	85	1,995
Household Income >80% to <=100% HAM	75	15	985
Household Income >100% HAMFI	45	25	2,020
Total	3,930	1,920	9,215

Income by Cost Burden (Owners only)	Cost burden > 30%	Cost burden > 50%	Total
Household Income <= 30% HAMFI	985	710	1,510
Household Income >30% to <=50% HAMF	970	485	2,005
Household Income >50% to <=80% HAMF	1,435	465	4,300
Household Income >80% to <=100% HAM	600	15	2,335
Household Income >100% HAMFI	845	30	11,755
Total	4,835	1,705	21,905

1. The four housing problems are: incomplete kitchen facilities; incomplete plumbing facilities more than 1 person per room; and cost burden greater than 30%.

2. The four severe housing problems are: incomplete kitchen facilities; incomplete plumbing facilities; more than 1 person per room; and cost burden greater than 50%.

3. Cost burden is the ratio of housing costs to household income. For renters- housing cost is gross rent (contract rent plus utilities)
For owners- housing cost is "select monthly owner costs" which includes mortgage payment; utilities; association fees; insurance; and real estate taxes.

				Sales by dwelling type			Median price by dwelling type		
City	Quarter	Total sales	Median price	Condominium	Manufactured	Single-family	Condo	Manufactured	Single-family
Centralia	2021Q1	88	$326,500			88			$326,500
Centralia	2021Q2	123	$338,000			123			$338,000
Centralia	2021Q3	111	$340,000		1	110		$360,000	$339,000
Centralia	2021Q4	114	$323,500	1		113	$325,000		$322,000
Centralia	2022Q1	84	$356,875		1	83		$115,000	$358,750
Centralia	2022Q2	128	$367,500		1	127		$140,000	$370,000
Centralia	2022Q3	88	$362,500		2	86		$97,450	$365,000
Centralia	2022Q4	95	$365,000		2	93		$120,750	$369,000
Centralia	2023Q1	68	$337,500			68			$337,500
Centralia	2023Q2	71	$360,000			71			$360,000
Centralia	2023Q3	73	$370,000	1	1	71	$340,000	$195,000	$370,000
Centralia	2023Q4	53	$366,000	1	1	51	$290,000	$76,500	$375,000

Washington					Sales by numbe
City	Quarter	Total sales	Median price	0 or 1	2
Centralia	2021Q1	88	$326,500	4	20
Centralia	2021Q2	123	$338,000	4	28
Centralia	2021Q3	111	$340,000	6	25
Centralia	2021Q4	114	$323,500	3	28
Centralia	2022Q1	84	$356,875	5	22
Centralia	2022Q2	128	$367,500	6	34
Centralia	2022Q3	88	$362,500	3	26
Centralia	2022Q4	95	$365,000		26
Centralia	2023Q1	68	$337,500	2	16
Centralia	2023Q2	71	$360,000	2	17
Centralia	2023Q3	73	$370,000		27
Centralia	2023Q4	53	$366,000	1	13

er of bedrooms		Median price by number of bedrooms			
3	4 plus	0 or 1	2	3	4 plus
45	19	$149,000	$263,000	$340,000	$375,000
66	25	$127,500	$250,000	$352,225	$375,000
66	14	$277,500	$300,000	$357,500	$415,000
57	26	$420,000	$275,500	$333,000	$377,500
46	11	$243,000	$282,500	$388,500	$365,500
71	17	$216,000	$315,000	$405,000	$449,900
51	8	$252,000	$309,000	$380,000	$468,000
52	17		$290,500	$378,000	$494,000
41	9	$90,000	$307,500	$359,950	$490,000
40	12	$1,347,000	$310,000	$382,000	$385,500
37	9		$329,900	$380,000	$440,000
29	10	$330,000	$300,000	$381,000	$443,000

State Name	County Name	Survey Date	Total buildings	Total units	Total value	Single family units	Single family value	Multifamily buildings	Multifamily units	Multifamily value	2-units buildings	2-units units	2-units value	3-4 units buildings	3-4 units units	3-4 units value
Washington	Lewis County	202201	28	30	2,716,329	26	2,665,114	2	4	51,215	2	4	51,215	0	0	0
		202202	38	39	4,839,720	37	4,814,033	1	2	25,687	1	2	25,687	0	0	0
		202203	30	31	4,332,922	29	4,306,120	1	2	26,802	1	2	26,802	0	0	0
		202204	41	46	5,044,374	38	4,593,628	3	8	450,746	2	4	400,000	1	4	50,746
		202205	31	55	9,560,313	27	5,460,313	4	28	4,100,000	2	4	750,000	0	0	0
		202206	30	32	4,541,141	28	3,941,141	2	4	600,000	2	4	600,000	0	0	0
		202207	17	18	2,903,441	16	2,603,441	1	2	300,000	1	2	300,000	0	0	0
		202208	26	26	4,061,075	26	4,061,075	0	0	0	0	0	0	0	0	0
		202209	63	72	9,425,107	60	9,274,021	3	12	151,086	0	0	0	3	12	151,086
		202210	22	26	3,549,596	20	3,205,359	2	6	344,237	1	2	291,250	1	4	52,987
		202211	11	23	6,617,968	9	2,346,573	2	14	4,271,395	1	2	27,395	0	0	0
		202212	11	12	1,614,761	10	1,588,194	1	2	26,567	1	2	26,567	0	0	0
		202301	12	12	1,671,389	12	1,671,389	0	0	0	0	0	0	0	0	0
		202302	17	17	2,282,611	17	2,282,611	0	0	0	0	0	0	0	0	0
		202303	30	32	4,889,662	28	4,831,803	2	4	57,859	2	4	57,859	0	0	0
		202304	14	19	2,093,657	12	1,617,882	2	7	475,775	1	2	25,775	0	0	0
		202305	28	33	4,658,324	23	3,855,683	5	10	802,641	5	10	802,641	0	0	0
		202306	31	31	5,985,605	31	5,985,605	0	0	0	0	0	0	0	0	0
		202307	45	46	8,343,324	44	7,843,324	1	2	500,000	1	2	500,000	0	0	0
		202308	31	31	5,863,935	31	5,863,935	0	0	0	0	0	0	0	0	0
		202309	30	39	7,964,860	27	5,864,860	3	12	2,100,000	0	0	0	3	12	2,100,000
		202310	17	17	3,447,040	17	3,447,040	0	0	0	0	0	0	0	0	0
		202311	18	18	2,502,781	18	2,502,781	0	0	0	0	0	0	0	0	0
		202312	22	23	3,221,891	21	3,159,731	1	2	62,160	1	2	62,160	0	0	0

5+ units buildings	5+ units units	5+ units value	1-unit buildings rep	1-unit units rep	1-unit value rep	2-units buildings rep	2-unit units rep	2-units value rep	3-4 units buildings rep	3-4 units units rep	3-4 units value rep	5+ units buildings rep	5+ units units rep	5+ units value rep	Total buildings rep	Total units rep
0	0	0	26	26	2,665,114	2	4	51,215	0	0	0	0	0	0	28	30
0	0	0	37	37	4,814,033	1	2	25,687	0	0	0	0	0	0	38	39
0	0	0	29	29	4,306,120	1	2	26,802	0	0	0	0	0	0	30	31
0	0	0	38	38	4,593,628	2	4	400,000	1	4	50,746	0	0	0	41	46
2	24	3,350,000	27	27	5,460,313	2	4	750,000	0	0	0	2	24	3,350,000	31	55
0	0	0	28	28	3,941,141	2	4	600,000	0	0	0	0	0	0	30	32
0	0	0	14	14	2,287,841	0	0	0	0	0	0	0	0	0	14	14
0	0	0	26	26	4,061,075	0	0	0	0	0	0	0	0	0	26	26
0	0	0	60	60	9,274,021	0	0	0	3	12	151,086	0	0	0	63	72
0	0	0	20	20	3,205,359	1	2	291,250	1	4	52,987	0	0	0	22	26
1	12	4,244,000	9	9	2,346,573	1	2	27,395	0	0	0	1	12	4,244,000	11	23
0	0	0	10	10	1,588,194	1	2	26,567	0	0	0	0	0	0	11	12
0	0	0	12	12	1,671,389	0	0	0	0	0	0	0	0	0	12	12
0	0	0	17	17	2,282,611	0	0	0	0	0	0	0	0	0	17	17
0	0	0	28	28	4,831,803	2	4	57,859	0	0	0	0	0	0	30	32
1	5	450,000	12	12	1,617,882	1	2	25,775	0	0	0	1	5	450,000	14	19
0	0	0	23	23	3,855,683	5	10	802,641	0	0	0	0	0	0	28	33
0	0	0	31	31	5,985,605	0	0	0	0	0	0	0	0	0	31	31
0	0	0	44	44	7,843,324	1	2	500,000	0	0	0	0	0	0	45	46
0	0	0	31	31	5,863,935	0	0	0	0	0	0	0	0	0	31	31
0	0	0	27	27	5,864,860	0	0	0	3	12	2,100,000	0	0	0	30	39
0	0	0	17	17	3,447,040	0	0	0	0	0	0	0	0	0	17	17
0	0	0	18	18	2,502,781	0	0	0	0	0	0	0	0	0	18	18
0	0	0	21	21	3,159,731	1	2	62,160	0	0	0	0	0	0	22	23

Total value rep
2,716,329
4,839,720
4,332,922
5,044,374
9,560,313
4,541,141
2,287,841
4,061,075
9,425,107
3,549,596
6,617,968
1,614,761
1,671,389
2,282,611
4,889,662
2,093,657
4,658,324
5,985,605
8,343,324
5,863,935
7,964,860
3,447,040
2,502,781
3,221,891

Median Buyer HAI

County	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
Lewis	132	116	123	134	116	119	135	136	143	143	156	167	142	166	161	146	156	139	165	158	147	140

First-Time Buyer HAI

County	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
Lewis	94	83	87	95	83	85	96	97	101	101	111	119	101	118	114	104	111	99	117	113	104	99

Median Renter HAI

County	Q1 2000	Q2 2000	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	Q3 2002	Q4 2002	Q1 2003	Q2 2003	Q3 2003	Q4 2003	Q1 2004	Q2 2004	Q3 2004	Q4 2004	Q1 2005	Q2 2005
Lewis	138	148	158	168	169	167	167	169	169	170	171	173	165	165	166	166	167	167	167	167	170	169

Transitional Renter HAI

County	Q1 2000	Q2 2000	Q3 2000	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001	Q1 2002	Q2 2002	Q3 2002	Q4 2002	Q1 2003	Q2 2003	Q3 2003	Q4 2003	Q1 2004	Q2 2004	Q3 2004	Q4 2004	Q1 2005	Q2 2005
Lewis	97	104	111	118	118	117	117	118	119	119	120	121	116	116	116	116	117	117	117	117	119	119

Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020
145	159	159	157	166	168	149	154	158	150	143	131	131	132	121	111	120	112	115	118	126	120	118	113

Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020
103	113	113	112	118	119	105	109	112	106	101	93	93	94	86	79	86	80	82	84	89	85	84	80

Q3 2005	Q4 2005	Q1 2006	Q2 2006	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011
169	169	169	169	169	170	178	176	174	172	172	170	170	171	171	170	168	165	165	164	162	161	161	161

Q3 2005	Q4 2005	Q1 2006	Q2 2006	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011
118	118	118	118	119	119	125	123	122	121	120	119	119	120	119	119	117	116	116	115	113	112	112	113

Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023
113	107	87	84	89	72	77	81	71	76	73	71	71

Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023
80	76	62	59	63	51	55	58	51	54	52	51	51

Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
161	161	164	167	171	173	159	156	159	161	164	163	165	165	165	161	160	167	161	159	162	165	165	166

Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
112	113	115	117	119	121	111	109	111	113	115	114	115	115	115	113	112	117	113	112	113	115	115	116

Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023
167	172	173	175	174	179	176	177	182	180	176	179	182	172	166	142	138	146	140	187	191	175	178	175

Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023
117	120	121	123	122	125	123	124	127	126	123	125	128	121	116	100	97	102	98	131	134	123	125	122

Q3 2023	Q4 2023
184	179

Q3 2023	Q4 2023
129	125

Table: ACSDP1Y2022.DP04

	Lewis County, Washington			
Label	**Estimate**	**Margin of Error**	**Percent**	**Percent Margin of Error**
HOUSING OCCUPANCY				
Total housing units	36,370	±44	36,370	(X)
Occupied housing units	32,149	±1,078	88.4%	±3.0
Vacant housing units	4,221	±1,083	11.6%	±3.0
Homeowner vacancy rate	2.9	±2.1	(X)	(X)
Rental vacancy rate	10.9	±7.1	(X)	(X)
UNITS IN STRUCTURE	Units			
Total housing units	36,370	±44	36,370	(X)
1-unit, detached	26,095	±1,466	71.7%	±4.0
1-unit, attached	529	±327	1.5%	±0.9
2 units	803	±490	2.2%	±1.3
3 or 4 units	913	±732	2.5%	±2.0
5 to 9 units	563	±432	1.5%	±1.2
10 to 19 units	715	±582	2.0%	±1.6
20 or more units	1,897	±681	5.2%	±1.9
Mobile home	4,535	±1,006	12.5%	±2.8
Boat, RV, van, etc.	320	±221	0.9%	±0.6
YEAR STRUCTURE BUILT				
Total housing units	36,370	±44	36,370	(X)
Built 2020 or later	467	±399	1.3%	±1.1
Built 2010 to 2019	3,170	±863	8.7%	±2.4
Built 2000 to 2009	4,311	±1,118	11.9%	±3.1
Built 1990 to 1999	6,052	±1,377	16.6%	±3.8
Built 1980 to 1989	4,899	±975	13.5%	±2.7
Built 1970 to 1979	5,223	±1,060	14.4%	±2.9
Built 1960 to 1969	2,124	±755	5.8%	±2.1
Built 1950 to 1959	1,897	±703	5.2%	±1.9
Built 1940 to 1949	1,845	±657	5.1%	
Built 1939 or earlier	6,382	±1,165	17.5%	
ROOMS				
Total housing units	36,370	±44	36,370	
1 room	1,038	±574	2.9%	
2 rooms	1,496	±734	4.1%	
3 rooms	2,017	±889	5.5%	
4 rooms	5,453	±1,242	15.0%	
5 rooms	7,209	±1,324	19.8%	

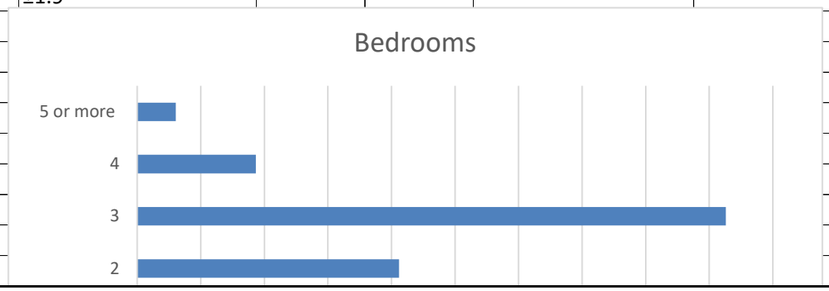


Table: ACSDP1Y2022.DP04

Label	
HOUSING OCCUPANCY	
Total housing units	
Occupied housing units	
Vacant housing units	
Homeowner vacancy rate	
Rental vacancy rate	
UNITS IN STRUCTURE	
Total housing units	
1-unit, detached	
1-unit, attached	
2 units	
3 or 4 units	
5 to 9 units	563
10 to 19 units	715
20 or more units	1,897
Mobile home	
Boat, RV, van, etc.	36,370
YEAR STRUCTURE BUILT	32,149
Total housing units	4,221
Built 2020 or later	2.9
Built 2010 to 2019	10.9
Built 2000 to 2009	
Built 1990 to 1999	36,370
Built 1980 to 1989	1,038
Built 1970 to 1979	1,496
Built 1960 to 1969	2,017
Built 1950 to 1959	5,453
Built 1940 to 1949	7,209
Built 1939 or earlier	8,046
ROOMS	3,551
Total housing units	4,100
1 room	3,460
2 rooms	
3 rooms	
4 rooms	
5 rooms	36,370

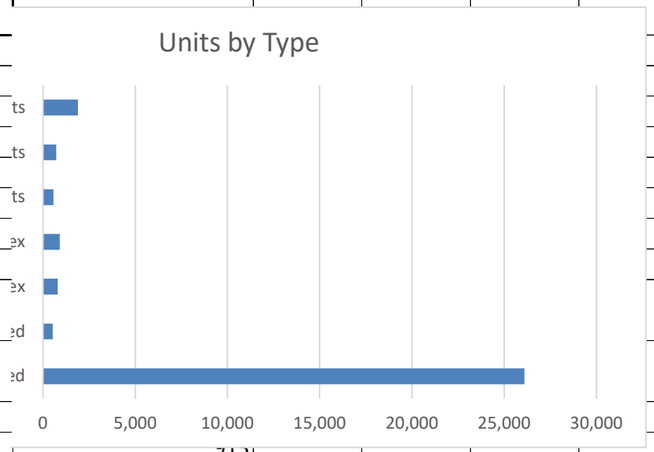
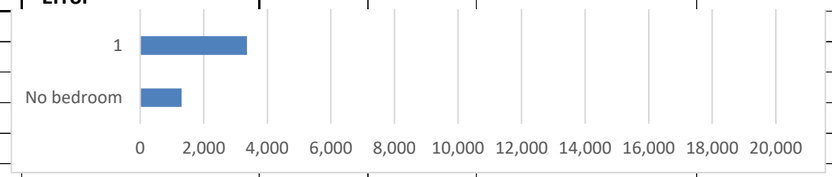


Table: ACSDP1Y2022.DP04

	Lewis County, Washington			
Label	**Estimate**	**Margin of Error**	**Percent**	**Percent Margin of Error**
6 rooms	8,046	±1,430	22.1%	
7 rooms	3,551	±909	9.8%	
8 rooms	4,100	±934	11.3%	
9 rooms or more	3,460	±676	9.5%	
Median rooms	5.6	±0.2	(X)	
BEDROOMS				
Total housing units	36,370	±44	36,370	(X)
No bedroom	1,299	±670	3.6%	±1.8
1 bedroom	3,359	±1,036	9.2%	±2.8
2 bedrooms	8,242	±1,238	22.7%	±3.4
3 bedrooms	18,521	±1,552	50.9%	±4.3
4 bedrooms	3,736	±813	10.3%	±2.2
5 or more bedrooms	1,213	±448	3.3%	±1.2
HOUSING TENURE				
Occupied housing units	32,149	±1,078	32,149	(X)
Owner-occupied	24,788	±1,339	77.1%	±4.0
Renter-occupied	7,361	±1,365	22.9%	±4.0
Average household size of owner-occupied unit	2.79	±0.13	(X)	(X)
Average household size of renter-occupied unit	2.12	±0.29	(X)	(X)
YEAR HOUSEHOLDER MOVED INTO UNIT				
Occupied housing units	32,149	±1,078	32,149	(X)
Moved in 2021 or later	4,562	±1,051	14.2%	±3.2
Moved in 2018 to 2020	7,044	±1,253	21.9%	±3.8
Moved in 2010 to 2017	7,247	±1,212	22.5%	±3.7
Moved in 2000 to 2009	4,901	±860	15.2%	±2.8
Moved in 1990 to 1999	4,333	±1,124	13.5%	±3.4
Moved in 1989 and earlier	4,062	±764	12.6%	±2.3
VEHICLES AVAILABLE				
Occupied housing units	32,149	±1,078	32,149	(X)
No vehicles available	1,402	±690	4.4%	±2.1
1 vehicle available	8,199	±1,308	25.5%	±4.0
2 vehicles available	9,676	±1,332	30.1%	±4.0
3 or more vehicles available	12,872	±1,572	40.0%	±4.7
HOUSE HEATING FUEL				
Occupied housing units	N	N	N	N
Utility gas	N	N	N	N
Bottled, tank, or LP gas	N	N	N	N
Electricity	N	N	N	N
Fuel oil, kerosene, etc.	N	N	N	N
Coal or coke	N	N	N	N



No bedroom
1
2
3
4
5 or more

Table: ACSDP1Y2022.DP04

Label					
6 rooms	1,299				
7 rooms	3,359				
8 rooms	8,242				
9 rooms or more	18,521				
Median rooms	3,736				
BEDROOMS	1,213				
Total housing units					
No bedroom					
1 bedroom					
2 bedrooms					
3 bedrooms					
4 bedrooms					
5 or more bedrooms					
HOUSING TENURE					
Occupied housing units					
Owner-occupied					
Renter-occupied					
Average household size of owner-occupied unit					
Average household size of renter-occupied unit					
YEAR HOUSEHOLDER MOVED INTO UNIT					
Occupied housing units					
Moved in 2021 or later					
Moved in 2018 to 2020					
Moved in 2010 to 2017					
Moved in 2000 to 2009					
Moved in 1990 to 1999					
Moved in 1989 and earlier					
VEHICLES AVAILABLE					
Occupied housing units					
No vehicles available					
1 vehicle available					
2 vehicles available					
3 or more vehicles available					
HOUSE HEATING FUEL					
Occupied housing units					
Utility gas					
Bottled, tank, or LP gas					
Electricity					
Fuel oil, kerosene, etc.					
Coal or coke					

Table: ACSDP1Y2022.DP04

	Lewis County, Washington			
Label	**Estimate**	**Margin of Error**	**Percent**	**Percent Margin of Error**
Wood	N	N	N	N
Solar energy	N	N	N	N
Other fuel	N	N	N	N
No fuel used	N	N	N	N
SELECTED CHARACTERISTICS				
Occupied housing units	32,149	±1,078	32,149	(X)
Lacking complete plumbing facilities	59	±84	0.2%	±0.3
Lacking complete kitchen facilities	308	±270	1.0%	±0.8
No telephone service available	969	±622	3.0%	±1.9
OCCUPANTS PER ROOM				
Occupied housing units	32,149	±1,078	32,149	(X)
1.00 or less	31,070	±1,198	96.6%	±1.6
1.01 to 1.50	876	±502	2.7%	±1.6
1.51 or more	203	±142	0.6%	±0.4
VALUE				
Owner-occupied units	24,788	±1,339	24,788	(X)
Less than $50,000	1,385	±582	5.6%	±2.3
$50,000 to $99,999	853	±608	3.4%	±2.4
$100,000 to $149,999	1,023	±463	4.1%	±1.8
$150,000 to $199,999	1,051	±449	4.2%	±1.9
$200,000 to $299,999	4,101	±942	16.5%	±3.8
$300,000 to $499,999	8,514	±1,153	34.3%	±4.3
$500,000 to $999,999	7,148	±1,397	28.8%	±5.4
$1,000,000 or more	713	±343	2.9%	±1.4
Median (dollars)	379,200	±24,795	(X)	(X)
MORTGAGE STATUS				
Owner-occupied units	24,788	±1,339	24,788	(X)
Housing units with a mortgage	14,519	±1,372	58.6%	±4.2
Housing units without a mortgage	10,269	±1,141	41.4%	±4.2
SELECTED MONTHLY OWNER COSTS (SMOC)				
Housing units with a mortgage	14,519	±1,372	14,519	(X)
Less than $500	378	±349	2.6%	±2.4
$500 to $999	1,207	±457	8.3%	±3.0
$1,000 to $1,499	4,121	±987	28.4%	±6.0
$1,500 to $1,999	4,208	±933	29.0%	±6.3
$2,000 to $2,499	2,839	±873	19.6%	±5.6
$2,500 to $2,999	1,014	±514	7.0%	±3.5
$3,000 or more	752	±362	5.2%	±2.5
Median (dollars)	1,637	±83	(X)	(X)
Housing units without a mortgage	10,269	±1,141	10,269	(X)

Table: ACSDP1Y2022.DP04

Label					
Wood					
Solar energy					
Other fuel					
No fuel used					
SELECTED CHARACTERISTICS					
Occupied housing units					
Lacking complete plumbing facilities					
Lacking complete kitchen facilities					
No telephone service available					
OCCUPANTS PER ROOM					
Occupied housing units					
1.00 or less					
1.01 to 1.50					
1.51 or more					
VALUE					
Owner-occupied units					
Less than $50,000					
$50,000 to $99,999					
$100,000 to $149,999					
$150,000 to $199,999					
$200,000 to $299,999					
$300,000 to $499,999					
$500,000 to $999,999					
$1,000,000 or more					
Median (dollars)					
MORTGAGE STATUS					
Owner-occupied units					
Housing units with a mortgage					
Housing units without a mortgage					
SELECTED MONTHLY OWNER COSTS (SMOC)					
Housing units with a mortgage					
Less than $500					
$500 to $999					
$1,000 to $1,499					
$1,500 to $1,999					
$2,000 to $2,499					
$2,500 to $2,999					
$3,000 or more					
Median (dollars)					
Housing units without a mortgage					

Table: ACSDP1Y2022.DP04

	Lewis County, Washington			
Label	**Estimate**	**Margin of Error**	**Percent**	**Percent Margin of Error**
Less than $250	555	±290	5.4%	±2.8
$250 to $399	1,435	±558	14.0%	±5.3
$400 to $599	4,141	±923	40.3%	±7.5
$600 to $799	1,870	±577	18.2%	±5.3
$800 to $999	1,271	±549	12.4%	±5.4
$1,000 or more	997	±514	9.7%	±4.7
Median (dollars)	553	±34	(X)	(X)
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI)				
Housing units with a mortgage (excluding units where SMOCAPI cannot be computed)	14,519	±1,372	14,519	(X)
Less than 20.0 percent	6,414	±1,060	44.2%	±6.4
20.0 to 24.9 percent	1,763	±568	12.1%	±3.7
25.0 to 29.9 percent	1,372	±569	9.4%	±3.8
30.0 to 34.9 percent	1,424	±790	9.8%	±5.3
35.0 percent or more	3,546	±938	24.4%	±6.0
Not computed	0	±214	(X)	(X)
Housing unit without a mortgage (excluding units where SMOCAPI cannot be computed)	10,142	±1,142	10,142	(X)
Less than 10.0 percent	3,902	±871	38.5%	±7.3
10.0 to 14.9 percent	1,821	±726	18.0%	±6.8
15.0 to 19.9 percent	1,543	±632	15.2%	±5.9
20.0 to 24.9 percent	700	±450	6.9%	±4.5
25.0 to 29.9 percent	467	±421	4.6%	±4.2
30.0 to 34.9 percent	465	±276	4.6%	±2.6
35.0 percent or more	1,244	±573	12.3%	±5.5
Not computed	127	±123	(X)	(X)
GROSS RENT				
Occupied units paying rent	N	N	N	N
Less than $500	N	N	N	N
$500 to $999	N	N	N	N
$1,000 to $1,499	N	N	N	N
$1,500 to $1,999	N	N	N	N
$2,000 to $2,499	N	N	N	N
$2,500 to $2,999	N	N	N	N
$3,000 or more	N	N	N	N
Median (dollars)	999	±81	(X)	(X)
No rent paid	N	N	(X)	(X)
GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI)				

Table: ACSDP1Y2022.DP04

Label					
Less than $250					
$250 to $399					
$400 to $599					
$600 to $799					
$800 to $999					
$1,000 or more					
Median (dollars)					
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME (SMOCAPI)					
Housing units with a mortgage (excluding units where SMOCAPI cannot be computed)					
Less than 20.0 percent					
20.0 to 24.9 percent					
25.0 to 29.9 percent					
30.0 to 34.9 percent					
35.0 percent or more					
Not computed					
Housing unit without a mortgage (excluding units where SMOCAPI cannot be computed)					
Less than 10.0 percent					
10.0 to 14.9 percent					
15.0 to 19.9 percent					
20.0 to 24.9 percent					
25.0 to 29.9 percent					
30.0 to 34.9 percent					
35.0 percent or more					
Not computed					
GROSS RENT					
Occupied units paying rent					
Less than $500					
$500 to $999					
$1,000 to $1,499					
$1,500 to $1,999					
$2,000 to $2,499					
$2,500 to $2,999					
$3,000 or more					
Median (dollars)					
No rent paid					
GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME (GRAPI)					

Table: ACSDP1Y2022.DP04

	Lewis County, Washington									
Label	**Estimate**	**Margin of Error**	**Percent**	**Percent Margin of Error**						
Occupied units paying rent (excluding units where GRAPI cannot be computed)	6,593	±1,277	6,593	(X)						
Less than 15.0 percent	594	±338	9.0%	±5.1						
15.0 to 19.9 percent	1,079	±548	16.4%	±8.6						
20.0 to 24.9 percent	1,129	±643	17.1%	±8.6						
25.0 to 29.9 percent	281	±234	4.3%	±3.5						
30.0 to 34.9 percent	1,116	±734	16.9%	±10.0						
35.0 percent or more	2,394	±925	36.3%	±12.6						
Not computed	768	±493	(X)	(X)						

Table: ACSDP1Y2022.DP04

Label					
Occupied units paying rent (excluding units where GRAPI cannot be computed)					
Less than 15.0 percent					
15.0 to 19.9 percent					
20.0 to 24.9 percent					
25.0 to 29.9 percent					
30.0 to 34.9 percent					
35.0 percent or more					
Not computed					

Table: ACSST1Y2022.S2502

	Lewis County, Washington								
	Occupied housing units		Percent occupied housing units		Owner-occupied housing units		Percent owner-occupied housing units		Renter-occupied housi
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
Occupied housing units	32,149	±1,078	32,149	±1,078	24,788	±1,339	24,788	±1,339	7,361
RACE AND HISPANIC OR LATINO ORIGIN OF HOUSEHOLDER									
One race --									
White	27,838	±1,289	86.6%	±2.9	22,312	±1,401	90.0%	±3.0	5,526
Black or African American	309	±443	1.0%	±1.4	N	N	N	N	N
American Indian and Alaska Native	362	±179	1.1%	±0.6	313	±170	1.3%	±0.7	49
Asian	142	±120	0.4%	±0.4	N	N	N	N	N
Native Hawaiian and Other Pacific Islander	218	±232	0.7%	±0.7	N	N	N	N	N
Some other race	768	±430	2.4%	±1.3	254	±246	1.0%	±1.0	514
Two or more races	2,512	±883	7.8%	±2.7	1,549	±731	6.2%	±2.9	963
Hispanic or Latino origin	2,355	±405	7.3%	±1.2	1,261	±569	5.1%	±2.2	1,094
White alone, not Hispanic or Latino	27,317	±1,215	85.0%	±2.7	21,996	±1,340	88.7%	±3.0	5,321
AGE OF HOUSEHOLDER									
Under 35 years	4,576	±804	14.2%	±2.3	2,944	±700	11.9%	±2.6	1,632
35 to 44 years	4,198	±746	13.1%	±2.3	3,004	±731	12.1%	±2.7	1,194
45 to 54 years	4,861	±732	15.1%	±2.1	4,148	±791	16.7%	±2.9	713
55 to 64 years	6,069	±844	18.9%	±2.7	4,470	±695	18.0%	±2.9	1,599
65 to 74 years	7,072	±595	22.0%	±1.9	6,247	±567	25.2%	±2.5	825
75 to 84 years	4,424	±717	13.8%	±2.2	3,306	±571	13.3%	±2.2	1,118
85 years and over	949	±415	3.0%	±1.3	669	±353	2.7%	±1.4	280
EDUCATIONAL ATTAINMENT OF HOUSEHOLDER									
Less than high school graduate	2,979	±986	9.3%	±3.0	1,301	±586	5.2%	±2.3	1,678
High school graduate (includes equivalency)	8,233	±1,163	25.6%	±3.6	6,070	±965	24.5%	±4.0	2,163
Some college or associate's degree	13,863	±1,545	43.1%	±4.2	11,203	±1,430	45.2%	±4.8	2,660
Bachelor's degree or higher	7,074	±1,216	22.0%	±3.8	6,214	±1,196	25.1%	±4.6	860
YEAR HOUSEHOLDER MOVED INTO UNIT									
Moved in 2021 or later	4,562	±1,051	14.2%	±3.2	2,215	±703	8.9%	±2.7	2,347
Moved in 2018 to 2020	7,044	±1,253	21.9%	±3.8	4,780	±1,096	19.3%	±4.2	2,264
Moved in 2010 to 2017	7,247	±1,212	22.5%	±3.7	5,089	±1,102	20.5%	±4.3	2,158
Moved in 2000 to 2009	4,901	±860	15.2%	±2.8	4,609	±844	18.6%	±3.6	292
Moved in 1990 to 1999	4,333	±1,124	13.5%	±3.4	4,238	±1,141	17.1%	±4.4	95

Table: ACSST1Y2022.S2502

	ng units	Percent renter-occupied housing units	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
Occupied housing units	±1,365	7,361	±1,365
RACE AND HISPANIC OR LATINO ORIGIN OF HOUSEHOLDER			
One race --			
White	±1,128	75.1%	±10.1
Black or African American	N	N	N
American Indian and Alaska Native	±62	0.7%	±0.9
Asian	N	N	N
Native Hawaiian and Other Pacific Islander	N	N	N
Some other race	±402	7.0%	±5.1
Two or more races	±588	13.1%	±7.4
Hispanic or Latino origin	±522	14.9%	±6.6
White alone, not Hispanic or Latino	±1,191	72.3%	±10.9
AGE OF HOUSEHOLDER			
Under 35 years	±628	22.2%	±7.8
35 to 44 years	±558	16.2%	±7.1
45 to 54 years	±463	9.7%	±6.1
55 to 64 years	±790	21.7%	±9.9
65 to 74 years	±523	11.2%	±6.8
75 to 84 years	±599	15.2%	±7.6
85 years and over	±246	3.8%	±3.4
EDUCATIONAL ATTAINMENT OF HOUSEHOLDER			
Less than high school graduate	±862	22.8%	±10.7
High school graduate (includes equivalency)	±893	29.4%	±11.1
Some college or associate's degree	±884	36.1%	±10.6
Bachelor's degree or higher	±503	11.7%	±6.5
YEAR HOUSEHOLDER MOVED INTO UNIT			
Moved in 2021 or later	±1,009	31.9%	±12.4
Moved in 2018 to 2020	±887	30.8%	±11.0
Moved in 2010 to 2017	±895	29.3%	±10.7
Moved in 2000 to 2009	±211	4.0%	±2.9
Moved in 1990 to 1999	±107	1.3%	±1.5

Table: ACSST1Y2022.S2502

	Lewis County, Washington								
	Occupied housing units		Percent occupied housing units		Owner-occupied housing units		Percent owner-occupied housing units		Renter-occupied housi
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
Moved in 1989 or earlier	4,062	±764	12.6%	±2.3	3,857	±759	15.6%	±2.9	205

Table: ACSST1Y2022.S2502

	ng units	Percent renter-occupied housing units	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
Moved in 1989 or earlier	±319	2.8%	±4.3

Table: ACSST1Y2022.S2504

	Lewis County, Washington								
	Occupied housing units		Percent occupied housing units		Owner-occupied housing units		Percent owner-occupied housing units		Renter-occupied housi
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
Occupied housing units	32,149	±1,078	32,149	±1,078	24,788	±1,339	24,788	±1,339	7,361
UNITS IN STRUCTURE									
1, detached	23,178	±1,379	72.1%	±3.9	21,376	±1,433	86.2%	±3.1	1,802
1, attached	352	±259	1.1%	±0.8	259	±204	1.0%	±0.8	93
2 apartments	803	±490	2.5%	±1.5	0	±214	0.0%	±0.8	803
3 or 4 apartments	659	±513	2.0%	±1.6	0	±214	0.0%	±0.8	659
5 to 9 apartments	512	±425	1.6%	±1.3	0	±214	0.0%	±0.8	512
10 or more apartments	2,288	±853	7.1%	±2.6	0	±214	0.0%	±0.8	2,288
Mobile home or other type of housing	4,357	±927	13.6%	±2.9	3,153	±758	12.7%	±3.1	1,204
YEAR STRUCTURE BUILT									
2020 or later	288	±278	0.9%	±0.9	288	±278	1.2%	±1.1	0
2010 to 2019	2,730	±786	8.5%	±2.4	2,094	±743	8.4%	±2.9	636
2000 to 2009	3,123	±808	9.7%	±2.6	2,683	±743	10.8%	±3.0	440
1980 to 1999	10,431	±1,634	32.4%	±4.7	6,696	±1,193	27.0%	±4.4	3,735
1960 to 1979	6,205	±1,104	19.3%	±3.4	4,986	±941	20.1%	±3.7	1,219
1940 to 1959	3,504	±910	10.9%	±2.8	2,820	±837	11.4%	±3.4	684
1939 or earlier	5,868	±1,133	18.3%	±3.5	5,221	±1,046	21.1%	±3.9	647
ROOMS									
1 room	660	±490	2.1%	±1.5	115	±127	0.5%	±0.5	545
2 or 3 rooms	2,974	±1,013	9.3%	±3.1	936	±555	3.8%	±2.3	2,038
4 or 5 rooms	11,028	±1,379	34.3%	±4.2	7,312	±1,415	29.5%	±5.2	3,716
6 or 7 rooms	10,232	±1,365	31.8%	±4.1	9,693	±1,318	39.1%	±5.0	539
8 or more rooms	7,255	±1,095	22.6%	±3.4	6,732	±1,051	27.2%	±4.0	523
BEDROOMS									
No bedroom	716	±497	2.2%	±1.6	171	±166	0.7%	±0.7	545
1 bedroom	3,177	±1,009	9.9%	±3.1	902	±466	3.6%	±1.9	2,275
2 or 3 bedrooms	23,349	±1,505	72.6%	±4.3	19,267	±1,404	77.7%	±3.7	4,082
4 or more bedrooms	4,907	±951	15.3%	±2.9	4,448	±927	17.9%	±3.5	459
COMPLETE FACILITIES									
With complete plumbing facilities	32,090	±1,089	99.8%	±0.3	24,729	±1,347	99.8%	±0.3	7,361
With complete kitchen facilities	31,841	±1,120	99.0%	±0.8	24,628	±1,361	99.4%	±0.6	7,213
VEHICLES AVAILABLE									
No vehicle available	1,402	±690	4.4%	±2.1	547	±289	2.2%	±1.2	855
1 vehicle available	8,199	±1,308	25.5%	±4.0	4,812	±857	19.4%	±3.5	3,387
2 vehicles available	9,676	±1,332	30.1%	±4.0	7,360	±1,291	29.7%	±4.9	2,316
3 or more vehicles available	12,872	±1,572	40.0%	±4.7	12,069	±1,560	48.7%	±5.3	803
TELEPHONE SERVICE AVAILABLE									

Table: ACSST1Y2022.S2504

	ng units	Percent renter-occupied housing units	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
Occupied housing units	±1,365	7,361	±1,365
UNITS IN STRUCTURE			
1, detached	±703	24.5%	±8.4
1, attached	±156	1.3%	±2.1
2 apartments	±490	10.9%	±6.6
3 or 4 apartments	±513	9.0%	±6.5
5 to 9 apartments	±425	7.0%	±5.6
10 or more apartments	±853	31.1%	±10.5
Mobile home or other type of housing	±595	16.4%	±7.5
YEAR STRUCTURE BUILT			
2020 or later	±214	0.0%	±2.5
2010 to 2019	±403	8.6%	±5.3
2000 to 2009	±301	6.0%	±4.2
1980 to 1999	±1,160	50.7%	±11.7
1960 to 1979	±581	16.6%	±7.3
1940 to 1959	±494	9.3%	±6.5
1939 or earlier	±334	8.8%	±4.7
ROOMS			
1 room	±506	7.4%	±6.9
2 or 3 rooms	±811	27.7%	±9.8
4 or 5 rooms	±1,136	50.5%	±11.7
6 or 7 rooms	±374	7.3%	±5.1
8 or more rooms	±351	7.1%	±4.7
BEDROOMS			
No bedroom	±506	7.4%	±6.9
1 bedroom	±886	30.9%	±10.8
2 or 3 bedrooms	±1,120	55.5%	±10.6
4 or more bedrooms	±333	6.2%	±4.5
COMPLETE FACILITIES			
With complete plumbing facilities	±1,365	100.0%	±2.5
With complete kitchen facilities	±1,379	98.0%	±2.5
VEHICLES AVAILABLE			
No vehicle available	±607	11.6%	±8.1
1 vehicle available	±1,039	46.0%	±10.6
2 vehicles available	±806	31.5%	±9.1
3 or more vehicles available	±413	10.9%	±5.7
TELEPHONE SERVICE AVAILABLE			

Table: ACSST1Y2022.S2504

	Lewis County, Washington								
	Occupied housing units		Percent occupied housing units		Owner-occupied housing units		Percent owner-occupied housing units		Renter-occupied housi
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
With telephone service	31,180	±1,238	97.0%	±1.9	24,522	±1,363	98.9%	±0.8	6,658
HOUSE HEATING FUEL									
Utility gas	N	N	N	N	N	N	N	N	N
Bottled, tank, or LP gas	N	N	N	N	N	N	N	N	N
Electricity	N	N	N	N	N	N	N	N	N
Fuel oil, kerosene, etc.	N	N	N	N	N	N	N	N	N
Coal or coke	N	N	N	N	N	N	N	N	N
All other fuels	N	N	N	N	N	N	N	N	N
No fuel used	N	N	N	N	N	N	N	N	N

Table: ACSST1Y2022.S2504

	ng units	Percent renter-occupied housing units	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
With telephone service	±1,319	90.4%	±8.0
HOUSE HEATING FUEL			
Utility gas	N	N	N
Bottled, tank, or LP gas	N	N	N
Electricity	N	N	N
Fuel oil, kerosene, etc.	N	N	N
Coal or coke	N	N	N
All other fuels	N	N	N
No fuel used	N	N	N

Table: ACSST1Y2022.S0101

	Lewis County, Washington								
	Total		Percent		Male		Percent Male		Female
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
Total population	85,370	*****	(X)	(X)	43,022	±1,039	(X)	(X)	42,348
AGE									
Under 5 years	4,486	±683	5.3%	±0.8	2,192	±605	5.1%	±1.4	2,294
5 to 9 years	4,476	±1,070	5.2%	±1.3	2,346	±729	5.5%	±1.7	2,130
10 to 14 years	5,488	±909	6.4%	±1.1	2,496	±754	5.8%	±1.7	2,992
15 to 19 years	5,300	±810	6.2%	±0.9	3,198	±650	7.4%	±1.4	2,102
20 to 24 years	4,810	±784	5.6%	±0.9	2,828	±484	6.6%	±1.2	1,982
25 to 29 years	4,822	±527	5.6%	±0.6	2,195	±207	5.1%	±0.5	2,627
30 to 34 years	5,250	±421	6.1%	±0.5	2,735	±344	6.4%	±0.8	2,515
35 to 39 years	5,536	±1,086	6.5%	±1.3	3,328	±797	7.7%	±1.9	2,208
40 to 44 years	5,234	±1,041	6.1%	±1.2	2,240	±678	5.2%	±1.6	2,994
45 to 49 years	4,675	±446	5.5%	±0.5	2,497	±341	5.8%	±0.8	2,178
50 to 54 years	4,809	±320	5.6%	±0.4	2,328	±153	5.4%	±0.4	2,481
55 to 59 years	4,440	±1,027	5.2%	±1.2	2,066	±669	4.8%	±1.6	2,374
60 to 64 years	7,312	±1,068	8.6%	±1.3	3,626	±762	8.4%	±1.7	3,686
65 to 69 years	5,183	±1,010	6.1%	±1.2	2,643	±615	6.1%	±1.4	2,540
70 to 74 years	6,128	±1,014	7.2%	±1.2	2,906	±595	6.8%	±1.4	3,222
75 to 79 years	3,754	±765	4.4%	±0.9	1,344	±430	3.1%	±1.0	2,410
80 to 84 years	2,156	±748	2.5%	±0.9	1,345	±509	3.1%	±1.2	811
85 years and over	1,511	±524	1.8%	±0.6	709	±395	1.6%	±0.9	802
SELECTED AGE CATEGORIES									
5 to 14 years	9,964	±745	11.7%	±0.9	4,842	±657	11.3%	±1.4	5,122
15 to 17 years	3,599	±444	4.2%	±0.5	2,328	±474	5.4%	±1.0	1,271
Under 18 years	18,049	±330	21.1%	±0.4	9,362	±888	21.8%	±1.7	8,687
18 to 24 years	6,511	±523	7.6%	±0.6	3,698	±420	8.6%	±1.0	2,813
15 to 44 years	30,952	±977	36.3%	±1.1	16,524	±684	38.4%	±1.4	14,428
16 years and over	69,674	±519	81.6%	±0.6	35,176	±713	81.8%	±1.7	34,498
18 years and over	67,321	±330	78.9%	±0.4	33,660	±604	78.2%	±1.7	33,661
21 years and over	64,688	±804	75.8%	±0.9	32,247	±855	75.0%	±2.4	32,441
60 years and over	26,044	±1,060	30.5%	±1.2	12,573	±896	29.2%	±1.9	13,471
62 years and over	23,514	±1,028	27.5%	±1.2	11,551	±854	26.8%	±1.8	11,963
65 years and over	18,732	±508	21.9%	±0.6	8,947	±389	20.8%	±0.9	9,785
75 years and over	7,421	±402	8.7%	±0.5	3,398	±85	7.9%	±0.3	4,023
SUMMARY INDICATORS									
Median age (years)	42.4	±0.5	(X)	(X)	40.7	±2.2	(X)	(X)	42.9
Sex ratio (males per 100 females)	101.6	±5.0	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Age dependency ratio	75.7	±2.5	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Old-age dependency ratio	38.6	±1.6	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Child dependency ratio	37.1	±1.1	(X)	(X)	(X)	(X)	(X)	(X)	(X)
PERCENT ALLOCATED									

Table: ACSST1Y2022.S0101

		Percent Female	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
Total population	±1,039	(X)	(X)
AGE			
Under 5 years	±683	5.4%	±1.5
5 to 9 years	±777	5.0%	±1.8
10 to 14 years	±670	7.1%	±1.6
15 to 19 years	±397	5.0%	±1.0
20 to 24 years	±475	4.7%	±1.1
25 to 29 years	±479	6.2%	±1.1
30 to 34 years	±282	5.9%	±0.7
35 to 39 years	±796	5.2%	±1.9
40 to 44 years	±859	7.1%	±2.1
45 to 49 years	±258	5.1%	±0.6
50 to 54 years	±301	5.9%	±0.7
55 to 59 years	±704	5.6%	±1.7
60 to 64 years	±751	8.7%	±1.8
65 to 69 years	±633	6.0%	±1.5
70 to 74 years	±745	7.6%	±1.7
75 to 79 years	±684	5.7%	±1.6
80 to 84 years	±414	1.9%	±1.0
85 years and over	±351	1.9%	±0.8
SELECTED AGE CATEGORIES			
5 to 14 years	±469	12.1%	±1.0
15 to 17 years	±155	3.0%	±0.3
Under 18 years	±906	20.5%	±1.8
18 to 24 years	±320	6.6%	±0.7
15 to 44 years	±606	34.1%	±1.5
16 years and over	±670	81.5%	±1.8
18 years and over	±611	79.5%	±1.8
21 years and over	±690	76.6%	±1.6
60 years and over	±803	31.8%	±1.9
62 years and over	±758	28.2%	±1.8
65 years and over	±573	23.1%	±1.3
75 years and over	±404	9.5%	±0.9
SUMMARY INDICATORS			
Median age (years)	±1.0	(X)	(X)
Sex ratio (males per 100 females)	(X)	(X)	(X)
Age dependency ratio	(X)	(X)	(X)
Old-age dependency ratio	(X)	(X)	(X)
Child dependency ratio	(X)	(X)	(X)
PERCENT ALLOCATED			

Table: ACSST1Y2022.S0101

	Lewis County, Washington								
	Total		Percent		Male		Percent Male		Female
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
Sex	(X)	(X)	0.1%	(X)	(X)	(X)	(X)	(X)	(X)
Age	(X)	(X)	0.8%	(X)	(X)	(X)	(X)	(X)	(X)

Table: ACSST1Y2022.S0101

		Percent Female	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
Sex	(X)	(X)	(X)
Age	(X)	(X)	(X)

Table: ACSST1Y2022.S1101

	Lewis County, Washington								
	Total		Married-couple family household		Male householder, no spouse present, family household		Female householder, no spouse present, family household		Nonfamily household
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
HOUSEHOLDS									
Total households	32,149	±1,078	15,693	±1,663	2,052	±741	2,897	±915	11,507
Average household size	2.64	±0.09	3.36	±0.22	3.87	±0.88	3.72	±0.64	1.17
FAMILIES									
Total families	20,642	±1,480	15,693	±1,663	2,052	±741	2,897	±915	(X)
Average family size	3.26	±0.20	3.30	±0.21	3.05	±0.71	3.21	±0.65	(X)
AGE OF OWN CHILDREN									
Households with own children of the householder under 18 years	6,215	±1,138	4,280	±897	1,172	±600	763	±390	(X)
Under 6 years only	13.5%	±6.7	5.5%	±4.7	47.6%	±26.1	5.8%	±7.2	(X)
Under 6 years and 6 to 17 years	27.3%	±8.8	32.2%	±10.5	5.1%	±9.3	33.8%	±29.1	(X)
6 to 17 years only	59.3%	±9.6	62.3%	±11.0	47.3%	±26.3	60.4%	±28.4	(X)
Total households	32,149	±1,078	15,693	±1,663	2,052	±741	2,897	±915	11,507
SELECTED HOUSEHOLDS BY TYPE									
Households with one or more people under 18 years	24.5%	±3.4	33.7%	±5.3	75.3%	±15.7	35.2%	±19.0	0.3%
Households with one or more people 60 years and over	54.9%	±3.1	54.0%	±5.1	24.4%	±12.0	46.8%	±17.0	63.7%
Households with one or more people 65 years and over	43.0%	±2.6	(X)	(X)	(X)	(X)	(X)	(X)	48.2%
Householder living alone	30.0%	±4.3	(X)	(X)	(X)	(X)	(X)	(X)	83.9%
65 years and over	16.2%	±3.8	(X)	(X)	(X)	(X)	(X)	(X)	45.4%
UNITS IN STRUCTURE									
1-unit structures	73.2%	±3.9	87.8%	±3.8	70.4%	±17.5	54.5%	±16.8	58.5%
2-or-more-unit structures	13.3%	±3.2	1.4%	±1.5	19.9%	±17.2	26.9%	±18.7	24.8%
Mobile homes and all other types of units	13.6%	±2.9	10.8%	±3.4	9.7%	±8.4	18.6%	±14.2	16.7%
HOUSING TENURE									
Owner-occupied housing units	77.1%	±4.0	93.8%	±3.3	62.0%	±18.8	57.4%	±17.1	61.9%
Renter-occupied housing units	22.9%	±4.0	6.2%	±3.3	38.0%	±18.8	42.6%	±17.1	38.1%

Table: ACSST1Y2022.S1101

Label	**Margin of Error**
HOUSEHOLDS	
Total households	±1,487
Average household size	±0.05
FAMILIES	
Total families	(X)
Average family size	(X)
AGE OF OWN CHILDREN	
Households with own children of the householder under 18 years	(X)
Under 6 years only	(X)
Under 6 years and 6 to 17 years	(X)
6 to 17 years only	(X)
Total households	±1,487
SELECTED HOUSEHOLDS BY TYPE	
Households with one or more people under 18 years	±0.5
Households with one or more people 60 years and over	±8.2
Households with one or more people 65 years and over	±8.4
Householder living alone	±5.0
65 years and over	±8.4
UNITS IN STRUCTURE	
1-unit structures	±7.0
2-or-more-unit structures	±7.0
Mobile homes and all other types of units	±5.2
HOUSING TENURE	
Owner-occupied housing units	±7.3
Renter-occupied housing units	±7.3

Table: ACSST1Y2022.S1601

	Lewis County, Washington								
	Total		Percent		Percent of specified language speakers				
					Speak English only or speak English "very well"		Percent speak English only or speak English "very well"		Speak English less tha
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
Population 5 years and over	N	N	(X)	(X)	N	N	N	N	N
Speak only English	N	N	N	N	(X)	(X)	(X)	(X)	(X)
Speak a language other than English	N	N	N	N	N	N	N	N	N
SPEAK A LANGUAGE OTHER THAN ENGLISH									
Spanish	N	N	N	N	N	N	N	N	N
5 to 17 years old	N	N	N	N	N	N	N	N	N
18 to 64 years old	N	N	N	N	N	N	N	N	N
65 years old and over	N	N	N	N	N	N	N	N	N
Other Indo-European languages	N	N	N	N	N	N	N	N	N
5 to 17 years old	N	N	N	N	N	N	N	N	N
18 to 64 years old	N	N	N	N	N	N	N	N	N
65 years old and over	N	N	N	N	N	N	N	N	N
Asian and Pacific Island languages	N	N	N	N	N	N	N	N	N
5 to 17 years old	N	N	N	N	N	N	N	N	N
18 to 64 years old	N	N	N	N	N	N	N	N	N
65 years old and over	N	N	N	N	N	N	N	N	N
Other languages	N	N	N	N	N	N	N	N	N
5 to 17 years old	N	N	N	N	N	N	N	N	N
18 to 64 years old	N	N	N	N	N	N	N	N	N
65 years old and over	N	N	N	N	N	N	N	N	N
CITIZENS 18 YEARS AND OVER									
All citizens 18 years old and over	64,894	±864	(X)	(X)	63,924	±987	98.5%	±0.8	970
Speak only English	61,604	±971	94.9%	±1.3	(X)	(X)	(X)	(X)	(X)
Speak a language other than English	3,290	±865	5.1%	±1.3	2,320	±782	70.5%	±13.6	970
Spanish	1,848	±599	2.8%	±0.9	1,526	±611	82.6%	±15.3	322
Other languages	1,442	±559	2.2%	±0.9	794	±417	55.1%	±20.8	648

Table: ACSST1Y2022.S1601

	n "very well"	Percent speak English less than "very well"	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
Population 5 years and over	N	N	N
Speak only English	(X)	(X)	(X)
Speak a language other than English	N	N	N
SPEAK A LANGUAGE OTHER THAN ENGLISH			
Spanish	N	N	N
5 to 17 years old	N	N	N
18 to 64 years old	N	N	N
65 years old and over	N	N	N
Other Indo-European languages	N	N	N
5 to 17 years old	N	N	N
18 to 64 years old	N	N	N
65 years old and over	N	N	N
Asian and Pacific Island languages	N	N	N
5 to 17 years old	N	N	N
18 to 64 years old	N	N	N
65 years old and over	N	N	N
Other languages	N	N	N
5 to 17 years old	N	N	N
18 to 64 years old	N	N	N
65 years old and over	N	N	N
CITIZENS 18 YEARS AND OVER			
All citizens 18 years old and over	±488	1.5%	±0.8
Speak only English	(X)	(X)	(X)
Speak a language other than English	±488	29.5%	±13.6
Spanish	±284	17.4%	±15.3
Other languages	±395	44.9%	±20.8

Table: ACSST1Y2022.S2503

	Lewis County, Washington								
	Occupied housing units		Percent occupied housing units		Owner-occupied housing units		Percent owner-occupied housing units		Renter-occupied housi
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
Occupied housing units	32,149	±1,078	32,149	±1,078	24,788	±1,339	24,788	±1,339	7,361
HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2022 INFLATION-ADJUSTED DOLLARS)									
Less than $5,000	1,012	±506	3.1%	±1.6	893	±512	3.6%	±2.0	119
$5,000 to $9,999	544	±460	1.7%	±1.4	181	±180	0.7%	±0.7	363
$10,000 to $14,999	594	±368	1.8%	±1.1	388	±309	1.6%	±1.2	206
$15,000 to $19,999	1,194	±597	3.7%	±1.8	535	±377	2.2%	±1.5	659
$20,000 to $24,999	1,568	±702	4.9%	±2.2	725	±324	2.9%	±1.3	843
$25,000 to $34,999	2,696	±897	8.4%	±2.8	1,612	±631	6.5%	±2.5	1,084
$35,000 to $49,999	3,804	±1,095	11.8%	±3.4	2,131	±679	8.6%	±2.8	1,673
$50,000 to $74,999	5,877	±1,243	18.3%	±3.8	4,910	±1,144	19.8%	±4.3	967
$75,000 to $99,999	4,724	±999	14.7%	±3.1	4,068	±971	16.4%	±3.7	656
$100,000 to $149,999	5,456	±1,104	17.0%	±3.4	4,855	±1,078	19.6%	±4.3	601
$150,000 or more	4,680	±957	14.6%	±3.0	4,490	±954	18.1%	±3.8	190
Median household income (dollars)	69,067	±7,993	69,067	±7,993	83,568	±9,619	83,568	±9,619	40,104
MONTHLY HOUSING COSTS									
Less than $300	1,337	±537	4.2%	±1.7	1,065	±485	4.3%	±1.9	N
$300 to $499	3,797	±928	11.8%	±2.8	3,387	±849	13.7%	±3.3	N
$500 to $799	5,722	±1,080	17.8%	±3.3	4,526	±849	18.3%	±3.5	N
$800 to $999	3,304	±891	10.3%	±2.8	1,879	±621	7.6%	±2.4	N
$1,000 to $1,499	7,568	±1,289	23.5%	±3.9	5,053	±1,077	20.4%	±4.1	N
$1,500 to $1,999	4,797	±1,046	14.9%	±3.1	4,273	±942	17.2%	±3.8	N
$2,000 to $2,499	2,925	±883	9.1%	±2.8	2,839	±873	11.5%	±3.4	N
$2,500 to $2,999	1,179	±542	3.7%	±1.7	1,014	±514	4.1%	±2.0	N
$3,000 or more	752	±362	2.3%	±1.1	752	±362	3.0%	±1.5	N
No cash rent	768	±493	2.4%	±1.5	(X)	(X)	(X)	(X)	N
Median (dollars)	1,092	±67	1,092	±67	1,179	±118	1,179	±118	999
MONTHLY HOUSING COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS									
Less than $20,000	3,020	±1,031	9.4%	±3.1	1,870	±774	7.5%	±3.1	1,150
Less than 20 percent	121	±148	0.4%	±0.5	121	±148	0.5%	±0.6	0
20 to 29 percent	426	±397	1.3%	±1.2	163	±262	0.7%	±1.1	263
30 percent or more	2,473	±910	7.7%	±2.8	1,586	±692	6.4%	±2.8	887
$20,000 to $34,999	3,859	±951	12.0%	±3.0	2,337	±678	9.4%	±2.7	1,522
Less than 20 percent	301	±210	0.9%	±0.7	277	±208	1.1%	±0.8	24
20 to 29 percent	561	±334	1.7%	±1.0	561	±334	2.3%	±1.4	0

Table: ACSST1Y2022.S2503

	ng units	Percent renter-occupied housing units	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
Occupied housing units	±1,365	7,361	±1,365
HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2022 INFLATION-ADJUSTED DOLLARS)			
Less than $5,000	±115	1.6%	±1.6
$5,000 to $9,999	±361	4.9%	±4.9
$10,000 to $14,999	±211	2.8%	±2.9
$15,000 to $19,999	±454	9.0%	±5.9
$20,000 to $24,999	±598	11.5%	±7.6
$25,000 to $34,999	±709	14.7%	±9.2
$35,000 to $49,999	±847	22.7%	±10.2
$50,000 to $74,999	±520	13.1%	±7.4
$75,000 to $99,999	±432	8.9%	±5.8
$100,000 to $149,999	±439	8.2%	±5.8
$150,000 or more	±201	2.6%	±2.8
Median household income (dollars)	±8,917	40,104	±8,917
MONTHLY HOUSING COSTS			
Less than $300	N	N	N
$300 to $499	N	N	N
$500 to $799	N	N	N
$800 to $999	N	N	N
$1,000 to $1,499	N	N	N
$1,500 to $1,999	N	N	N
$2,000 to $2,499	N	N	N
$2,500 to $2,999	N	N	N
$3,000 or more	N	N	N
No cash rent	N	N	N
Median (dollars)	±81	999	±81
MONTHLY HOUSING COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS			
Less than $20,000	±590	15.6%	±7.5
Less than 20 percent	±214	0.0%	±2.5
20 to 29 percent	±304	3.6%	±4.0
30 percent or more	±498	12.0%	±6.5
$20,000 to $34,999	±741	20.7%	±9.1
Less than 20 percent	±51	0.3%	±0.7
20 to 29 percent	±214	0.0%	±2.5

Table: ACSST1Y2022.S2503

	Lewis County, Washington								
	Occupied housing units		Percent occupied housing units		Owner-occupied housing units		Percent owner-occupied housing units		Renter-occupied housi
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
30 percent or more	2,997	±850	9.3%	±2.6	1,499	±540	6.0%	±2.2	1,498
$35,000 to $49,999	3,804	±1,095	11.8%	±3.4	2,131	±679	8.6%	±2.8	1,673
Less than 20 percent	1,125	±593	3.5%	±1.8	1,041	±536	4.2%	±2.2	84
20 to 29 percent	1,085	±593	3.4%	±1.8	487	±316	2.0%	±1.3	598
30 percent or more	1,594	±713	5.0%	±2.2	603	±341	2.4%	±1.4	991
$50,000 to $74,999	5,743	±1,229	17.9%	±3.8	4,910	±1,144	19.8%	±4.3	833
Less than 20 percent	2,731	±753	8.5%	±2.4	2,290	±681	9.2%	±2.7	441
20 to 29 percent	1,309	±508	4.1%	±1.6	948	±455	3.8%	±1.8	361
30 percent or more	1,703	±897	5.3%	±2.8	1,672	±892	6.7%	±3.5	31
$75,000 or more	14,828	±1,480	46.1%	±4.6	13,413	±1,476	54.1%	±5.1	1,415
Less than 20 percent	11,075	±1,462	34.4%	±4.6	9,951	±1,436	40.1%	±5.3	1,124
20 to 29 percent	2,331	±749	7.3%	±2.3	2,143	±682	8.6%	±2.7	188
30 percent or more	1,422	±620	4.4%	±1.9	1,319	±601	5.3%	±2.4	103
Zero or negative income	127	±123	0.4%	±0.4	127	±123	0.5%	±0.5	0
No cash rent	768	±493	2.4%	±1.5	(X)	(X)	(X)	(X)	768

Table: ACSST1Y2022.S2503

	ng units	Percent renter-occupied housing units	
Label	**Margin of Error**	**Estimate**	**Margin of Error**
30 percent or more	±747	20.4%	±9.2
$35,000 to $49,999	±847	22.7%	±10.2
Less than 20 percent	±142	1.1%	±1.9
20 to 29 percent	±508	8.1%	±6.6
30 percent or more	±639	13.5%	±8.2
$50,000 to $74,999	±487	11.3%	±7.1
Less than 20 percent	±394	6.0%	±5.5
20 to 29 percent	±271	4.9%	±3.8
30 percent or more	±52	0.4%	±0.7
$75,000 or more	±604	19.2%	±7.9
Less than 20 percent	±485	15.3%	±6.6
20 to 29 percent	±289	2.6%	±3.9
30 percent or more	±170	1.4%	±2.3
Zero or negative income	±214	0.0%	±2.5
No cash rent	±493	10.4%	±6.3

Table: ACSEEO5Y2018.EEOALL1W

	Lewis County, Washington								
	Agricultural workers								
	Total, race and ethnicity		Hispanic or Latino		Not Hispanic or Latino, one race				
					White alone		Black or African American alone		American Indian and A
Label	**Estimate**	**Margin of Error**	**Estimate**	**Margin of Error**	**Estimate**	**Margin of Error**	**Estimate**	**Margin of Error**	**Estimate**
Total, both sexes									
Number	280	±131	90	±49	185	±120	0	±27	0
Percent	100.0%	±10.2	32.1%	±19.5	66.1%	±19.5	0.0%	±10.2	0.0%
Male									
Number	175	±90	30	±27	145	±89	0	±27	0
Percent	62.5%	±14.9	10.7%	±10.5	51.8%	±16.8	0.0%	±10.2	0.0%
Female									
Number	105	±68	60	±43	40	±49	0	±27	0
Percent	37.5%	±15.6	21.4%	±15.6	14.3%	±13.4	0.0%	±10.2	0.0%

Table: ACSEEO5Y2018.EEOALL1W

						Balance of not Hispanic or Latino	
	laska Native alone		Asian alone		Native Hawaiian and Other Pacific Islander alone		
Label	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Total, both sexes							
Number	±27	0	±27	0	±27	4	±2
Percent	±10.2	0.0%	±10.2	0.0%	±10.2	1.4%	±1.0
Male							
Number	±27	0	±27	0	±27	0	±27
Percent	±10.2	0.0%	±10.2	0.0%	±10.2	0.0%	±10.2
Female							
Number	±27	0	±27	0	±27	4	±2
Percent	±10.2	0.0%	±10.2	0.0%	±10.2	1.4%	±1.0

Market at a Glance

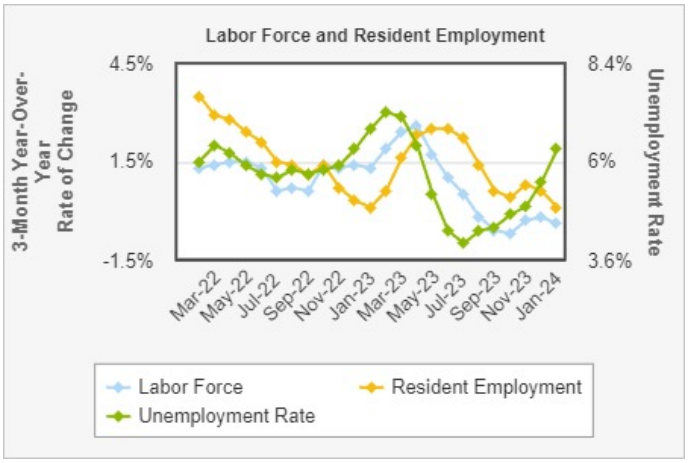
Lewis County,Washington

Prepared by: PD&R / Economic & Market Analysis Division (EMAD)

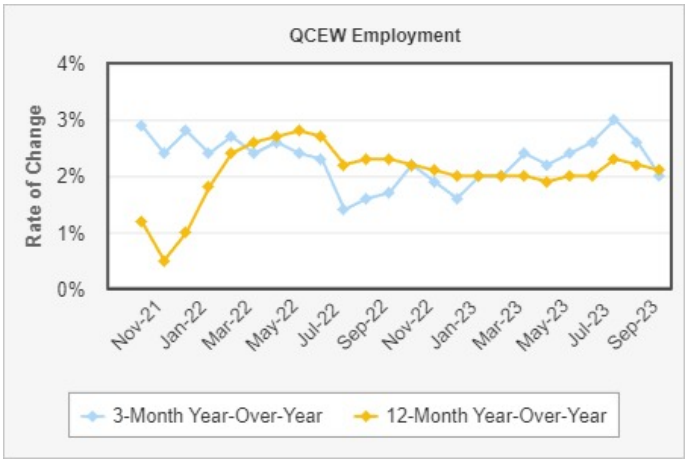
Northwest Regional Office

Created on: 19 April 2024

ECONOMIC CONDITIONS



Data Source: U.S. Bureau of Labor Statistics



Data Source: U.S. Bureau of Labor Statistics

	3-Month Average			3-Month Year-Over-Year Change			
	January 2022	January 2023	January 2024	January 2022 to January 2023		January 2023 to January 2024	
				Number	Percent	Number	Percent
Labor Force	34,911	35,354	35,198	443	1.3	-156	-0.4
Resident Employment	32,942	32,962	32,990	20	0.1	28	0.1
Unemployment Rate (%)	5.6	6.8	6.3	n/a	n/a	n/a	n/a
	September 2021	**September 2022**	**September 2023**	**September 2021 to September 2022**		**September 2022 to September 2023**	
QCEW Employment	26,891	27,335	27,874	444	1.7	539	2

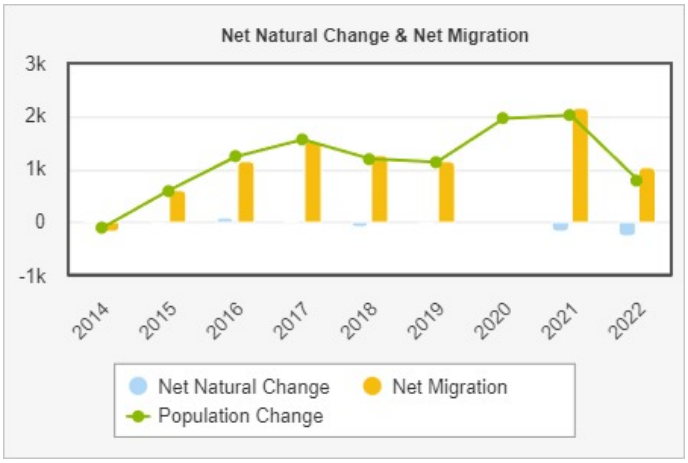
Data Source: U.S. Bureau of Labor Statistics

POPULATION & HOUSEHOLDS

	Decennial Census				ACS & Population Estimates Program						
	April 2010	April 2020	Average Annual Change 2010 to 2020		July 2020	July 2021	July 2022	2020 to 2021		2021 to 2022	
			Number	Percent				Number	Percent	Number	Percent
Population	75,455	82,149	669	0.9	82,556	84,575	85,370	2,019	2.4	795	0.9
Households	29,743	31,693	195	0.6	n/a	32,304	32,149	n/a	n/a	-155	-0.5

Data Source: 1 - 2010 Census; 2020 Census; U.S. Census Bureau Population Estimates
2 - 2010 Census; 2020 Census; 2020, 2021 and 2022 American Community Surveys (1 - Year)

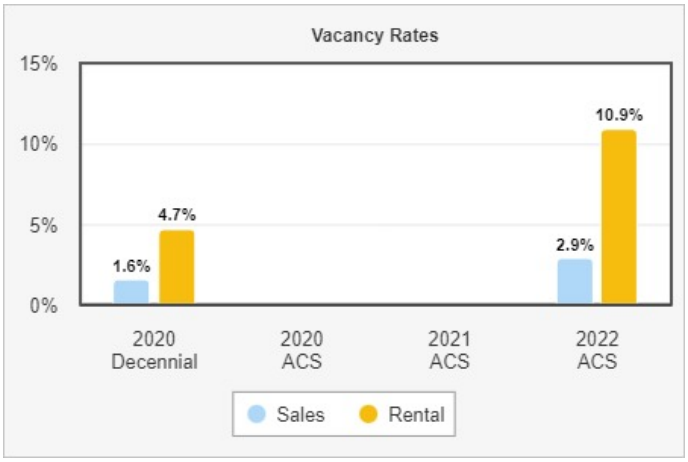
Note: 1 - Population estimates data shown here may not match those found on the Census website due to their use of the updated September 2018 OMB metro area definitions.
2 - 2019 ACS 1-Year data may not be available for some metro areas due to being dropped from the September 2018 OMB metro area definitions.



Data Source: U.S. Census Bureau Population Estimates

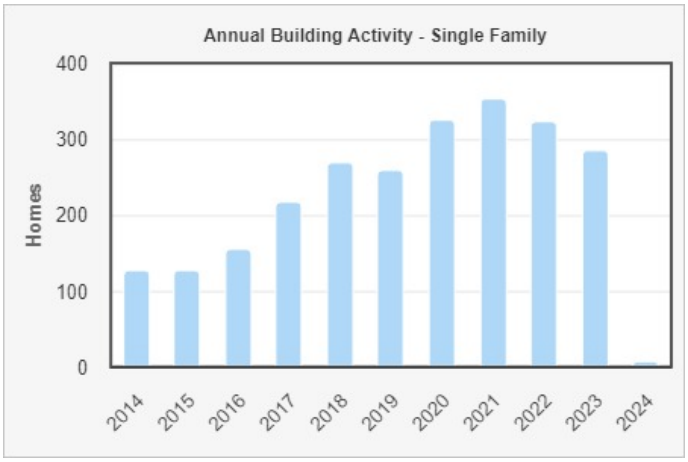
Notes: 1 - Values in chart reflect July year-to-year changes
2 - Net Migration includes residual population change
3 - Annual components of population change are not available for 2020
4 - Population estimates data shown here may not match those found on the Census website due to their use of the updated September 2018 OMB metro definitions.

HOUSING MARKET CONDITIONS



Data Source: 2020 Census; 2020, 2021 and 2022 American Community Surveys (1 - Year)

Note: 2019 ACS 1-Year data may not be available for some metro areas due to being dropped from the September 2018 OMB metro area definitions



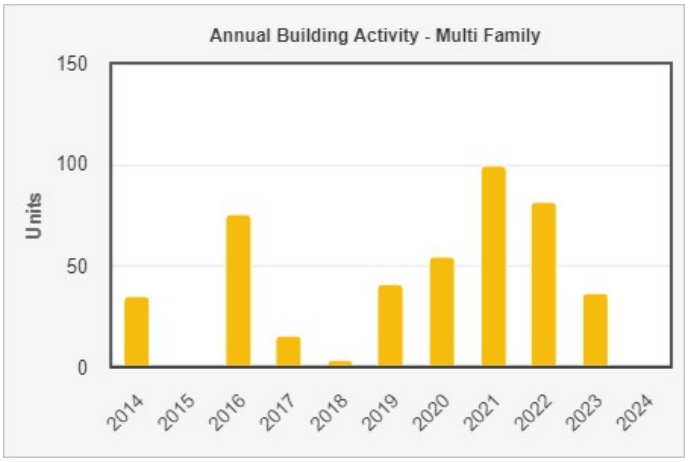
Data Source: U.S. Census Bureau, Building Permits Survey

Note: Data for 2023 and 2024 is preliminary, through January 2024

Housing Inventory by Tenure				
	2020 Decennial	2020 ACS	2021 ACS	2022 ACS
Total Housing Units	35,412	n/a	35,908	36,370
Occupied	31,693	n/a	32,304	32,149
Owners	22,510	n/a	24,370	24,788
% Owners	71.0	n/a	75.4	77.1
Renters	9,183	n/a	7,934	7,361
% Renters	29.0	n/a	24.6	22.9
Total Vacant	3,719	n/a	3,604	4,221
Available for Sale	375	n/a	n/a	745
Available for Rent	456	n/a	n/a	901
Other Vacant	2,888	n/a	n/a	2,575

Data Source: 2020 Census; 2020, 2021 and 2022 American Community Surveys (1 - Year)

Note: 2019 ACS 1-Year data may not be available for some metro areas due to being dropped from the September 2018 OMB metro area definitions



Data Source: U.S. Census Bureau, Building Permits Survey

Note: Data for 2023 and 2024 is preliminary, through January 2024

2021 Median House Prices by County - RCW 6.13.030, Section 2

COUNTY	MEDIAN PRICE
Adams	$257,900
Asotin	$250,800
Benton	$378,200
Chelan	$502,800
Clallam	$420,600
Clark	$481,600
Columbia	$256,200
Cowlitz	$362,100
Douglas	$450,000
Ferry	$229,200
Franklin	$378,200
Garfield	$250,800
Grant	$311,700
Grays Harbor	$309,900
Island	$532,500
Jefferson	$569,400
King	$838,300
Kitsap	$497,500
Kittitas	$485,400
Klickitat	$399,100
Lewis	$364,300
Lincoln	$215,600
Mason	$378,300
Okanogan	$309,000
Pacific	$303,100
Pend Oreille	$289,400
Pierce	$508,300
San Juan	$887,500
Skagit	$499,500
Skamania	$400,000
Snohomish	$676,900
Spokane	$390,200
Stevens	$289,400
Thurston	$460,500
Wahkiakum	$393,700
Walla Walla	$376,400
Whatcom	$547,400
Whitman	$355,900
Yakima	$327,200

7543 63rd Avenue NE, Building 5, Box 354928
Seattle, WA 98195-4928

Work Area Profile Analysis

Workers: *Employed in Lewis County, WA*
Showing: *Employment locations*

Total All Jobs

	2021	
	Count	Share
Total All Jobs	24,522	100.0%

Jobs by Worker Age

	2021	
	Count	Share
Age 29 or younger	5,731	23.4%
Age 30 to 54	12,526	51.1%
Age 55 or older	6,265	25.5%

Jobs by Earnings

	2021	
	Count	Share
$1,250 per month or less	4,429	18.1%
$1,251 to $3,333 per month	7,670	31.3%
More than $3,333 per month	12,423	50.7%

Jobs by NAICS Industry Sector

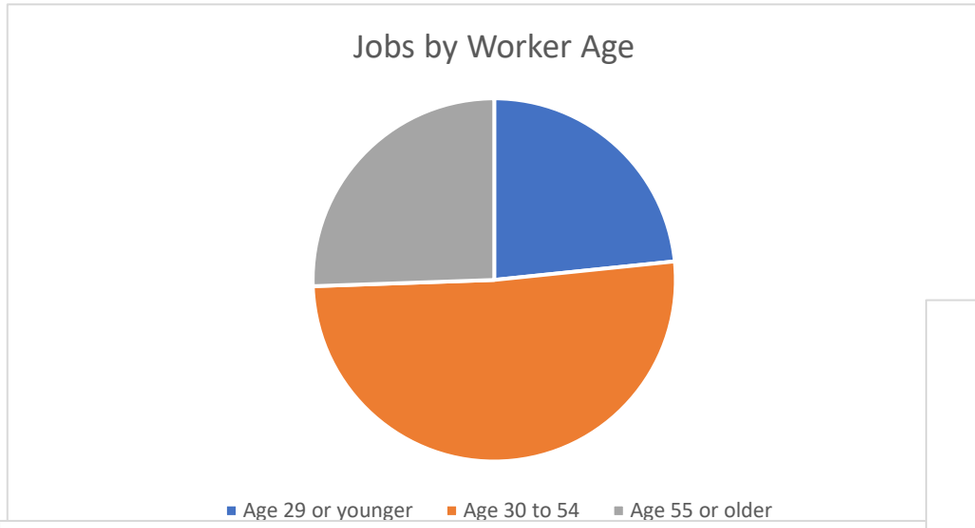
	2021	
	Count	Share
Agriculture, Forestry, Fishing and Hunting	1,002	4.1%
Mining, Quarrying, and Oil and Gas Extraction	225	0.9%
Utilities	303	1.2%
Construction	1,227	5.0%
Manufacturing	2,943	12.0%
Wholesale Trade	1,463	6.0%
Retail Trade	3,408	13.9%
Transportation and Warehousing	1,313	5.4%
Information	195	0.8%
Finance and Insurance	328	1.3%
Real Estate and Rental and Leasing	311	1.3%
Professional, Scientific, and Technical Services	497	2.0%
Management of Companies and Enterprises	77	0.3%
Administration & Support, Waste Management and Remediation	902	3.7%
Educational Services	2,587	10.5%
Health Care and Social Assistance	3,734	15.2%
Arts, Entertainment, and Recreation	164	0.7%
Accommodation and Food Services	2,125	8.7%
Other Services (excluding Public Administration)	489	2.0%
Public Administration	1,229	5.0%

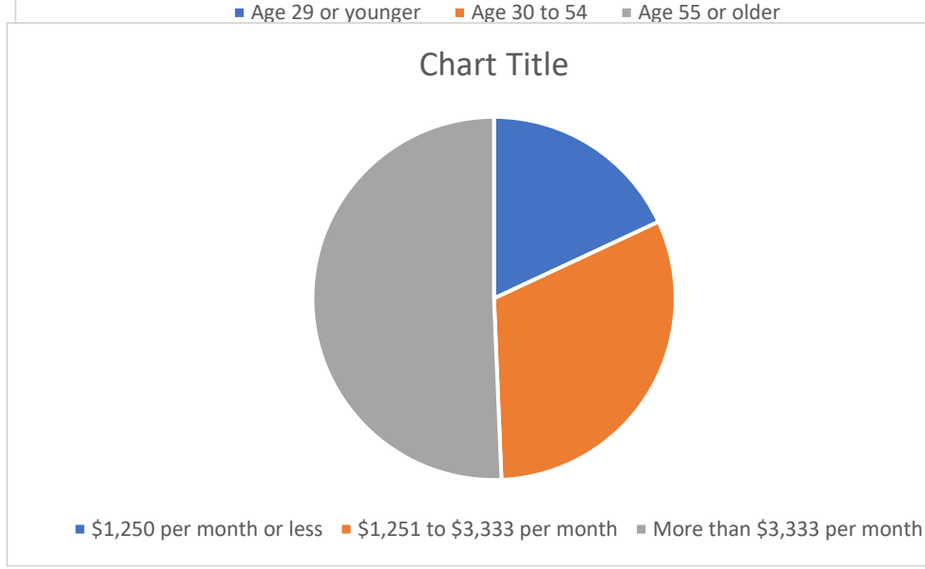
Jobs by Worker Race

	2021	
	Count	Share
White Alone	22,141	90.3%
Black or African American Alone	447	1.8%
American Indian or Alaska Native Alone	319	1.3%
Asian Alone	786	3.2%
Native Hawaiian or Other Pacific Islander Alone	84	0.3%
Two or More Race Groups	745	3.0%

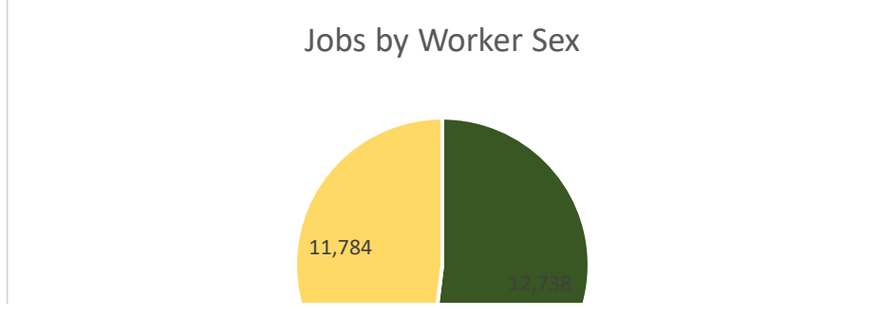
Jobs by Worker Ethnicity

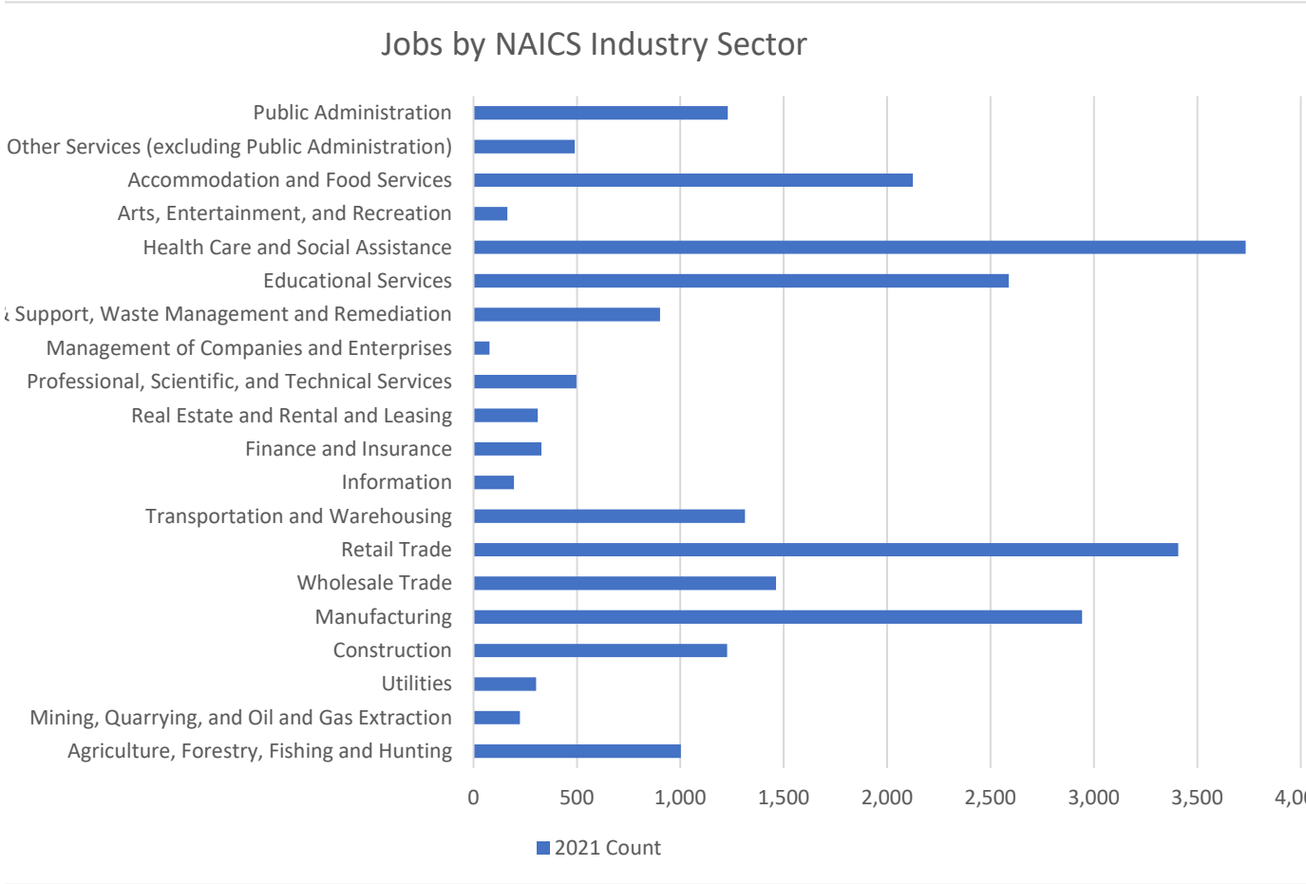
	2021	
	Count	Share





Administration &




Jobs by NAICS Industry Sector
Public Administration
Other Services (excluding Public Administration)
Accommodation and Food Services
Arts, Entertainment, and Recreation
Health Care and Social Assistance
Educational Services
Support, Waste Management and Remediation
Management of Companies and Enterprises
Professional, Scientific, and Technical Services
Real Estate and Rental and Leasing
Finance and Insurance
Information
Transportation and Warehousing
Retail Trade
Wholesale Trade
Manufacturing
Construction
Utilities
Mining, Quarrying, and Oil and Gas Extraction
Agriculture, Forestry, Fishing and Hunting
0
500
1,000
1,500
2,000
2,500
3,000
3,500
2021 Count

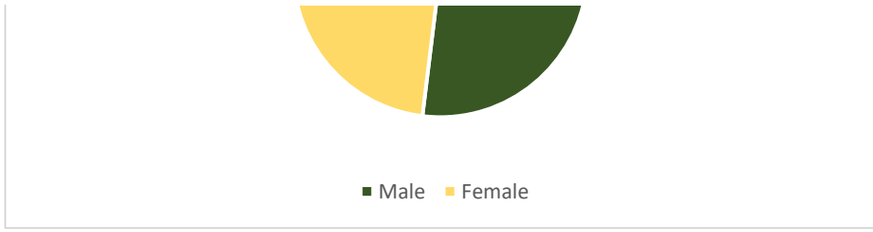
Not Hispanic or Latino	21,870	89.2%
Hispanic or Latino	2,652	10.8%

Jobs by Worker Educational Attainment

	2021	
	Count	**Share**
Less than high school	2,480	10.1%
High school or equivalent, no college	5,934	24.2%
Some college or Associate degree	6,536	26.7%
Bachelor’s degree or advanced degree	3,841	15.7%
Educational attainment not available (workers aged 29 or younger)	5,731	23.4%

Jobs by Worker Sex

	2021	
	Count	**Share**
Male	12,738	51.9%
Female	11,784	48.1%


Male
Female

MEDIAN HOME PRICES

State of Washington and Counties
Annual, 2016-2023

County	2016	2017	2018	2019	2020	2021	2022	2023
Adams	$145,900	$154,100	$160,600	$192,700	$216,900	$257,900	$299,200	$315,000
Asotin	$178,000	$197,100	$216,700	$200,000	$216,900	$250,800	$292,500	$307,400
Benton	$222,800	$244,000	$276,700	$299,800	$329,500	$378,200	$440,300	$428,500
Chelan	$275,600	$305,100	$337,200	$357,000	$418,600	$502,800	$589,200	$550,000
Clallam	$250,700	$270,300	$293,000	$309,800	$352,600	$420,600	$452,400	$474,100
Clark	$294,600	$332,800	$359,100	$371,700	$403,700	$481,600	$543,700	$541,400
Columbia	$140,000	$152,700	$162,700	$186,400	$214,700	$256,200	$269,400	$245,800
Cowlitz	$199,900	$225,600	$246,900	$275,200	$307,500	$362,100	$383,200	$397,500
Douglas	$259,000	$283,000	$318,200	$347,800	$373,200	$450,000	$458,100	$444,600
Ferry	$95,000	$146,700	$164,000	$160,000	$172,900	$229,200	$237,500	$244,400
Franklin	$222,800	$244,000	$276,700	$299,800	$329,500	$378,200	$440,300	$428,500
Garfield	$178,000	$197,100	$216,700	$200,000	$216,900	$178,000	$207,100	$270,000
Grant	$182,400	$190,500	$202,300	$227,900	$258,500	$311,700	$357,100	$336,600
GraysHarbor	$151,600	$169,400	$191,600	$215,200	$251,100	$309,900	$353,900	$346,400
Island	$316,900	$340,400	$366,000	$388,100	$442,700	$532,500	$574,300	$597,300
Jefferson	$320,200	$355,200	$371,800	$402,000	$455,900	$569,400	$606,800	$636,000
King	$566,200	$637,700	$689,900	$677,700	$729,600	$838,300	$914,300	$885,000
Kitsap	$288,400	$316,600	$346,800	$381,400	$425,100	$497,500	$539,800	$539,500
Kittitas	$259,900	$285,300	$336,000	$346,200	$411,000	$485,400	$567,500	$544,400
Klickitat	$236,600	$244,100	$270,000	$283,100	$370,800	$399,100	$387,100	$440,300
Lewis	$174,000	$199,200	$227,400	$258,700	$304,100	$364,300	$400,100	$396,300
Lincoln	$80,000	$105,000	$115,600	$142,500	$202,100	$215,600	$239,300	$239,300
Mason	$194,100	$213,600	$242,900	$271,900	$319,600	$378,300	$409,900	$401,900
Okanogan	$182,900	$198,700	$217,800	$220,400	$254,500	$309,000	$352,500	$356,400
Pacific	$143,500	$165,000	$189,100	$206,000	$234,300	$303,100	$317,400	$332,300
Pend	$156,400	$169,200	$188,000	$206,900	$242,000	$289,400	$322,800	$320,900
Pierce	$279,000	$315,700	$347,400	$372,200	$424,300	$508,300	$554,400	$537,400
SanJuan	$467,100	$516,700	$550,000	$652,000	$694,800	$887,500	$958,300	$956,800
Skagit	$287,300	$317,000	$349,900	$374,100	$421,800	$499,500	$548,200	$558,600
Skamania	$256,500	$271,600	$292,000	$323,100	$340,500	$400,000	$432,600	$463,900
Snohomish	$391,700	$439,300	$482,100	$493,000	$549,400	$676,900	$760,600	$725,700
Spokane	$207,300	$222,600	$246,200	$276,600	$318,200	$390,200	$440,000	$430,700
Stevens	$156,400	$169,200	$188,000	$206,900	$242,000	$289,400	$322,800	$320,900
Thurston	$266,100	$285,800	$315,800	$341,200	$383,600	$460,500	$502,500	$506,600
Wahkiakum	$212,500	$226,800	$240,900	$256,800	$313,900	$393,700	$412,500	$425,000
WallaWalla	$212,300	$217,900	$244,900	$260,300	$305,500	$376,400	$422,900	$414,700
Whatcom	$311,700	$343,600	$382,300	$401,300	$444,400	$547,400	$608,300	$591,900
Whitman	$228,700	$241,200	$264,100	$287,500	$291,300	$355,900	$393,000	$403,800
Yakima	$189,000	$204,200	$226,600	$249,000	$281,500	$327,200	$351,000	$350,700
Statewide	**$316,400**	**$289,100**	**$315,900**	**$397,900**	**$452,400**	**$560,400**	**$647,900**	**$613,000**

WCRER Estimates
Due to a change in data providers, home sales for Asotin and Garfield counties are reported separately starting with the 4th Quarter 2022 Housing Market Report, which affects estimates for both median price and seasonally adjusted rate of sales back to Q1 2021.

Appendix C Capital Facilities Plan

Introduction to Capital Facilities Plan

The Capital Facilities Plan is a six-year planning document showcasing existing conditions of the county's capital facilities, levels of service of each facility, and financing for new or expanding capital facilities that is updated annually. The Capital Facilities Plan is divided into county and non-county facilities and then grouped by type of facility within each division. Each grouping includes an inventory, forecast of future needs over the 20-year planning period, and financing plan for projects within the next six years. Goals and policies specific to the Capital Facilities and Utilities element are within the County's Comprehensive Plan document.

Acronyms

RCW: Revised Code of Washington
WAC: Washington Administrative Code
CFP: Capital Facilities Plan

Planning Context

Growth Management Act

This document, along with the County's Capital Facilities and Utilities Element, implements Goal 12 of the Washington State Growth Management Act ("GMA"), which provides that the County must "[e]nsure 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."

The GMA (RCW 36.70A.070) specifically requires that the county's Comprehensive Plan include a Capital Facilities Plan Element consisting of the following:

a) *An inventory of existing capital facilities owned by public entities, including green infrastructure, showing the locations and capacities of the capital facilities;*
b) *a forecast of the future needs for such capital facilities;*
c) *the proposed locations and capacities of expanded or new capital facilities;*
d) *at least a six-year plan that will finance such capital facilities within projected funding capacities and clearly identifies sources of public money for such purposes; and*

e) *a requirement to reassess the land use element if probable funding falls short of meeting existing needs and to ensure that the land use element, capital facilities plan element, and financing plan within the capital facilities plan element are coordinated and consistent.*

This Capital Facilities Plan will cover most of the requirements in a) through d) while other comprehensive plan elements (transportation element, parks and recreation element, land use element, and the economic development element) will cover the rest of d) and e).

This Capital Facilities Plan incorporates the County's 6-year Capital Improvement Plan by reference to satisfy the requirement of RCW 36.70A.070(3)(d).

Limitations of the Capital Facilities Plan

This CFP covers all County owned facilities to our best knowledge and the financing plan is updated annually in collaboration with the Department of Public Works. Lewis County is a largely rural county with some facilities (schools, fire, private utilities) serving large portions of the county with very little population. Non-County owned facilities may be difficult to collect due to the size and frequency of communication.

The GMA states that,

"The county or city shall identify all public entities that own capital facilities/utility systems and endeavor in good faith to work with other public entities, such as special purpose districts, to gather and include within its capital facilities element the information required by this subsection. If, after a good faith effort, the county or city is unable to gather the information required by this subsection from the other public entities, the failure to include such information in its capital facilities element cannot be grounds for a finding of noncompliance or invalidity under chapter 228, Laws of 2023. A good faith effort must, at a minimum, include consulting the public entity's capital facility or system plans and emailing and calling the staff of the public entity."

Pursuant to this requirement, the information gathered and displayed within this document is the information that was able to be gathered after a good faith effort in communication with each public entity that owns either capital facilities or utility systems.

Capital Facilities and Utility System Ownership Summary

County Owned	Non-County Owned
Government Services	Schools
Parks and Recreation	Fire Protection
Solid Waste Management	Electricity
Storm Drainage systems	Natural Gas
Transportation	Telecommunications
Wastewater Systems	Water Systems (all other major systems)
Water Systems (Only Vader)	

County Owned Capital Facilities

Government Services

Overview

The government of Lewis County operates several facilities including court buildings, law enforcement, health services, shelters, and storage facilities.

General government buildings are primarily located in downtown Chehalis, while specialized services such as Senior Centers are spread more throughout the county. Each of the facilities operated by the county are listed in **Table CF- 1** and shown in Figure 11.

Existing Inventory

Table CF- 1. Government Services Inventory

Building Name	Address	Location	Ownership*	Built	Square Feet
GENERAL GOVERNMENT					
Courthouse	351 NW North Street	Chehalis	OO	1927	57,166
Health Service Building	360 NW North Street	Chehalis	OO	1953	17,524
Law & Justice Center/Annex	345 W Main	Chehalis	OO	1978	67,054
Motor Pool	476 W Main	Chehalis	OO	1956	10,714
Jail	28 SW Chehalis Ave.	Chehalis	OO	1986	66,964
Evidence/Coroner Building	585 Center Street	Chehalis	OO	1950	18,312
Facilities Building	571 NW Prindle St.	Chehalis	OO	1950	14,000
Public Works/Community Dev.	2025 NE Kresky	Chehalis	OO	1987	12,650
Brick House	19 SW Cascade Ave	Chehalis	OO	1935	2,745
LCSO East County Substation	8901 US Hwy 12	Glenoma	OO	2024	2,232
Unused Building	185 NW Chehalis Ave.	Chehalis	OO	2020	6,000
Community Development	123 NW Chehalis Ave.	Chehalis	OO	2020	11,000
Public Works	57 W Main St	Chehalis	OO	2021	10,055
Night by Night Shelter	2015 Kresky Ave	Chehalis	OO	2022	6,780
Extension Office	17 Cascade	Chehalis	OO	1954	2,269
Lewis County Animal Shelter (Including Storage)	560 Centralia - Alpha Road	Centralia	OO	1980	2,688
Youth Service Center	1255 SW Pacific	Chehalis	OO	1979	18,576
Drug Court House	1258 SE Washington Ave	Chehalis	OO	2022	3,422
SENIOR CENTERS					
Twin Cities Senior Center, Outside Office, and Storage Building	2545 N National Ave	Chehalis	OL	1983	9,788
Morton Senior Citizen Center	103 Westlake Ave (At 1st Ave)	Morton	OL	1983	4,616
Olequa Senior Center	119 SW Kerron	Winlock	OL	1987	4,944
Packwood Senior Center and Storage Building	12931 US Hwy 12	Packwood	OL	1983	4,068

Building Name	Address	Location	Ownership*	Built	Square Feet
Toledo Senior Citizen Center	150 Coal Street	Toledo	OL	1981	4,376

**OO – Owned and Occupied by County, OL – Owned by County and Leased, LH – Not Owned by County and Leased*

Levels of Service

Text.

Future Needs

Government services needs are outlined within the 6-year financial plan in **Table CF- 6**.

Park and Recreation Facilities

Overview

Lewis County contains several parks and recreation facilities (see **Figure 19**). These facilities include parks operated by the federal government, Washington State Parks, Washington Department of Fish and Wildlife, Tacoma Power, Lewis County Public Utility District #1 (PUD), the incorporated cities of the county, and a variety of other agencies.

Existing Inventory

Lewis County owns and operates four parks, two historic museums, and a parks maintenance shop (shown in **Table CF- 2**). The county does not coordinate with other agencies, beyond the general review of permits, on their plans for parks and open space.

Table CF- 2. Parks and Recreations Inventory

Facility Name	Acreage	Address	Location	Facilities
COUNTY PARKS				
South County Park	43.0	212 Ray Road	Toledo	Swimming, fishing, boating, playground and picnic area
Schaefer Park	14.0	822 SR 507	Centralia	River swimming, fishing, group use, playground, picnic area

Facility Name	Acreage	Address	Location	Facilities
Rose Park	20.9	263 Penning Road	Chehalis	Covered picnic/kitchen area, picnic area, playground, volleyball area, horseshoe pit, trail with exercise stations
Back Memorial Park	5.0	146 Dieckman Road	Chehalis	Track, ball fields, playground, and picnic area
Cowlitz River Park	3.5	105 Alta Dr	Packwood	Picnic area, swimming, walking trail, and river access for hand-carried boats
HISTORIC BUILDINGS				
Claquato Church	600 sf	125 Water Street	Chehalis	Historic place museum
St Urban Church	1,656 sf	Military Road	Winlock	Historic building
PARKS MAINTENANCE AND STORAGE				
Onalaska Parks Shop	5,544 sf	951 Hwy 508	Onalaska	Storage and maintenance building

Levels of Service

Text.

Future Needs

The Packwood Park System was identified in the 6-Year capital plan for improvements. The cost, funding source, and expected timing of improvements can be found in **Table CF-2**.

Solid Waste Management Facilities

Overview

Lewis County provides municipal and household solid waste disposal for area residents. The County's Solid Waste Services operates two transfer stations (one in Centralia and the other just east of the City of Morton). Businesses and residential customers may haul their solid waste or recycling to one of the transfer stations, or have their trash collected by private companies as part of a curbside pickup program.

Trash collected in Lewis County is ultimately disposed in Wasco County Landfill in Wasco County, Oregon.

Existing Inventory

Each transfer stations have various accessory buildings to support the stations including office buildings, employee buildings, and storage sheds. Capacity, levels of service, and waste generation rates are analyzed within the County's Solid and Hazardous Waste Management Plan, which is incorporated by reference. **Table CF- 3** gives a summary of existing County owned solid waste facilities.

Table CF- 3. Solid Waste Facility Inventory

Facility Name	Address	Location	Site Area (Acres)	Building size (Square Feet)
SOLID WASTE TRANSFER STATIONS				
Centralia	1411 South Tower Avenue	Centralia	88.50	12,280
Morton	6745 U.S. Hwy 12	Morton	6.98	8,600
ACCESSORY BUILDINGS				
Centralia	1411 South Tower Avenue	Centralia	88.50	6,648
Morton	6745 U.S. Hwy 12	Morton	6.98	399

Levels of Service

See Lewis County Solid and Hazardous Waste Management Plan.

Future Needs

A new transfer station is proposed to be built within the planning period to serve the growing needs of the population in the south part of the County. Estimated funding needs and source of the funding to complete the construction of the new transfer station is still under analysis.

The new transfer station is mentioned in **Table CF-3** as "South County Transfer Station".

Transportation Facilities

Overview

Lewis County operates a variety of facilities that are utilized to maintain existing county transportation infrastructure. These facilities include shop buildings, sand sheds, and pits and quarries, which help to provide materials for area roads. A complete list of these facilities is provided in **Table CF- 4**.

Existing Inventory

Roads, airports, rail, transit and non-motorized transportation are not included in this CFP because the County's Transportation Element includes an inventory and level of service analysis, and the six-year Transportation Improvement Program ("TIP") includes a financing plan. These plans are incorporated by reference.

Table CF- 4. Transportation Facilities Inventory

Building Name	Address	Location	Ownership*	Built	Square Feet
Road Shops, Pits and Quarries, and Sand Sheds					
Central Shop	109 Forest Napavine Road	Chehalis	OO	1955	17,664
Central Shop - Welding Shop	109 Forest Napavine Road	Chehalis	OO	1980	2,200
Equipment Storage - Truck Garage	109 Forest Napavine Road	Chehalis	OO	1957	7,200
Traffic Control	109 Forest Napavine Road	Chehalis	OO	1980	8,300
Bridge Shop	109 Forest Napavine Road	Chehalis	OO	1970	7,764
Wash Rack	109 Forest Napavine Road	Chehalis	OO	1998	1,400
Area Shop 1	148 Big Hanaford Road	Centralia	OO	1970	8,750
Bunker Garage and Shop #2	307 Spooner Road (SR-6)	Chehalis	OO	1961	6,870
Sand/Rock Shed	307 Spooner Road (SR-6)	Chehalis	OO	1999	2,400
Vehicle Wash Building	307 Spooner Road (SR-6)	Chehalis	OO	2010	90
Area Shop # 3	111 Pleasant Valley Road	Winlock	OO	1987	10,222
Area # 5 Road Shop - Vegetation	162 Brim Road	Ethel	OO	1992	2,952
Area #5 Road Shop	162 Brim Road	Ethel	OO	2016	20,060
Area 7 Administration/Shop Building	8911 US Highway 12	Randle	OO	2015	9,828
Vehicle Storage/Wash Rack Building	8911 US Highway 12	Randle	OO	1986	4,040
Sand Shed	8911 US Highway 12	Randle	OO	2004	2,400
Sheriff Storage	187 Kirkland Road	Chehalis	OO	1967	6,346
Toledo Sand Shed	134 Collins Road 125	Toledo	OO	1964	1,300
South County Airport Board Room	5235 Jackson Hwy	Toledo	OO	1960	1,002
South County Airport Hangar #5 50x160 Metal Building	5235 Jackson Hwy	Toledo	OO	1960	7,680
Airport Admin Building and MBR Building	5239 Jackson Hwy	Toledo	OO	2011	3,456
Lighting Control Building	5239 Jackson Hwy	Toledo	OO	2011	192
Packwood Airport	0 Main St W	Packwood	OO	1994	2,400

**OO – Owned and Occupied by County, OL – Owned by County and Leased, LH – Not Owned by County and Leased*

Levels of Service

Transportation-related facilities are built and leased on an as-needed basis to maintain the county's more specific road levels of service (details and methodology can be found in the transportation element of the comprehensive plan).

Future Needs

There are renovations identified and planned for the Central Shop. The cost, funding source, and expected timing of improvements can be found in table CF-X. A full list of planned transportation improvements, extensions, and rehabilitations can be found in the Transportation Improvement Program (separate cover).

Water Systems

Overview

Lewis County is served by several public and private water utilities (see Map CF-4). Of these utilities, Group A water systems are the largest and:

- Have 15 or more service connections, or
- Serve 25 or more people 60 or more days per year.

These Group A water systems are required to prepare a Water System or Small Water System Management Plan to assist in the future planning for their facilities.

Lewis County only directly provides water service to the City of Vader (as a result of a Superior Court decision in 2010) but does review the water plans of each of the Group A systems to ensure consistency with the County's Comprehensive Plan and Countywide Planning Policies.

Due to the volume and complexity of information contained within these various plans, an inventory of existing facilities, necessary improvements, and financing information is not repeated within this Capital Facilities Plan. Instead, a list of basic information about the non-municipal major water systems is provided in **Table CF- 5**.

Copies of the Water System Plans for Group A systems are kept on file with the Lewis County Community Development Department and considered a key component of the background data that has been reviewed in the development of this Comprehensive Plan.

Existing Inventory

Table CF- 5. Large Water System Inventory

System	General Information		Connections		Source
	Plan Date	Governance	Existing	Approved	Water Source
Boistfort Valley Water	2024	Private	850	1,210	Little Mill Creek, Chehalis River, groundwater well
LCWD #1 – Randle	2024	Special District	116	142	Groundwater wells
LCWD #2 – Onalaska	2017	Special District	220	435	Groundwater wells
LCWD #3 – Packwood	2018	Special District	320	486	Groundwater wells
LCWD #5 - Middle Fork Water Sewer System	2020	County	17	100	Groundwater wells
LCWD #6 – Lake Mayfield Village	2006*	Special District	262	270	Groundwater wells
Vader-Enchanted Valley	2016	County	365	369	Cowlitz River

**Updated water system plans were not available, but updated information was obtained from direct communication with District Operator.*

Levels of Service

Each water system plan has detailed methodologies for levels of service specific to each district. These methodologies can be found in specific water system plans.

Future Needs

Regular water pipe maintenance and flushing is planned in the 6-year finance plan. Each specific water district has a detailed list of planned projects to maintain levels of service within their water system plan.

Packwood Water and Sewer systems are in the process of being improved in two phases to establish infrastructure to accommodate the Packwood UGA future growth established in the Land Use and Housing Element. The first phase of the improvements are funding, Lewis County will need to acquire.

Lewis County is working with Onalaska Water and Sewer to make infrastructure improvements in order to provide adequate capacity for growth. These improvements are part of the 20-year capital facilities plan.

Wastewater Systems

Overview

Lewis County reviews the sewer plans of jurisdictions and districts within the county. Review of these plans considers the growth forecasts used to project future wastewater flows and the management of areas that are outside incorporated communities and their urban growth areas. The sewer plans are specifically reviewed to ensure that: the district's planning area boundaries are consistent with UGA boundaries and to make sure that urban areas are adequately planned for future service.

Existing Inventory

Beyond the wastewater treatment facilities located in incorporated jurisdictions, six water/sewer districts operate in Lewis County.

Lewis County Water/Sewer District 1 – Randle
District 1 serves the Randle area. At present, the district does not have any facilities to treat wastewater.

Lewis County Water/Sewer District 2 – Onalaska
District 2 serves the Onalaska area. The district operates a wastewater treatment facility with an annual average capacity of 107,000 gallons per day (gpd). The system is detailed further in the subarea plan for Onalaska.

Lewis County Water/Sewer District 3 – Packwood
District 3 serves the Packwood community. The district adopted a Wastewater Facility Plan in 2013 and is in the process of developing a sewer treatment system.

Lewis County Water/Sewer District 4 – Chehalis
District 4 serves the south Chehalis area. Wastewater from the system is treated at the Chehalis Regional Water Reclamation Facility.

Lewis County Water/Sewer District 5 – North Onalaska
District 5 serves the Birchfield area. Wastewater from the system is proposed to be treated by Water/Sewer District 2.

Lewis County Water/Sewer District 6 – Lake Mayfield
District 6 serves the Lake Mayfield Resort and the Mayfield Village LAMIRD. Wastewater from the area is treated at a small treatment plant along the shoreline of Mayfield Lake. The wastewater treatment plant is at capacity and no new growth is allowed or expected at this time in the Lake Mayfield community.

Levels of Service

Each sewer system plan has detailed methodologies for levels of service specific to each district. These methodologies can be found in the specific system plans.

Future Needs

Each specific sewer district has a detailed list of planned projects to maintain levels of service within their system plan.

Packwood Water and Sewer systems are in the process of being improved in two phases to establish infrastructure to accommodate the Packwood UGA future growth established in the Land Use and Housing Element. The first phase of the improvements are funding, Lewis County will need to acquire. These improvements are part of the 20-year capital facilities plan.

Lewis County is working with Onalaska Water and Sewer to make infrastructure improvements in order to provide adequate capacity for growth. These improvements are part of the 20-year capital facilities plan.

6-Year Financing Plan Summary

Lewis County maintain an annually updated 6-year capital plan for county owned capital facilities and utility infrastructure. The 6-year Capital Plan and 6-year Transportation Improvement Program are supplementary to each other. **Table CF- 6** shows a snapshot of the planned projects and funding sources in the 2025-2030 Lewis County Capital Plan.

Table CF- 6. 6-Year Financing Plan Snapshot (all amounts in $1,000s)

Project	Total Estimated Cost	Funding Source	2025	2026	2027	2028	2029	2030
GOVERNMENT SERVICES								
Courthouse campus yearly maintenance and improvements	350/yr	REET	350	350	350	350	350	350
Health building parking lot improvements	1,200	Bond/ REET	1,200					
Health Building HVAC and window improvements	2,000	Grant/ REET	650	650	700			
IT Building renovation/ conversion	1,250	Bond/ REET	300					

Project	Total Estimated Cost	Funding Source	2025	2026	2027	2028	2029	2030
and extensions		Grant						
New animal shelter	3,125	Donations	TBD					
Code revisions for Drug Court Transitional Shelter	40	Drug Court funds	TBD					
Night by Night temporary and permanent shelter renovations	2,200	State Cap budget	1,500					
PARKS AND RECREATION								
Yearly parks and fairgrounds maintenance and improvements	500/yr	REET/ Grant	500	500	500	500	500	500
Fairgrounds master plan projects	TBD	REET/ Grant	TBD					
Equestrian Center engineering plans	200	State Cap budget	200					
Packwood Park system	5,000	REET/ Grant	TBD					
OTHER								
Solid Waste: South County Transfer Station	TBD	TBD	TBD					
Waterline rehabilitation	1,250	ARPA	500					

Plans Used for County Owned Facilities

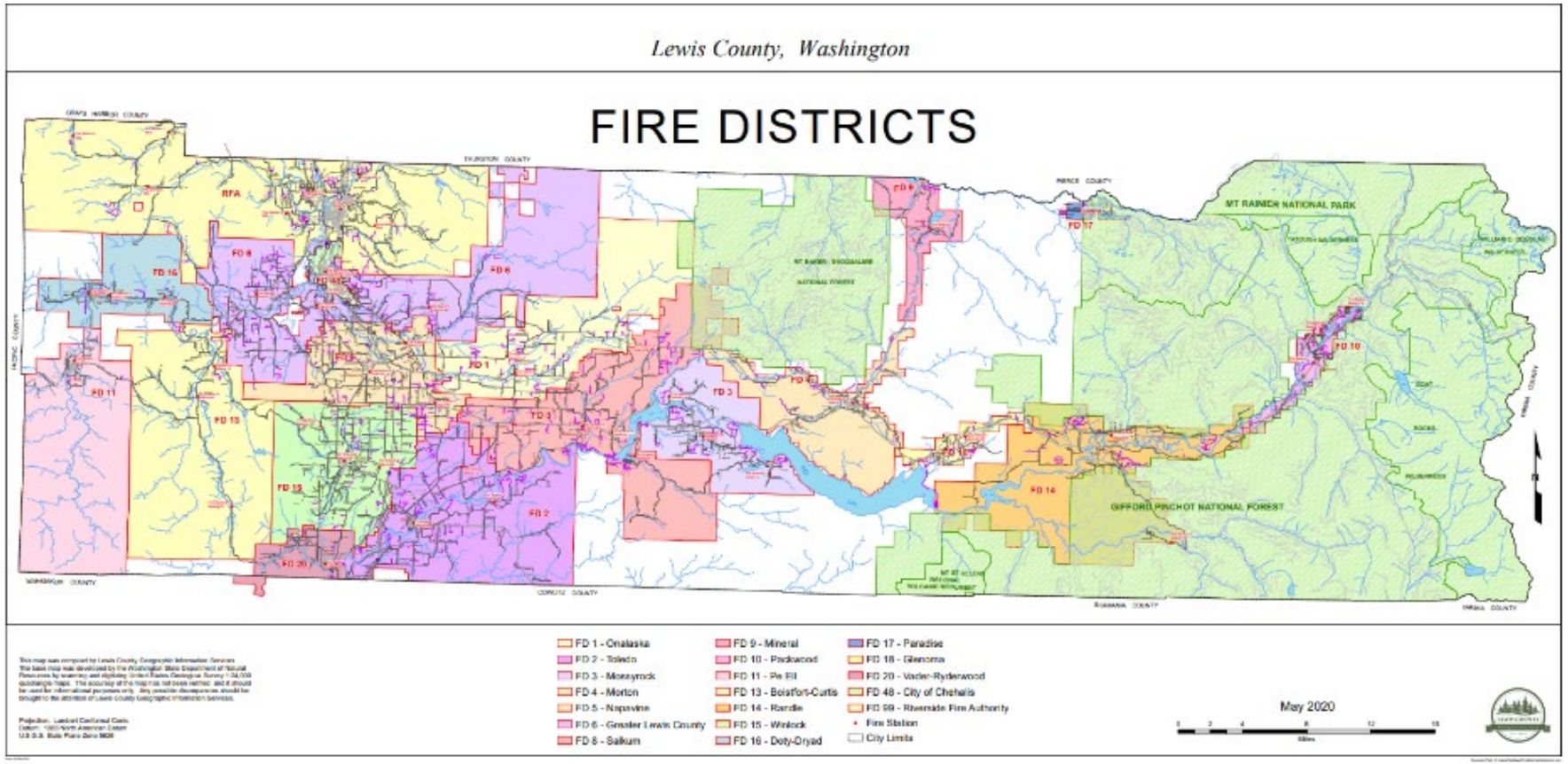
- Lewis County 6-Year Capital Plan and Inventory (excel file)
- Lewis County 6-Year Transportation Improvement Program, 2024
- Vader-Enchanted Valley Water System Plan, 2016
- Lewis County Solid and Hazardous Waste Management Plan, 2023

Non-County Owned Capital Facilities

Fire Districts

Overview

Lewis County contains 18 fire districts. The fire districts serve both unincorporated Lewis County and incorporated cities. Fire District 17 is currently managed by Pierce County Fire District 23 which services approximately 67 square miles in Pierce County in addition to the Fire District 17 service area.



Existing Inventory

A complete inventory of each fire district serving Lewis County is in the County's 2024 Hazard Mitigation Plan. **Table CF- 7** below is a summary of the inventory for each fire district.

Table CF- 7. Fire District Inventory Summary

Fire District	Number of Stations	Staff		Service Area		Facility Inventory			
	Fire stations	Paid Staff	Volun-teer	Population Served	Service Area (sq mi)	Fire Units	EMS Units	Command/ Support	Other
#1	3	6	15	3,573	82	Engine-3 Brush-2 Tender-1	Ambulance-3 Rescue-1	3	Smoke trailer-1 Antique engine-1 Picnic truck-1
#2	3	10		5,400	98	Engine-3 Brush-2 Tender-2	Ambulance-1 Aid-1	2	Watercraft-1 Watercraft Trailer-1 Supply Trailer-1
#3	3	2	20	2,255 (6,500 in summer)	49	Engine-3 Tender-2 Brush-2	Ambulance-2	2	Flatbed Trailer-2 Mowers-2
#4	1	6	10	2,000	70	Engine-2 Tender-2 Brush-2	Ambulance-1 Rescue-2		
#5	3	10	10	9,500	70	Engine-4 Brush-3	Ambulance-3	Staff vehicle-1	
#6	4	13		8,572	145	Engine-5 Tender-2 Brush-1	Ambulance-2	Support/ Staff vehicle-2	Trailers-3
#8	5	10	30	4,200	188	Engines-3 Tenders-3 Engine/ Tender-2	Ambulance-3	3	
#10	3	14		4,400 (30,000 seasonally)	360	Engine-5 Brush-2	Ambulance-2	Aircraft Rescue Truck-1	
#14	2	2	18	3,500	105	Engine-4 Tender-2	Ambulance-3	Staff vehicle-2	
#15	3	14	2	5,000	42	Engine-2	Ambulance-2		

Fire District	Number of Stations	Staff		Service Area		Facility Inventory			
						Tender-1 Brush-2			
#20	2	0	8	2,000	11	Engine-2 Tender-2 Brush-2	Ambulance-2	Command Car-1 Other support vehicles-2	Trailer-1
#48 Chehalis	1	14	0	7,439	5.88	Engine-3 Ladder-1	Aid-1		
#99 RFA	8	31	65	28,000	184	Engine-12 Tender-4 Aerial apparatus-1	Ambulance-5	Support vehicles-8	

Levels of Service and Future Needs

Each fire district has their own analysis of the levels of service that work best for their service area. Each district plans improvements and new apparatus purchases as they are needed to best serve the population they serve and maintain those levels of service. See specific Fire District capital plans for specific information. That information is not repeated within this capital facilities plan but was used as guidance for land use and policy revisions.

School Districts

Overview

Lewis County contains 13 public school districts.

As part of this plan, Lewis County has reviewed each of the school district's adopted facility plans and summarized the school districts' inventories of school capacities and enrollment.

Existing Inventory

Table CF- 8. Lewis County School District Inventory Summary

School District	School Name	School Details		Year Built/Notes
	Name	Current Enrollment	Max Capacity*	
Adna	Adna Elementary	258		1980
	Adna Middle/High	362		1992
Boistfort	Boistfort	274		1936
Centralia	Centralia High	1000	1200	2019
	Centralia Middle	500	600	1906
	Edison	330	400	1889
	Jefferson Lincoln	410	550	2019
	Fords Prairie	400	550	2019
	Oakview	195	450	1978
	Washington	220	400	1950
Chehalis	Chehalis Middle	635	643	1988
	James W. Elementary	591	612	2018
	Orin C. Elementary	665	612	2019
	W.F. West High	912	1190	1950
Evaline	Evaline Elementary	50	60	1925
Mossyrock	Mossyrock Elementary	321		1938
	Mossyrock Junior/Senior High	279		1956
Napavine	Napavine High	390	395	1980
	Napavine Elementary	395	400	1951
Onalaska	Onalaska Elementary	388		1957
	Onalaska Middle	199		1987
	Onalaska High	265		1977
Pe Ell	Pe Ell	267	625	1956
Toledo	Toledo Elementary	436	363	1955
	Toledo Middle	194	223	1930

School District	School Name	School Details		Year Built/Notes
	Name	Current Enrollment	Max Capacity*	
	Toledo High	277	429	1978
White Pass	White Pass Elementary	210	265	1964
	White Pass Junior/High	148	228	2010
Winlock	Winlock Elementary	415	426	1949
	Winlock Middle/High	408	628	1974

**Max/Permanent Capacity data from some schools was not available.*

Levels of Service and Future Needs

Each School District has they own facility plan which has a detailed analysis of enrollment projections, planning projects, and levels of service. That information is not repeated within this capital facilities plan but was used as guidance for land use and policy revisions.

Electricity

Overview

Lewis County Public Utility District No. 1
Lewis County Public Utility District No. 1 (LCPUD) serves all of Lewis County, except the City of Centralia and areas covered by Centralia City Light. The utility provides electricity to over 35,000 individual electric meters. Roughly 84 percent of the energy came from hydropower.

The utility district owns and operates the Cowlitz Falls Hydro Project. The facility:

- Produces an average of 260,000 Mwh of electricity annually.
- Was developed through a partnership between the PUD and the Bonneville Power Administration (BPA). Under the partnership, the district owns the dam, and the BPA purchases the annual output of the facility under a long-term contract which is set to expire in 2032. In exchange for the output of the dam, the BPA pays all costs associated with the operation and maintenance of the facility. Starting in 2032, it is assumed that the Project will be used to serve LCPUD load.

In addition to the Cowlitz Falls Project, the utility has collaborated on or purchased energy shares from a variety of alternative energy projects such as the Packwood Hydro project, the Burton Creek Hydro project, and the 9 Canyon and White Creek Wind projects.

From LCPUD's 2024 Integrated Resource Plan: *"LCPUD is currently meeting the energy demands of its customers with 90% carbon-free electric power, primarily sourced from the FCRPS. On an average energy basis, LCPUD's currently contracted resources are projected to meet or exceed its load throughout the 20-year IRP study horizon. However, on a capacity basis, LCPUD is already at a deficit of roughly 40 MW in winter months relative to the current requirements of the WRAP. Over the 20-year time horizon modeled in this study, load growth is forecast to grow this winter deficit to roughly 105 MW and to cause a summer deficit of up to 80 MW unless LCPUD procures additional capacity resources.*

This analysis concludes that energy storage resources, such as Lithium-Ion batteries, in combination with small additions of wind and market purchases, would be the most economical technology solution to address these deficits, given current regulatory requirements and technology costs. Energy storage resources are particularly well-suited to LCPUD's needs because the utility is deficit on capacity, but adequate on total energy."

Centralia City Light

Centralia City Light supplies power to approximately 10,000 customers in the City of Centralia and nearby areas, including Cooks Hill, Seminary Hill, and Salzer Valley. Of these customers, roughly 84 percent are residential uses, and 16 percent are commercial or industrial uses. Per the 2022 Centralia City Light Resource Plan, the Utility receives federal power from the Bonneville Power Administration (BPA), non-federal power from Northwest Energy Management Services (NEMS), and power from its own Hydroelectric Generation plant in Yelm. In 2021, the Utility had 30.704 aMW of total resources available to serve its TRL. BPA resources provide 75 percent of the available resource to the Utility. Non-federal resources contributed 13 percent. The Utilities Yelm Hydroelectric plant provides 11 percent. The remaining 1 percent comes from Conservation and Renewables.

Natural Gas

Overview

Puget Sound Energy offers natural gas service to nearly 800,000 gas customers in six counties, including consumers in Centralia, Chehalis, Toledo and Winlock. Gas is purchased from regional suppliers and transmitted to customers through local mains and service lines.

All of the natural gas consumed by homes and businesses in the Pacific Northwest comes from western Canada and the U.S. Rocky Mountain states. The majority of this natural gas moves straight to the customer through a network of pipelines, local gas mains, and other utility infrastructure. Northwest consumers, however, also receive a significant share of their natural gas supply—mainly in winter—from underground storage reservoirs.

Puget Sound Energy co-owns and operates the Northwest's largest natural gas storage reservoir, the Jackson Prairie Underground Natural Gas Storage Facility in Lewis County, about 10 miles south of Chehalis. The Jackson Prairie facility is able to store 25 billion cubic feet of working natural gas, with a total storage of 47 billion cubic feet, and is capable of delivering 1.15 billion cubic feet of natural gas per day – enough to meet the peak wintertime natural gas consumption of the 1.2 million households in the Northwest.

PSE and its commercial, sister company Puget LNG, co-own a Liquefied Natural Gas (LNG) facility at the Port of Tacoma. Commissioned in 2022, the facility has the ability to liquefy up to 250,000 gallons of LNG a day and store the product in an 8-million gallon LNG storage tank. This stored gas supply resource can then both serve PSE's natural gas customers and provide fuel to maritime vessels and trucks. The facility is designed to the highest safety standards, including to withstand a once-in-every-2,450-year earthquake.

Telecommunications

Overview

A variety of telecommunications providers offer service in Lewis County. Ongoing changes in cellular and fiber technology have transformed the delivery of telecommunications, and these shifts in equipment and providers have contributed to an industry that offers several options for customers. Anticipating future characteristics given these swiftly shifting conditions is near impossible.

Telecommunication providers are regulated by federal, state and local jurisdictions, and the County often reviews components of the service provision through the development review process.

Moving into the future, improvements to telecommunication infrastructure and services will play an increasingly important role in strategies for transportation demand management and rural economic development in Lewis County. These strategies will require the continued commitment to the development of telecommunications technology throughout the County, especially in underserved areas.

Appendix D Transportation Technical Appendix

ADA Transition Plan

As of 2023, Comprehensive Plans in Washington are required to establish a transition plan for transportation as required in the Americans with Disabilities Act Title II. Perform self-evaluations of current facilities and develop a program access plan to address deficiencies and achieve the identification of physical obstacles, establish methods, perform modifications and identify leadership roles.

At a minimum, the plan must meet the requirements state in 28 CFR 35.150(d)(3) as follows:

1. Identify physical obstacles in the public entity's facilities that limit the accessibility of its program or activities to individuals with disabilities.
2. Describe in detail the methods that will be used to make the facilities accessible.
3. Specify the schedule for taking the steps necessary to achieve compliance with this section. And, if the time period of the transition plan is longer than one year, identify steps that will be taken during each year of the transition period.
4. Indicate the official responsible for the implementation of the plan. [27]

Identify Physical Obstacles

During the periodic update an initial assessment of existing pedestrian facilities was completed. It is intended that this first dataset established in this plan will be reviewed and expanded in the next few years to development a complete dataset.

The following facilities under Lewis County's Jurisdiction were inventoried using Google Earth:

- Intersections
- ADA Facilities in the Public Right of Way
- ADA Facilities at Lewis County Owned Buildings
- Sidewalks
- ADA Parking Stalls
- Crosswalks
- Crosswalk Signals or Lights

[27] *Revised Code of Washington 36.70A.070 (6)(a)(iii)(G) https://app.leg.wa.gov/RCW/default.aspx?cite=36.70A.070*

The following attributes were assigned to each feature identified:

- Land Use Designation – See the Land Use Element for designations.
- Urban Growth Area – Identifies whether the feature is in an Urban Growth Area or unincorporated rural Lewis County.
- ADA Compliance (ADA Comp) – Notes whether the feature is compliant with current ADA standards.
- Pedestrian Facilities – Notes whether the feature is a pedestrian facility in the public right of way.
- Priority – Signifies a low, medium, or high priority for improvements. Facilities with high priorities were in Urban Growth Areas or near public facilities.

Most of the local roads in the County do not have any side treatments of sidewalk, curb, or gutter, it is unlikely these roads will receive such treatments therefore these facilities were not reviewed during the analysis.

Gaps

In Urban Growth Areas and near public facilities there are large gaps in ADA facilities, there are little existing facilities to be improved to current standards.

No field work was performed for this initial analysis, Lewis County will assess high priority facility improvements out in the field before moving forward with implementation of projects.

Park facility improvements are typically included in Parks and Recreation plans and therefore park ADA facilities were not reviewed during this process. See the Lewis County Parks and Recreation Open Space Plan on the Lewis County website.

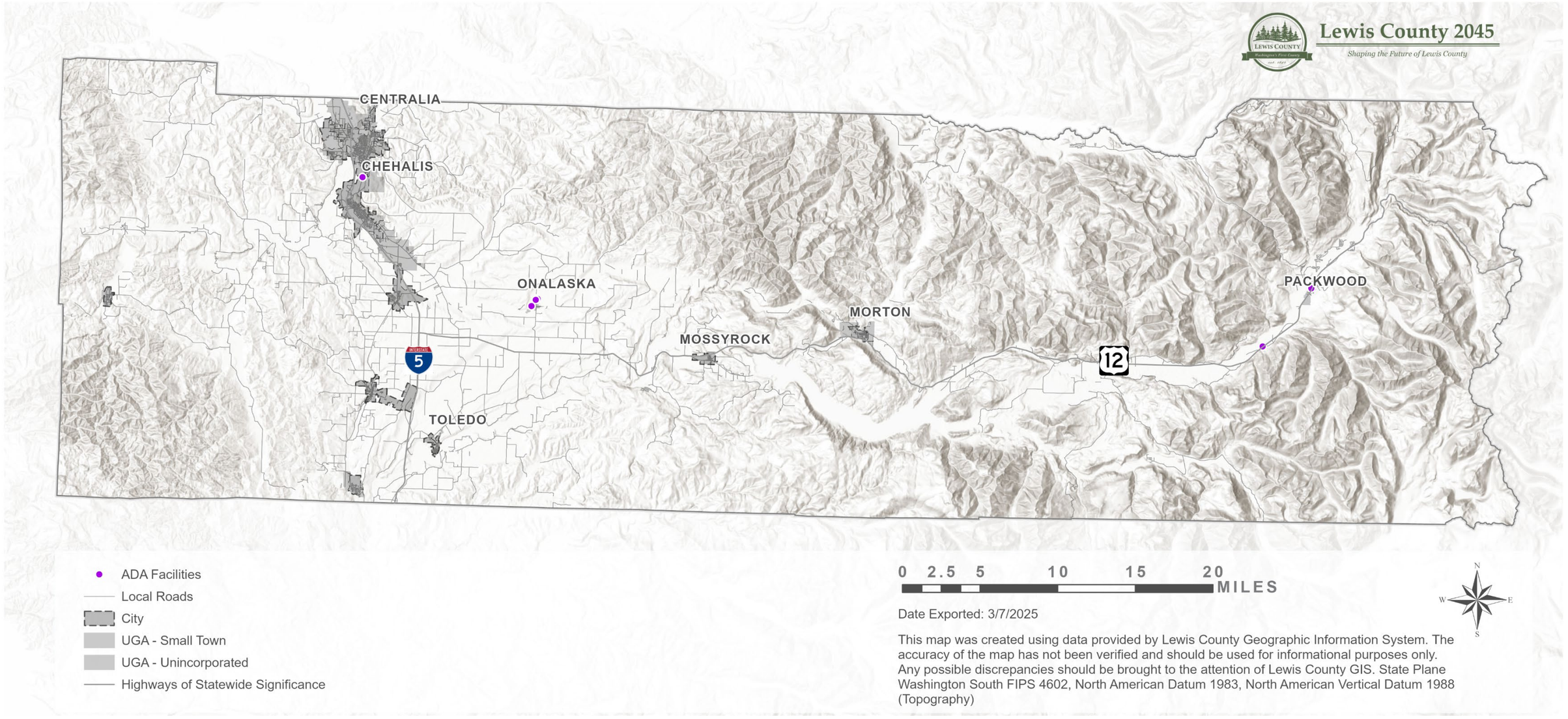
Schedule

Lewis County will prioritize ADA improvements based on greatest need and proximity to Urban Growth Areas or other dense rural areas or facilities with a high volume of visitors, like senior centers. Lewis County will also prioritize ADA facilities that are necessary for climate hazard mitigation or evacuation routes as identified by the Department of Emergency Management.

Implementation

The Public Works department will continue to revise inventory of existing ADA facilities and incorporate transition of ADA in order or highest need for users based on levels of service and proximity to public facilities.

FIGURE 20 PRELIMINARY ASSESSMENT OF ADA FACILITIES



Appendix E Community Engagement Summary Report

Available online only at https://lewiscountywa.gov/documents/16670/2025-06-30_Lewis_County_2045_Engagement_Summary.pdf



Lewis County 2045

Shaping the Future of Lewis County



Public Engagement Results

Updated June 2025

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Lewis County 2045 Engagement Overview

The Lewis County 2045 Engagement Summary Report serves as a means of reporting back to the community and stakeholders regarding the outcomes of the engagement efforts initiated as part of the County's Comprehensive Engagement Plan, which was adopted in Spring 2024.

The primary purpose of this report is to:

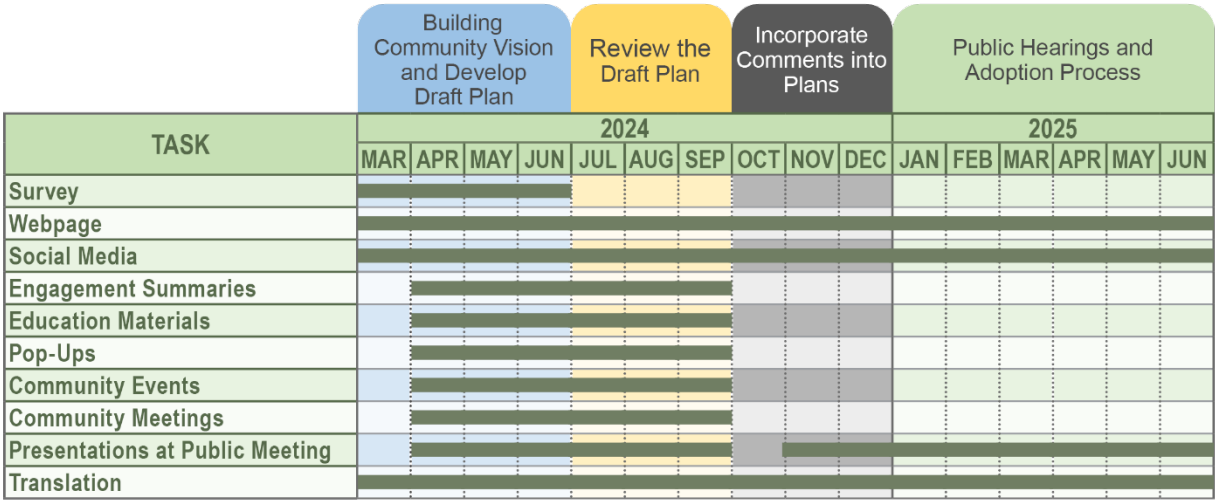
- ***Provide Results:*** It summarizes the findings from the public and stakeholder engagement activities conducted throughout the planning process, including surveys, workshops, meetings, and other outreach efforts. These results reflect community input and feedback on key issues, priorities, and concerns related to the county's future.
- ***Foster Transparency:*** The report ensures transparency by communicating how the engagement activities were carried out and what was learned from the community's involvement. This fosters trust and accountability by showing that the public's voice is being heard and considered in shaping the county's long-term planning efforts.
- ***Guide Decision-Making:*** By sharing the results of the engagement, the report informs the decision-making process as the county moves forward with the development of the 2045 planning framework. The engagement insights help shape policies, strategies, and actions that will guide the county's development, growth, and future planning.

The community engagement goals are to:

- Engage with stakeholders early in the planning process.
- Understand community character, what makes Lewis County special.
- Build long-term, collaborative working relationships with community partners and stakeholders.
- Capture community vision.
- Balance state law and with community vision.
- Clearly communicate how feedback is used.
- Engage with the community in its full diversity to promote inclusivity.

Lewis County 2045 General Engagement Schedule

The following schedule was adopted as part of the County's Community Engagement Plan.



Lewis County 2045 Roles and Responsibilities

The following roles and responsibilities were identified in the County's Community Engagement Plan.









Community Meetings June 2025

On June 23rd and 26th, 2025, community meetings were held – one in Packwood and one in Onalaska. These meetings were in addition to the Planning Commission workshops on the draft development regulations, which are also open to the public. The purpose of these meetings was to present the draft development regulations, but more importantly, to allow time for the public to ask questions of staff. A total of 187 people attended the meetings.



Packwood Community Meeting June 23, 2025

Community Survey October 2024

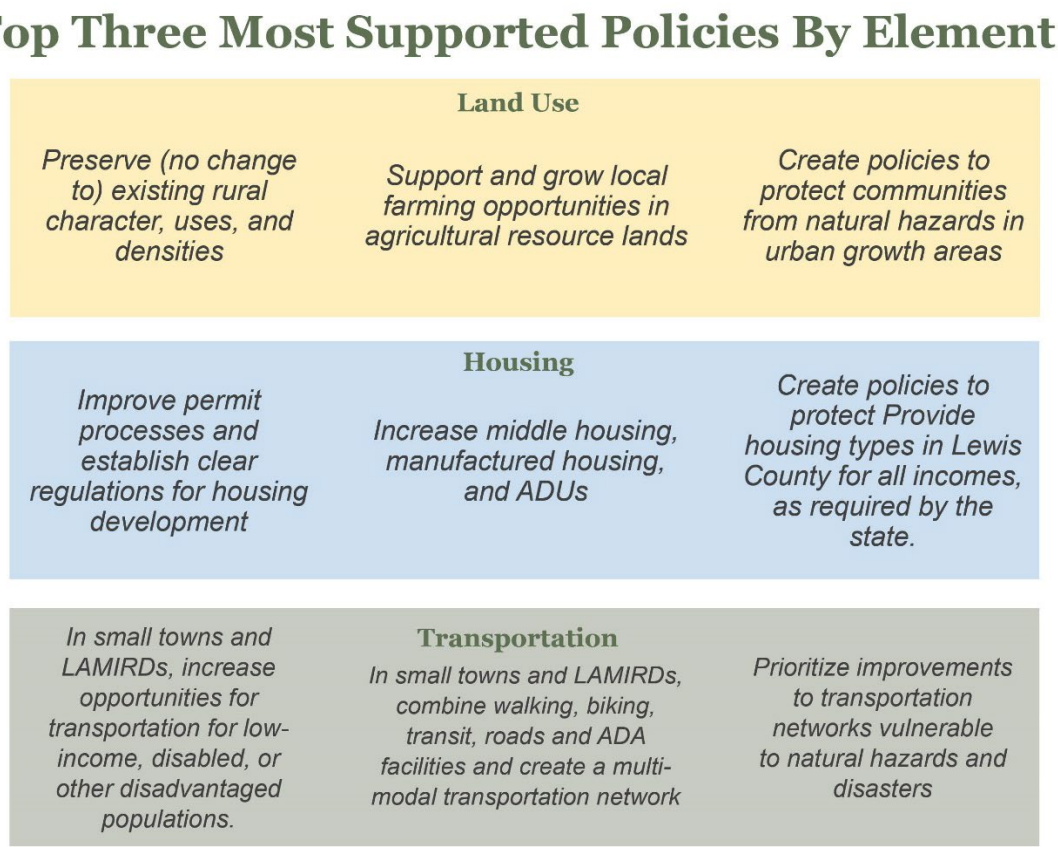
Between October 11th, 2024, to October 31st, 2024, a community survey was distributed to the community. This survey presented high level summaries of key policies directions proposed in the draft comprehensive plan and asked respondents to share whether they agreed or disagreed with the proposed policies. This survey was accompanied by three in-person open house events. The goal for Lewis County was to provide in-person opportunities to come and ask questions about policies and then complete the survey to share additional thoughts.

Survey Goals

- Inform about the changes to policies from the last periodic update.
- Be transparent with the community.
- Educate people on all topics of the Comprehensive Plan.
- Provide a way to share feedback on specific policy issues and not overarching thoughts.

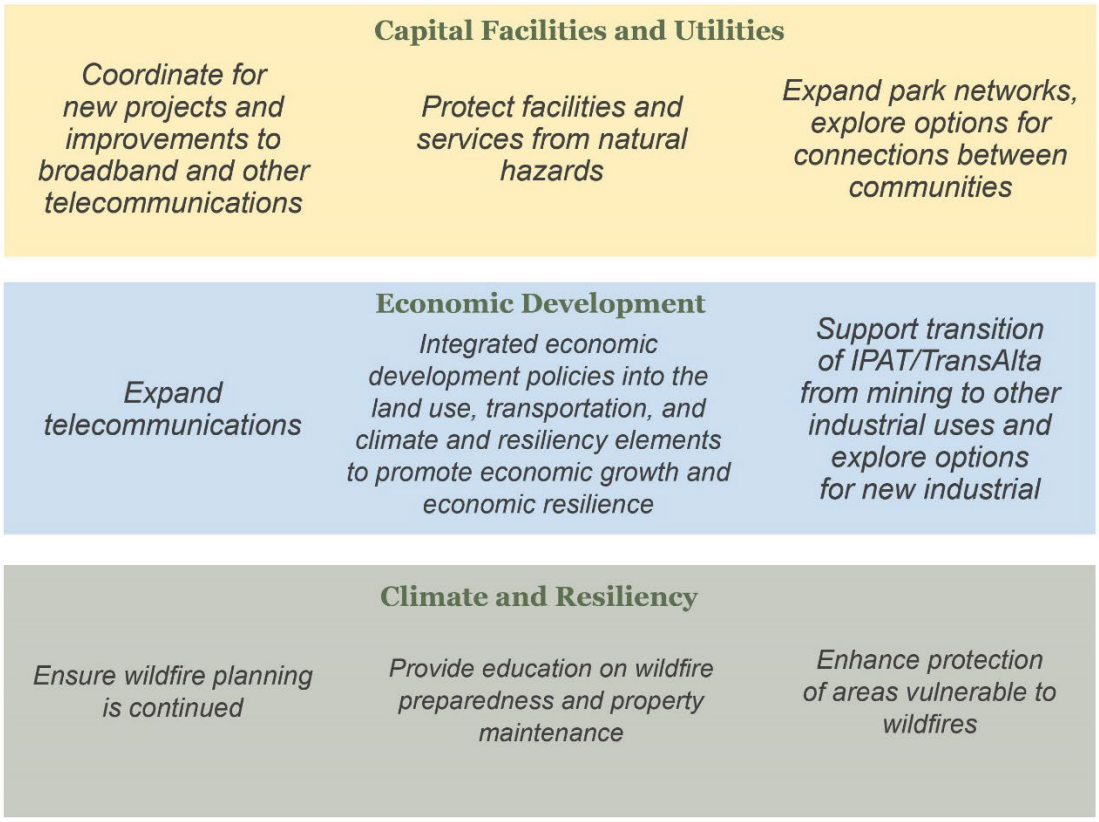
Results Summarized

- 50 Responses collected.
- 80 Written comments submitted.



Most supported is defined by the policies with the most "strongly agreed" and then the most "agreed" responses in descending order.

Top Three Most Supported Policies By Element



Most supported is defined by the policies with the most "strongly agreed" and then the most "agreed" responses in descending order.

Summary of written responses:

- Strong support for rural preservation and focusing growth and development in the appropriate areas.
- Controlling and/or limiting VRBOs and Short-term rentals.
- Mixed feelings or negative feelings towards alternative electric vehicles.
- Support for broadband.
- Request for diverse industries that provide living wage jobs that keep people living in Lewis County and able to afford housing.
- Consider that as industrial or economic opportunities grow what might impacts to tourism and recreation and Lewis County's scenic beauty.
- Comment expresses the concern that new policies will implement new regulations and other impacts to taxpayers.

Demographics
Further details about demographics for this survey can be found in the appendix.

What best describes you?

Select all that apply.

90.48%
I live in Lewis County.

50.00%
I work in Lewis County

76.19%
I own property in Lewis County

28.57%
I own or operate a business in Lewis County.

2.38%
I am a visitor of Lewis County.

If you live in Lewis County, based on the map below, what District do you live in?



A 14.63%

B 19.51%

C 65.85%

Three Open Houses October 2024

Early October 2024 Lewis County hosted three open houses in three separate locations across the County. The open houses were hosted in multiple locations and times to provide more opportunities for residents to have the opportunity to attend.

The Open House was a self-guided format, attendees could walk around and read the posters at their own pace. Staff were available to answer any questions. There was no formal presentation at these open houses.

Attendees could provide comments via verbal with staff or submitted written comments. Paper surveys, pens, tables and chairs were provided for attendees to write down their thoughts on proposed policy changes.



Open House Goals:

- Inform about the changes to policies from the last periodic update.
- Be transparent with the community.
- Educate people on all topics of the Comprehensive Plan.
- Provide a way to share feedback on specific policy issues and not overarching thoughts.

Results:

The open house had approximately 5 attendees that discussed policy changes with staff. The following comments were collected:

- Multiple comments mentioned the need for increased transit in rural areas to assist with Lewis County rural and low-income populations.
- Multiple comments expressed the need for new job creation to keep younger populations living in rural communities with their families.
- Multiple comments mentioned the support for hazard mitigation and natural hazard preparedness policies.
- Multiple comments mentioned that need for stronger regional coordination between cities and small communities. The cities, Centralia and Chehalis, produced the better jobs while the rural communities are where residents would like to continue living. There was a strong desire to be able to live and work in the same place.

Climate Engagement Event April 2024

Introduction

This event was hosted by Centralia College as part of their “Climate Connections Film and Speakers Series”. Mindy Brooks was requested to speak about Lewis’s County’s Comprehensive Plan and the new start requirements regarding Climate Resiliency. The event was hybrid with in person and Zoom options.

Event Summary

The engagement event covered the following topics:

1. **What is a comprehensive plan?**
2. **What is climate and resiliency planning?**
3. **How does climate change impact Lewis County?**
4. **Have you been impacted by natural disasters?**

Key Results

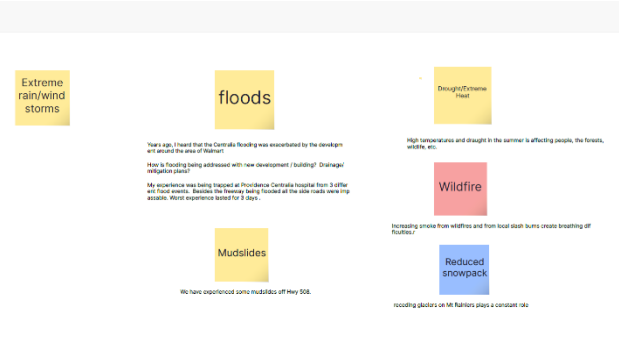
30 Attendees

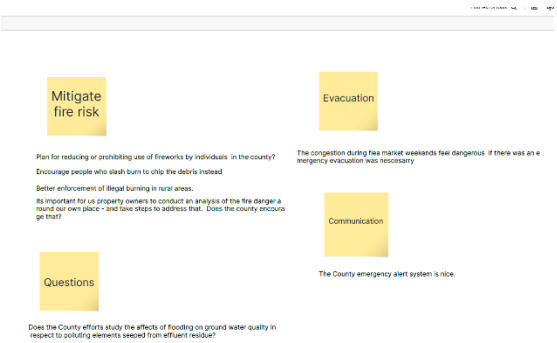
Engagement Outcomes

Key comments from the in-person discussion included the following:

- Flooding risks and river bank erosion
- Concerns about the response time to wildfires
- Logging impacts related to landslide hazards
- Evacuation routes and education
- Invasive plant species controls

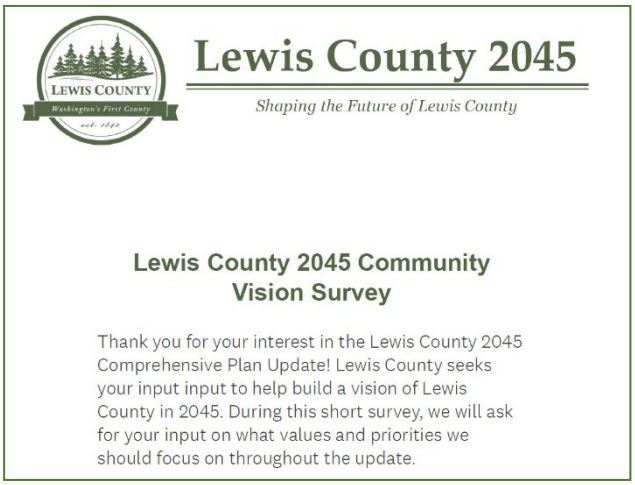
Zoom comments are captured in the figures below:





Community Survey March to May 2024

On March 28, 2024, Lewis County launched the Community Vision Survey on its website. This survey remained open through May 10, 2024. The survey was publicized through the Board of County Commissioner Facebook Page and through the Lewis County 2045 email list, as well as at local meetings including the Realtor's Lunch & Learn and Fire Chiefs monthly meeting.

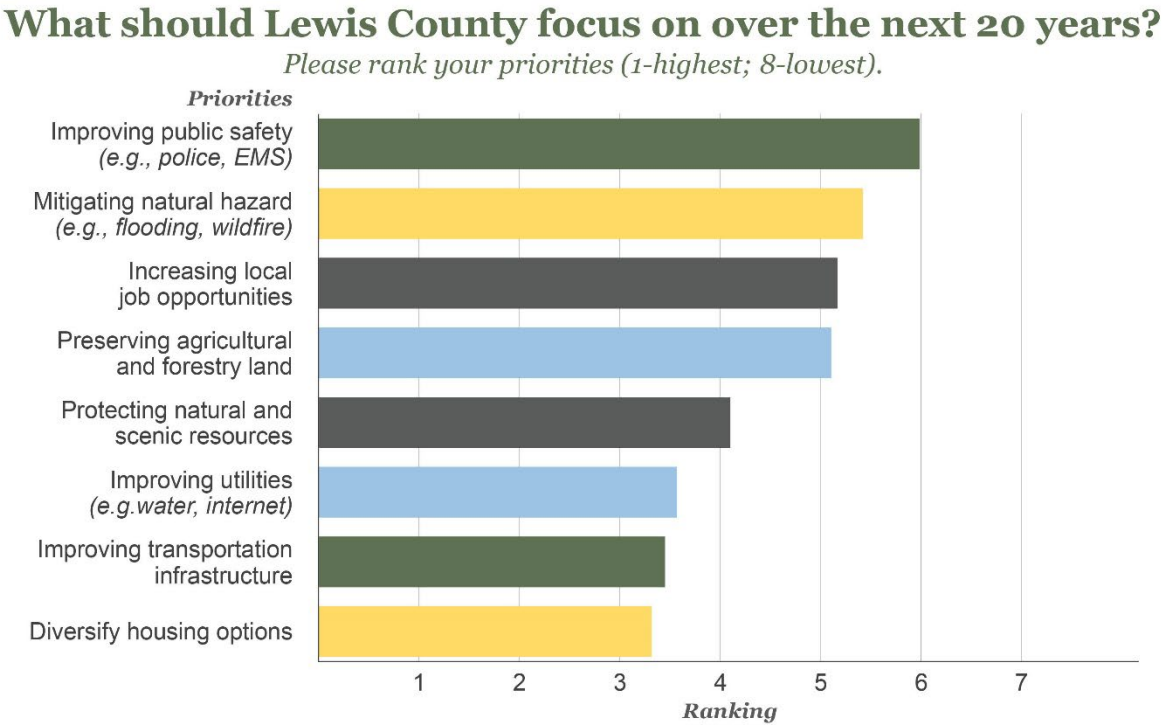


Survey Goals

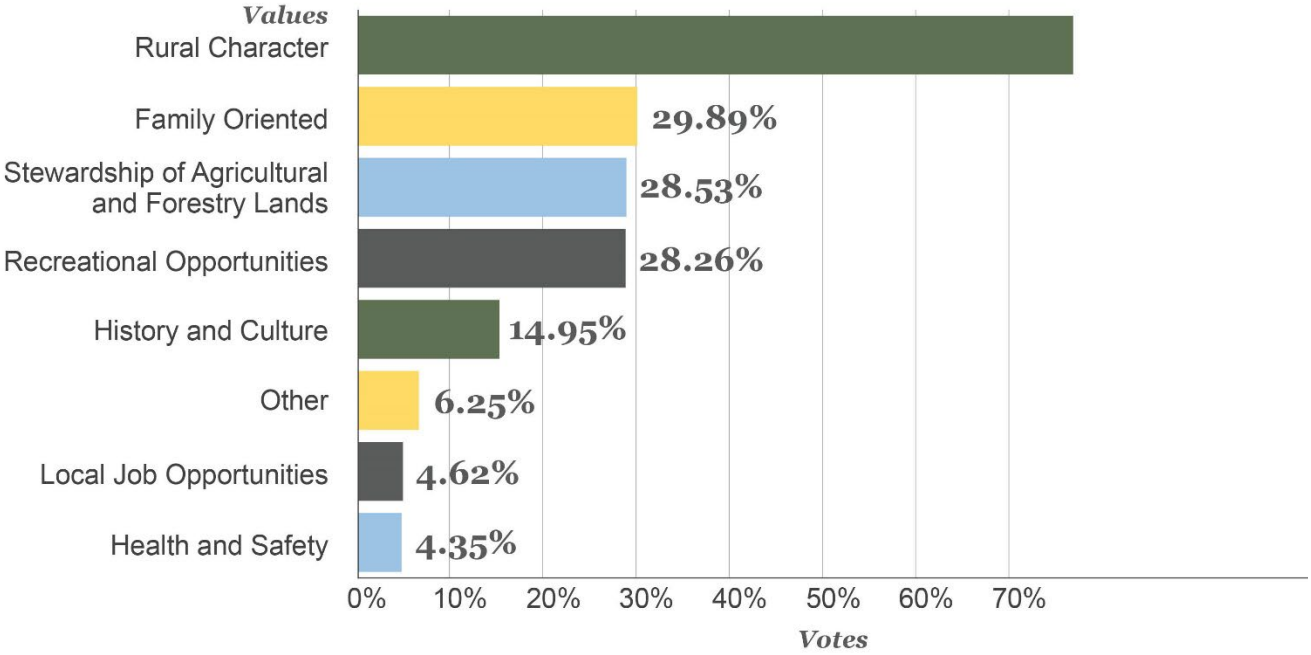
- Build awareness about the Comprehensive Update.
- Understand community priorities and values.
- Understand the community vision for Lewis County.
- Understand the overall satisfaction with the quality of life in Lewis County.

Survey Results

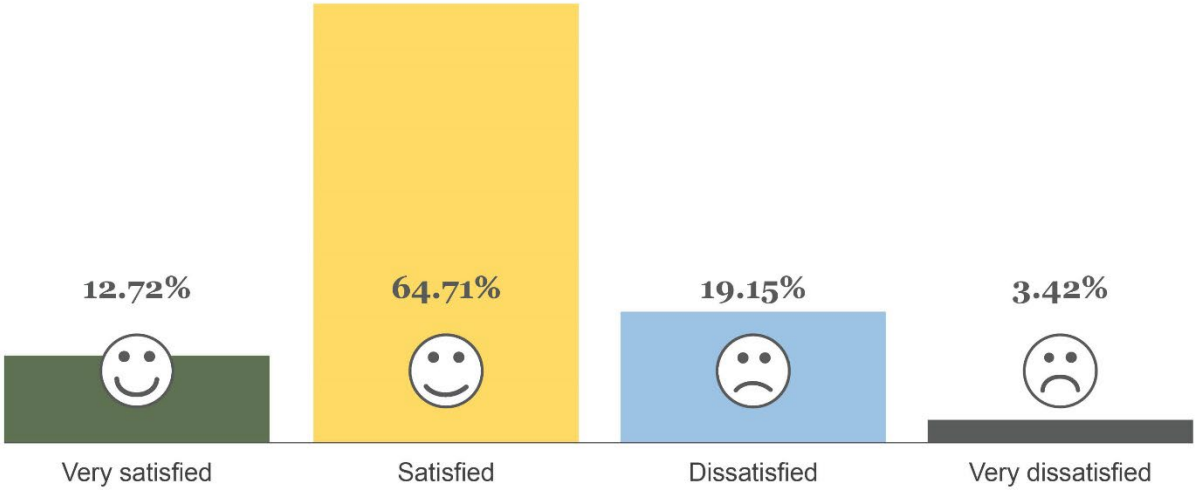
- 736 Responses
- 236 Signed up for Project Updates
- 566 Report feeling very satisfied or satisfied with the quality of life in Lewis County



Pick two values that best describe Lewis County:



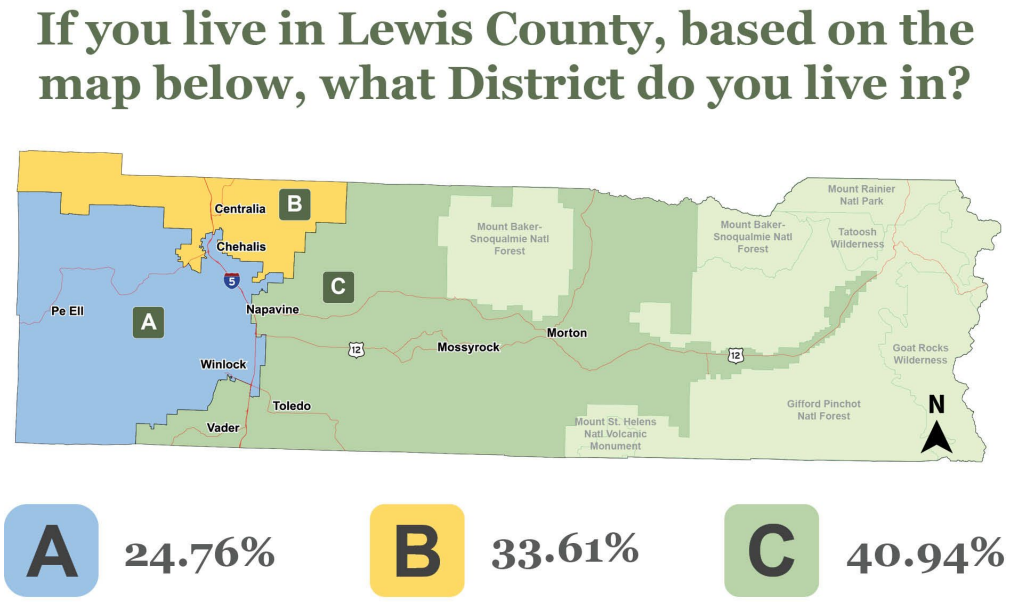
Are you satisfied with the quality of life in Lewis County?



Demographics

Further details about demographics can be found in the appendix.





Community Meetings October 2023 to January 2024

Introduction

October 2023 through January 2024, the County hosted four (4) community meetings to ask the public to help scope the highest priorities over the next 20 years. The meetings were held in South County near Toledo, Salkum, Mineral and Randle. A total of 86 people attended the meetings.

Key Results



86 Attendees

Event Summary

Each meeting began with an overview of the Comprehensive Plan Periodic Update (see handout) and questions from the attendees. Then there was a facilitated workshop with the prompting question "What is your vision for Lewis County in 20-years?" Participants were asked to write 5-10 statements about what they hope Lewis County will be like in 2045, covering topics such as transportation, housing, land use, recreation, jobs, etc. Next, participants were asked to star the top 3 priorities. The participants paired up and shared their top 3 priorities. Together, each team was asked to agree on a combined 3 and write each priority on a notecard. These were shared with the whole group and organized, by the group, into topics. The results of the workshop are provided below. Finally, staff shared the next steps which are to produce notes from this meeting and each of the upcoming community meetings throughout the county and post them on the webpage.

Engagement Outcomes

The comments from the meetings are summarized below. The top themes were:

1. Protect the rural character of the County by maintaining farms and forests and keeping dense development and big commercial near Interstate 5.
2. Make sure infrastructure and services (e.g., roads, EMS, police, schools, internet, etc.) keeps pace with development.

<u>Land Use</u>

- Maintain rural character.
- Preserve small family farms.
- Make sure small, unincorporated communities (LAMIRDS) that have existing neighborhoods and services like schools are sustainable long term.
- Ensure that high density housing is provided in cities and urban growth areas, protecting rural areas for lower density housing that matches rural character.
- Ensure that tiny home parks are located in appropriate areas where there are adequate facilities and services.
- Growth locally owned, small businesses and prevent larger corporations from overtaking the unique character of Lewis County.

Economic Development

- Maintain and grow the timber industry.
- Remove barriers to keeping small farms in agricultural production.
- Provide excellent broadband everywhere in Lewis County to support new jobs, particularly in East Lewis County.
- Enhance Highway 12 as a Scenic Byway by encouraging protection of farms and forests, and encourage development that creates a visually appealing drive and supports tourism.
- Balance new jobs with rural character by ensuring that new employment centers are based on rural economies (e.g., farms, tourism) and scaled appropriately.
- Zone more properties that front I-5 for commercial and industrial development and encourage new businesses along the I-5 corridor and at on/off ramps.
- Ensure that new green energy facilities provide economic benefit to Lewis County residents.

Housing

- Provide housing that meets the needs of the community.
- Increase the amount and diversity of affordable housing options.
- Provide senior housing options in East Lewis County.
- Encourage new housing developments to be located away from major transportation corridors or screened/buffered from transportation corridors using trees and shrubs.
- Consider capping property value/property tax for residents.

Infrastructure

- Ensure that public facilities and services (e.g. fire districts, EMS, school districts, etc.) plan for and can support new rural development.
- Support and grow rural schools and educational opportunities.
- Improve cell services and broadband.
- Increase policing services in East Lewis County.
- Expand recycling services throughout East Lewis County and add plastic recycling.
- Provide more trash removal on county roads.

Recreation and Environment

- Preserve Lewis County's history and support tourism related to history
- Maintain and improve recreational facilities, particularly facilities like Riffe Lake that are critical to tourism and the local economy.
- Protect rivers, streams and lakes, such as Mineral Lake, to maintain water quality and preserve the "natural state" of the shorelines.
- Create more public parks/open spaces with connected regional trail system.
- Provide more access to federal and state public lands.
- Support and increase local events and festivals.
- Protect natural resources and maintain habitat for wildlife.
- Work with the state and federal governments to properly manage forests for timber production and as wildlife habitat.

Natural Hazards

- Complete flood control measures that have been under discussion for many years.
- Increase flood protection and mitigation throughout the County.
- Have a coordinated response to wildfires; increase the level of service of fire districts.
- Propose Firewise or other fire-ready programs in East County.
- Provide more education about evacuation routes.

Transportation

- Provide transportation options for seniors, people with disabilities and others.
- Improve traffic flow and safety throughout Lewis County.
- Add center turn lanes to State Routes and County arterials as those roads pass through more densely developed areas.
- Increase public transit services, more frequent service and extended serve to South and East Lewis County.
- Work with the Federal Department of Transportation to add a third land to Interstate 5.

Other ideas

- Less “red tape” across the board so it is easier for people to do the development and land use they want to do.
- Move Fair Grounds to SE corner of Exit 63 and add Equestrian Center
- Provide an all-encompassing housing and treatment facility for homeless residents.



November 30, 2023 Community Meeting at Mineral American Legion Building

Planning Commission and Board of County Commissioners

Overview

Lewis Count staff attend monthly meetings with local commissioners to provide updates on the Comprehensive Plan Periodic Update. All meetings are open to the public and include opportunities for the public to provide comments. Materials from the meetings are posted online on the respective commission webpages.

Staff attended the following meetings:

- January 17, 2024 – Planned Growth Committee – City Coordination
- February 13, 2024 – Lewis County Planning Commission – Overview
- February 21, 2024 – Planned Growth Committee – City Coordination
- March 12, 2024 – Lewis County Planning Commission – Community Engagement Plan
- March 20, 2024 – Planned Growth Committee – City Coordination
- March 26, 2024 – Lewis County Planning Commission – Community Engagement Plan
- April 4, 2024 – Planned Growth Committee – City Coordination
- April 23, 2024 – Lewis County Planning Commission – Land Capacity Analysis
- May 15, 2024 – Planned Growth Committee – City Coordination
- May 28, 2024 – Lewis County Planning Commission – Land Capacity Analysis
- June 25, 2024 – Lewis County Planning Commission – Housing Needs Assessment
- July 17, 2024 – Planned Growth Committee – City Coordination
- July 23, 2024 – Lewis County Planning Commission – Climate Risk Assessment
- August 13, 2024 - Lewis County Planning Commission – Population and Housing Allocations
- August 21, 2024 – Planned Growth Committee – City Coordination
- August 27, 2024 – Joint Lewis County Planning Commission & Board of County Commissioners Session – Priorities
- September 10, 2024 – Lewis County Planning Commission – Update
- September 18, 2024 – Planned Growth Committee – City Coordination
- September 24, 2024 – Lewis County Planning Commission – Population and Housing Allocations
- October 16, 2024 – Planned Growth Committee – City Coordination
- October 16, 2024 - Board of County Commissioners – Population and Housing Allocations
- October 22, 2024 – Lewis County Planning Commission – Update
- November 12, 2024 - Board of County Commissioners – Population and Housing Allocations
- December 10, 2024 – Lewis County Planning Commission – 2025 Adoption Schedule
- January 14, 2025 – Lewis County Planning Commission – Climate Update
- January 28, 2025 – Lewis County Planning Commission – Comprehensive Plan Update
- February 11, 2025 – Lewis County Planning Commission – Comprehensive Plan Update
- March 11, 2025 – Lewis County Planning Commission – Comprehensive Plan Update
- April 8, 2025 – Lewis County Planning Commission – Public Hearing on Lewis County Comprehensive Plan, continued to April 22, May 7, and May 13, 2025
- May 13, 2025 – Lewis County Planning Commission – Deliberation and Vote on Lewis County Comprehensive Plan
- May 27, 2025 – Lewis County Planning Commission – Development Regulations Update

- June 10, 2025 – Lewis County Planning Commission – Development Regulations Update
- June 18, 2025 – Planned Growth Committee – Critical Areas Ordinance
- June 24, 2025 – Lewis County Planning Commission – Development Regulations Update

UPCOMING

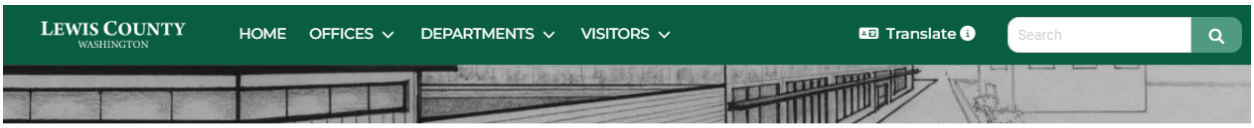
- July 8, 2025 – Lewis County Planning Commission – Public Hearing on Development Regulations
- July 16, 2025 – Planned Growth Committee – Interlocal Agreements
- July 22, 2025 – Lewis County Planning Commission – Critical Areas Ordinance
- August 12, 2025 – Lewis County Planning Commission – Public Hearing on Critical Areas Ordinance
- August 20, 2025 – Board of County Commissioners – Comprehensive Plan and Zoning Designations Update
- August 20, 2025 – Planned Growth Committee – Periodic Update
- August 27, 2025 – Board of County Commissioners – Development Regulations Update
- September 3, 2025 – Board of County Commissioners – Critical Areas Ordinance Update
- September 16, 2025 – Board of County Commissioners – (*tentative*) Public Hearing Lewis County 2045

Appendices

Appendix A. Public Notifications



Second community wide survey was posted on the Lewis County 2045 Comprehensive Plan project webpage.



/ COMMUNITY DEVELOPMENT / EVENTS / COMP. PLAN OPEN HOUSE - MINERAL ...

COMMUNITY DEVELOPMENT

SERVICES

- Permit Apps And Handouts
- Current Planning Applications
- Rezones
- Comp Plan & Development Regulation Amendments
- Codes And Flood Regulations
- Maps And Data
- Adopted Plans
- Boards & Commissions
- Staff Directory

CONTACT US

Community Development

Comp. Plan Open House - Mineral Lions Club

Friday, October 11, 2024 - 3 p.m. to 5 p.m.

Lewis County Community Development will host open house events throughout the county on Lewis County 2045. The purpose of the open house events is to hear from the public on the draft goals and policies related to land use, economic development, transportation, public safety and other important topics. The meetings will be held at:

- Adna Grange: 123 Diekman Rd, Chehalis, 3:00pm-5:00pm
- Mineral Lions Club: 108 E Front St, Mineral, 3:00pm-5:00pm
- Randle Fire Station: 9978 US Highway 12, Randle, 12:00pm-2:00pm

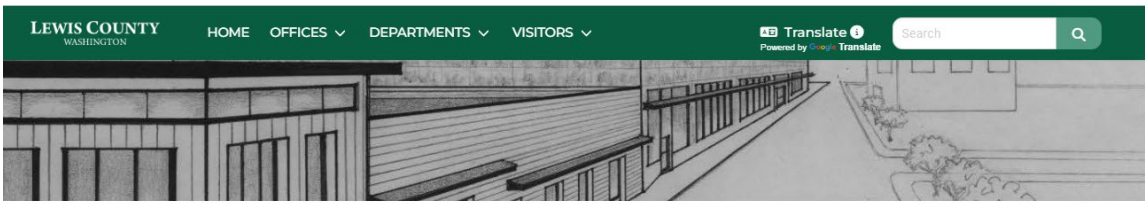
The materials will be posted on the webpage https://tinyurl.com/2m9j2cyr before the first event. To receive updates about the Lewis County 2045 project, please subscribe to the Lewis County Planning Announcements.

Staff Contact – Mindy Brooks, 360-740-2610 or mindy.brooks@lewiscountywa.gov

Share This

Posted: Friday, August 23, 2024 - 10:41 a.m.

Online Announcement for Miner Open House



/ COMMUNITY DEVELOPMENT / EVENTS / COMP. PLAN OPEN HOUSE - RANDLE ...

COMMUNITY DEVELOPMENT

SERVICES

- Permit Apps And Handouts
- Current Planning Applications
- Rezones
- Comp Plan & Development Regulation Amendments
- Codes And Flood Regulations
- Maps And Data
- Adopted Plans
- Boards & Commissions
- Staff Directory

CONTACT US

Community Development

Comp. Plan Open House - Randle Fire Station

Saturday, October 12, 2024 - noon to 2 p.m.

Lewis County Community Development will host open house events throughout the county on Lewis County 2045. The purpose of the open house events is to hear from the public on the draft goals and policies related to land use, economic development, transportation, public safety and other important topics. The meetings will be held at:

- Adna Grange: 123 Diekman Rd, Chehalis, 3:00pm-5:00pm
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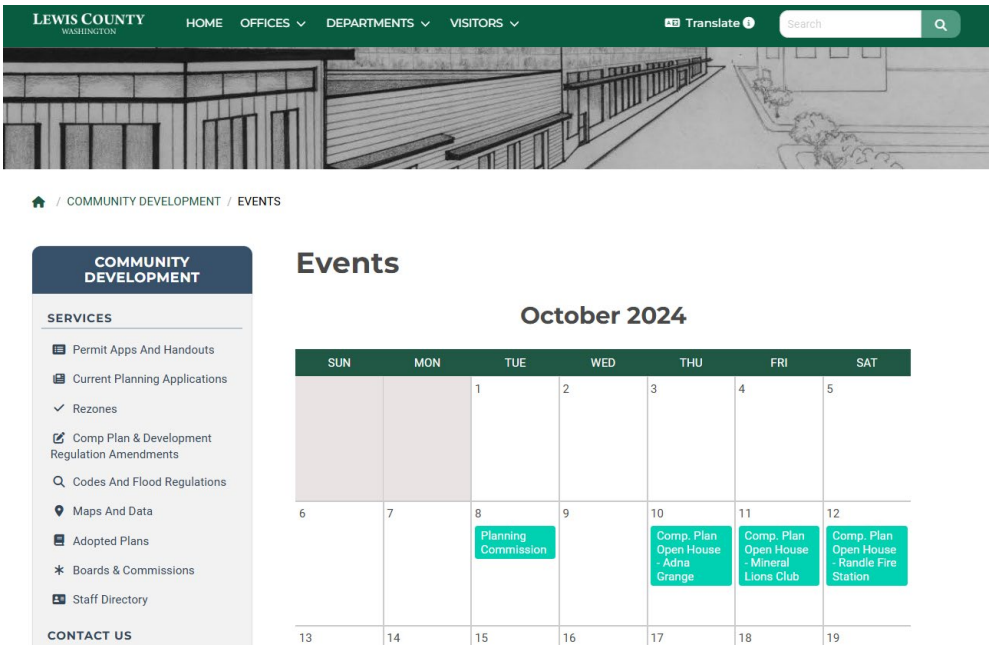
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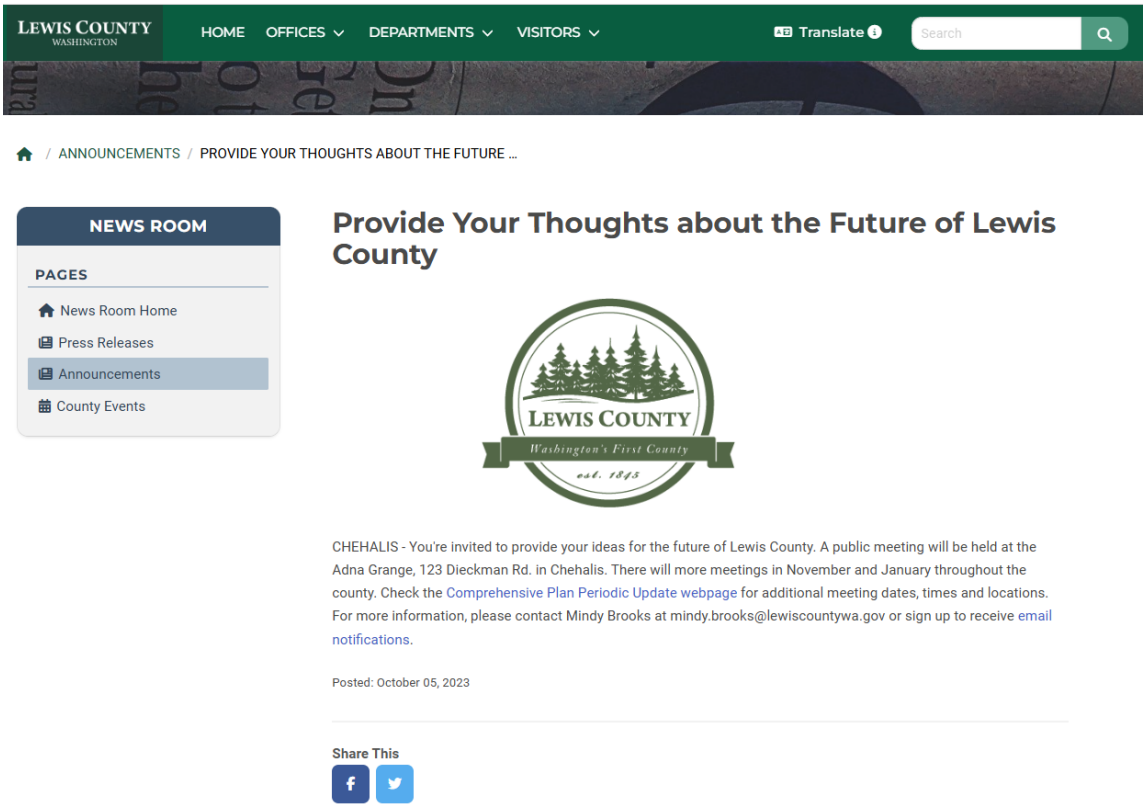
Share This

Posted: Friday, August 23, 2024 - 10:44 a.m.

Online Announcement for Randle Fire Station Open House



Open houses were posted on the Lewis County Community Development Events page.



Online Announcement for the Adna Grange Open House

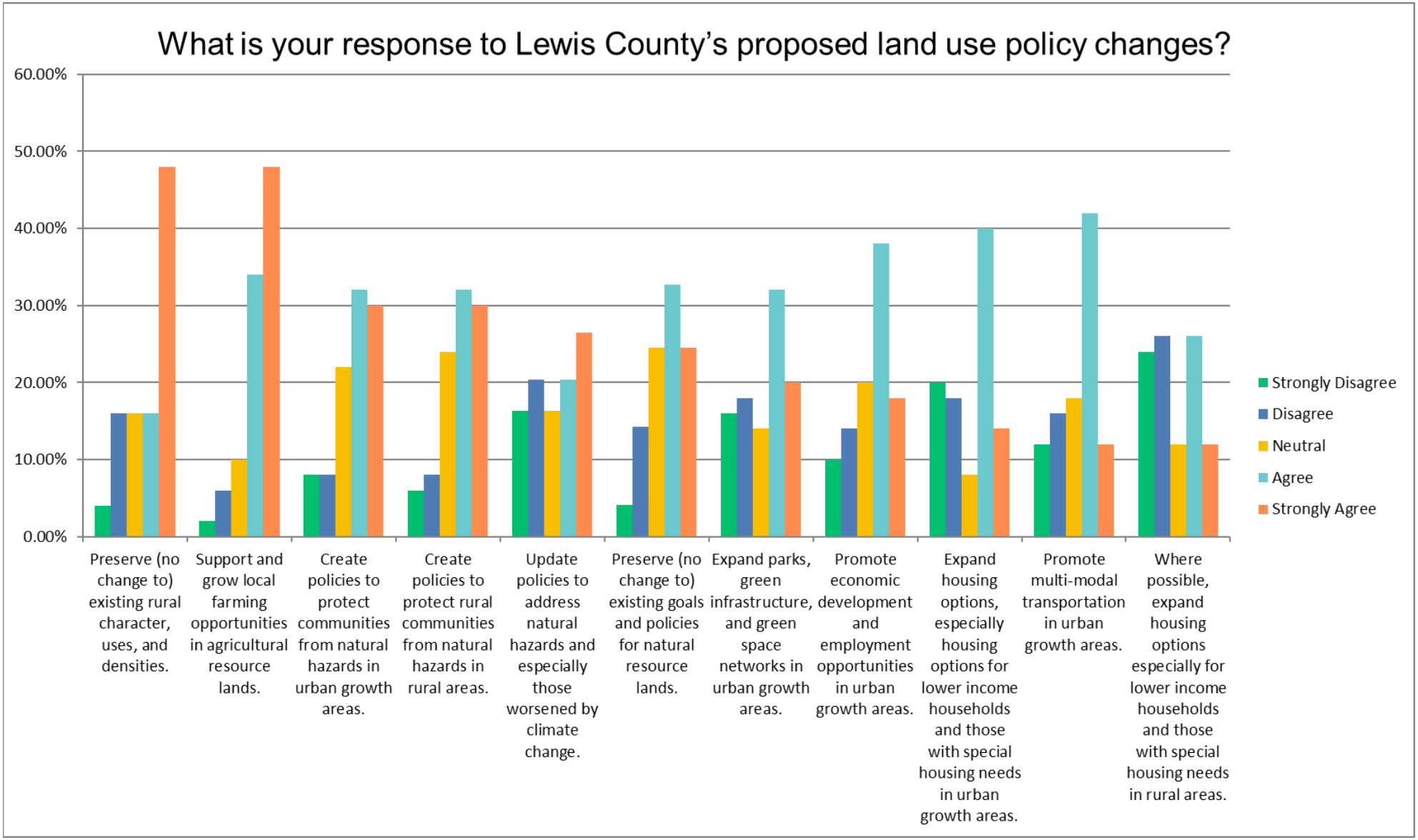


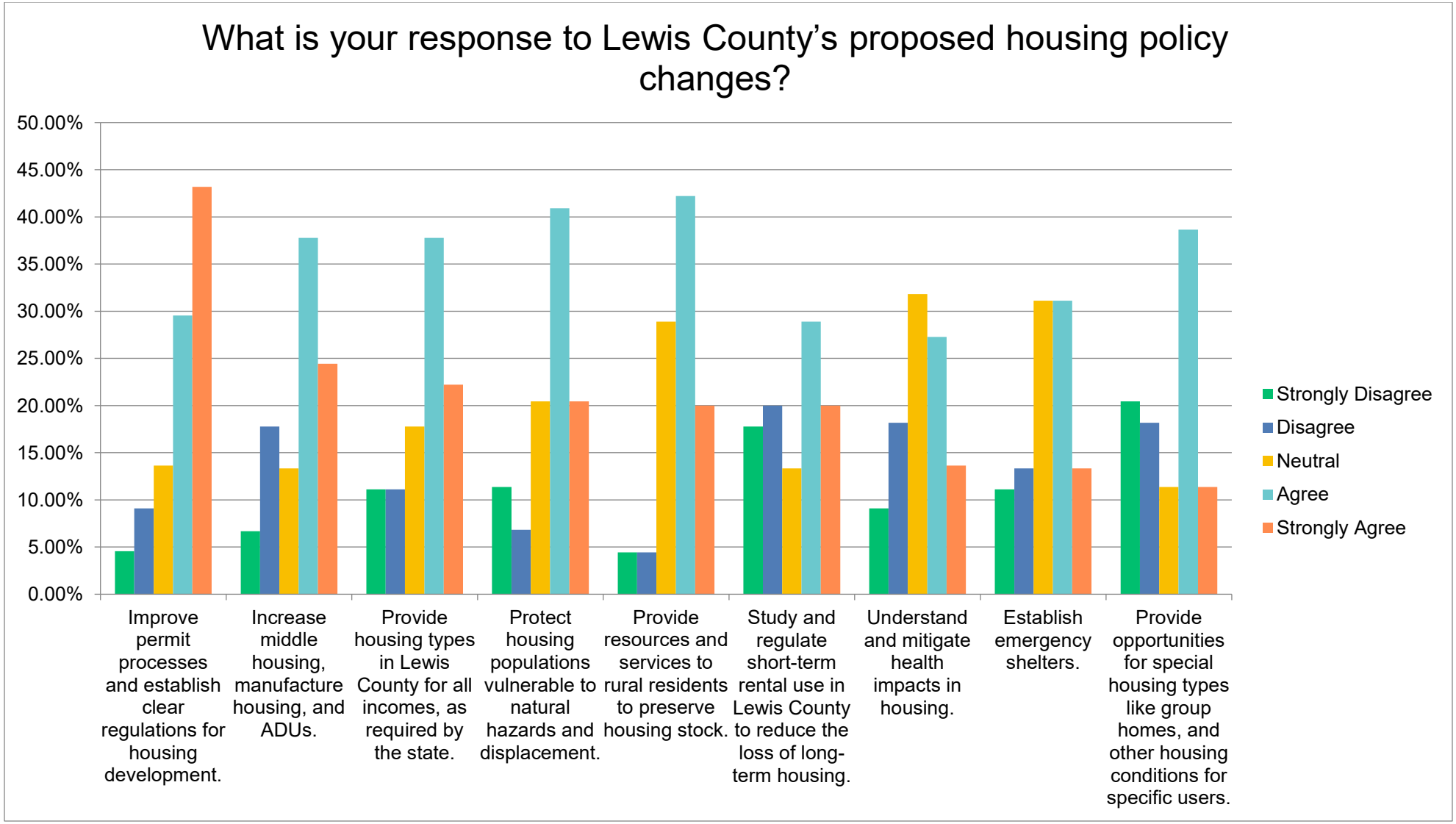
The Climate Engagement Event was advertised on the Centralia College website as part of the Climate Connections Film and Speaker Series.

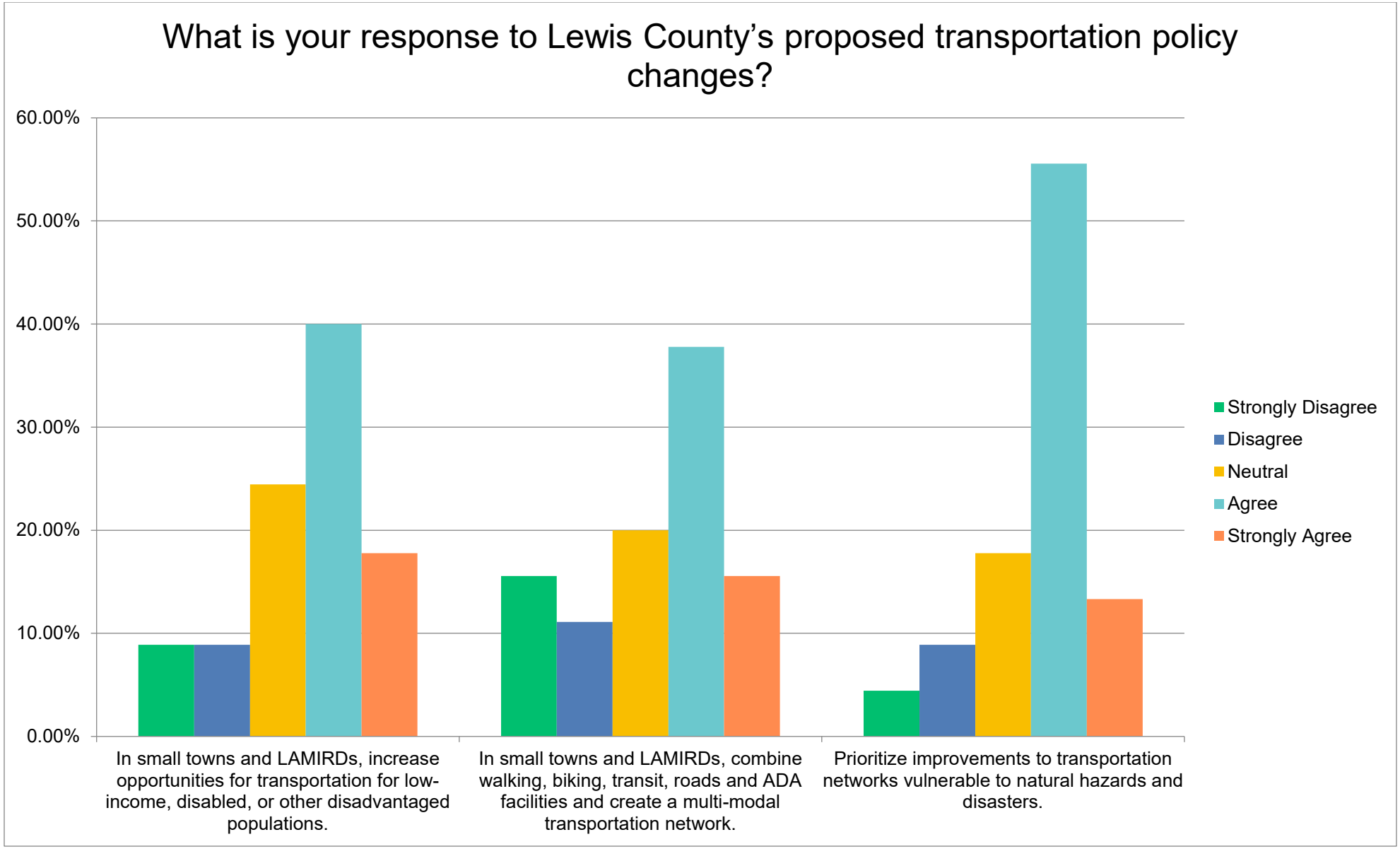
Appendix B. October Survey Results

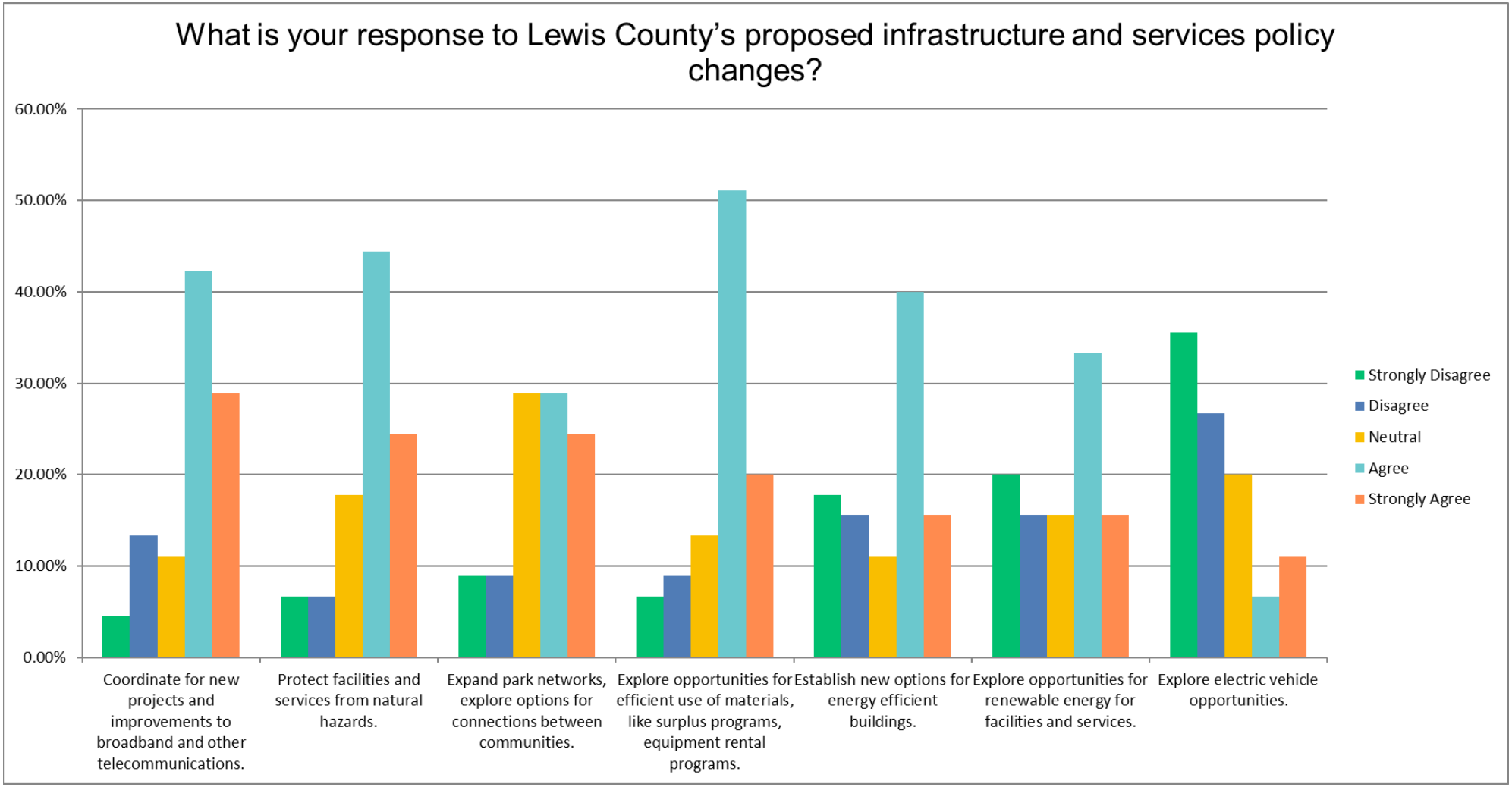
October Survey results start on the next page. Some survey results were combined on to one page to see overall trends.

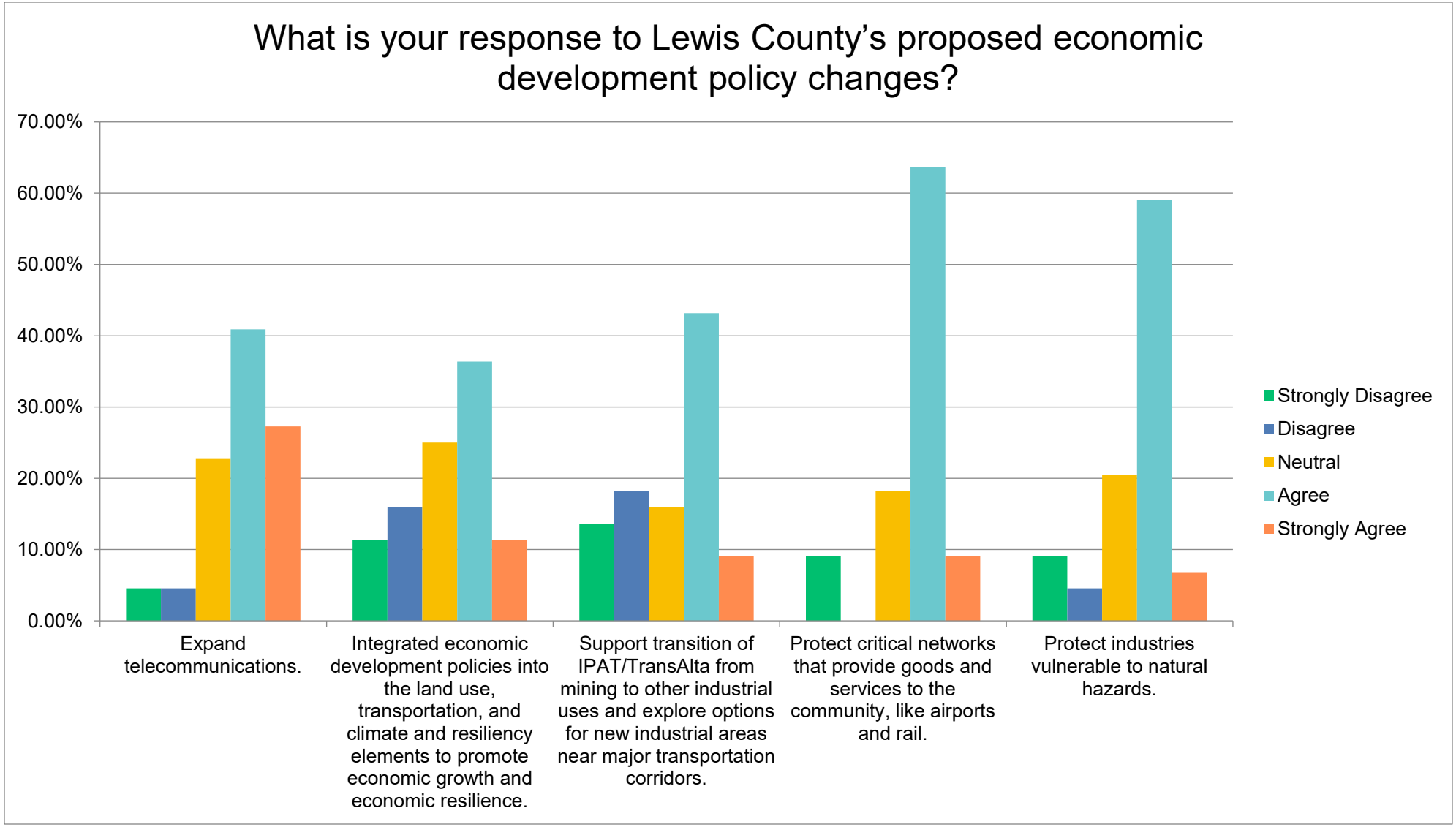
Survey results were exported from SurveyMonkey.


What is your response to Lewis County's proposed land use policy changes?
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Preserve (no change to) existing rural character, uses, and densities.
Support and grow local farming opportunities in agricultural resource lands.
Create policies to protect communities from natural hazards in urban growth areas.
Create policies to protect rural communities from natural hazards in rural areas.
Update policies to address natural hazards and especially those worsened by climate change.
Preserve (no change to) existing goals and policies for natural resource lands.
Expand parks, green infrastructure, and green space networks in urban growth areas.
Promote economic development and employment opportunities in urban growth areas.
Expand housing options, especially housing options for lower income households and those with special housing needs in urban growth areas.
Promote multi-modal transportation in urban growth areas.
Where possible, expand housing options especially for lower income households and those with special housing needs in rural areas.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree


What is your response to Lewis County's proposed housing policy changes?
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Improve permit processes and establish clear regulations for housing development.
Increase middle housing, manufacture housing, and ADUs.
Provide housing types in Lewis County for all incomes, as required by the state.
Protect housing populations vulnerable to natural hazards and displacement.
Provide resources and services to rural residents to preserve housing stock.
Study and regulate short-term rental use in Lewis County to reduce the loss of long-term housing.
Understand and mitigate health impacts in housing.
Establish emergency shelters.
Provide opportunities for special housing types like group homes, and other housing conditions for specific users.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree


What is your response to Lewis County's proposed transportation policy changes?
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
In small towns and LAMIRDs, increase opportunities for transportation for low-income, disabled, or other disadvantaged populations.
In small towns and LAMIRDs, combine walking, biking, transit, roads and ADA facilities and create a multi-modal transportation network.
Prioritize improvements to transportation networks vulnerable to natural hazards and disasters.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree


What is your response to Lewis County's proposed infrastructure and services policy changes?
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Coordinate for new projects and improvements to broadband and other telecommunications.
Protect facilities and services from natural hazards.
Expand park networks, explore options for connections between communities.
Explore opportunities for efficient use of materials, like surplus programs, equipment rental programs.
Establish new options for energy efficient buildings.
Explore opportunities for renewable energy for facilities and services.
Explore electric vehicle opportunities.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree


What is your response to Lewis County's proposed economic development policy changes?
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Expand telecommunications.
Integrated economic development policies into the land use, transportation, and climate and resiliency elements to promote economic growth and economic resilience.
Support transition of IPAT/TransAlta from mining to other industrial uses and explore options for new industrial areas near major transportation corridors.
Protect critical networks that provide goods and services to the community, like airports and rail.
Protect industries vulnerable to natural hazards.
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

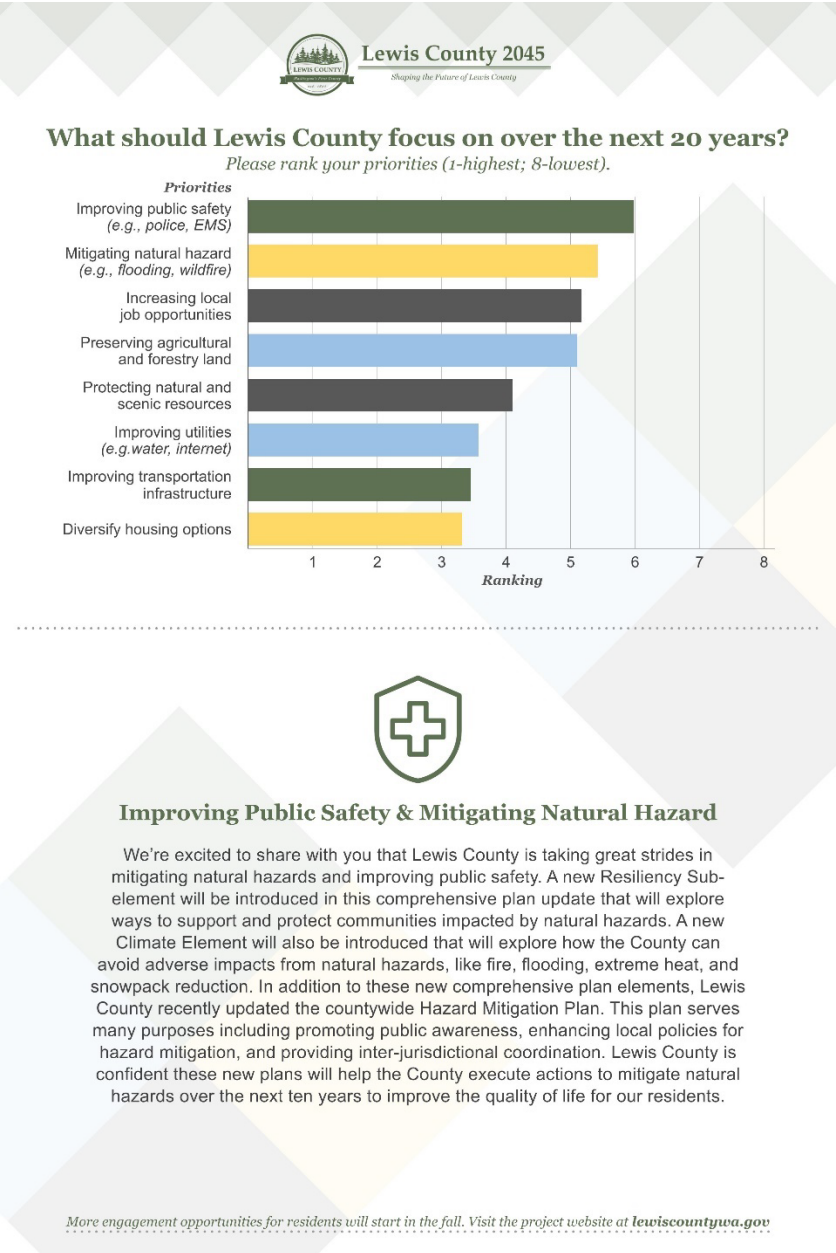
Appendix B. Open House Public Comments & Questions

Appendix B. October Open House Posters

Open house posters start on the next page. Open house posters were created in adobe InDesign and exported to PDF.

Appendix C. Pop-Up Events Posters

Staff presented the following information at pop-up community events to report to the community on engagement collected.



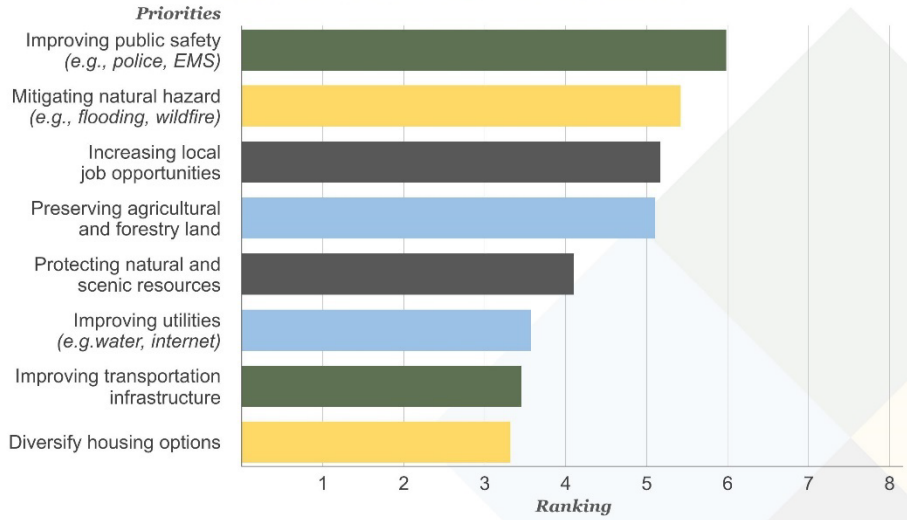
Survey Results Poster 1 – Used for Community Pop-up Events

Lewis County 2045

Shaping the Future of Lewis County

What should Lewis County focus on over the next 20 years?

Please rank your priorities (1-highest; 8-lowest).



Please read the paragraphs below to learn how Lewis County is responding to residents' top priorities for the next ten years. Changes to the Comprehensive Plan, described below, will be presented to the community this fall. Please sign up for the project newsletter or visit the project website at lewiscountywa.gov. You can read the current Comprehensive Plan online at: lewiscountywa.gov, and search for "comprehensive plan".

Improving Public Safety & Mitigating Natural Hazard

We're excited to share with you that Lewis County is taking great strides in mitigating natural hazards and improving public safety. A new Resiliency Sub-element will be introduced in this comprehensive plan update that will explore ways to support and protect communities impacted by natural hazards. A new Climate Element will also be introduced that will explore how the County can avoid adverse impacts from natural hazards, like fire, flooding, extreme heat, and snowpack reduction. In addition to these new comprehensive plan elements, Lewis County recently updated the countywide Hazard Mitigation Plan. This plan serves many purposes including promoting public awareness, enhancing local policies for hazard mitigation, and providing inter-jurisdictional coordination. Lewis County is confident these new plans will help the County execute actions to mitigate natural hazards over the next ten years to improve the quality of life for our residents.

Preserving Agricultural and Forestry Land

Lewis County preserves agricultural and forestry lands through goals and policies in the comprehensive plan. There are a series of existing goals and policies intent on preserving agricultural and forestry lands. These goals and policies can be found in the Land Use Element of the Comprehensive Plan under the "Rural Goals and Policies" and the "Resource Land Goals and Policies". You can review the rural and resource land policies to see how these lands are currently being preserved. Lewis County will review these policies to find ways to strengthen these preservation efforts.

Improving Transportation Infrastructure

Through the Transportation Element and Capital Facilities and Utilities Element in the Comprehensive Plan, Lewis County will review policies related to improving transportation infrastructure. Lewis County is focused on expanding options for transportation to all residents, this includes transportation beyond single-occupancy vehicles. Expanding options like walking, biking, and transit can reduce daily costs of living for residents, increase job opportunities for populations, and improve quality of life for senior citizens and other populations that can't drive.

Increasing Local Job Opportunities

Lewis County will be reviewing the economic development goals and policies in the comprehensive plan to see where opportunities could be provided to increase local job opportunities. This may include a wide range of strategies by sector or locality. This will also be supported by new goals and policies that provide new opportunities for housing, transportation, and services as these are vital components of our residents' daily lives.

Protecting Natural and Scenic Resources

Lewis County protects natural and scenic resources through goals and policies in the comprehensive plan. There are a series of existing goals and policies intent on protecting natural resources. These goals and policies can be found in the Land Use Element of the Comprehensive Plan under the "Natural Environment Goals and Policies". You can review these policies to see how these lands are currently being protected. Lewis County will review these policies to find ways to strengthen these efforts to protect natural and scenic resources.

Improving Utilities

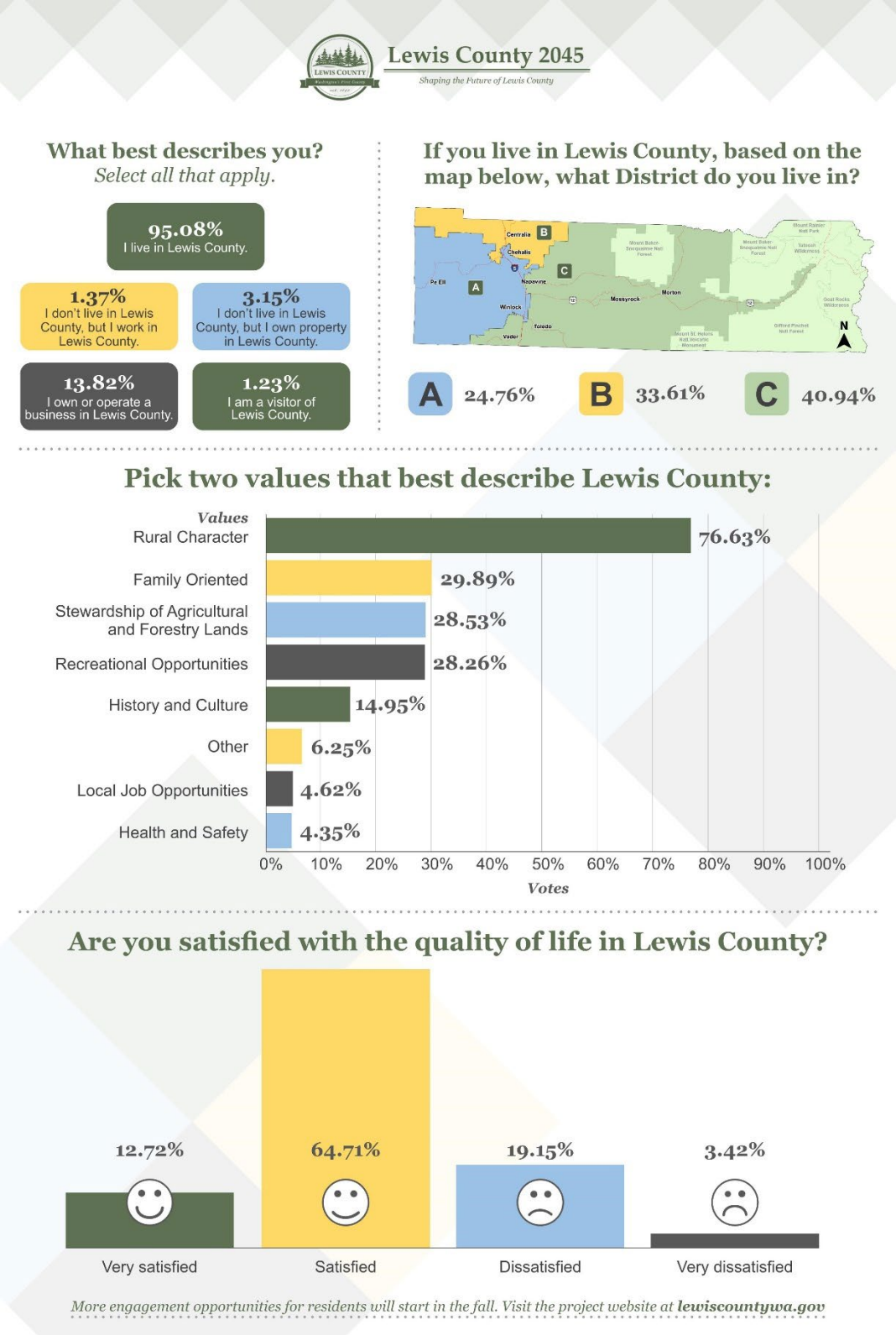
Through the Capital Facilities and Utilities Element in the Comprehensive Plan, Lewis County will continue to expand on ways to improve utilities. Improving utilities can happen in many ways like increased coordination and communication between providers, construction of utilities in the community, programs to help residents access utilities, and identifying gaps in utility services in the community. Lewis County will explore all options to improve these conditions.

Diversify Housing Options

Through the Housing Element in the Comprehensive Plan, Lewis County will be proposing new policies to expand housing options. The County is focused on providing housing options for all income levels to avoid residents having to pay more than 30% of their income to afford housing. This is a critical part of residents' quality of life and will ensure that our residents can live in Lewis County for future generations.

More engagement opportunities for residents will start in the fall. Visit the project website at ***lewiscountywa.gov***

Survey Results Poster 2 – Used for Community Pop-up Events



Survey Results Poster 3 – Used for Community Pop-up Events

Appendix C. First Community Survey Results

First community survey results start on the next page. Survey results were exported from SurveyMonkey.

Appendix F Climate Memo A. County Assets and Evaluation

Begins on next page

Kimley»Horn

MEMORANDUM

May 28, 2024

To: Mindy Brooks, Senior Long-Range Planner
Lewis County, Washington

From: Heidi Rous Climate Director, Kimley-Horn

RE: SUMMARY OF CLIMATE HAZARDS AND POLICY GAPS & OPPORTUNITIES, CLIMATE ELEMENT AND RESILIENCY SUB-ELEMENT 2025 COMP PLAN UPDATE, LEWIS COUNTY

Purpose

This memorandum summarizes potential climate impacts to Lewis County assets and potential policy opportunities to address climate impacts. The opportunities provide a basis for assessing current policy gaps and opportunities (provided under separate memo "Policy Gaps & Opportunities") that support the County's Comprehensive Plan update. The memo further informs the new Climate Element and Resiliency Sub-Element, consistent with House Bill 1181 ("HB 1181") and Washington State's Growth Management Act (GMA) . A memo summarizing climate vulnerability and risks of identified assets will be provided separately. Under HB 1181 and the GMA (RCW 36.70A.070(9)) for Lewis County, a resiliency sub element must, among other things, equitably enhance resiliency to, and avoid or substantially reduce the adverse impacts of, climate change in human communities and ecological systems through goals, policies, and programs consistent with the best available science and scientifically credible climate projections and impact scenarios RCW 36.70A.070(9)(e)(i).

Scope

Critical infrastructure located within the County are identified and assessed for exposure to climate hazard scenarios (see "Analysis" section below). Assets identified are located within Lewis County and are either owned and operated by the County, quasi-public agencies, or private entities. Assets include administrative buildings, historical sites, transportation infrastructure and facilities, airports, and radio communications that are owned and managed by the County. Other critical facilities operating under a special purpose district, public utility district, and private entities were assessed including educational institutions, railways, water, sewer, and energy facilities. Identifying local assets owned or managed by non-County entities provides an opportunity to coordinate with responsible agencies and protect critical facilities and communities against climate hazards. Other assets may include community groups, places, and services which will be identified through community stakeholder interviews in mid-June of this year. Other assets identified by stakeholders will be updated in the workbook and incorporated into Climate Element goals and policies.

Methodology

Under the Washington State Department of Commerce's Intermediate Planning Guidance document, Section 3: Resilience Sub-element provides step-by-step guidance for developing a new climate and resiliency element, as shown below:

1. Explore Climate Impacts
2. Audit Plan and Policies
3. Assess Vulnerability and Risk
4. Pursue Pathways
    a. Select and/or adapt existing goals and policies
    b. Develop new goals and policies
    c. Update and adopt hazard mitigation plan
5. Integrate Goals and Policies

Following the guidance document, the Climate Element Workbook was utilized (See **Appendix A: Lewis County Climate Element Workbook**). The intermediary tasks within Steps 1-5 are included below and are further detailed in the Analysis section.

1. Identifying and organizing County and community assets under specific sectors;
2. Identifying potential climate hazards per sector;
3. Pairing assets and hazards;
4. Describing potential climate impacts, asset exposure, non-climate stressors, and climate impact consequences of each asset-hazard pair;
5. Identifying priority climate hazards affecting the County; and
6. Reviewing existing plans for climate gaps and opportunities.

The Climate & Resilience Element is required to have one (1) goal and supportive policy for each climate-exacerbated hazard which is relevant to the County, as required by FEMA and HB 1181. Recommendations include new measures that enhances beneficial opportunities among the eleven sectors which are not typically included in a FEMA-approved hazard mitigation plan.

Analysis

Identify Community Assets

Over 100 County assets were identified, including administrative and civic buildings, senior centers, parks, recreation facilities, historical sites, transportation infrastructure and facilities, airports, solid waste management facilities, water distribution infrastructure, radio communication infrastructure, shorelines, and other critical facilities co-managed with special districts i.e., fire stations, cemeteries, hydroelectrical dams, telecommunication facilities, etc. The assets were pulled from existing reports, documents, and the County website. Existing reports and documents include:

- 2021 Lewis County Comprehensive Plan
- 2021 Shoreline Master Program
- 2023 Public Safety Radio System Engineering Study Report
- 2023 Draft Comprehensive Solid and Hazardous Waste Management Plan
- 2023 Draft Hazard Mitigation Plan
- 2024 Economic Development Strategic Plan

- 2024-29 Transportation Improvement Program
- 2012 Washington State Department of Ecology "Preparing for a Changing Climate" Report
- Lewis County website
- [1] https://lewiscountywa.gov/departments/community-development/adopted-plans/.

It is important to note that the 2023 Draft Comprehensive Solid and Hazardous Waste Management Plan and 2023 Draft Hazard Mitigation Plan, as mentioned above, are nearing the adoption stage; therefore, major changes to these plans are not anticipated and were utilized for this analysis. The community assets were thematically grouped and generalized under a singular term such as "buildings", "transportation", "utilities", "parks", and such. Each term was subsequently assigned a sector based on definitions provided in the Guidance document. One asset may be applicable in multiple sectors; for example, airports are applicable in economic development, emergency management, and transportation sectors.

Exploration of Hazards and Changes in the Climate

Hazards, climate indicators, and climate impacts specific to Lewis County were identified for each sector utilizing the Climate Mapping for a Resilient Washington ("CMRW") webtool. The CMRW tool provided a long list of climate indicators within various sectors such as agriculture, buildings and energy, cultural resources and practices, economic development, ecosystems, emergency management, human health, transportation, waste management, water resources, and zoning and development. Within these sectors, hazards such as drought, extreme heat, extreme precipitation, flooding, reduced snowpack, sea level rise, and wildfire were analyzed under the higher greenhouse gas scenario (RCP 8.5) with its respective climate indicator. The RCP 8.5 scenario was utilized as compared to the lower greenhouse gas scenario (RCP 4.5) as the scenarios do not differ significantly prior to 2050. Selected climate hazards and indicators can be found in **Appendix A.**

Pairing Assets and Hazards

Approximately 75 asset-hazard pairs were identified by selecting the sector in the CMRW tool, which automatically populated select hazard data that would impact the sector. For example, buildings & energy sector yielded hazard data for extreme heat and wildfire, but not sea level rise, extreme precipitation, or drought. Assets were grouped with each hazard data; for example, County administrative buildings (identified within the buildings & energy sector) would be listed as "County buildings – Extreme Heat" and "County buildings – Wildfire". Some pairs were listed several times as some assets had multiple hazards within various sectors. For example, Airports – Flooding was listed twice but were under two different sectors: economic development and emergency management. The asset-hazard pairs were then assessed for climate impacts focusing on how the hazard particularly impacted the asset, how each asset is exposed to the hazard, non-climate stressors that may exacerbate climate impacts, and past/future consequences of previous factors that are specific to the County asset. This exercise builds off the previous two exercises of identifying County assets and potential climate hazards.

Exposure, Impacts, Stressors, Consequences

Climate impacts to the appropriate County assets were assessed based on disruptions to the specific sector under the RCP 8.5 climate scenario.

[1] Lewis County Washington, *Adopted Plans,* Adopted Plans (lewiscountywa.gov) Accessed April, 2024.

The following summarizes key take-aways:

- Extreme heat, wildfire, flooding, extreme precipitation, and reduced snowpack were the most recurring hazards when paired with assets.
- Lewis County is anticipated to experience an increased frequency of annual peak streamflow or "flooding" of 35.3% to 91.8% of stream segments. A return interval of 25-year peak streamflow is anticipated every 0-10 years rather than every 25 years.
- Risk of heat waves, drought, and sea level rise are relatively low.
- East Lewis County has a higher risk of wildfire. A combination of increased time delay interference in County radio communications, increased emergency responses, limited personnel, and more frequent wildfire events exposes eastern County residents to higher wildfire risks.
- Numerous County infrastructure are located in remote areas and are at higher risk of exposure to climate impacts, including roads, bridges, radio towers, transportation facilities, and utility substations.
- Damage to County infrastructure and assets are more likely to occur from secondary hazards such as frequently occurring avalanches from reduced snowpack, bank erosion from riverine flooding, and landslides from extreme weather events.
- Non-climate stressors such as increased impervious surfaces, housing and population increases, aging infrastructure, limited personnel and equipment capabilities, incompatible land uses, invasive species, development in WUI zones, and others can exacerbate climate impacts.
- Snowmelt is projected to shift 3 to 4 weeks earlier than the 20th century average, impacting wildlife migration patterns and hydroelectricity demands.
- Summer stream flows are expected to substantially diminish due to changing snowmelt patterns, shifting energy supply to other sectors or industries.

The list is non-exhaustive and may expand based on the best available science and community input. Future community engagement events may identify other assets such as community groups, places, and services that will be analyzed for climate hazard impacts provided in an updated workbook and memo. A community engagement plan and community engagement summary report will be provided as a separate appendix with the updated memo.

Identify Priority Climate Hazards

Priority climate hazards were identified based on the most common recurrences among asset-hazard pairs. Priority hazards were also identified based on the County's existing plans and anecdotal information. The existing plans include the Comprehensive Plan, Shoreline Master Plan, 2023 Hazard Mitigation Plan, and Countywide Planning Policies. The climate hazards most relevant to the County include:

- Extreme Precipitation
- Flooding
- Reduced snowpack/Avalanche
- Wildfire

Other hazards such as earthquakes and volcanos are relevant to the jurisdiction. However, the impacts of climate change on earthquake and volcanic activity probability cannot be confirmed; thus, such hazards are not assessed for gaps and opportunities.

Kimley»Horn

Policy Audit – Climate Gaps and Opportunities

Existing plans were reviewed to identify gaps, opportunities, and barriers to climate resiliency. Staff identified 60 goals or policies ("measure") that implicit or explicit support climate resilience[2], including related sectors, climate indicators, hazards, climate impacts, and assets affected for each measure. The measure was assessed in the context of climate impacts as to whether the measure can be amended or supplemented to better address local climate hazards and impacts.

The existing measures needed specificity to better address climate hazards and impacts. Next steps were identified for each measure to amend, consolidate, add, or keep the existing measure. Staff recommends the following:

- Amend existing Comprehensive Plan measures to consider climate impacts and add amended measures to the new Climate Resiliency Element[3].
- Amend existing Shoreline Master Plan measures to consider climate impacts or leave as-is and integrate into new climate resiliency element.
- No changes for Hazard Mitigation Plan measures recommended.

New Climate Element measures should remain consistent throughout the Comprehensive Plan. The recommendations include actions to enhance resiliency among all sectors and to advance environmental justice through economic development and land use while ensuring consistency with the Hazard Mitigation Plan, Shoreline Master Plan, and Countywide Planning Policies. A separate memo outlining current policy gaps and opportunities is provided.

Sincerely,

Heidi Rous,
Kimley-Horn

On Behalf of:
County of Lewis, Washington State

[2] Resilience is defined as "The on-going process of anticipating, preparing for, and adapting to changes in climate and minimizing negative impacts to our natural systems, infrastructure, and communities."
[3] These amended measures can be found in the Lewis County Draft Policy Gap Analysis.

References:

1. Raymond, C., M. Rogers, 2022. Climate Mapping for a Resilient Washington. Prepared by the Climate Impacts Group, University of Washington, Seattle and Research Data & Computing Services, University of Idaho, Moscow.

Task 1.1: Identify community assets	
Sectors	**Assets**
Agriculture & Food Systems	
Buildings & Energy	General government (County administrative buildings including maintenance sheds), utility substation, radio communications infra (radio towers), hydroelectrical facilities, Power plant, wind farm, natural gas pipelines
Cultural Resources & Practices	Historic buildings and sites (libraries, religious institutions, museums), etc.
Economic Development	Airports, fiber optics network, etc.
Ecosystems	Shorelines (under SMP): stream/rivers, lakes/reservoirs, water banks/beaches, open space, wetlands, urban tree canopy, etc.
Emergency Management	Public safety radio infrastructure & equipment, fire stations (w/in fire district), airports, etc.
Health & Well-being	Recreation areas (forests, shorelines, boat ramps, fishing, parks), senior centers, hospitals, etc.
Transportation	Airports, County roadways, bridges, Roadway appurtenant structures i.e., culverts, faclilities/warehousing (road shops, pits and quarries, stockpiles, sand sheds), Railways, etc.
Waste Management	Solid waste transfer stations, dump station, sewer infrastructure i.e., mains, etc..
Water Resources	Water infrastructure i.e., distribution pipes, groundwater supplies (reservoirs, wells), water treatment facilities, etc.
Zoning & Development	Civic centers (i.e., senior centers, youth/community centers, public plazas, recreation facilities), Colleges, Cemeteries, etc.

Task 1.2: Explore hazards and changes in the climate

Sector *(Use the CMRW webtool and other resources, as needed, to fill out this column.)*	**Climate Indicator** *(Use the CMRW webtool and other resources, as needed, to fill out this column.)*	**Hazard** *(Use the CMRW webtool and other resources, as needed, to fill out this column.)*	**Climate Impacts** *(Use the CMRW webtool's "Understanding the Importance" tab, Figure 5 of the climate element planning guidance, and other information sources to fill out this column.)*	**Notes** *(Note the emissions scenario(s) and time periods you explored. You may also wish to identify potential information gaps that might warrant further analysis.)*
Agriculture	Increase in precipitation Drought	Drought	Increased likelihood of below normal summer precipitation indicates a greater likelihood of drought in any year. Reduction of the of water available for livestock and irrigation during the same time that warmer temperatures and longer growing seasons are expected to increase the demand for irrigation water.	High emissions scenario. Steady increase of likelihood of a year with summer precipitation below 75% ranges from 0.28 to 0.38. The closer the value to 1, the higher likelihood of snowpack drought; value closer to 0 are a lower likelihood.
Agriculture	Increase in summer maximum temperature	Extreme Heat	Warmer summers directly affect the health and well-being of people and stress and water availability for crops and ecosystems. Increase potential for heat stress on some crops and livestock and decrease crop yield. Agricultural pests are expected to have greater survival rates and population size with warming. Increase demand for irrigation water.	High emissions scenario. Increase in summer maximum temperature. From 2.4 deg F to 12.8 deg F with baseline temperature of 73 deg F.
Agriculture	Increase in extreme precipitation magnitude	Extreme Precipitation	Changes in the intensity of extreme precipitation events are more likely to cause damages to infrastructure and agricultural operations. Heavier precipitation is expected to increase flooding and inundation of agricultural lands, which can delay spring planting, affect crop quality and quantity, increase erosion and runoff, and increase susceptibility to root diseases.	High emissions scenario. Increase in extreme precipitation. Median likelihood is >10% from 2020 - 2099
Agriculture	N/A	Flooding	N/A	N/A
Agriculture	Increase in percentage of stream lengths winter to spring streamflow timing ratio	Reduced Snowpack	Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including agriculture, drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase. A shift in streamflow timing, with more streamflow in winter and early spring, will change the timing of water available for irrigated agriculture. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches.	High emissions scenario. Increase ratio in the future of streamflow in winter and a decrease in spring
Agriculture	N/A	Sea Level Rise	N/A	N/A
Agriculture	Increased wildlife likelihood	Wildfire	Increased likelihood of wildfire indicates a greater potential for wildfire to damage infrastructure, interrupt businesses, or affect public health and well-being. Potential to increase damage to crops, livestock, agriculture infrastructure and operations. Wildfire smoke may reduce the quality of some crops and adversely affect farm workers and other outdoor laborers in the industry	High emissions scenario. Slight increase in wildfire likelihood. Increase starting at median of 0.03 to 0.29. The closer the value to 1, the higher likelihood of wildfire; value closer to 0 are a lower likelihood.
Buildings and Energy	N/A	Drought	N/A	N/A
Buildings and Energy	Decrease in heating degree days and increase in cooling degree days	Extreme Heat	Decrease in heating degree days indicates lower potential energy demand for heating buildings in winter. Decrease in heating degree days is expected to reduce energy demand for heating; potential to reduce energy costs for businesses and residents, but decreases utility revenue to support infrastructure and operations. Increase in cooling degree days indicates greater potential energy demand for cooling buildings in summer. Increase energy demand for air conditioning and industrial cooling systems in summer when regional hydropower supply is expected to decrease. Increase in demand for air conditioning and infrastructure with cooling systems that do not already exist.	High emissions scenario. Negative decrease in heating degree days (-806 to -2203 days). High emissions scenario. Positive increase in cooling degree days (127 to 562 days)
Buildings and Energy	N/A	Extreme Precipitation	N/A	N/A
Buildings and Energy	N/A	Flooding	N/A	N/A
Buildings and Energy	N/A	Reduced Snowpack	N/A	N/A
Buildings and Energy	N/A	Sea Level Rise	N/A	N/A

Buildings and Energy	Increase wildfire likelihood	Wildfire	Increased likelihood of wildfire indicates a greater potential for wildfire to damage infrastructure, interrupt businesses, or affect public health and well-being. Can a affect energy transmission by damaging infrastructure and interrupting transmission and distribution. Can cause property damage and loss. Poor air quality due to wildfire smoke could increase demand for air filtration systems in buildings.	High emissions scenario. Steady increase of likelihood of climate and fuel conditions for wildfire ranging from 0.03 to 0.29. The closer the value to 1, the higher likelihood of wildfire; value closer to 0 are a lower likelihood.
Cultural Resources and Practice	Increase in low streamflow	Drought	Lower streamflow's in summer are expected to reduce habitat quantity and quality for salmonids and other aquatic species that are culturally important to the Northwest Tribes.	High emissions scenario. Steady increase of low streamflow ranging from 25-38% of streams will have 30-50% less streamflow on average during their low summer streamflow and low streamflow ranging from 2-29% of streams will have 50-70% less streamflow.
Cultural Resources and Practice	Increase in August stream temperature	Extreme Heat	Increase in temperature during August (typically the hottest month for most streams) indicates the water quality for salmon and other species that depend on cold water. Warmer stream temperatures are expected to reduce habitat quality for salmonids and other aquatic species that depend on cold water. Can reduce the abundance of and access to these culturally important species for Northwest Tribes.	High emissions scenario. Greater increase of stream temperature with higher percentages and decrease of streams with colder temperature.
Cultural Resources and Practice	N/A	Extreme Precipitation	N/A	N/A
Cultural Resources and Practice	Increase in peak streamflow	Flooding	Increase in annual peak streamflow indicates a potential for higher stream flows and larger areas inundated every year at high flows. Higher stream flows are expected to directly affect salmonid populations and alter salmonid habitat, reducing the quantity of a culturally important species for Northwest Tribes.	High emissions scenario. Steady increase in maximum streamflow ranging from 49-69% increase of stream flows will have 10-30% more streamflow on the day of the year with the highest streamflow.
Cultural Resources and Practice	N/A	Reduced Snowpack	N/A	N/A
Cultural Resources and Practice	N/A	Sea Level Rise	N/A	N/A
Cultural Resources and Practice	Increased wildfire likelihood	Wildfire	Increased likelihood of wildfire indicates a greater potential for wildfire to damage infrastructure, interrupt businesses, or affect public health and well-being. Can have the potential to damage cultural and historical sites, buildings, and cultural resources. More frequent wildfires can also reduce access to culturally important sites and resources for Northwest Tribes.	High emissions scenario. Steady increase of likelihood of climate and fuel conditions for wildfire ranging from 0.03 to 0.29. The closer the value to 1, the higher likelihood of wildfire; value closer to 0 are a lower likelihood.
Economic Development	Decreased snowpack and increased streamflow timing	Drought	Decreased snowpack in the mountains in the beginning of spring indicates the amount of natural water storage in snowpack that will be available in the melt season. April 1st snowpack (snow water equivalent). Reduction in snowpack are expected to decrease opportunities for winter outdoor recreation and shorten the winter recreation season, with adverse effects on the economy and character of some communities. Warm season outdoor recreation opportunities may increase, shifting tourism from one recreation sector to another and into different seasons. Increase in the ratio of winter to spring streamflow is an indicator of the change in the seasonal timing of streamflow. The timing of snowmelt and streamflow influences the seasonal availability of water for hydropower generation and irrigation. A shift in streamflow timing, with more streamflow in winter and early spring, will change the timing of hydropower generation. Timing changes have the potential to affect energy costs for residents and businesses.	High emissions scenario. Steady decrease of April 1st snowpack. High emissions scenario. Steady increase in streamflow that indicates more winter streamflow and drastic decrease in spring streamflow.
Economic Development	Increase in summer maximum temperature	Extreme Heat	Warmer summer temperatures could decrease Warmer summer temperatures could decrease opportunities for warm season recreation activities in some areas and increase them in others. opportunities for warm season recreation activities in some areas and increase them in others.	High emissions scenario. Steady increase of summer maximum temperatures ranging from a median of 3.4 deg F to 9.9 deg F.

Economic Development	Increase in extreme precipitation magnitude	Extreme Precipitation	Changes in the intensity of extreme precipitation events are more likely to cause damages to infrastructure and agricultural operations than changes in seasonal and annual precipitation. Heavier precipitation is expected to increase the extent of flooding in low-lying areas and flood zones. Businesses are expected to have more disruptions to operations and damage to infrastructure.	High emissions scenario. Median likelihood ranges from 7-18% of the county to expect an increase in the total precipitation of the 25-year storm.
Economic Development	Increase of return interval of 25-yr peak streamflow	Flooding	he 25-year peak streamflow is the streamflow that occurs on average every 25 years, similar to the 100-year high flow but more frequent. The return interval of the historical 25-year peak streamflow indicates how much more frequently stream flows of this magnitude are expected to occur in the future with heavier precipitation and more rain in the winter. More frequent high stream flows are expected to increase the frequency of flooding impacts to businesses and the economy by disrupting travel and shipping routes and damaging property. More frequent flooding has the potential to increase insurance premiums or make some properties more difficult to insure.	High emissions scenario. Increased frequency of historical peak streamflow occurring ranging from 35.3% to 91.8% of stream segments in the 0-10 years of return interval will have their historical peak streamflow occur on average once every 0-10 years, rather than once every 25 years. Similarly, 8.2% to 63.5 % of stream segments in the 10-20 years of return interval will have their historical peak streamflow occur on average once every 10-20 years, rather than once every 25 years.
Economic Development	Decrease in snowpack	Reduced Snowpack	Reductions in snowpack are expected to decrease opportunities for winter outdoor recreation and shorten the winter recreation season, with adverse effects on the economy and character of some communities. Warm season outdoor recreation opportunities may increase, shifting tourism from one recreation sector to another and into different seasons. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches, increasing hazard risks for recreational snow activities and emergency response.	High emissions scenario. A decrease in April 1st snowpack indicates that less stored water will be available to supply streams, soils, and reservoirs during the melt season.
Economic Development	N/A	Sea Level Rise	N/A	N/A
Economic Development	Increase in wildfire danger	Wildfire	More high fire danger days indicates a greater potential for wildfire activity, assuming ignition sources and sufficient fuels are present. More days with high wildfire danger are expected to affect businesses through more frequent closures of recreation areas and restrictions on outdoor activities during the wildfire season. More high fire danger days will interrupt timber operations and outdoor recreation.	High emissions scenario. An increase in high fire danger days indicates a greater potential for wildfire danger to damage infrastructure, interrupt businesses, and affect public health and well-being.
Ecosystems	Decrease in late summer precipitation	Drought	Summer precipitation affects water availability for non-irrigated agriculture and fuel moisture during the height of the fire season. Less summer precipitation is expected to affect ecosystem types differently. In freshwater ecosystems, less summer precipitation will contribute to lower stream flows, reduce water quality, and increase water temperatures. In terrestrial ecosystems, less summer precipitation will contribute to drought stress and reduce the growth and productivity of some plants.	High emissions scenario. Steady decrease in late summer precipitation ranging from -10.3% to -26.5% for summer months of July 15 - September 15
Ecosystems	Increase in summer maximum temperature	Extreme Heat	Warming is expected to be greatest in summer months. Warmer summers directly affect the health and well-being of people and stress and water availability for crops and ecosystems. Warmer summers are expected to reduce summer soil moisture and increase physiological stress for some plants and animals. Warmer summer temperatures are expected to reduce tree growth and forest productivity in some areas and increase growth and productivity in mild climates. Outbreaks of some forest pests, such as mountain pine beetles, are expected to increase.	High emissions scenario. Steady increase in summer maximum temperature ranging from 3.4 deg F to 9.9 deg F. 3.4 deg F means the average summer maximum temperature is expected to increase by 3.4 deg F for the county between (June - Aug). The change in average summer maximum temperature is an indicator of heat stress for people, ecosystems, and infrastructure.
Ecosystems	N/A	Extreme Precipitation	N/A	N/A
Ecosystems	Increased peak streamflow	Flooding	Increased percentage of stream lengths indicates a potential for higher stream flows and larger areas inundated every year at high flows. Higher stream flows will scour the streambed and remove or crush salmon eggs, increasing mortality and reducing return rates. Higher stream flows reduce the availability of slow-water habitat and can increase sedimentation that affects habitat quality.	High emissions scenario. 40-69% increase in maximum streamflow. 17-42% increase of stream segments with streamflow above the historical maximum streamflow.

Ecosystems	Increase in streamflow timing	Reduced Snowpack	Earlier spring snowmelt and associated changes in streamflow timing are expected to alter migration timing and survival rates for salmonids. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches.	High emissions scenario. An increase in the ratio in the future means an increase in streamflow in winter and a decrease in spring. Steady increase of winter streamflow and decrease of spring streamflow.
Ecosystems	N/A	Sea Level Rise	N/A	N/A
Ecosystems	Increase in wildfire likelihood	Wildfire	More frequent wildfires have the potential to reduce timber, non-timber forest products, carbon storage, and forest habitat for some wildlife. Wildfires also increase establishment of invasive species. More frequent wildfires have the potential to increase runoff and sediment to streams, which can reduce aquatic habitat quality.	High emissions scenario. Steady increase in the likelihood of climate and fuel conditions for wildfire ranging from 0.03 to 0.29. A value of 0.03 means that there is a 3% change that a year in the time period will have climate and fuel conditions that are favorable for wildfire.
Emergency Management	Increase in precipitation Drought	Drought	Washington State's legal definition of drought for a declaration and associated response is 75% of normal water supply and hardship. Summer precipitation is one component of water supply considered in the determination. A greater likelihood of below normal summer precipitation indicates a greater likelihood of drought in any year. More frequent and severe droughts due to low summer precipitation are expected to increase the need for emergency services to plan, prepare, and respond to water shortages.	High emissions scenario. Steady increase in precipitation drought that a year in a selected 30-year period will have summer precipitation at or below 75% of normal. Ranges from 0.28 to 0. 38 means that there is a 28% will have summer precipitation at or below 75% of normal. Values closer to one are a higher likelihood of snowpack drought; values closer to zero are a lower likelihood.
Emergency Management	Increase in 90 deg F Max Humidex Days	Extreme Heat	An increase in days over a maximum humidex of 90° is an indicator of day-time heat stress for people. More frequent extreme daytime heat events are expected to increase the demand for emergency services to plan, prepare, and respond to human health impacts. Extreme heat may also impact emergency services due to transportation and travel disruptions such as warped and buckling pavement on roads.	High emissions scenario. The humidex is a measure of experienced heat conditions, and takes into consideration both temperature and humidity. The change in the number of 90 deg F maximum humidex days is an indicator of stress on public health. Positive increase of humidex days from 11.7 days to 45.1 days.
Emergency Management	Increase of extreme precipitation magnitude	Extreme Precipitation	Heavier precipitation has the potential to increase the demand for emergency response services by intensifying flood events and increasing other emergencies associated with heavy precipitation.	High emissions scenario. Steady increase in percent change in the magnitude of 25-year storm ranging from 7-18%. Indicates the county is expected to experience an increase in total precipitation of the 25-year storm of 7%. Heavy precipitation is an indicator of flooding that can affect infrastructure and operations.
Emergency Management	Increase in peak streamflow	Flooding	Higher streamflow are expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. More flooding has the potential to increase the demand for emergency services to plan, prepare, and respond to flood events.	High emissions scenario. Increase in maximum streamflow ranging from 47% to 69% in the 10 to 30 percent change. This indicates that 47% of the stream segments in the 10 to 30 category means that 47% of the streams in the county will have 10% to 30% more streamflow on the day of the year with the highest streamflow.
Emergency Management	N/A	Reduced Snowpack	N/A	N/A
Emergency Management	N/A	Sea Level Rise	N/A	N/A
Emergency Management	Increase in wildfire danger	Wildfire	More days with high fire danger will increase the need for fire bans and associated enforcement and capacity to respond to wildfires.	High emissions scenario. Increase of high fire danger days from 6 - 8 days. A value of 6 means that there are 6 additional days in which the 100-hour fuel moisture is less than the 20th percentile in the county.
Human Health	N/A	Drought	N/A	N/A
Human Health	Increase in summer maximum temperature	Extreme Heat	Warming is expected to be greatest in summer months. Warmer summers directly affect the health and well-being of people and stress and water availability for crops and ecosystems. Warmer summers are expected to increase concentrations of air pollutants, such as ozone and some vector-borne	High emissions scenario. Steady increase in maximum temperature ranging from 3.4 deg F to 9.9 deg F. An increase of 3.4 deg F means that the average summer maximum temperature is expected to increase by 3.4 deg F for the county.
Human Health	N/A	Extreme Precipitation	N/A	N/A
Human Health	N/A	Flooding	N/A	N/A
Human Health	N/A	Reduced Snowpack	N/A	N/A
Human Health	N/A	Sea Level Rise	N/A	N/A

Transportation	Decrease in snowpack	Drought	Reductions in snowpack have the potential to reduce snow-related road maintenance, road closures, and transportation delays. However, as more cold-season precipitation falls as rain rather than snow, transportation routes in mountainous areas may experience more damage from heavier winter rainfall and associated flooding, erosion, and washouts.	High emissions scenario. Steady decrease in April 1st snowpack ranging from 68% to 97%. April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season.
Transportation	Increase in hot days	Extreme Heat	Days with a temperature over 100°F is an indicator of potential damage to transportation infrastructure such as roads and bridges. More very hot days have the potential to damage the surfaces of roads and bridges, leading to greater maintenance and repair costs and more frequent traffic and service disruptions.	High emissions scenario. Steady increase of hot days ranging from 0.2 days to 2.3 days. A value of 0.2 days means that the number of annual hot days in the county is expected to increase by 0.2 days. A increase in the number of days above 100 deg F is an indication of more stress on transportation infrastructure.
Transportation	Increase in heavy precipitation magnitude	Extreme Precipitation	Heavier precipitation events are expected to intensify flooding, landslides, and erosion, which can interrupt transportation routes, damage infrastructure, and increase maintenance and repair costs.	High emissions scenario. Steady increase in heavy precipitation magnitude ranging from 7-18%. A value of 7% means a county is expected to experience an increase in the total precipitation of the 2-year storm of 7%.
Transportation	Increase in peak streamflow	Flooding	Higher stream flows are expected to increase riverine flooding, which can damage roads, bridges, and railways and overwhelm drainage structures, such as culverts.	High emissions scenario. Increase in maximum streamflow ranging from 47% to 69% in the 10 to 30 percent change. This indicates that 47% of the stream segments in the 10 to 30 category means that 47% of the streams in the county will have 10% to 30% more streamflow on the day of the year with the highest streamflow.
Transportation	Decrease in snowpack	Reduced Snowpack	Reductions in snowpack have the potential to reduce snow-related road maintenance, road closures, and transportation delays. However, as more cold-season precipitation falls as rain rather than snow, transportation routes in mountainous areas may experience more damage from heavier winter rainfall and associated flooding, erosion, and washouts. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches and closure of roads.	High emissions scenario. Steady decrease in April 1st snowpack ranging from 68% to 97%. April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season.
Transportation	N/A	Sea Level Rise	N/A	N/A
Transportation	Increase in wildfire likelihood	Wildfire	More frequent wildfires, and related smoke, can disrupt travel, increase road closures and delay construction projects. Wildfire smoke has the potential to affect labor in the transportation sector because of health effects on outdoor laborers. More roadside brush fires can create safety hazards and disrupt transportation.	High emissions scenario. Steady increase in the likelihood of climate and fuel conditions for wildfire ranging from 0.03 to 0.29. A value of 0.03 means that there is a 3% change that a year in the time period will have climate and fuel conditions that are favorable for wildfire.
Waste Management	N/A	Drought	N/A	N/A
Waste Management	N/A	Extreme Heat	N/A	N/A
Waste Management	Increase in extreme precipitation magnitude	Extreme Precipitation	Heavier precipitation has the potential to increase storm damage to infrastructure and generate more waste and debris. More waste will strain municipal cleanup and refuse capacity.	High emissions scenario. Steady increase in heavy precipitation magnitude ranging from 7-18%. A value of 7% means a county is expected to experience an increase in the total precipitation of the 2-year storm of 7%.
Waste Management	Increase in return interval of 25-yr peak streamflow	Flooding	The 25-year peak streamflow is the streamflow that occurs on average every 25 years, similar to the 100-year high flow but more frequent. The return interval of the historical 25-year peak streamflow indicates how much more frequently stream flows of this magnitude are expected to occur in the future with heavier precipitation and more rain in the winter. More frequent high stream flows are expected to increase flooding, which can generate more debris and waste. More waste will strain municipal cleanup and refuse capacity. Flooding of waste management facilities can release contaminants and hazardous materials.	High emissions scenario. Steady increase in return interval of 25-yr peak streamflow for 0-10 and 10-20 categories. In the 0-10 year category, a range of 35.3 % to 91.8% of the stream segments means that 35.3% of the streams in the county will have their historical peak streamflow occur on average once every 0-10 years, rather than once every 25 years. In the 10 to 20 year category, a range of 8.2% to 63.5% of the stream segments means that 8.2% of the streams in the county will have their historical peak streamflow occur on average once every 10-20 years, rather than once every 25 years.
Waste Management	N/A	Reduced Snowpack	N/A	N/A
Waste Management	N/A	Sea Level Rise	N/A	N/A

Waste Management	Increase in wildfire likelihood	Wildfire	More frequent wildfires have the potential to generate greater amounts of debris and waste. More waste will strain municipal cleanup and refuse capacity.	High emissions scenario. Steady increase in the likelihood of climate and fuel conditions for wildfire ranging from 0.03 to 0.29. A value of 0.03 means that there is a 3% change that a year in the time period will have climate and fuel conditions that are favorable for wildfire.
Water Resources	Increase in total annual precipitation	Drought	Total annual precipitation is the total input of water each year which limits the overall amount of water available for human uses and ecosystems. Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation.	High emissions scenario. Steady increase in total annual precipitation ranging from 1.8% to 4.6%. Positive values are an increase in average total annual precipitation.
Water Resources	N/A	Extreme Heat	N/A	N/A
Water Resources	N/A	Extreme Precipitation	N/A	N/A
Water Resources	N/A	Flooding	N/A	N/A
Water Resources	Decrease in snowpack	Reduced Snowpack	Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	High emissions scenario. Steady decrease in April 1st snowpack ranging from 68% to 97%. April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season.
Water Resources	N/A	Sea Level Rise	N/A	N/A
Water Resources	Increase in wildfire likelihood	Wildfire	More frequent wildfires have the potential to damage water distribution infrastructure and reduce water quality in reservoirs due to more runoff, erosion, and turbidity. Changes in water quality could increase the need for water treatment and filtration.	High emissions scenario. Steady increase in the likelihood of climate and fuel conditions for wildfire ranging from 0.03 to 0.29. A value of 0.03 means that there is a 3% change that a year in the time period will have climate and fuel conditions that are favorable for wildfire.
Zoning and Development	Decrease in snowpack	Drought	Reductions in snowpack are expected to decrease opportunities for winter outdoor recreation and shorten the winter recreation season with adverse effects on the economy and character of some communities. Warm season outdoor recreation opportunities are expected to increase, shifting tourism revenue from one recreation sector to another.	High emissions scenario. Steady decrease in April 1st snowpack ranging from 68% to 97%. April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season.
Zoning and Development	Increase in August stream temperature	Extreme Heat	Warmer stream temperatures have the potential to reduce the ability to meet water quality standards and the effluent limits (amount discharge to the water body) set on existing wastewater treatment facilities.	High emissions scenario. Steady increase in august stream temperature deg C. This indicated more of the streams are projected to have warmer average August streamflow temperatures.
Zoning and Development	Increase in heavy precipitation magnitude	Extreme Precipitation	Heavier precipitation events are expected to intensify urban flooding and demands on storm water systems, which can affect zoning restrictions on new buildings, and require revised building codes for development in more frequently flooded areas.	High emissions scenario. High emissions scenario. Steady increase in heavy precipitation magnitude ranging from 7-18%. A value of 7% means a county is expected to experience an increase in the total precipitation of the 2-year storm of 7%.
Zoning and Development	Increase in peak streamflow	Flooding	Higher streamflow are expected to increase damage to all types of infrastructure in flood zones and could expand the flood zone in some areas leading to damage of development not currently in flood zones.	High emissions scenario. Increase in maximum streamflow ranging from 47% to 69% in the 10 to 30 percent change. This indicates that 47% of the stream segments in the 10 to 30 category means that 47% of the streams in the county will have 10% to 30% more streamflow on the day of the year with the highest streamflow.
Zoning and Development	Decrease in snowpack	Reduced Snowpack	Reductions in snowpack are expected to decrease opportunities for winter outdoor recreation and shorten the winter recreation season with adverse effects on the economy and character of some communities. Warm season outdoor recreation opportunities are expected to increase, shifting tourism revenue from one recreation sector to another. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches.	High emissions scenario. Steady decrease in April 1st snowpack ranging from 68% to 97%. April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season.
Zoning and Development	N/A	Sea Level Rise	N/A	N/A
Zoning and Development	Increase in wildfire likelihood	Wildfire	More frequent wildfires are expected to increase damage to homes and infrastructure and displace residents.	High emissions scenario. Steady increase in the likelihood of climate and fuel conditions for wildfire ranging from 0.03 to 0.29. A value of 0.03 means that there is a 3% change that a year in the time period will have climate and fuel conditions that are favorable for wildfire.

Task 1.3: Pair assets and hazards, and describe exposure and consequences							
Number	**Asset-Hazard Pair** *(Note applicable sector(s) in parenthesis.)*	**Climate Indicator** *(Use the CMRW webtool and other resources, as needed, to fill out this column.)*	**Climate Impacts** *(Use the CMRW webtool and other resources, as needed, to fill out this column.)* *	**Exposure** *(Describe how each asset is exposed to the hazard, utilizing information from the CMRW webtool's "Understanding the Importance" tab, local knowledge, and other resources)*	**Non-Climate Stressors (Describe non-climate stressors that may exacerbate climate impacts.)**	**Consequences** *(Describe the consequences of the climate impacts, factoring in exposure, non-climate stressors, and your knowledge of how this hazard has impacted your community in the past. You may find it useful to divide consequences into past and future.)*	
1	General Government - Extreme Heat (*Buildings & Energy*)	**Heating Degree Days** *(annual number of degree-days below a threshold of average daily temperature of 65°F)* **Cooling Degree Days (***annual number of degree-days above a threshold of average daily temperature of 65°F)*	Lewis County is expected to experience a decrease of heating degree days indicating increased potential energy demand for heating buildings in winter. Increase in cooling degree days indicates greater potential energy demand for cooling buildings in summer. Annual days with max temperatures above 90 °F is 6.3 days (lower emissions) and 7.1 days (higher emissions). (*Source: CMRW tool, CMRA tool)* . The risk for heat waves in Lewis County is relatively low (*Source: FEMA Nat'l Risk Index*).	A majority of general government/administrative buildings are located in downtown Centralia with little to no tree canopy. County buildings located in this area may experience more heating and cooling degree days from urban heat island effects. Buildings with cooling systems and built to older codes will be more sensitive to higher energy demand for cooling (Source: CMRW tool). [refer to County planning staff for anecdotal info]	Increase in population (more demand on energy use); More impervious surface development	**Future consequences:** Longer durations of heating and cooling degree days are expected to occur. An increase in cooling degree days is expected to increase energy demand for air conditioning and industrial cooling systems in summer when regional hydropower supply is expected to decrease, increasing demand on external energy sources and causing potential widespread power outages (Source: CMRW tool). Power outages may inhibit the County from administering services and emergency relief (see asset details). **Past consequences:** Extreme heat events do not typically impact buildings; however, losses may be associated with the urban heat island effect and overheating of HVAC systems. These extreme heat events can lead to drought, impact water supplies, and lead to an increase in heat-related illnesses and deaths (Source: Haz Mit Plan).	
2	General Government - Wildfire *(Buildings & Energy)*	**Wildfire likelihood** (*average likelihood of climate and fuel conditions being conducive to wildfire in a 30-year period)*	The wildfire probability for Lewis County is extremely low at 0.03, indicating that there is a 3% chance that there will be climate and fuel conditions that are favorable for wildfire. Most wildfires result from "perfect storm" conditions and factors. An increased likelihood of climate and fuel conditions conducive to wildfire indicates greater potential for wildfire danger to damage infrastructure, interrupt businesses, and affect public health and well-being. Buildings and energy infrastructure located in the wildland-urban interface and areas with high wildfire risk historically will be most exposed to increases in the likelihood of wildfire (Source: CMRW tool). Wildfire risk is relatively low (Source: FEMA Risk Index). *Note: A local vulnerability assessment found that eastern County has higher risk of wildfire (Source: Haz Mitigation Plan).	Ash and smoke from wildfires pollute the air, leading to increased demands for air purification tech that may be limited for older buildings (*Source: CMRW tool).* Roads can be blocked and power outages may occur, which will affect all critical facilities that do not have backup power (*Source: Haz Mit Plan).*	Increase in population (more demand on energy use); More impervious surface development; Limited personnel	**Future consequences:** Large wildfires are anticipated to occur more frequently (*Source: Hazard Mitigation Plan).* More frequent wildfires are expected to cause property damage and loss (*Source: CMRW tool)* . **Past consequences:** Wildfires in the past have been small and quickly contained (*Source: Hazard Mitigation Plan).*	According to the most recent Hazard Mitigation Plan, the County plans to create ignition-resistant communities through different programs adopted in WA State (i.e. Firewise, Wildfire Ready Neighbors, Ready, Set, Go!, WUI Code) that targets communities located in high/very high risk wildfire areas.
3	Utility substations - Extreme Heat *(Buildings & Energy)*	**Heating Degree Days; Cooling Degree Days**	Same as General Gov't - Extreme Heat	Substations contain appurtenant equipment that is critical for maintaining utility infrastructure. Increased energy demand from building usage may cause additional stress on infrastructure.	Increase in population (more demand on energy use); Aging utility infrastructure	Increased energy demand from building usage may cause additional stress on infrastructure, leading to power outages and increased stress on PUD personnel, potentially increasing reliance on County or external agency personnel. Increase reliance on back-up generators. Investments in diversified energy sources i.e., solar, wind, etc.	
4	Utility substations - wildfire *(Buildings & Energy)*	**Wildfire likelihood**	Same as General Gov't - Wildfire	More frequent wildfires have the potential to affect energy transmission by damaging infrastructure and interrupting transmission and distribution. More frequent wildfires are expected to cause property damage and loss (*Source: CMRW tool)* . Systems that are flammable, such as wooden structures and power poles, can be destroyed during a fire. Roads can be blocked and power outages may occur, which will affect all critical facilities that do not have backup power (*Source: Haz Mit Plan).*	Increase in population (more demand on energy use); Aging utility infrastructure	With the increasing wildfire danger, exacerbated by east wind events, and limited resources available for initial attack, critical facilities and systems have a greater threat to ignitability and total loss. Should there be damages to critical facilities and systems, many of which do not have redundancies, there will be disruption to surrounding communities and the County. Increased extreme heat events are predicted to cause average of 6 additional fire hazard days per year within the next 30 years. Over the next 50 years, the western portion of the County is predicted to experience 11-12 additional high fire danger days each year (*Source: Haz Mit Plan*).	
5	Radio Communications - Extreme Heat *(Buildings & Energy)*	**Heating Degree Days; Cooling Degree Days**	Same as General Gov't - Extreme Heat	Radio communications include radio towers that are located in remote forested areas.	Aging infrastructure; Limited personnel	Drier vegetation and soils from extreme heat events increase likelihood of wildfires and landslides that may increase destruction of towers.	
6	Radio Communications - Wildfire *(Buildings & Energy)*	**Wildfire likelihood**	Same as General Gov't - Wildfire	Radio communications include radio towers that are located in remote forested areas. Wildfires directly impact radio communications by destroying towers and cutting off radio signal lines/channels. Indirect impacts from heavy precipitation followed by wildfire events can cause landslides that destroy tower foundations and equipment.	Aging infrastructure; Limited personnel	Same as above. Also, limited County personnel and aging infrastructure may result in lack of ability to respond efficiently to emergencies. Increasing climate change events may result in alternatives communication methods. *Implement the IWUI code* for radio towers, upgrade systems, and *hire County staff to support* (*Source: Haz Mit Plan)* .	
7	Hydroelectrical facilities - Extreme Heat (*Buildings & Energy)*	**Heating Degree Days; Cooling Degree Days**	Same as General Gov't - Extreme Heat. Increase energy demand for air conditioning and industrial cooling systems in summer when regional hydropower supply is expected to decrease.	Similar to utility substations, hydro facilities are owned and managed by the PUD. Extreme heat can reduce the amount of stream/river water supply available (drought) that increasingly reduces hydropower supply.	Population increase (more energy demand); Aging infrastructure; Limited personnel; Policy changes	Less hydroelectricity means outsourcing energy supplies from increased demand or unusual supply patterns, increasing stress on PUD staff and potentially increasing reliance on county or external agency personnel.	
8	Hydroelectrical facilities - Wildfire (*Buildings & Energy*)	**Wildfire likelihood**	Same as General Gov't - Wildfire	Similar to utility substations, hydro facilities are owned and managed by the PUD. Heavy precipitation followed by wildfire events can cause landslides that impact water quality. Increased sedimentation may impact performance, and increase maintenance requirements.	Lack of personnel; Aging infrastructure	Increased sedimentation may impact hydroelectric facility maintenance requirements. Implement the IWUI code and hire County staff to support.	

	Power Plant - Extreme Heat (*Buildings & Energy*)	**Heating Degree Days; Cooling Degree Days**	Same as General Gov't - Extreme Heat	Decrease in heating degree days indicates lower potential energy demand for heating buildings in winter. Decrease in heating degree days is expected to reduce energy demand for heating; potential to reduce energy costs for businesses and residents, but decreases utility revenue to support infrastructure and operations. Increase in cooling degree days indicates greater potential energy demand for cooling buildings in summer. Increase energy demand for air conditioning and industrial cooling systems in summer when regional hydropower supply is expected to decrease. Increase in demand for air conditioning and infrastructure with cooling systems that do not already exist.	Decreases in energy demand for heating will depend on current seasonal patterns of demand. Energy utilities with a higher dependence on revenue from winter sales will be more sensitive to this change. Increases in energy demand for cooling will depend on current seasonal patterns of supply and demand and sources of energy. Utilities with greater redundancy and flexibility in energy sources are likely to be less affected.	A decrease in heating degree days is expected to reduce energy demand for heating.This has the potential to reduce energy costs for businesses and residents, but decrease utility revenue to support infrastructure and operations. An increase in cooling degree days is expected to increase energy demand for air conditioning and industrial cooling systems in summer when regional hydropower supply is expected to decrease. Demand for air conditioning and infrastructure with cooling systems is also expected to increase where it does not already exist.
	Power Plant - Wildfire (*Buildings & Energy*)	**Wildfire likelihood**	Same as General Gov't - Wildfire	Increased likelihood of wildfire indicates a greater potential for wildfire to damage infrastructure, interrupt businesses, or affect public health and well-being. Can affect energy transmission by damaging infrastructure and interrupting transmission and distribution. Can cause property damage and loss. Poor air quality due to wildfire smoke could increase demand for air filtration systems in buildings.	Energy infrastructure built to standards that do not account for wildfire risk, such as untreated wooden poles, or with inadequate vegetation management along transmission and distribution lines will be more sensitive. Building design and codes can affect sensitivity to wildfire, including age, construction materials and degree of fire resistance. Older and less well maintained buildings may be more affected by poor air quality from wildfire smoke.	Power plant service may be interrupted and impact service to businesses, residential homes, government buildings, hospitals, etc.
	Wind farm - Extreme Heat	**Heating Degree Days; Cooling Degree Days**	Same as General Gov't - Extreme Heat	Extreme heat can reduce the efficiency of wind farm turbines.	Turbines that are not up to standard and are aging/need to be upgraded.	Wind farm service may be interrupted and impact service to businesses, residential homes, government buildings, hospitals, etc. In addition, components of wind turbines may overheat and increase wind resistance.
	Wind farm - Wildfire	**Wildfire likelihood**	Same as General Gov't - Wildfire	Same as Wind farm - Extreme Heat	Same as Wind Farm - Wildfire	Same as Wind Farm - Extreme Heat
	Natural gas pipelines - Extreme Heat	**Heating Degree Days; Cooling Degree Days**	Same as General Gov't - Extreme Heat	Extreme heat can expose natural gas pipelines to have sharp pressure increases.	Same as Power Plant - Extreme Heat	Natural gas pipelines will require high intensity for cooling, which increases natural gas demand and decreases natural gas flow in pipelines; thus, natural gas production may be interrupeted and service will be affected. In addition, sharp pressure increases in natural gas pipelines can potentially cause leaking or bursting.
	Natural gas pipelines - Wildfire	**Wildfire likelihood**	Same as General Gov't - Wildfire	Same as Natural gas pipelines - Wildfire	Same as Power Plant - Wildfire	Same as Natural gas pipelines - Extreme Heat
9	Historical Buildings & Sites - Flooding *(Cultural Resources & Practices)*	Peak Streamflow (Increase in peak streamflow)	Lewis County maintains three historic buildings (2 churches and 1 museum). Increase in annual peak streamflow indicates a potential for higher stream flows and larger areas inundated every year at high flows. Direct impacts to historical buildings is lack of access and loss of cultural symbol i.e., irreplaceable historic items.	Lack of access and loss of cultural symbols from flooding of historic bldgs. and sites can reduce quality of life and erode community identity.	Lack of personnel; Aging infrastructure; Lack of replacement materials	**Future consequences:** Increased maintenance costs. Longer closures for remodels and sourcing of rare or outdated materials. **Past consequences:** The worst flooding occurred along Chehalis and its tributaries, requiring more than two dozen water rescues (*Source: Haz Mit Plan).*
10	Historical Buildings & Sites - Wildfire *(Cultural Resources & Practices)*	**Wildfire likelihood** Increased wildfire likelihood	Increased likelihood of wildfire indicates a greater potential for wildfire to damage historic buildings, and affect public health and well-being. Can have the potential to damage cultural and historical sites, buildings, and cultural resources.	More frequent wildfires can also reduce access to culturally important sites and resources.		Same as above
11	Airports - Drought *(Economic Dev)*	**Snowpack** Decreased snowpack and increased streamflow timing	N/A	N/A		
12	Airports - Extreme Heat *(Economic Dev)*	**Summer Max Temp** Increase in summer maximum temperature	Lewis County owns and operates two regional airports: Packwood and Ed Carlson Memorial Field in South County. The Packwood Airport is important for aviation activities such as emergency response (e.g., wildfire), air ambulance service, flight training, and personal flying (*Source: Haz Mit Plan).* Longer extreme heat days may lead to a decrease in recreational activities and daytime operations. **Note: Climate impacts to airport emergency mg't is discussed below.*	Exposure to more extreme heat events can lead to decrease in recreational activities.	Policy changes (Federal Aviation Admin); Increased demand throughout County; Lack of funding	Daytime operations may stall towards cooler parts of the day and delay overall efficiencies of the agency, reducing recreational flying activities.
13	Airports - Extreme Precipitation & Flooding *(Economic Dev)*	**Heavy Precip Magnitude** Increase of return interval of 25-yr peak streamflow	Lewis County is anticipated to experience a 7% increase of a 2-year storm event. Heavier precipitation is expected to intensify flooding in low-lying areas and require higher capacity storm water drainage systems.	More frequent high streamflow's are expected to increase the frequency of flooding impacts to businesses and the economy by disrupting travel and shipping routes and damaging property.	same as above	Future consequences: Increased demand for emergency response services. Possible airport closure from flooding. Past consequences: The Centralia/Chehalis airport is protected by a levee system that overtopped several times, resulting in the closing of the airport.
14	Airports - Reduced Snowpack *(Economic Dev)*	n/a	n/a	n/a	n/a	n/a
15	Airports - Wildfire *(Economic Dev)*	**Wildfire danger** Increase in wildfire danger	Potential for more intense and frequent wildfire danger is anticipated.	Closure of recreational/outdoor activities and more frequent interruptions of daily operations.	same as above	Closure of recreational flying and training - lack of revenue. Available fleet is expected to be utilized for wildfire response rather than personal flying.
	Fiber optics - Drought	**Snowpack** Decreased snowpack and increased streamflow timing	n/a	n/a	n/a	n/a

	Fiber optics - Extreme Heat	**Summer Max Temp** Increase in summer maximum temperature	High temperatures can increase the Bit Error rate (BER) in fiber optic cables. In addition, the intrinsic attenuation of the fiber can be increased esepcially at high temperatures. Transmission will not be interfered due to extreme heat; however, the structural integrity of the fiber optics is at higher risk.	Fiber optics are usually hanging from poles or burried underground directly which can influence level of exposure.	Durability and material selection of fiber optic cables	Due to the high temperatures, fiber optics risk increased errors in data transmission, leading to lower quality signals and potential data loss. This may lead to important data breaches for commercial/industrial companies, governments, and a loss of internet for residential areas.
	Fiber optics - Extreme Precipitation & Flooding	**Heavy Precip Magnitude** Increase of return interval of 25-yr peak streamflow	Extreme precipitation may impact the structural integrity of the fiber optics.	Same as Fiber Optics - Extreme Heat.	Same as Fiber Optics - Extreme Heat.	Transmission won't be impacted; however, physical damage to the optics may be occure; thus, data breaches are at high risk for commericial/industrial companies, governments, and a loss of internet for residential areas.
	Fiber optics - Reduced snowpack	n/a	Same as Fiber Optics - Reduced snowpack	Same as Fiber Optics - Extreme Heat.	Same as Fiber Optics - Extreme Heat.	Same as Fiber Optics - Reduced snowpack.
	Fiber optics - Wildfire	**Wildfire danger** Increase in wildfire danger	Same as Fiber Optics - Wildfire.	Same as Fiber Optics - Extreme Heat.	Same as Fiber Optics - Extreme Heat.	Same as Fiber Optics - Extreme Heat.
16	Shorelines - Drought *(Ecosystem)*	Decrease in late summer precipitation	Less summer precipitation is expected to affect ecosystem types differently. In freshwater ecosystems, less summer precipitation will contribute to lower stream flows, reduce water quality, and increase water temperatures. In terrestrial ecosystems, less summer precipitation will contribute to drought stress and reduce the growth and productivity of some plants.	The County contains 16 shoreline management areas that are further classified into 222 shoreline reaches under the SMA - includes waterbodies, 200-ft. buffers, and floodplains. County SMAs are important for Human Health, Access, Recreation, and Intrinsic ecological benefits. Decreased biodiversity may reduce recreation opportunities and increase health risks from pathogen exposure.	Concentrated development; Increased population; Incompatible land uses; Invasive species; Increased logging activity; Human overuse; Policy changes (FEMA)	Rising stream temperatures and lower summer streamflow will reduce the quality and quantity of freshwater habitat for salmon and other coldwater fish (Source: DOE, 2012). Reduced economic revenue from tourism i.e., fishing, kayaking/boating, etc.
17	Shorelines - Extreme Heat *(Ecosystem)*	Increase in summer maximum temperature	Likelihood of increased extreme heat events in the County is low. Warmer summers are expected to reduce summer soil moisture and increase physiological stress for some plants and animals. Generally projected increases in extreme heat events for the 2040s, esp. in south central WA and western WA lowlands (Source: DOE, 2023).	Exposure to extreme heat events may affect trees w/in 200-ft. shore line buffer areas i.e., pine bark beetle disease and affect water quality. Increased soil sterilization - loss in topsoil nutrients that becomes water repellant.		Increased extreme heat events with lower streamflow can affect water quality resulting in algae blooms and increased vector-borne diseases.
18	Shorelines - Flooding *(Ecosystem)*	Increased peak streamflow	Lewis County is anticipated to experience increased annual max streamflow (CMRW). Risk index of riverine flooding is relatively moderate (FEMA). Lewis County experiences historic problems with flooding of the Chehalis, Nisqually, and Cowlitz Rivers, some of which have been presidentially declared disasters (Source: Haz Mit Plan). River bank erosion is also a big problem in Lewis County. Many County-owned parcels are located on	Increased sedimentation; Increased mortality rates for sensitive species and impacts to cultural sites. Significant road closures that may reduce or prevent efficient emergency responses. Flood damage costs to infrastructure.		**Future consequences:** Increasing flood damage costs: losses, damages, clean-up, lost revenue. Possible abandonment of structures due to high cost of insurance premiums. **Past consequences:** Past flood frequencies indicate that County can expect minor river flooding every year and major river flooding every two-five years (Source: Haz Mit Plan).
19	Shorelines - Reduced Snowpack *(Ecosystem)*	Increase in streamflow timing	Lewis County is expected to experience twice the average streamflow in western County area vs eastern County area (CMRW tool). The amount of snow is critical for water supply and environmental needs, but so is the timing of snowmelt runoff into rivers and streams.	Alteration in migration timing and survival rates for salmonids or other species lifecycles.		By 2050, snowmelt is projected to shift three to four weeks earlier than the 20th century average that may not coincide with fish migrations. Result in increased mass fish kills. Loss in culturally significant natural resource, changes in apex predator hunting patterns.
20	Shorelines - Wildfire *(Ecosystem)*	Increase in wildfire likelihood	Wildfires increase establishment of invasive species. More frequent wildfires have the potential to increase runoff and sediment to streams, which can reduce aquatic habitat quality.	Heavy precipitation followed by wildfire events can cause landslides that impact water quality i.e., increased sedimentation, increased water temp & hypoxia, water channel alterations.		Landslides pose a significant risk to the County. Increased wildfire likelihood most likely cause secondary hazards to shorelines - burning of near-shoreline forest areas followed by heavy rain, rapid snowmelt, that causes landslides and affect water quality, bank stabilization, habitat, and cultural sites.
21	Public Safety Radio - Drought *(Emergency Mgmt)*	Increase in below normal summer precipitation - increased likelihood of drought	The County maintains about 20 communication sites to support emergency services (refer to asset list). Lewis County's internal communication system experiences time delay interference (TDI) between east and west County areas due to its vast space 89 miles wide (east-west approach)(*Source: Televate report, 2023)* . More frequent and severe droughts due to low summer precipitation are expected to increase the need for emergency services to plan, prepare, and respond to water shortages.	Response to increased emergency services may result in more frequent TDI - lack of efficiency and quick response. Increased costs and demand for emergency preparedness, response, and recovery activities; Additional costs to human well-being as first responders are constantly on alert.	Lack of personnel; Equipment limitations	More emergency calls may exacerbate existing infrastructure problems and limitations. Drought causes secondary hazards such as increased wildfire likelihood that may destroy radio communication infrastructure.
22	Public Safety Radio - Extreme Heat *(Emergency Mgmt)*	Increase in 90 deg F Max Humidex Days	More frequent extreme daytime heat events are expected to increase the demand for emergency services to plan, prepare, and respond to human health impacts. Extreme heat may also impact emergency services due to poor road conditions, making it difficult for County personnel to maintain tower infrastructure.	More frequent power loss due to extreme storms; Shuttered power generating stations or transmission corridors; Increased costs and demand for emergency preparedness, response, and recovery activities; Additional costs to human well-being as first responders are constantly on alert. Reduce system reliability (disrupt microwave link) with temperatures over 95 degrees (Source: Televate report, 2023).		More emergency calls may exacerbate existing infrastructure problems and limitations. Extreme heat causes secondary hazards such as increased wildfire likelihood that may destroy radio communication infrastructure.
23	Public Safety Radio - Extreme Precipitation *(Emergency Mgmt)*	Increase of extreme precipitation magnitude	Increase of extreme precipitation causes more frequent landslides that damage infrastructure.	Increase of extreme precipitation may increase landslide frequencies which can compromise structural stability of radio towers located on hillside areas.		Increased demand for emergency response services.
24	Public Safety Radio - Flooding *(Emergency Mgmt)*	Increase in peak streamflow	Increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. More flooding has the potential to increase the demand for emergency services	Radio towers exposed to increased riverine flooding come from secondary hazards like landslides. Radio traffic can become busier from increased demand for emergency services and exacerbates TDI - response to emergencies.		Increased demand for emergency response services that may exacerbate TDI and stall emergency response services.
25	Public Safety Radio - Wildfire *(Emergency Mgmt)*	Increase in wildfire danger	More days with high fire danger will increase the need for fire bans and associated enforcement and capacity to respond to wildfires. Fire coverage is limited in many County areas; Use of a simplex channel for fire hampers the ability of field users to communicate directly with each other and they must relay messages through dispatch in many situations (*Source: Televate repot, 2023).*	Radio traffic can become busier from increased demand for emergency services and exacerbates TDI - delayed response to emergencies and deployment of equipment. Direct impact to radio tower infrastructure.		Increased demand for emergency response services that may exacerbate TDI and stall emergency response services. Relocating towers for better signal strength may increase chances of wildfire danger.

26	Fire Stations - Drought *(Emergency Mgmt)*	Increase in precipitation Drought	Fire stations are located within special districts that coordinate with Lewis County to respond to emergencies. A greater likelihood of below normal summer precipitation indicates a greater likelihood of drought in any year.	Increased likelihood of drought also increases dry vegetative fuel loads and soil sterilization. Frequent maintenance operations such as prescribed burns and implementing fire safe codes through householder education to prevent intense wildfire events.	Development in WUI zones	Drought causes secondary hazards such as increased wildfire likelihood that may directly impact fire stations and personnel. Increased demand for emergency response services.
27	Fire Stations - Extreme Heat *(Emergency Mgmt)*	Increase in 90 deg F Max Humidex Days	More frequent extreme daytime heat events are expected to increase the demand for emergency services to plan, prepare, and respond to human health impacts. Extreme heat may also impact emergency services due to poor road conditions.	Increased costs and demand for emergency preparedness, response, and recovery activities; Additional costs to human well-being as first responders are constantly on alert		Extreme heat causes secondary hazards such as increased wildfire likelihood that may directly impact fire stations and personnel. Increased demand for emergency response services.
28	Fire Stations - Extreme Precipitation *(Emergency Mgmt)*	Increase of extreme precipitation magnitude	Heavier precipitation has the potential to increase the demand for emergency response services by intensifying flood events and increasing other emergencies associated with heavy precipitation. Increased costs and demands for emergency preparedness, response, and recovery activities; Increased	same as above		Extreme precipitation causes secondary hazards such as increased flooding likelihood that may directly impact fire stations and personnel. Increased demand for emergency response services.
29	Fire Stations - Flooding *(Emergency Mgmt)*	Increase in peak streamflow	Increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. More flooding has the potential to increase the demand for emergency services.	Increased flooding from peak streamflow directly damages fire station buildings and infrastructure.	Changing path/course of waterways; Levee failure	Less resources to respond to emergencies - puts additional stress on other stations
30	Fire Stations - Wildfire *(Emergency Mgmt)*	Increase in wildfire danger	More days with high fire danger will increase the need for fire bans and associated enforcement and capacity to respond to wildfires. East County area experiences more wildfire danger.	Increased costs and demand for emergency preparedness, response, and recovery activities; Increased reliance on special districts to respond to and protect County infrastructure and assets. Additional costs to human well-being as first responders are constantly on alert. Radio communications are limited due to TDI and other equipment failures, and can be exacerbated by increased emergency response and recovery demands.	Equipment li mitations; Lack of personnel i.e., dispatch operators	More severe and frequent wildfires may occur if there are no improvements to radio communication system and personnel availability. Increased reliance on external agencies.
31	Airports - Drought & Extreme Heat *(Emergency Mgmt)*	Increase in precipitation Drought & Increase in 90 deg F Max Humidex Days	Lewis County owns and operates two regional airports: Packwood and Ed Carlson Memorial Field in South County. The Packwood Airport is important for aviation activities such as emergency response (e.g., wildfire), air ambulance service, and flight training (*Source: Haz Mit Plan).* More frequent severe droughts due to low summer precipitation and extreme daytime heat events are expected to increase the need for emergency services to plan, prepare, and respond to human health impacts.	Exposure to more extreme heat events can lead to delays in emergency response. Continual emergency response may add stress to County due to limited personnel and resources.	Lack of personnel	Daytime operations may stall towards cooler parts of the day and delay overall efficiencies of the agency. Increased exposure of personnel to heat related illnesses.
32	Airports - Extreme Precipitation & Flooding (*Emergency Mgmt)*	Increase of extreme precipitation magnitude & Increase in peak streamflow	Increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains.	More flooding has the potential to increase the demand for emergency services. Increased demand for emergency response services.	Aging infrastructure; Limited personnel	Closure of airport due to potential flooding. Should there be damages to critical facilities and systems, many of which do not have redundancies, there will be disruption to surrounding communities and the County.
33	Airports - Wildfire *(Emergency Mgmt)*	Increase in wildfire danger	More days with high fire danger will increase the need for fire bans and associated enforcement and capacity to respond to wildfires.	Direct disruptions to emergency responses for wildfire, evacuations, and air ambulance services. Continual emergency response may add stress to County due to limited personnel and resources.		Packwood airport contains County equipment and personnel necessary for responding to emergencies. Should there be damages to critical facilities and systems, many of which do not have redundancies, there will be disruption to surrounding communities and the County.
34	Recreation facilities - Extreme Heat *(Health & Well-Being)*	Increase in summer maximum temperature	Warmer summers directly affect the health and well-being of people and stress. Warmer summers are expected to increase concentrations of air pollutants, such as ozone and some vector-borne illnesses, such as West	Elderly and youth populations are most vulnerable to heat-related illnesses. Exposure to extreme heat can increase heat-related illness and death.	Aging infrastructure; Increased population	Social isolation and increased short- and long-term emotional trauma and mental health issues. Increased energy demand to cool indoor recreation facilities. Limiting outdoor recreation facility maintenance to seasonal use.
35	Recreation facilities - Wildfire *(Health & Well-Being)*	Increase in wildfire likelihood	More frequent wildfires are expected to reduce human health through loss of life, injury and reduced mental health associated with displacement. Poor air quality due to more wildfire smoke can cause adverse respiratory health effects.	Elderly and youth populations are most vulnerable to poor air quality. Exposure to poor air quality from wildfires can increase adverse respiratory effects.		same as above
36	Senior Centers - Extreme Heat *(Health & Well-Being)*	Increase in summer maximum temperature	Same as Rec facilities - extreme heat	same as above		same as above
37	Senior Centers - Wildfire *(Health & Well-Being)*	Increase in wildfire likelihood	Same as Rec facilities - wildfire	same as above		same as above
	Hospitals - Extreme Heat	Increase in summer maximum temperature	Same as Rec facilities - extreme heat	Increased hospitalizations from climate-induced illnesses - increased reliance on energy grid or backup generators. Can act as community relief center for disasters - exacerbates limited resources and space.	Aging infrastructure; Disease	same as above
	Hospitals - Wildfire	Increase in wildfire likelihood	Same as Rec facilities - wildfire	same as above	same as above	same as above
38	County roads - Drought *(Transportation)*	Decrease in snowpack	The County maintains 1,065 miles of roadways and includes 5,110 culverts. Reductions in snowpack have the potential to reduce snow-related road maintenance, road closures, and transportation delays. However, as more cold-season precipitation falls as rain rather than snow, transportation routes in mountainous areas may experience more damage from heavier winter rainfall and associated flooding, erosion, and washouts.	Snowpack exposure to warming varies by elevation. In your county or community, the exposure of transportation routes and infrastructure will depend on elevation with assets in mountainous areas more exposed. The low-elevation Cascade and Olympic foothills will be exposed first because these areas currently receive substantial snowfall at temperatures near freezing. By the end of the century, snowpack is expected to remain relatively unaffected only in the high-elevations of the Northern Cascade Mountains.	Depends on design standards for winter temperature and precipitation.	Will intensity flooding, landslides, and erosion, which can interrupt transportation routes, damage infrastructure, and increase maintenance and repair costs.
39	County roads - Extreme Heat *(Transportation)*	Increase in hot days	More very hot days have the potential to damage the surfaces of roads and bridges, leading to greater maintenance and repair costs and more frequent traffic and service disruptions.	The exposure of road surfaces to extreme heat will vary locally based on features that exacerbate or ameliorate extreme heat such as the extent of urban heat islands and tree canopy cover for shade.	Depends on age and condition of assets, materials, and heat-related design standards.	More very hot days have the potential to damage the surfaces of roads and bridges, leading to greater maintenance and repair costs and more frequent traffic and service disruptions.

40	County roads - Extreme Precipitation *(Transportation)*	Increase in heavy precipitation magnitude	Change in the intensity of heavy precipitation events are more likely to cause damages to infrastructure and agricultural operations than changes in seasonal and annual precipitation.	Transportation routes and infrastructure located in low-lying areas, within or near current floodplains or regulatory flood zones, or adjacent to unstable slopes are expected to be more exposed to an increase in heavy precipitation.	Depends on the current infrastructure condition and age, design standards, and redundancy in the system. Older assets or those built to older design standards are likely to be more affected by heavier precipitation.	Same consequences as county roads - drought
41	County roads - Flooding *(Transportation)*	Increase in streamflow	An increase in the annual peak streamflow indicates a potential for higher streamflow and larger areas inundated every year at high flows.	Transportation routes and infrastructure located in river valleys and in or near current and historical flood zones will be most exposed to projected increases in high streamflow that can cause the failure, damage, disruption, and reduced capacity of transportation routes.	Depends on how well design standards accommodate flooding. A lack of transportation redundancy in flood prone areas can increase sensitivity to more frequent high stream flows.	Higher stream flows are expected to increase riverine flooding, which can damage roads, bridges, and railways and overwhelm drainage structures, such as culverts. Flooding and drainage problems from heavy storms can happen anywhere in Lewis County, although the major floods are caused by the overflow of Chehalis, Cowlitz, Tilton, and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks. Flooding has been a historic problem in Lewis County, particularly with the rivers mentioned above. The primary north-south transportation corridor passing through Lewis County and the Cities of Centralia and Chehalis is Interstate 5. Interstate 5 passes through Chehalis River floodplain and is affected by flooding. A 100-year flood could displace up to 5,371 people, with 383 of those people needing short-term shelter. (Source: Haz Mit Plan)
42	County roads - Reduced snowpack *(Transportation)*	Decrease in snowpack	Snowpack in the mountains in the beginning of spring indicates the amount of natural water storage in snowpack that will be available in the melt season. April 1st snowpack (snow water equivalent) is one source of water for uses including including hydropower generation, drinking water, irrigation, and instream flows for ecosystems. Reduced snowpack may decrease avalanche severity but increase frequency, leading to road closures and increased repairs/maintenance.	Same as County-Roads Drought exposure.	Same non-climate stressors as county roads - Drought	Reductions in snowpack have the potential to reduce snow-related road maintenance, road closures, and transportation delays. However, as more cold-season precipitation falls as rain rather than snow, transportation routes in mountainous areas may experience more damage from heavier winter rainfall and associated flooding, erosion, and washouts.
43	County roads - Wildfire *(Transportation)*	Increase in wildfire likelihood	More frequent wildfires, and related smoke, can disrupt travel, increase road closures and delay construction projects. Wildfire smoke has the potential to affect labor in the transportation sector because of health effects on outdoor laborers. More roadside brush fires can create safety hazards and disrupt transportation.	Transportation routes and infrastructure wildland-urban interface and areas with high wildfire risk historically will be most exposed to increases in the likelihood of wildfire.	Depends on redundancy in the transportation network.	Indicates a greater potential for wildfire to damage instrastructure, interrupt businesses, or affect public health and well-being.
44	Bridges - Drought *(Transportation)*	Decrease in snowpack	The County maintains 196 bridges which are owned by the County. Same climate impacts as County roads	Same climate impacts as County roads	Same non-climate stressors as county roads - Drought	Same consequences as county roads - reduced snowpack
45	Bridges - Extreme Heat *(Transportation)*	Increase in hot days	Same climate impacts as County roads - Extreme Heat	Same climate impacts as County roads - Extreme Heat	Same non-climate stressors as county roads - extreme heat	Same consequences as county roads - extreme heat
46	Bridges - Extreme Precipitation *(Transportation)*	Increase in heavy precipitation magnitude	Same climate impacts as County roads - Extreme Precipitation	Same climate impacts as County roads - Extreme Precipitation	Same non-climate stressors as county roads - extreme precipitation	Heavier precipitation events are expected to intensify flooding, landslides, and erosion, which can interrupt transportation routes, damage infrastructure, and increase maintenance and repair costs.
47	Bridges - Flooding *(Transportation)*	Increase in peak streamflow	Same climate impacts as County roads - Flooding	Same climate impacts as County roads - Flooding	Same non-climate stressors as county roads - Flooding	Same consequences as county roads - flooding. There are 77 bridges located within the 100-year floodplain and 78 located within the 500-year floodplain. Flooding events can significantly impact road bridges. These are important because they often provide the only ingress and egress to some neighborhoods. (Source: Haz Mit Plan)
48	Bridges - Reduced snowpack *(Transportation)*	Decrease in snowpack	Same climate impacts as County roads - Reduced snowpack	Same climate impacts as County roads - Reduced snowpack	Same non-climate stressors as county roads - Drought	Same consequences as county roads - reduced snowpack
49	Bridges - Wildfire *(Transportation)*	Increase in wildfire likelihood	Same climate impacts as County roads - Wildfire	Same climate impacts as County roads - Wildfire	Same non-climate stressors as county roads - wildfire	Same consequences as county roads - wildfire
50	Appurtenant Structures for Roads - Drought & Extreme Heat *(Transportation)*	Decrease in snowpack & increase in hot days	Same climate impacts as County roads - Drought & Extreme Heat	Same climate impacts as County roads - Drought & Extreme Heat	Same non-climate stressors as county roads - drought and county roads - extreme heat.	Same consequences as county roads - drought and extreme heat
51	Appurtenant Structures for Roads - Extreme Precipitation & Flooding *(Transportation)*	Increase in heavy magnitude and peak streamflow	Same climate impacts as County roads - Extreme Precipitation & Flooding	Same climate impacts as County roads - Extreme Precipitation & Flooding	Same non-climate stressors as county roads - extreme precipitation and flooding	Same consequences as county roads - extreme precipitation and flooding. There would be up to $252 million of flood loss from a 100-year flood event in the planning area. (Source: Haz Mit Plan)
52	Appurtenant Structures for Roads - Reduced snowpack *(Transportation)*	Decrease in snowpack	Same climate impacts as County roads - Reduced snowpack	Same climate impacts as County roads - Reduced snowpack	Same non-climate stressors as county roads - reduced snowpack	Same consequences as county roads - reduced snowpack
53	Appurtenant Structures for Roads - Wildfire *(Transportation)*	Increase in wildfire likelihood	Same climate impacts as County roads - Wildfire	Same climate impacts as County roads - Wildfire	Same non-climate stressors as county roads - wildfire	Same consequences as county roads - wildfire
54	Airports - Drought & Extreme Heat *(Transportation)*	Decrease in snowpack and increase in hot days	Same climate impacts as County roads - Drought & Extreme Heat	Same climate impacts as County roads - Drought & Extreme Heat	Same non-climate stressors as county roads - drought & extreme heat	Same consequences as county roads - drought & extreme heat
55	Airports - Extreme Precipitation & Flooding *(Transportation)*	Increase in heavy precipitation magnitude and peak streamflow	Same climate impacts as County roads - Extreme precipitation and flooding	Same climate impacts as County roads - Extreme precipitation and flooding	Same non-climate stressors as county roads - extreme precipitation and flooding	Same consequences as county roads - extreme precipitation and flooding. The Chehalis-Centralia airport is protected by a dike system, but the dikes were overtopped during the January 1990 and December 2007 flood event, closing the airport. Extreme future flooding may influence similar events to occur. (Source: Haz Mit Plan)
56	Airports - Reduced snowpack *(Transportation)*	Decrease in snowpack	Same climate impacts as County roads - Reduced snowpack	Same climate impacts as County roads - Reduced snowpack	Same non-climate stressors as county roads - reduced snowpack	Same consequences as county roads - reduced snowpack
57	Airports - Wildfire *(Transportation)*	Increase in wildfire likelihood	Same climate impacts as County roads - Wildfire	Same climate impacts as County roads - Wildfire	Same non-climate stressors as county roads - wildfire	Same consequences as county roads - wildfire.
	Railways - Drought & Extreme Heat	Decrease in snowpack and increase in hot days	Same climate impacts as County roads - Drought & Extreme Heat	Same climate impacts as County roads - Drought & Extreme Heat	Aging infrastructure; Limited personnel	Disruptions to economic activity
	Railways - Extreme Precipitation & Flooding	Increase in heavy precipitation magnitude and peak streamflow	Same climate impacts as County roads - Extreme precipitation and flooding	Same climate impacts as County roads - Extreme precipitation and flooding		same as above
	Railways - Reduced snowpack	Decrease in snowpack	Same climate impacts as County roads - Reduced snowpack	Same climate impacts as County roads - Reduced snowpack		same as above
	Railways - Wildfire	Increase in wildfire likelihood	Same climate impacts as County roads - Wildfire	Same climate impacts as County roads - Wildfire		same as above

58	Solid Waste transfer station - Extreme Precipitation *(Waste Mgmt)*	Increase in extreme precipitation magnitude	Heavier precipitation has the potential to increase storm damage to infrastructure and generate more waste and debris. More waste will strain municipal cleanup and refuse capacity.	Waste management services that serve people located in low-lying areas, within current floodplains or regulatory flood zones, or adjacent to unstable slopes are expected to be more exposed to the impacts of heavier precipitation events.	Increases in debris and waste will depend on current capacity. Increase in demand from population increase. Limited personnel and waste hauling capacity. Economic limitations: cost of waste hauling fluctuates, rent prices, etc.	Cause damages to infrastructure and agricultural operations than changes in seasonal and annual precipitation.
59	Solid Waste transfer station - Flooding *(Waste Mgmt)*	Increase in return interval of 25-yr peak streamflow	The 25-year peak streamflow is the streamflow that occurs on average every 25 years, similar to the 100-year high flow but more frequent. The return interval of the historical 25-year peak streamflow indicates how much more frequently streamflows of this magnitude are expected to occur in the future with heavier precipitation and more rain in the winter	Waste management services that serve development located in low-lying areas and in current and historical flood zones will be most exposed to projected increases in the frequency of high streamflows that can cause flooding and generate more waste.	Increases in debris and waste will depend on current capacity. Facilities with older design standards or standards that do not account for flooding will be more affected.	More frequent high streamflows are expected to increase flooding, which can generate more debris and waste. More waste will strain municipal cleanup and refuse capacity. Flooding of waste management facilities can release contaminants and hazardous materials.
60	Solid Waste transfer station - Wildfire *(Waste Mgmt)*	Increase in wildfire likelihood	More frequent wildfires have the potential to generate greater amounts of debris and waste. More waste will strain municipal cleanup and refuse capacity.	Waste management facilities that serve areas in the wildland-urban interface will be more exposed to increases in waste with more wildfire.	Same non-climate stressors as solid waste transfer station - flooding	An increasing likelihood of wildfire indicates a greater potential for wildfire to damage infrastructure, interrupt businesses, or affect public health and well-being.
61	Sewer infrastructure - Extreme Precipitation *(Waste Mgmt)*	Increase in extreme precipitation magnitude	Heavier precipitation has the potential to increase storm damage to infrastructure and generate more waste and debris. More waste will strain municipal cleanup and refuse capacity.	Waste management services that serve people located in low-lying areas, within current floodplains or regulatory flood zones, or adjacent to unstable slopes are expected to be more exposed to the impacts of heavier precipitation events.	Same non-climate stressors as solid waste transfer station - flooding	Likely to cause damages to infrastructure and agricultural operations than changes in seasonal and annual precipitation.
62	Sewer infrastructure - Flooding *(Waste Mgmt)*	Increase in return interval of 25-yr peak streamflow	Same climate impacts as solid waste transfer station - flooding	Same as Solid Waste Transfer Station - Flooding exposure	Same non-climate stressors as solid waste transfer station - flooding	More frequent high stream flows are expected to increase flooding, which can generate more debris and waste. More waste will strain municipal cleanup and refuse capacity. Flooding of waste management facilities can release contaminants and hazardous materials.
63	Sewer infrastructure - Wildfire *(Waste Mgmt)*	Increase in wildfire likelihood	More frequent wildfires have the potential to generate greater amounts of debris and waste. More waste will strain municipal cleanup and refuse capacity.	Same as Solid Waste Transfer Station - Wildfire exposure	Same non-climate stressors as solid waste transfer station - extreme precipitation	Greater potential to damage infrastructure, interrupt businesses, or affect public health and well-being.
64	Dump stations - Extreme Precipitation *(Waste Mgmt)*	Increase in extreme precipitation magnitude	Same climate impacts as Sewer Infrastructure	Same as Solid Waste Transfer Station - Extreme precipitation exposure	Same non-climate stressors as solid waste transfer station - extreme precipitation	Same consequences as sewer infrastructure - extreme precipitation
65	Dump stations - Flooding *(Waste Mgmt)*	Increase in return interval of 25-yr peak streamflow	Same climate impacts as Sewer Infrastructure	Same as Solid Waste Transfer Station - Flooding exposure	Same non-climate stressors as sewer infrastructure - flooding.	Same consequences as sewer infrastructure - flooding
66	Dump stations - Wildfire *(Waste Mgmt)*	Increase in wildfire likelihood	Same climate impacts as Sewer Infrastructure	Same as Solid Waste Transfer Station - Wildfire exposure	Same non-climate stressors as solid waste transfer station - extreme precipitation	Same consequences as sewer infrastructure - wildfire
67	Water infrastructure - Drought *(Water Resources)*	Increase in total annual precipitation	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation.	The exposure of water resources to changes in annual precipitation in your county or community depends on the presence of critical groundwater aquifer recharge areas and the location of wells.	Depend on the sources of water and the effects of non-climatic stressors on water supplies. Groundwater sources are sensitive to changes in annual precipitation. Non-climatic stressors that increase demand, such as population growth and development, will increase the sensitivity of water resources to changes in annual precipitation.	Can limit the overall amount of water available for human use and ecosystems.
68	Water infrastructure - Reduced snowpack *(Water Resources)*	Decrease in snowpack	Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase. Shifting in snowpack is expected to occur to earlier times of the year.	The exposure of water resources will depend on the location of water sources. The low-elevation Cascade and Olympic foothills will be exposed first because these areas currently receive substantial snowfall at temperatures near freezing. By the end of the century, snowpack is expected to remain relatively unaffected only in the high-elevations of the Northern Cascade Mountains.	Dependent on sources of water and energy. Surface water sources and hydropower are sensitive to changes in snowpack. A lack of redundancy	Can limit the amount of natural water storage in snowpack that will be available in the melt season. April 1st snowpack (snow water equivalent)
69	Water infrastructure - Wildfire *(Water Resources)*	Increase in wildfire likelihood	More frequent wildfires have the potential to damage water distribution infrastructure and reduce water quality in reservoirs due to more runoff, erosion, and turbidity. Changes in water quality could increase the need for water treatment and filtration.	The local exposure of water resources to increases in wildfire will depend on the extent of water distribution infrastructure and water resources located in the wildland-urban interface or wildlands.	Dependent on current condition of water treatment and distribution infrastructure. Surface water sources and systems with limited treatment will be more sensitive to wildfire-related changes in water quality. Older infrastructure with a lack of redundancy will be more sensitive to wildfire damage.	There is a greater potential for wildfire to damage infrastructure, interrupt businesses, or affect public health and well-being.
70	Civic Centers - Drought *(Zoning & Development)*	Decrease in snowpack	Snowpack in the mountains in the beginning of spring indicates the amount of natural water storage in snowpack that will be available in the melt season. April 1st snowpack (snow water equivalent) is one source of water for uses including including hydropower generation, drinking water, irrigation, and instream flows for ecosystems.	Same as Water Infrastructure - Reduced snowpack exposure	Dependance of the recreation sector to snowpack and seasons, as well as flexibility to shift among seasons.	Reductions in snowpack are expected to decrease opportunities for winter outdoor recreation and shorten the winter recreation season with adverse effects on the economy and character of some communities. Warm season outdoor recreation opportunities are expected to increase, shifting tourism revenue from one recreation sector to another.
71	Civic Centers - Extreme Heat *(Zoning & Development)*	Increase in August stream temperature	Stream temperature during August, which is typically the hottest month for most streams, is an indicator of water quality for salmon and other species that depend on cold water.	Undefined	Dependent on non-climatic stressors that also increase water temperatures such as discharge of heated effluents, removal of riparian and upland vegetation, channel alternation, etc.	Warmer stream temperatures have the potential to reduce the ability to meet water quality standards and the effluent limits (amount discharge to the water body) set on existing wastewater treatment facilities.
72	Civic Centers - Extreme Precipitation *(Zoning & Development)*	Increase in heavy precipitation magnitude	Heavier precipitation events are expected to intensify urban flooding and demands on storm water systems, which can affect zoning restrictions on new buildings, and require revised building codes for development in more frequently flooded areas.	Certain land uses and development located in low-lying areas, within current floodplains or regulatory flood zones, or adjacent to unstable slopes are expected to be more exposed to an increase in heavy precipitation.	Dependent on the types of land use, building codes in flood and steep slope zones, and the capacity of stormwater systems.	Changes in the intensity of heavy precipitation events are more likely to cause damages to infrastructure and agricultural operations than changes in seasonal and annual precipitation.

73	Civic Centers - Flooding *(Zoning & Development)*	Increase in peak streamflow	Higher streamflow are expected to increase damage to all types of infrastructure in flood zones and could expand the flood zone in some areas leading to damage of development not currently in flood zones.	Development located in river valleys and in or near current and historical flood zones will be most exposed to projected increases in high streamflow that cause flooding.	Dependent on the types of land use in flood zones and the extent of flood protection.	An increase in the annual peak streamflow indicates a potential for higher streamflow and larger areas inundated every year at high flows.
74	Civic Centers - Reduced snowpack *(Zoning & Development)*	Decrease in snowpack	Reductions in snowpack are expected to decrease opportunities for winter outdoor recreation and shorten the winter recreation season with adverse effects on the economy and character of some communities. Warm season outdoor recreation opportunities are expected to increase, shifting tourism revenue from one recreation sector to another. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches.	Same as Water Infrastructure - Reduced snowpack exposure	Dependance of the recreation sector to snowpack and seasons, as well as flexibility to shift among seasons.	Decrease in snowpack indicates a decreased amount of natural water storage in snowpack that will be available in the melt season. This may impact hydropower generation, drinking water, irrigation, and instream flows for ecosystems.
75	Civic Centers - Wildfire *(Zoning & Development)*	Increase in wildfire likelihood	More frequent wildfires are expected to increase damage to homes and infrastructure and displace residents.	The extent of development and the types of land use in the wildland-urban interface will affect local exposure to increases in the likelihood of wildfire.	Types of land use in the wildland-urban interface and population growth.	An increasing likelihood of wildfire indicates a greater potential for wildfire to damage infrastructure, interrupt businesses, or affect public health and well-being.
	Colleges - Drought & Extreme Heat		Changes in stream temperature affects ecosystem habitats which impact learning abilities.	Student learning outcomes may be inhibited by extreme weather. Increased energy consumption for cooling or heating may exacerbate infrastructure limitations.	Aging infrastructure; Limited personnel; Increased student body presence	Multi-use of college campuses or facilities for emergency response; Need for alternative energy source; Connection with greater community requires more collaboration and networking during extreme weather events.
	Colleges - Extreme Precipitation & Flooding		Increaed peak streamflows and precip magnitude affects ecosystem habitats and human safety which impacts learning abilities.	Student learning outcomes may be inhibited by extreme weather. Increased energy consumption for cooling or heating may exacerbate infrastructure limitations.		same as above
	Colleges - Wildfire		Increased costs for maintenance, Increased damage to infrastructure	same as above		same as above

EXAMPLES

1	Roadways-Extreme Heat *(Transportation)*	**Hot Days** *(change in annual hot days, or the average number of days per year with a maximum temperature greater than 100°F)*	**More hot days: Pullman is expected to experience about 2 additional days annually with a maximum temperature greater than 100°F in the 2030s (early century); 5 additional days in the 2040s; 9 additional days annually in the 2050s (midcentury); and 20 additional days annually in the 2080s (late century), compared to 1980-2009, under a high-emissions scenario. More hot days have the potential to damage the surfaces of roads and bridges (Source: UW CIG tool, Climate Mapping for a Resilient Washington).**	The exposure of road surfaces to extreme heat will vary locally based on features that exacerbate or ameliorate extreme heat such as the extent of urban heat islands and tree canopy cover for shade *(Source: UW CIG tool, Climate Mapping for a Resilient Washington)* . Many of Pullman's major streets do not have street trees, causing those areas to feel hotter than other areas in the city (*Source: Pullman Planner Ariel Medeiros*).	Population growth, along with more vehicle traffic and associated wear and tear on transportation infrastructure	**Future Consequences:** Higher temperatures can put stress on bridge infrastructure through thermal expansion of bridge joints and paved surfaces, and deterioration of steel, asphalt, protective cladding, coats, and sealants. Extreme heat can accelerate the deterioration or threaten the integrity of some types of asphalt pavement through softening, rutting, and migration of liquid asphalt. Hotter summer days can pose risks to the health and safety of maintenance and construction crews, limiting working hours *(Source: American Association of State Highway and Transportation Officials white paper, Extreme Weather and the Transportation System)* . Consequences for Pullman could include greater transportation infrastructure maintenance and repair costs and more frequent traffic and service disruptions. Road crews will be affected by the increase in temperature as they are forced to work in the heat conditions with the lack of shade trees (*Source: Pullman Planner Ariel Medeiros*).	*COMMERCE NOTE: This example is from Pullman's 2023 pilot test of the resilience guidance.*
2	Wellbeing 1-Extreme Heat *(Health)*	**65°F Min. Humidex Days** *(indicator of nighttime heat stress);* **90°F Max Humidex Days** *(indicator of daytime heat stress)*	**More warm and humid days and nights: The humidex is a measure of experienced heat conditions and takes into consideration of both temperature and humidity. The average number of days a year with a maximum humidex greater than 90°F is expected to increase by about 16 days annually in Pullman for the 2030s (early century), 30 days annually for the 2050s (midcentury), and 55 days annually for the 2080s (late century), compared to the 1980-2009 period, under a high-emissions scenario. The average number of days a year with a minimum humidex greater than 65°F is expected to increase by about 7 days annually for the 2030s (early century), 20 days annually for the 2050s (midcentury), and 41 days annually for the 2080s (late century), compared to the 1980-2009 period, under a high-emissions scenarios (Source: UW CIG tool, Climate Mapping for a Resilient Washington).**	Exposure will vary locally based on features that exacerbate or ameliorate extreme heat, such as the extent of paved surfaces, tree canopy for shade, or proximity to water bodies *(Source: UW CIG tool, Climate Mapping for a Resilient Washington)* . Newer subdivisions will have the most exposure, as street trees are young and don't provide much shade. Apartment land (Norteast area) also has high impervious surface and low canopy cover, based on maps BERK created. Many places on WSU campus also have low canopy cover with high impervious surfaces (*Source: Pullman Planner Ariel Medeiros*).	Development of urban forests and other natural areas; Increase in the % of residents age 65+; Aging housing stock	**Future Consequences:** The elderly, very young, people with preexisting health conditions, and people without housing, substandard housing or without cooling systems are likely to be more affected by the expected increase in warm and humid days and nights (*Source: UW CIG tool, Climate Mapping for a Resilient Washington*). Strenuous activities in dangerous temperatures and humidity can quickly cause heat-related illness, but exposure to high temperatures over a long period of time and during the night also has a detrimental impact on human health *(Source: APA report-- Planning for Urban Heat Resilience).* Consequences could include more heat-related medical emergencies for Pullman residents and more demand and costs for municipal emergency services (police, fire) and hospitals (*Source: Pullman Fire Chief Mike Heston*). **Past Consequences:** Past extreme heat events have limited when emergency services personnel can do outdoor training (*Source: Pullman Fire Chief Mike Heston*). Various groups, including the City, open their doors as cooling centers. The parks and rec. buildng and the library were open in 2021 for cooling centers. Two of our senior-living facilities are in areas with high urban heat island that might cause higher heat-related illnesses (*Source: Pullman Planner Ariel Medeiros*).	*COMMERCE NOTE: This example is from Pullman's 2023 pilot test of the resilience guidance.*
3	*Gateway Transit Center-SLR (transportation sector)*	**Change in Sea Level Rise**	**Likely Sea Level Rise:** For Port Angeles, modeling projects a "likely" sea level rise estimate (corresponding to a 50% chance that absolute sea level will rise by at least that amount) — of about 0.3 feet by 2030, 0.5 feet by 2050, and 1.3 feet by 2100, relative to the average sea level for 1991-2009, for a low emissions scenario. For a high emissions scenario, "likely" sea level rise is projected to be about 0.3 feet by 2030, 0.6 feet by 2050, and 1.8 feet by 2100. **High Sea Level Rise:** The modeling projects a 1% probability that absolute sea level rise will reach or exceed about 0.5 feet by 2030, 1.2 feet by 2050, and 3.9 feet by 2100, relative to the average sea level for 1991-2009, for a lower greenhouse gas scenario. For a higher emissions scenario, "high" sea level rise will reach or exceed about 0.5 feet by 2030, 1.3 feet by 2050, and 4.6 feet by 2100. *(Source: UW CIG tool, Climate Mapping for a Resilient Washington)*	The Gateway Transit Center sits between Railroad Avenue and Front Street/U.S. Hwy. 101. The publicly owned transit center is a hub for Clallam Transit and Greyhound buses, and the facility includes a farmers' market. The transit center's proximity to the marine shoreline (about 250 feet) and low elevation (see map) expose it to potential coastal inundation. The center also has a below-grade parking garage with an entrance that abuts Railroad Avenue at grade and ramps down to a basement garage level beneath the center. The center is also adjacent the Peabody Creek estuary, where a conjunction of flooding and a king tide event could cause issues in the future (*Source: Port Angeles Sr. Planner Ben Braudrick*).	Bluff Erosion	**Future Consequences:** Inundation of Front Street/U.S. Hwy 101 (the downtown couplet's westbound route) could block access to this facility and affect transit service routes and reliability throughout Clallam County.	*COMMERCE NOTE: This example is from Port Angeles' 2023 pilot test of the resilience guidance.*
4	*Olympic Discovery Trail-SLR (transportation sector)*	**Change in Sea Level Rise**	" (*see above*)	The Olympic Discovery Trail is highly exposed to rising sea levels, as the multiuse trail runs along downtown's marine shoreline -- either directly along the water or behind the ferry terminal and other piers. The trail is protected by rip rap, with the exception of stream ravines where bridges are required (*Source: Port Angeles Planner Ben Braudrick*).		Future Consequences: Rising sea levels, coupled with storm surge, heavy precipitation, and high tide events, could lead to inundation of the trail. This could cut off an important active-transportation route through downtown. Sea level rise could potentially undermine the trail behind the rip rap, inundate and destroy culverts draining the southern upland side of the trail that drains the bluffs, and undermine bridge abutments. Past Consequences: We do have an example of trail failure due to prevailing easterly waves near Morse Creek to the east: There were $80K of emergency repairs/repairs related to storm events; this includes adding in woody debris, rip-rap and geotextile bank stabilization. (Source: Port Angeles Sr. Planner Ben Braudrick).	*COMMERCE NOTE: This example is from Port Angeles' 2023 pilot test of the resilience guidance.*
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Task 1.4: Identify priority climate hazards

Hazard	**Relevant to your jurisdiction?** *(Mark Yes or No.)*	**Notes** *(Explain why you determined this hazard is or is not relevant to your jurisdiction.)*
Drought	*No*	*Jurisdiction has significant agricultural land and industry; however, jurisdiction does not have managing authority over agricultural land and rather responds to emergencies/natural hazard events that occur on agricultural land.*
Extreme heat	*No*	*Jurisdiction's exposure to increased extreme heat events is low.*
Extreme precipitation	Yes	*Jurisdiction is more likely to experience secondary hazards such as landslides and overtopping of levees that flood protected areas.*
Flooding	Yes	*Jurisdiction has various rivers, lakes, streams, scattered across the county; high stream flows are expected to increase or alter floodplain zones that destroy infrastructure (river bank erosion, landslides), render County property undevelopable, and increase emergency responses/demand.*
Reduced snowpack	Yes	*Jurisdiction is surrounded by various mountainous regions. Reduced snowpack impacts streamflow timing which affects hydroelectrical facilities, fisheries, and recreation activities that rely on predictable snowmelt.*
Sea level rise	*No*	*Jurisdiction is not immediately along the coastline.*
Wildfire	Yes	*Eastern County has higher risk of wildfire likelihood; Jurisdiction is likely to experience more intense and frequent wildfire events.*
Other - please list		
Earthquake	*No*	*Jurisdiction experiences earthquakes due to its location near the Juan de Fuca and Pacific plates; however, the impacts of climate change on earthquake probability are unknown.*
Volcano	*No*	*Nearby volcano includes Mount Adams (active), Mount Rainer, Mount Saint Helens which has not erupted in more than 1000 years. The impacts of climate change on volcanic probability are unknown.*
Avalanche		*Jurisdiction is surrounded by various mountainous regions and risk of avalanche is high. Jurisdiction is expected to experience reduced snowpack or altered timing of available snowpack during a season. Volume of avalanches may decrease but frequency is expected to increase. East county higher risk.*
Other - please list		

Task 2.1: Review existing plans for climate gaps and opportunities									
ID	**Measure**	**Document**	**Sector**	**Climate Indicator**	**Hazards**	**Climate Impacts**	**Assets**	**Gaps and Opportunities**	**Next Step**
	List existing measure (goal or policy) that implicitly or explicitly supports climate resilience.	*List the document where the measure is found (comprehensive plan, hazard mitigation plan, shoreline master program, stormwater management plan, etc.).*	*List the most appropriate sector(s) for the measure [select all that apply].) OPTIONS: Buildings & Energy, Cultural Resources & Practices; Economic Development; Emergency Management; Health & Well-being; Ecosystems; Transportation; Agriculture & Food Systems; Waste Management; Water Resources; Zoning & Development*	***Information from Step 1:*** *List the climate indicator(s) that are relevant to the measure (changes in snowpack, streamflow, sea level, etc.).*	***Information from Step 1:*** *List the climate-related hazard(s) that the measure addresses.*	***Information from Step 1:*** *List climate impacts that the measure addresses now or could be addressed via changes. Also, consider whether the measure is maladaptive and could increase climate vulnerability and risk.*	***Information from Step 1:*** *List assets (forests, orchards, bridges, etc.) that are affected by the climate impacts you listed.*	*If applicable, note how the existing measure could be amended or supplemented by a new goal or policy to better address your local climate hazards and impact(s).*	*Note desired next step (e.g., amend an existing measure; consolidate with a similar measure; add a new measure; keep existing measure as-is in comprehensive plan).*
1	**POLICY URBAN 1.4** Consider greenbelt and open space areas and other environmentally sensitive areas when determining urban growth areas.	*Lewis County Comp Plan (2021)*	Ecosystems; Zoning & Development	Increased peak streamflow	Flooding	Lewis County is anticipated to experience increased annual max streamflow and risk of riverine flooding. River bank erosion is also a big problem in Lewis County. Many County-owned parcels are located on floodplains - see assets list. Summer stream flows are expected to substantially diminish due to shifting of projected snowmelt patterns.	Roads, Parks, Recreation facilities, Utilities	Add specificity.	Amend existing measure to consider climate impacts such as riverine flooding. Add to climate resiliency element.
2	**Policy Urban 4B.5 -** Minimize potential adverse impacts of commercial development on nearby resource uses and critical areas.	*Lewis County Comp Plan (2021)*	Ecosystems; Zoning & Development	Increased peak streamflow	Flooding	Lewis County is anticipated to experience increased annual max streamflow and risk of riverine flooding. River bank erosion is also a big problem in Lewis County. Many County-owned parcels are located on floodplains - see assets list. Summer stream flows are expected to substantially diminish due to shifting of projected snowmelt patterns.	County administrative buildings, parks, recreation facilities	Add specificity.	Amend existing policy to consider climate impacts. Add measures to Hazard Mitigation Plan or ensure consistency with HMP
3	**Policy Urban 5A.1** - Locate sites for industrial use in areas: where major enviro constraints, such as unsuitable soils, floodplains or wetlands, are minimal or able to be mitigated.	*Lewis County Comp Plan (2021)*	Emergency Mgm't; Zoning & Development	Increased peak streamflow	Flooding	Lewis County is anticipated to experience increased annual max streamflow and risk of riverine flooding. River bank erosion is also a big problem in Lewis County. Many County-owned parcels are located on floodplains - see assets list. Summer stream flows are expected to substantially diminish due to shifting of projected snowmelt patterns.	County appurtenant structures	Add specificity.	Amend existing policy to consider climate impacts. Add measures to Hazard Mitigation Plan or ensure consistency with HMP.
4	**Policy Urban 6.5 -** Ensure that future developments within urban reserve areas provide employment with competing prevailing wages and consider environmental sensitivity.	*Lewis County Comp Plan (2021)*	Economic Development; Zoning & Development	Increase in wildfire danger, Increase of return interval of 25-yr peak streamflow	Wildfire, Flooding, Reduced snowpack (Avalanche)	An increased likelihood of climate and fuel conditions conducive to wildfire indicates greater potential for wildfire danger to damage infrastructure, interrupt businesses, and affect public health and well-being. Buildings and energy infrastructure located in the wildland-urban interface and areas with high wildfire risk historically will be most exposed to increases in the likelihood of wildfire. Eastern County has higher risk of wildfire and avalanches. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches, resulting in seasonal employment rather than permanent employment in environ sensitive areas. Additionally, Lewis County is anticipated to experience increased annual max streamflow and risk of riverine flooding.	All County assets	Add specificity.	Amend existing policy to consider climate impacts and hazards. Add provisions for advancing environmental justice per HB 1181. Add to new climate resiliency element.

5	**POLICY RURAL 3.1** Preserve rural character by providing adequate public facilities and services. Ensure water, wastewater treatment and other services are consistent with development standards.	*Lewis County Comp Plan (2021)*	Health & Well-being; Waste Mgm't; Water Resources; Zoning & Development	Increase in wildfire likelihood, Increase in extreme precipitation magnitude, Increase in return interval of 25-yr peak streamflow, Decrease in snowpack	Wildfire, Extreme Precipitation, Flooding, Reduced snowpack	Lewis County is anticipated to experience increased annual max streamflow and risk of riverine flooding. Heavier precipitation is expected to intensify flooding in low-lying areas and require higher capacity storm water drainage systems. May also overwhelm treatment facilities. Lewis County is expected to experience twice the average streamflow in western County area vs eastern County area.	Hydroelectric facilities, Water wells, Roadway culverts	Add specificity - climate impacts	Integrate the resiliency element with the land use element, housing, and capital facilities elements.
6	Policy Rural 9.1-9.2 - Rural development to have a variety of uses and densities consistent with rural character. Allow wide range of rural economic activities that do no cause environmental degradation.	*Lewis County Comp Plan (2021)*	Economic Development; Zoning & Development	Increase in wildfire danger, Increase of return interval of 25-yr peak streamflow	Wildfire, Flooding, Reduced snowpack (Avalanche)	An increased likelihood of climate and fuel conditions conducive to wildfire indicates greater potential for wildfire danger to damage infrastructure, interrupt businesses, and affect public health and well-being. Buildings and energy infrastructure located in the wildland-urban interface and areas with high wildfire risk historically will be most exposed to increases in the likelihood of wildfire. Eastern County has higher risk of wildfire and avalanches. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches, resulting in seasonal employment rather than permanent employment in environ sensitive areas. Additionally, Lewis County is anticipated to experience increased annual max streamflow and risk of riverine flooding.	All County assets	Add specificity.	Amend existing policy to consider climate impacts and hazards. Integrate with economic development element. Add provisions for advancing environmental justice per HB 1181.
7	**NR Goal 5.0 |** Ensure resource activities protect the environment. **Policy NR 5.1** - Natural resource activities - ranching, farming, forestry, mining, etc. - minimizes adverse environ impacts.	*Lewis County Comp Plan (2021)*	Economic Development; Ecosystems; Agriculture & Food Systems	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	Agriculture, carpentry, construction, natural resources harvesting, transportation and warehousing, or other related jobs may be reduced to operating seasonally or to different times of the year. Increases in emergency responses may increase stress on personnel and equipment. Shift in water supply and energy demands, shift in energy source - government spendings and investments on alternative energy industries. Climate impacts exacerbate vulnerabilities of low-income, unemployed households in rural neighborhoods. Increased demand on County's Work Opportunities department.	All assets.	Add specificity regarding climate impacts.	Integrate with Economic Development element.
8	**POLICY UCF 16.3** Craft the county's development regulations to be flexible and responsive to innovations and advances in telecommunications technology.	*Lewis County Comp Plan (2021)*	Buildings & Energy; Zoning & Development	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	More frequent power loss, shuttered power generating stations or transmission corridors. Increased cost and demand for emergency preparedness/response/recovery. Additional stress on personnel and equipment. Wildfire and flooding can lead to secondary hazards such as landslides that destroy utility infrastructure, requiring the siting and design of facilities in non-hazard areas or with minimum exposure to hazard.	Utility substations, Hydroelectric facilities, Radio communications	Add specificity - climate impacts.	Integrate into Economic Development element.
9	**NE Goal 1.0 |** Preserve natural/scenic beauty. Minimize development impact on environ. **Policies NE 1.1-1.4** - Develop in areas with few environ hazards to prevent loss of life and property. Preserve hazardous areas as open space. Preserve natural buffers along waterways.	*Lewis County Comp Plan (2021)*	Ecosystems; Zoning & Development	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Flooding, Reduced snowpack (Avalanche), Wildfire, Extreme Precipitation	Lewis County is anticipated to experience increased annual max streamflow. River bank erosion is also a big problem in Lewis County. Summer stream flows are expected to substantially diminish due to shifting of projected snowmelt patterns. Reduced snowpack may decrease the volume of avalanches but increase the frequency. More flooding and avalanches events will increase the demand for emergency services. Closure of roads and buckling/warping of road infrastructure. Eastern County has higher risk of wildfire likelihood due to steep topography and "perfect storm" conditions. More frequent extreme weather events can disrupt travel, increase road closures and delay construction projects. Some existing developed areas would be considered hazardous from increasingly frequent flooding, avalanche, and potential wildfire damage.	All assets. Many County-owned vacant parcels are located on floodplains - see assets list.	Add specificity.	Amend existing policy to consider climate impacts. Add measures to Hazard Mitigation Plan or ensure consistency with HMP.
10	**POLICY NE 2.1** Require activities that produce air pollutants and odors to comply with adopted air quality standards.	*Lewis County Comp Plan (2021)*	Health & Well-being	Increase in wildfire likelihood	Wildfire	More frequent wildfires are expected to reduce human health through loss of life, injury and reduced mental health associated with displacement. Poor air quality due to more wildfire smoke can cause adverse respiratory health effects and can be exacerbated by GHG emissions from County assets.	Transportation fleet; County administrative buildings, Solid waste facilities	Add specificity	Amend existing policy to consider climate impacts on vulnerable neighborhoods or communities. Integrate into economic development, transportation, and utilities/capital facilities elements.

11	**POLICY NE 2.2** Encourage the use of alternative, cleaner burning fuels and other sources of energy.	*Lewis County Comp Plan (2021)*	Buildings & Energy;	Increase in wildfire likelihood	Wildfire	More frequent wildfires are expected to reduce human health through loss of life, injury and reduced mental health associated with displacement. Poor air quality due to more wildfire smoke can cause adverse respiratory health effects and can be exacerbated by GHG emissions from County assets.	Transportation fleet; County administrative buildings, Solid waste facilities	Add specificity	Amend existing policy to consider climate impacts on vulnerable neighborhoods or communities. Integrate into economic development, transportation, and utilities/capital
12	**NE Goal 3.0 |** Preserve and enhance the quality of water in Lewis County. **Policies NE 3.1 thru 3.4 |** Encourage septic system development and livestock operations in a way that does not contaminate groundwater and surface waters.	*Lewis County Comp Plan (2021)*	Health & Well-being; Waste Management; Water Resources	Increased peak streamflow, Increase in streamflow timing, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack	Changes in the timing and intensity of precipitation and water supply from snowpack; Increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Snowmelt is projected to shift three to four weeks earlier in Lewis County, resulting in lower summer peak stream flows that may temporarily impact water quality due to contamination or excess nutrient levels.	Shorelines, Water wells	No changes needed	Adopt into comprehensive plan
13	**LU Goal 4.0 |** Maintain the quality of the county's environmentally sensitive critical areas. **Obj 4B** - Preserve wetland functions and values | Seek to retain the function and values of wetlands in the County.	*Lewis County Comp Plan (2021)*	Health & Well-being; Ecosystems	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood	Flooding, Reduced snowpack, Wildfire	County ESAs include shorelines, waterways, and buffers along waterways. Shifting of projected snowmelt patterns is expected, resulting in shifting of peak stream flows for ESA habitat. Changing habitat quality could lead to mass fish kills and degradation of habitat. Wildfire and incompatible land uses can also increase runoff and sediment to streams, which can reduce aquatic habitat quality. Invasive species spread through wildfire threatens county's ESAs.	Shorelines, Parks	Add specificity.	Amend existing measure to consider climate impacts.
14	**OBJ 4C – PROTECTED GROUNDWATER SOURCES** Protect aquifer recharge areas to help ensure a long-term, high quality supply of water for Lewis County residents.	*Lewis County Comp Plan (2021)*	Health & Well-being; Water Resources	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood	Flooding, Reduced snowpack, Wildfire	Recharge and distribution areas include Cowlitz River and Middle Fork. Cowlitz floods during high precip and snowmelt events. Wildfire events may increase sedimentation and affect water quality, increasing stress on groundwater infrastructure.	Hydroelectric facilities, Water wells	Add specificity.	Amend existing measure to consider climate impacts.
15	**OBJ 4D** - Protect life and property from flood hazards. **Policies NE 4D.1 thru 4D.5** - Avoid development in floodplains. Prioritize compatible land uses.	*Lewis County Comp Plan (2021)*	Zoning & Development	Increased peak streamflow	Flooding	More flooding and avalanches events will increase the demand for emergency services. More frequent extreme weather events can cause buckling/warping of road infrastructure, resulting in disrupted travel, increased road closures, and delayed construction projects. Some existing developed areas would be considered hazardous from increasingly frequent flooding, avalanche, and potential wildfire damage. Levees overtopping and flash floods from built up sediment may occur more frequently. Interagency collaboration to respond to large scale flooding events.	All assets.	Add specificity	Amend existing policy to consider climate impacts. Add measures to Hazard Mitigation Plan or ensure consistency with HMP.

16	**Obj 4E** - Retain flood storage and transmission capacity of rivers and streams. **Policies NE 4E.1-4E.2** - Prohibit wetland and floodplain fill. Regulate flood hazard areas per LCC 15.35, 17.35, 17.35A.	*Lewis County Comp Plan (2021)*	Emergency Management; Water Resources	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Flooding, Reduced snowpack (Avalanche), Wildfire, Extreme Precipitation	Lewis County is anticipated to experience increased annual max streamflow. River bank erosion is also a big problem in Lewis County. Summer stream flows are expected to substantially diminish due to shifting of projected snowmelt patterns. Reduced snowpack may decrease the volume of avalanches but increase the frequency. More flooding and avalanches events will increase the demand for emergency services. Closure of roads and buckling/warping of road infrastructure. Eastern County has higher risk of wildfire likelihood due to steep topography and "perfect storm" conditions. More frequent extreme weather events can disrupt travel, increase road closures and delay construction projects. Some existing developed areas would be considered hazardous from increasingly frequent flooding, avalanche, and potential wildfire damage.	Hydroelectric facilities, water wells, Shorelines	Add specificity.	Amend existing policy to consider climate impacts. Add measures to Hazard Mitigation Plan or ensure consistency with HMP.
17	**OBJ 4F** - Protect and enhance critical resources and habitats. **Policies NE 4F.1 thru 4F.4** - Preserve and restore endangered, threatened, or sensitive species habitat.	*Lewis County Comp Plan (2021)*	Ecosystem	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood	Flooding, Reduced snowpack, Wildfire	County ESAs include shorelines, waterways, and buffers along waterways. Shifting of projected snowmelt patterns is expected, resulting in shifting of peak stream flows for ESA habitat. Changing habitat quality could lead to mass fish kills and degradation of habitat. Wildfire and incompatible land uses can also increase runoff and sediment to streams, which can reduce aquatic habitat quality. Invasive species spread through wildfire threatens county's ESAs.	Shorelines, Parks	Add specificity.	Amend existing measure to consider climate impacts.
18	**NE Goal 5.0 |** Manage shorelines consistent with the shoreline master program and restoration plan.	*Lewis County Comp Plan (2021)*	Health & Well-being; Ecosystems; Zoning & Development	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood	Flooding, Reduced snowpack, Wildfire	County ESAs include shorelines, waterways, and buffers along waterways. Shifting of projected snowmelt patterns is expected, resulting in shifting of peak stream flows for ESA habitat. Changing habitat quality could lead to mass fish kills and degradation of habitat. Wildfire and incompatible land uses can also increase runoff and sediment to streams, which can reduce aquatic habitat quality. Invasive species spread through wildfire threatens county's ESAs.	Shorelines, Parks	Add specificity.	Amend existing measure to consider climate impacts.
19	**NE Goal 6.0 |** Strive to ensure stormwater runoff does not contribute to larger flooding issues or pollution. **Policies NE 6.1 thru 6.4** - Minimize adverse impacts of new/existing development on water quality via stormwater runoff.	*Lewis County Comp Plan (2021)*	Emergency Management; Water Resources; Zoning & Development	Increase in heavy precipitation magnitude, Increase in peak streamflow	Extreme Precipitation, Flooding	Extreme precip events that coincide with non-climate stressors (mismanagement of waste, increase of impervious surface, lack of adequate stormwater infrastructure) can impact stormwater runoff that leads to localized urban flooding. Such events that coincide with riverine flooding can cause significant damage to life and property.	All assets.	Add specificity.	Amend existing measure to consider climate impacts such as impacts. Ensure consistency with 2009 flood hazard management plan and 2023 hazard mitigation plan.
20	**NE Goal 7.0 |** Encourage the preservation of wetlands, open lands, and habitat areas for the benefit of indigenous fish/wildlife, and quality of life of residents. Balance recreation, habitat preservation, and watershed functions.	*Lewis County Comp Plan (2021)*	Ecosystem; Health & Well-being	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Flooding, Reduced snowpack (Avalanche), Wildfire, Extreme Precipitation	Lewis County is anticipated to experience increased annual max streamflow. River bank erosion is also a big problem in Lewis County. Summer stream flows are expected to substantially diminish due to shifting of projected snowmelt patterns. Reduced snowpack may decrease the volume of avalanches but increase the frequency. More flooding and avalanches events will increase the demand for emergency services. Closure of roads and buckling/warping of road infrastructure. Eastern County has higher risk of wildfire likelihood due to steep topography and "perfect storm" conditions. More frequent extreme weather events can disrupt travel, increase road closures and delay construction projects. Some existing developed areas would be considered hazardous from increasingly frequent flooding, avalanche, and potential wildfire damage.	All assets. Many County-owned vacant parcels are located on floodplains - see assets list.	No changes needed	Adopt into comprehensive plan

21	**T Goal 1.0 |** Provide well-maintained transport system. **Policies T1.1-1.2** - Maintain inventory and surveying of transport facilities' conditions/age/useful life/maintenance records.	*Lewis County Comp Plan (2021)*	Transportation	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	Road infrastructure degradation i.e., potholes, buckling, erosion, making it difficult to access remote areas. Wildfire events can lead to road and bridge closures and/or delays in traffic and construction. Flooding and reduced snowpack cause secondary hazards such as landslides and riverine erosion that may compromise nearby road and bridge infrastructure - increase in damages. Reduced snowpack may decrease the volume of avalanches but increase the frequency of avalanches, leading to road/bridge closures and increased emergency responses. Wash out or destruction of road maintenance facilities i.e., pits and quarries, road shops, stock pile sites, etc., requiring longer drives to fix roads.	Roads, Culverts, Roadway appurtenant structures, Bridges	No changes needed	Adopt into comprehensive plan. Add to climate resiliency element.
22	**T Goal 2.0 |** Provide transport system that minimizes risks for all users. **Policies T2.1-2.2** - Safety is key priority. Prioritize corrective actions.	*Lewis County Comp Plan (2021)*	Emergency Management; Transportation	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	County fleet located at various facilities throughout the County. Lewis County Transit serves cities of Centralia and Chehalis in west County, which experiences more flooding and extreme weather hazards than wildfire or avalanche. Flooding and extreme precipitation can degrade road infrastructure, and secondary hazards can increase road damage and potentially lead to road closures.	Roads, Culverts, Roadway appurtenant structures, Bridges	Add specificity.	Amend existing policy to consider climate impacts. Add measures to Hazard Mitigation Plan or ensure consistency with HMP.
23	**T Goal 10.0 |** Provide adequate capacity and safety for air service of county airports. **Policies T 10.1 thru 10.3** - Long-term viability of airports thru partnership, appropriate road/rail connections for passenger, freight, and other services movement.	*Lewis County Comp Plan (2021)*	Economic Development; Emergency Mgm't; Transportation	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	Increased maintenance costs of airstrip and other airport infrastructure. Increase in emergency response and stress on personnel and equipment due to lack of adequate capacity anticipated. Secondary hazards may result in closure of airport.	Airports	Add specificity.	Amend existing measure to consider climate impacts. Integrate into Economic Development element.
24	**UCF Goal 6.0 |** Use environmentally sound approaches to construct, operate, and maintain utilities and facilities. **Policies UCF 6.1 thru 6.3 -** Promote sensitive design and siting of facilities.	*Lewis County Comp Plan (2021)*	Buildings & Energy; Zoning & Development	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	More frequent power loss, shuttered power generating stations or transmission corridors. Increased cost and demand for emergency preparedness/response/recovery. Additional stress on personnel and equipment. Wildfire and flooding can lead to secondary hazards such as landslides that destroy utility infrastructure, requiring the siting and design of facilities in non-hazard areas or with minimum exposure to hazard.	Utility substations, Hydroelectric facilities, Radio communications	Add specificity - climate impacts.	Integrate into Economic Development element.
25	**Policy UCF 12.1** Use education and outreach to raise community awareness about the benefits of stormwater management to reduce flood hazards.	*Lewis County Comp Plan (2021)*	Emergency Mgm't; Health & Well-being	Increase in heavy precipitation magnitude, Increase in peak streamflow	Extreme Precipitation, Flooding	Extreme precip events that coincide with non-climate stressors (mismanagement of waste, increase of impervious surface, lack of adequate stormwater infrastructure) can impact stormwater runoff that leads to localized urban flooding. Such events that coincide with riverine flooding can cause significant damage to life and property.	All assets.	Add specificity.	Amend existing measure to consider climate impacts.
	Policy UCF 13.1 Implement strategies for solid waste management including waste reduction, recycling and energy recovery identified in the Solid and Hazardous Waste Management Plan.	*Lewis County Comp Plan (2021)*	Waste Management	Increased heavy precipitation magnitude, Increased peak streamflow, Increase wildfire likelihood	Extreme Precipitation, flooding, wildfire	Heavier precipitation has the potential to increase storm damage to infrastructure and generate more waste and debris. More waste will strain municipal cleanup and refuse capacity.	Centralia and Morton solid waste transfer stations	No changes needed	Keep as is - integrate into new climate resiliency element.

26	**ED Goal 2.0 |** Promote a diverse range of jobs in a variety of sectors.	*Lewis County Comp Plan (2021)*	Economic Development	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	Agriculture, carpentry, construction, natural resources harvesting, transportation and warehousing, or other related jobs may be reduced to operating seasonally or to different times of the year. Increases in emergency responses may increase stress on personnel and equipment. Shift in water supply and energy demands, shift in energy source - government spendings and investments on alternative energy industries. Climate impacts exacerbate vulnerabilities of low-income, unemployed households in rural neighborhoods. Increased demand on County's Work Opportunities department.	All assets.	Add specificity.	Amend existing measure to consider climate impacts and environmental justice measures.
27	**ED Goal 15.0 |** Enhance quality of life for County residents. **Policy ED 15.3** - Support programs/agencies that address community needs, quality of life.	*Lewis County Comp Plan (2021)*	Economic Development; Health & Well-being	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	Agriculture, carpentry, construction, natural resources harvesting, transportation and warehousing, or other related jobs may be reduced to operating seasonally or to different times of the year. Increases in emergency responses may increase stress on personnel and equipment. Shift in water supply and energy demands, shift in energy source - government spendings and investments on alternative energy industries. Climate impacts exacerbate vulnerabilities of low-income, unemployed households in rural neighborhoods. Increased demand on County's Work Opportunities department.	All assets.	Add specificity.	Amend existing measure to consider climate impacts, OR remove and consolidate with ED Goal 2.0 above.
28	6.2 - Encourage diversified economic base to minimize economic fluctuations and local economy vulnerabilities.	*Countywide Planning Policies*	Economic Development	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	Agriculture, carpentry, construction, natural resources harvesting, transportation and warehousing, or other related jobs may be reduced to operating seasonally or to different times of the year. Increases in emergency responses may increase stress on personnel and equipment. Shift in water supply and energy demands, shift in energy source - government spendings and investments on alternative energy industries. Climate impacts exacerbate vulnerabilities of low-income, unemployed households in rural neighborhoods. Increased demand on County's Work	All assets.	Add specificity.	Amend existing measure to consider climate impacts and environmental justice measures.
29	6.10 - Encourage efforts to expand workforce training and alternative energy industry labor training i.e., "green collar" jobs.	*Countywide Planning Policies*	Economic Development	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Extreme Precipitation, Flooding, Reduced snowpack, Wildfire	Agriculture, carpentry, construction, natural resources harvesting, transportation and warehousing, or other related jobs may be reduced to operating seasonally or to different times of the year. Increases in emergency responses may increase stress on personnel and equipment. Shift in water supply and energy demands, shift in energy source - government spendings and investments on alternative energy industries. Climate impacts exacerbate vulnerabilities of low-income, unemployed households in rural neighborhoods. Increased demand on County's Work	All assets.	Add specificity.	Amend existing measure to consider climate impacts and environmental justice measures.
30	10 - Encourage open space and development of recreational opportunities, conserve habitat, increase access, and develop parks.	*Countywide Planning Policies*	Health & Well-being; Ecosystems	Increased peak streamflow, Increase in streamflow timing, Increase in wildfire likelihood, Increase in heavy precipitation magnitude	Flooding, Reduced snowpack (Avalanche), Wildfire, Extreme Precipitation	Lewis County is anticipated to experience increased annual max streamflow. River bank erosion is also a big problem in Lewis County. Summer stream flows are expected to substantially diminish due to shifting of projected snowmelt patterns. Reduced snowpack may decrease the volume of avalanches but increase the frequency. More flooding and avalanches events will increase the demand for emergency services. Closure of roads and buckling/warping of road infrastructure. Eastern County has higher risk of wildfire likelihood due to steep topography and "perfect storm" conditions. More frequent extreme	All assets. Many County-owned vacant parcels are located on floodplains - see assets list.	No changes needed	Adopt into comprehensive plan
31	11.6 - Water resources i..e, floodplains, lakes, rivers, etc. should be managed for multiple beneficial uses and preserved to the fullest extent possible. Promote opportunities for other uses.	*Countywide Planning Policies*	Economic Development; Emergency Mgm't; Health & Well-being; Ecosystems; Agriculture & Food Systems; Water Resources	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack,	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, County buildings, Roads, Utilities	No changes needed	add to comp plan - integrate to new climate resiliency element.
32	14 - Identify and encourage preservation of lands, sites, and structures that have historical or archaeological significance.	*Countywide Planning Policies*	Cultural Resources & Practices	Increase in peak streamflow; Increase in wildfire likelihood	Flooding, Wildfire	Increase in annual peak streamflow indicates a potential for higher stream flows and larger areas inundated every year at high flows. Increased wildfire likelihood may permanently destroy buildings - lack of access and loss of cultural symbol i.e., irreplaceable historic items. Culturally significant sites can be damaged by flooding and wildfire.	Historic buildings	Add specificity.	Amend existing measure to consider climate impacts.

33	Goal ED-1 Utilize shoreline resources to improve the standard of living for residents of the County, while assuring that the resources are utilized in a manner consistent with minimizing adverse effects to the shoreline environment.	*Shoreline Master Program (SMP)*	*Economic Development*	Decreased snowpack and increased streamflow timing, Increase in summer maximum temperature, Increase in extreme precipitation magnitude, Increase of return interval of 25-yr peak streamflow, increase in wildfire danger	Drought, extreme heat, extreme precipitation, flooding, reduced snowpack, wildfire	Reduction in snowpack are expected to decrease opportunities for winter outdoor recreation and shorten the winter recreation season, with adverse effects on the economy and character of some communities. Warm season outdoor recreation opportunities may increase, shifting tourism from one recreation sector to another and into different seasons. The timing of snowmelt and streamflow influences the seasonal availability of water for hydropower generation and irrigation. A shift in streamflow timing, with more streamflow in winter and early spring, will change the timing of hydropower generation. Timing changes have the potential to affect energy costs for residents and businesses.	Airports, hydroelectrical facilities, Shorelines	Add specificity	Add specificity. Amend existing measure to consider climate impacts.
34	Goal SU-1. Assure that shoreline development in the County corresponds with the character and physical limitations of the land and water. Promote a viable pattern of land and water use without disrupting environmental quality.	*Shoreline Master Program (SMP)*	Water Resources	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack,	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure	Add specificity	Add specificity
35	Goal HSCE-1 Protect, preserve, and restore areas and sites having historic, cultural, educational, or scientific values.	*Shoreline Master Program (SMP)*	Cultural Resources & Practices	Increase in low streamflow, increase in August stream temperature, increase in peak streamflow, increase in wildfire likelihood.	Drought, extreme heat, flooding, wildfire	Lower stream flows in summer are expected to reduce habitat quantity and quality for salmonids and other aquatic species that are culturally important to the Northwest Tribes. Warmer stream temperatures are expected to reduce habitat quality for salmonids and other aquatic species that depend on cold water. Can reduce the abundance of and access to these culturally important species for Northwest Tribes. Higher stream flows are expected to directly affect salmonid populations and alter salmonid habitat, reducing the quantity of a culturally important species for Northwest Tribes. Increased wildfire can have the potential to damage cultural and historical sites, buildings, and cultural resources. More frequent wildfires can also reduce access to culturally important sites and resources for Northwest Tribes. Lack of access and loss of cultural symbols from flooding/wildfire hazards leads to loss of historic buildings and sites (from irreplacable materials) which can reduce quality of life and erode community identity.	Historical Buildings, Shorelines	Add specificity	Add specificity. Amend existing measure to consider climate impacts.
36	Goal FHP-1. Recognize the hydrologic functions of floodplains, and protect frequently flooded areas.	*Shoreline Master Program (SMP)*	Water Resources, Zoning & Development	Increase in total annual precipitation, decrease in snowpack, increase in peak streamflow	Drought and reduced snowpack, extreme precipitation, flooding	Increases in annual precipitation have the potential to increase groundwater recharge- but increased impervious surfaces from development exacerbates flooding. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, County buildings, Roads	Add specificity	Add specificity. Amend existing measure to consider climate impacts.
37	Aquatic Management Policy 3. Encourage multiple uses of overwater facilities to reduce the impacts of development and increase effective use of water resources in shoreline jurisdiction.	*Shoreline Master Program (SMP)*	Buildings & Energy, water resources	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack,	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, County buildings, Roads, Utilities	No changes needed	add to comp plan - integrate to new climate resiliency element.
38	Aquatic Management Policy 5. Design and manage shoreline uses and modifications to prevent degradation of water quality and alteration of natural hydrographic conditions.	*Shoreline Master Program (SMP)*	Water Resources	Increase in total annual precipitation, decrease in snowpack, increase in peak streamflow	Drought and reduced snowpack, flooding, extreme precipitation	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, Shorelines, Parks, Recreation facilities	No changes needed	add to comp plan - integrate to new climate resiliency element.

39	Aquatic Management Policy 7. Reserve space in shoreline jurisdiction for shoreline preferred uses, while considering upland and in-water uses, water quality, navigation, presence of aquatic vegetation, existing critical habitats, aesthetics, public access, and views.	*Shoreline Master Program (SMP)*	Water Resources, Zoning & Development, Ecosystems	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack, extreme precipitation, flooding, wildfire	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase. Shorelines provide buffers for development against flooding hazards and other multiple benefits/uses. Shorelines change due to secondary hazards - river bank erosion, landslides, changing locations of cultural and/or recreational sites and impacting infrastructure i.e., boat launch areas, picnic areas, spur access roads, etc.	Water infrastructure, Shorelines, Parks, Recreation facilities, Roads	No changes needed	add to comp plan - integrate to new climate resiliency element and land use element (resource land goals/policies).
40	High Intensity Management Policies 5. Restore visual and remediate shoreline areas within new development sites consistent with State and Federal laws.	*Shoreline Master Program (SMP)*	Buildings & Energy, water resources	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack, extreme precipitation, flooding, wildfire	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, Recreation facilities, Shorelines	Add specificity	Add specificity - integrate with new climate resiliency element. Consider climate impacts.
41	Natural Management Policies. 3. Scientific, historic, cultural, educational research uses, and low-intensity water-oriented recreational uses that do not affect ecological functions may be allowed.	*Shoreline Master Program (SMP)*	Cultural Resources & Practices; Zoning and development	Increase in low streamflow, increase in peak streamflow, decrease in snowpack, increase in heavy precipitation magnitude	Drought, flooding, extreme precipitation,	Increase in annual peak streamflow indicates a potential for higher stream flows and larger areas inundated every year at high flows. Heavier precipitation events are expected to intensify urban flooding and demands on storm water systems, which can affect zoning restrictions on new buildings, and require revised building codes for development in more frequently flooded areas.	Recreation facilities, Parks, Shorelines	Add specificity	add to comp plan - integrate to new climate resiliency element and land use element.
42	Rural Conservancy Management Policies. 7. Construction of new structural shoreline stabilization and flood control works should be allowed when the documented need exists to protect an existing primary structure or ecological functions. Mitigation may be necessary for such construction. New development should be designed and located to preclude the need for such work. Shoreline stabilization measures shall infringe on private property rights to the minimum extent necessary.	*Shoreline Master Program (SMP)*	Buildings & Energy, water resources	Increase in total annual precipitation, decrease in snowpack, Increased peak streamflow	Drought and reduced snowpack, flooding	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase. Riverine flooding combined with stormwater flooding exacerbates peak streamflow hazards that may expand shorelines and designated 100-year floodplains over larger areas. Consider climate impacts in mitigation measures.	Water infrastructure, County buildings, Roads, Utilities, Hydroelectrical facilities	No changes needed	add to comp plan - integrate to new climate resiliency element and land use element.

43	Shoreline Residential Management Policies. 1. Preserve ecological functions by establishing development standards for shoreline height, shoreline buffers, building setbacks, density, impervious surface coverage, shoreline stabilization, critical area protection, and water quality protection to assure no net loss of ecological functions in shoreline jurisdiction.	*Shoreline Master Program (SMP)*	Buildings & Energy, water resources, Ecosystem	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack, extreme precipitation, flooding	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, Shorelines, Roads, County buildings	No changes needed	Integrate with new climate resiliency element, housing element, land use element.
44	Urban Conservancy Management Policy. 1. Allow uses that preserve the natural character of the shoreline environment, promote preservation of open space, floodway, floodplain, or critical areas directly, or over the long-term as the primary allowed uses. Allow uses that result in restoration of ecological functions if the use is otherwise compatible with the purpose of the environment and setting.	*Shoreline Master Program (SMP)*	Water Resources, Ecosystem, Zoning & Development	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack, flooding, extreme precipitation, wildfire	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, Shoreline	No changes needed	add to comp plan - integrate with new climate resiliency element and land use element.
45	Archaeological and Historic Resources E. Where development or demolition activity is proposed adjacent to an identified archaeological or historic site, design and operate the proposed development to be compatible with the continued protection of the site.	*Shoreline Master Program (SMP)*	Cultural Resources & Practices	Increase in peak streamflow and wildfire likelihood	Flooding and wildfire	Increase in annual peak streamflow indicates a potential for higher stream flows and larger areas inundated every year at high flows. Increased wildfire likelihood can have the potential to damage cultural and historical sites, buildings, and cultural resources. More frequent wildfires can also reduce access to culturally important sites and resources for Northwest Tribes.	Historical Buildings	Add specificity	Add specificity - consider climate impacts
46	Flood Hazard Management. D. Prefer nonstructural flood hazard management measures to structural measures where feasible. New structural flood hazard reduction measures should only be allowed when demonstrated to be necessary, nonstructural methods are insufficient, and mitigation is accomplished.	*Shoreline Master Program (SMP)*	Water Resources, Zoning & Development	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, County building, Roads	No changes needed	add to comp plan - integrate to new climate resiliency element.

47	Water Quality Policy. A. Use existing regulations to protect surface water quality and quantity within Lewis County.	*Shoreline Master Program (SMP)*	Water Resources, Ecosystem	Increase in total annual precipitation, decrease in snowpack	Drought and reduced snowpack, extreme precipitation, flooding, wildfirre	Increases in annual precipitation have the potential to increase groundwater recharge. Changes in the timing and intensity of precipitation and increases in water demand and evaporation are expected to offset increases in groundwater recharge due to more annual precipitation. Reduced snowpack and more winter rain is expected to increase water availability in winter for multiple uses including drinking water and hydropower generation, and decrease water availability in late spring and summer when demand is also expected to increase.	Water infrastructure, Shorelines	No changes needed	add to comp plan - integrate with land use element (natural environment goals/policies).
48	Agriculture. B. Locate and design new agricultural activities on land not currently used for agricultural activity to assure no net loss of ecological functions and not to have a significant adverse impact on other resources and values in shoreline jurisdiction.	*Shoreline Master Program (SMP)*	Agriculture & food systems	Extreme precipitation, increase in percentage of stream lengths winter to spring streamflow timing ratio	Drought and reduced snowpack, extreme precipitation, flooding	Reduction of water available for livestock and irrigation during the same time that warmer temperatures and longer growing seasons are expected to increase the demand for irrigation water. Flooding hazards have direct impacts to agricultural activities and incurs economic losses in the region.	N/A	No changes needed	Keep as is - consider climate impacts on agriculture in new climate resiliency element.
49	Forests Policy. A. Effectively balance timber harvesting with the preservation of shoreline ecological functions, public access to shorelines, and other shoreline goals.	*Shoreline Master Program (SMP)*	Ecosystems	Increase in wildfire likelihood	Wildfire	More frequent wildfires have the potential to reduce timber, non-timer forest products, carbon storage, and forest habitat for some wildfire. Potential increase in runoff and sediment to streams, which can reduce aquatic habitat quality.	Shorelines	No changes needed	add to comp plan - integrate with natural resource goals/policies of land use element.
50	Forest Policy. F. Promote proper road and bridge design, location and construction, and maintenance practices to prevent development of roads and structures that would adversely affect shoreline resources.	*Shoreline Master Program (SMP)*	Transportation	Increase in hot days, increase in heavy precipitation magnitude, increase in peak streamflow, increase in wildfire likelihood	Extreme heat, extreme precipitation, flooding, wildfire	More hot days will have potential to damage the surfaces of roads and bridges, leading to greater maintenance and repair costs and more frequent traffic and service disruptions. Heavy precipitation events expected to intensify flooding, landslides, and erosion, which can interrupt transportation routes, and damage infrastructure. Higher streamflow can increase riverine flooding, which can damage roads, bridges, and railways, and overwhelm drainage structures, such as culverts.	County roads and bridges	Add specificity	Add specificity - integrate measure with new climate resiliency element and transportation element.
51	Industrial Development Policy. B. Locate, design, and construct industrial development in a manner that assures no net loss of shoreline ecological functions and does not have significant adverse impacts to other shoreline resources and values.	*Shoreline Master Program (SMP)*	Buildings & Energy, water resources	Decrease in heating degree days and increase in cooling degree days	Extreme Heat	Decrease in heating degree days expected to reduce energy demand for heating. Increase in cooling degree days indicates greater potential energy demand for cooling buildings in summer.	General government buildings, utility substations, radio communications, hydroelectrical buildings	No changes needed	Keep as is
52	Transportation Facilities Policy. A. Plan, locate, and design new transportation facilities where routes will have the least adverse effect on shoreline features, shoreline ecological functions, and existing or planned water-dependent uses.	*Shoreline Master Program (SMP)*	Transportation	Decrease in snowpack, increase in heavy precipitation magnitude, increase in peak streamflow	Drought, extreme precipitation, flooding, reduced snowpack	Transportation routes and facilities in mountainous areas may experience more damage from heavier winter rainfall and associated flooding, erosion, and washouts.	Bridges, county roads, road facilities i.e., sheds, pits/quarrries, stockpiles, etc.	No changes needed	Add to comp plan - integrate with new climate resiliency element.

53	Structural Flood Hazard Reduction Measures Policy. A. Establish standards for structural flood hazard reduction measures to minimize environmental impacts and ensure no net loss of shoreline ecological functions.	*Shoreline Master Program (SMP)*	Emergency Management	Increase in peak streamflow; increase of extreme precipitation magnitude	Flooding, Extreme precipitation	Heavier precipitation can intensify flood events and increase other emergencies associated with heavy precipitation. Higher stream flows are expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains.	Shorelines, County buildings, Roads/Bridges	Add specificity	Add specificity
54	**16.2 Goal** - Minimize injuries and loss of life, property damage, infrastructure, env impact, and economic loss caused by natural disasters.	*2023 Hazard Mitigation Plan*	All Sectors	Decrease in snowpack, increase in heavy precipitation magnitude, increase in peak streamflow, Increased wildfire likelihood	Extreme Precipitation, Wildfire, Flooding, Reduced snowpack (Avalanche)	Hazards directly damage infrastructure and increases emergency response. Hazards are anticipated to become more frequently occurring throughout the County especially flooding in western County area and wildfire risk in eastern County area. Non-climate stressors such as increased impervious surfaces also exacerbate climate impacts.	All assets.	No changes needed	Integrate to new climate resiliency element.
55	**Objective 16.3.1.** Incorporate mitigation measures into repairs, major alterations, new development, and redevelopment practices, especially in substantial hazard risk areas.	*2023 Hazard Mitigation Plan*	Zoning & Development	Decrease in snowpack, increase in heavy precipitation magnitude, increase in peak streamflow, Increased wildfire likelihood	Extreme Precipitation, Wildfire, Flooding, Reduced snowpack	Heavier precipitation events are expected to intensify urban flooding and demands on storm water systems, which can affect zoning restrictions on new buildings. May require revised building codes for development in more frequently flooded areas, which may epand the flood zone in some areas not currently in flood zones. Reduced snowpack lessens riverine flooding. Wildfire hazard areas may expand to previously non-hazard areas and increase damage to homes and infrastructure and displace residents in expanded WUI zones.	Civic buildings, Roads/Bridges, Utilities	Define parameters and geography of substantial hazard risk areas.	Amend to add specificity
56	Obj 16.3.2. Integrate hazard mitigation policies into comprehensive plans within planning area.	*2023 Hazard Mitigation Plan*	Zoning & Development	N/A	N/A	N/A	N/A	N/A	N/A
57	16.2 Goal - Increase public awareness and enhance partnership efforts. Obj 16.3.3. Promote and enhance outreach/education with hazard mitigation plans and programs to actively encourage stakeholder engagement i.e., homeowners, private sector, ngo's, etc.	*2023 Hazard Mitigation Plan*	All Sectors	N/A	N/A	N/A	N/A	N/A	N/A
58	Obj 16.3.4. Improve and expand systems that provide warning and emergency communications.	*2023 Hazard Mitigation Plan*	Emergency Management	Increase in heavy precipitation magnitude, Increase in wildfire likelihood, Increase in peak streamflow, Increased avalanche frequency	Extreme Precipitation, Flooding, Wildfire, Avalanche	County radio communications experience significant TDI in certain areas - hazards would exacerbate tech issues by increasing emergency response calls and increasing TDI/time to respond to emergencies by relying on dispatch services. Increased hazard occurrences can also expose more County infrastructure to damage.	Radio towers & appurtenant structures; Emergency fleet and equipment	No changes needed	Adopt into comprehensive plan. Add to climate resiliency element.
59	Obj 16.3.5. Retrofit, purchase, relocate structures in high hazard areas and those that experience repetitive losses.	*2023 Hazard Mitigation Plan*	Zoning & Development	Decrease in snowpack, increase in heavy precipitation magnitude, increase in peak streamflow, Increased wildfire likelihood	Extreme Precipitation, Wildfire, Flooding, Reduced snowpack	Heavier precipitation events are expected to intensify urban flooding and demands on storm water systems, which can affect zoning restrictions on new buildings. May require revised building codes for development in more frequently flooded areas, which may epand the flood zone in some areas not currently in flood zones. Reduced snowpack lessens riverine flooding. Wildfire hazard areas may expand to previously non-hazard areas and increase damage to homes and infrastructure and displace residents in expanded WUI zones.	Civic buildings, Roads/Bridges, Utilities	Define parameters and geography of substantial hazard risk areas.	Consolidate with Objective 16.3.1.
60	Obj 16.3.6. Support protection of vital records, strengthen/replace buildings, infrastructure, and lifelines to minimize post-disaster disruption. Facilitate short- and long-term recovery.	*2023 Hazard Mitigation Plan*	All Sectors	Decrease in snowpack, increase in heavy precipitation magnitude, increase in peak streamflow, Increased wildfire likelihood	Extreme Precipitation, Wildfire, Flooding, Reduced snowpack	Heavier precipitation events are expected to intensify urban flooding and demands on storm water systems, which can affect zoning restrictions on new buildings. May require revised building codes for development in more frequently flooded areas, which may epand the flood zone in some areas not currently in flood zones. Reduced snowpack lessens riverine flooding. Wildfire hazard areas may expand to previously non-hazard areas and increase damage to homes and infrastructure and displace residents in expanded WUI zones.	Civic buildings, Roads/Bridges, Utilities	No changes needed	Adopt into comprehensive plan. Add to climate resiliency element.

Task 2.2: Determine next step		
Instructions: *For each climate hazard (flooding, drought, etc.) that you identified in Step 1 as relevant to your jurisdiction make a copy of the table below and answer the questions to help determine whether a more detailed vulnerability and risk assessment is warranted for your jurisdiction.*		
Question	**Answer**	**Discussion Notes**
1. Has your jurisdiction already completed a localized study for this hazard and its impacts?	X Yes ☐ No	The 2015 Climate Change Preparedness Plan for North Olympic Peninsula contains localized sea level rise projections. Page 70 of this plan contains a summary of impacts to critical infrastructure in Port Angeles, but this is not a detailed localized study of impacts.
2. If yes to Q1, does it provide enough information to address the hazard through goals and policies? If yes, move to Step 5 of this checklist.	☐ Yes X No ☐ Not sure ☐ N/A	The information provided in the 2015 Climate Change Preparedness Plan is insufficient for localized policy development, although it does provide a helpful overview of potential impacts that may be worth studying further.
3. Are certain geographic areas in your jurisdiction more vulnerable to this hazard than others?	X Yes ☐ No ☐ Not sure	Port Angeles has variable elevations. Much of the City's waterfront is elevated above sea level due to the presence of the marine bluff, but a significant portion containing extensive critical infrastructure is located at or near sea level. This includes much of the working waterfront of the town, Ediz Hook, and some of the most frequented areas of the City such as the shoreline adjacent to downtown. Even elevated areas are vulnerable to sea level rise due to the potential for bluff erosion, which will eventually impact development elevated significantly above sea level but near the bluff edge.
4. If yes to Q3, have these areas already been identified at a scale that is relevant to setting goals and policies?	☐ Yes X No ☐ N/A	The City has contour data that provides information on elevation in a specific location. However, no analysis has been completed of what critical infrastructure at lower elevations would be susceptible and in what order it would be compromised. Such an analysis would lead to goals and policies about how to prioritize repairs, where to reinforce the shoreline (e.g., sea walls) and retain the infrastructure, and when to retreat to higher elevations and abandon the infrastructure.
5. Are certain built, natural, or social assets in your jurisdiction more vulnerable to this hazard or more at risk from this hazard?	X Yes ☐ No ☐ Not sure	The portion of the City shoreline extending from the McKinley Paper Company Mill site to where the bluff once again abuts the shoreline east of the City Pier is especially vulnerable to sea level rise due to its elevation. The Rayonier Mill site is also vulnerable to impacts. Much of the natural shoreline has been developed, but there still remains essential natural segments that would be vulnerable to sea level rise. Cultural resources, including those of the Lower Elwha Klallam Tribe, are present in this segment.
6. If yes to Q5, has the vulnerability and risk to these assets been identified at a scale that is relevant to setting goals and policies?	☐ Yes X No ☐ N/A	Other than the 2015 Climate Change Preparedness Plan mentioned in Q1, the risk to assets from sea level rise and the cost of the impacts to the City and community have not been identified at a sufficient scale. The City's Emergency Mitigation Plan will be useful in helping identify vulnerable infrastructure.
7. Are certain sectors in your jurisdiction more vulnerable to this hazard or more at-risk from this hazard?	X Yes ☐ No ☐ Not sure	Economic activities that rely on the waterfront are especially vulnerable. This includes key facilities such as the ferry terminal which facilitates international connection, productive waterfront industrial sites, the marina, public transit infrastructure, Ediz Hook (including the Coast Guard Air Station), and the McKinley Paper Mill site. Utility infrastructure associated with all these uses (water, sewer, electrical, etc.) will be impacted. Cultural resources of local tribes are also vulnerable to impacts. Environmental resources that contribute to a healthy shoreline would also be compromised.
8. If yes to Q7, has the vulnerability and risk to these sectors been identified at a scale that is relevant to setting goals and policies?	☐ Yes X No ☐ N/A	Multiple agencies and City departments would need to provide input in order for actual vulnerability (in terms of monetary value) to be determined. In implementing goals and policies, it would also be important to incorporate community stakeholders to allow identification of vulnerability from their perspective.
9. Are certain populations in your jurisdiction more vulnerable to this hazard or more at-risk from this hazard?	X Yes ☐ No ☐ Not sure	Low-income populations are always more vulnerable when their housing is located in areas susceptible to impact. Business owners and workers in facilities located in the segment described in Q7 are are also vulnerable and subject to loss of assets needed for livelihood. Non-human populations may also be vulnerable resulting from damage to shoreline environmental resources.
10. If yes to Q9, has the vulnerability and risk to these populations been identified at a scale that is relevant to setting goals and policies?	☐ Yes X No ☐ N/A	There would be a need to consider the disparate impacts of each (potentially overlapping) population. Goals and policies would need to be based on these risks and formulated to ensure future development avoids exacerbating vulnerability and risk to these populations.
11. Does your jurisdiction plan to update its local hazard mitigation plan and submit it for FEMA approval?	X Yes ☐ No	The City is focused on implementation of the 2019 Hazard Mitigation Plan, as identified in the City's Climate Resiliency Plan, but regular updates will be necessary as available information evolves.
12. Based on the answers to these questions, have you identified a need for a vulnerability and risk assessment for this hazard?	X Yes ☐ No	Not only do these questions lead staff to believe that a sea level rise vulnerability assessment is necessary, but the City has already committed to conducting one as an action item in the Climate Resiliency Plan adopted in June of 2022. This process will help to implement that action item (Action #CRW-1.6).
12. If yes to Q12, does your jurisdiction intend to conduct a vulnerability and risk assessment of this hazard -- or all applicable hazards -- at this time?	X Yes ☐ No	Conducting an assessment will help fulfill the action item mentioned in Q12, while providing useful information for development of goals and policies in the 2023 Comprehensive Plan Update, thereby helping to integrate the two planning processes and provide a foundation for further prevention and adaptation actions.
12. If yes to Q12, proceed to Step 3. If no to Q12, proceed to Step 4.		

COMMERCE NOTE: This example -- which looks at sea-level rise inundation -- is from Port Angeles' 2023 pilot test of the resilience guidance.

Appendix G Climate Memo B. Climate Risk and Vulnerability Assessment

Memo starts on the next page.

Kimley»Horn

MEMORANDUM

July 31, 2024

To: Mindy Brooks, Senior Long-Range Planner
Lewis County, Washington

From: Heidi Rous
Climate Director, Kimley-Horn

RE: SUMMARY OF POTENTIAL CLIMATE IMPACTS/RISKS/VULNERABILITIES & POTENTIAL OPPORTUNITIES, CLIMATE ELEMENT AND RESILIENCY SUB-ELEMENT 2025 COMPREHENSIVE PLAN UPDATE, LEWIS COUNTY

Purpose

As a follow-up to the current policy gaps and opportunities memorandum submitted earlier, this memorandum summarizes potential impacts, risks, and vulnerabilities to key assets in the County. Due to a changing climate, the memorandum identifies potential opportunities for the County to take actions to improve the resiliency of those assets. This memo informs new Climate Element and Resiliency Sub-Element, consistent with House Bill 1181 ("HB 1181") and Washington state's Growth Management Act (GMA) policies, that is part of the Comprehensive Plan update (RCW 36.70A.070(9)). Under HB 1181 and the GMA for Lewis County, a resiliency sub element must, among other things, equitably enhance resiliency to, and avoid or substantially reduce the adverse impacts of, climate change in human communities and ecological systems through goals, policies, and programs consistent with the best available science and scientifically credible climate projections and impact scenarios (RCW 36.70A.070(9)(e)(i)).

Scope

Critical infrastructure located within the County are assessed for vulnerability and risk to prioritize climate hazards (see "Analysis" section below). Assets identified are the same as those mentioned in the previous memorandum, *Summary of Climate Hazards and Policy Gaps & Opportunities, Climate Element and Resiliency Sub-Element 2025 Comp Plan Update Lewis County* ("Assets Memorandum"). According to the 2023 DOE Guidance, assets are defined as community groups, places, natural resources, infrastructure, and services that the community finds valuable and wants to protect against climate-exacerbated hazardous events. This analysis characterizes the exposure of each asset to a climate hazard ("sensitivity") along with how frequent the hazard will occur (probability), how adaptive the asset is to disturbances (adaptive capacity), and how significant functional and physical costs would be (magnitude). This memorandum strives to describe the findings and provide a basis for developing goals and policies that make up the Climate Element and Resiliency Sub-Element.

Methodology

Following the guidance document from the Washington State Department of Commerce's Intermediate Planning Guidance document, the Climate Element Workbook was utilized to assess climate impacts, risk, and vulnerabilities, and develop recommended actions. For this assessment, each asset-hazard pair from the Assets Memorandum was

assessed in terms of infrastructure sensitivity or exposure and adaptive capacity. Both sensitivity and adaptive capacity characterized vulnerability outcomes on a low, medium, and high rating (see definitions in "Analysis" section below). As determined by analysis, outreach, and review of the County's existing plans (such as Comprehensive Emergency Management Plan, Flood Management Plan, and those further mentioned in the "Analysis" section below), the climate hazards most relevant to the County are:

- Extreme precipitation,
- Flooding,
- Reduced snowpack/avalanche, and
- Wildfire

Based on these specific climate hazards, a total of 56 asset-hazard pairs were analyzed for sensitivity and adaptive capacity using a qualitative rating system (Low, Medium, and High). Ratings were determined based on indicators such as age, asset condition, physical design, social assets, economic costs, etc. Based on the sensitivity and adaptive ratings, an appropriate vulnerability risk rating (Low, Medium, High) was determined. For example, a low sensitivity and a low adaptive capacity would suggest a medium vulnerability for an asset-hazard pair.

Similarly, the same 56 asset-hazard pairs were analyzed for its probability or frequency of hazard occurrence and the magnitude of potential losses/consequences using a low, medium, and high rating. The ratings were determined based on indicators such as location, social assets, revenue, operations, and safety, etc. Using both the probability and magnitude rating, a composite risk rating was calculated. Based on the composite risk rating, a decision of "Take Action" or "Accept Risk" was identified for each asset-hazard pair. For example, a high probability with a medium magnitude for an asset would indicate a high composite risk rating; thus, a "Take Action" decision was indicated.

Analysis

Vulnerability Characterization

Existing reports, documents, and the County Website were used to gather relevant data pertaining to each hazard. Existing reports and documents include:

- Lewis County Comprehensive Plan Periodic Update
- Lewis County Public Utility District (PUD) Outage Map
- Lewis County Public Utility District (PUD) No.1 2020 Integrated Resource Plan
- Federal Emergency Management Agency (FEMA) Flood Maps
- National Oceanic and Atmospheric Administration (NOAA) Advanced Hydrologic Prediction Service
- Lewis County Risk Factor Website
- Lewis County Hazard Mapper Website
- Lewis County Municipal code
- 2009 Comprehensive Flood Hazard Management Plan
- 2016 Water System Plans for Vader-Enchanted Valley
- 2020 Community Strategic Plan
- 2022 Lewis County Public Works Annual Bridge Report
- 2022 Comprehensive Economic Development Strategic Plan
- 2023 Department of Ecology Inventory of Dams Report
- 2023 Televate Public Safety Radio System Engineering Study Report
- 2023 Lewis County Long Range Strategic Plan
- 2023 Lewis County Draft Comprehensive Solid and Hazardous Waste Management Plan

- 2016 Lewis County Comprehensive Emergency Management Plan
- 2020 Lewis County Public Utility District Broadband Assessment
- 2024 Packwood Airport Master Plan
- 2023 Ed Carlson Memorial Field Airport Master Plan Update

Through utilization of data found in the above documents, the sensitivity and adaptive capacity for each asset-hazard pair were determined based on a low, medium, and high rating according to the appropriate indicators. In accordance with DOE guidance, indicators are identified to qualitatively rank the sensitivity and adaptive capacity of each asset. **Table 1: Sensitivity and Adaptive Capacity Definitions** describes examples of key indicators that exhibit low, medium, and high sensitivity and adaptive capacity.

Table 1: Sensitivity and Adaptive Capacity Definitions

Example Key Indicators of "Sensitivity"		Example Key Indicators of "Adaptive Capacity"	
Low	• Minor repairs and accommodations required. • Slight inconveniences and temporary loss of services. • Minor disruption to business continuity and minimal loss of revenue and wages. • Little to no increase in costs and demands to respond to emergency events.	**Low**	• Adaptive solutions are innovative but costly. • Adaptive solutions may require coordination with multiple agencies to implement, leading to disruptions in service and longer implementation times. • Solutions require change in lifestyle or changes in political decisions. • Ability to avoid damage is limited.
Medium	• Temporary loss of food production, transportation, and distribution. • Temporary loss of functionality and operations closure of emergency response services. • Moderate repairs and replacements required. • Moderate increase in costs and demands to respond to emergency events.	**Medium**	• Impacts can be reduced or mitigated to a certain extent; however, adaptive solutions are only feasible for limited assets. • Some assets may face difficulties in adapting in terms of cost and implementation. • Coordination with third party agencies may be necessary for adaptivity measures. • Solutions require some change in systematic operations but are somewhat executable.
High	• Significant impact requiring reconstruction of parts or an entirety of an asset. • Extensive rehabilitation of assets resulting in long-term or permanent loss of functionality or operations closure. • Significant impact to vulnerable populations due to flooding and	**High**	• Assets can adapt with little to no difficulty. • Direct influence on the implementation of strategies or solutions for the asset is apparent. • Adaptive solutions are highly feasible for most, if not all assets with affordable costs.

Table 1: Sensitivity and Adaptive Capacity Definitions			
	extreme precipitation-related deaths and illnesses, population displacement, or migration. • Permanent loss of species not able to adapt to weather events exacerbated by climate change.		• Solutions are implemented immediately and face little to no resistance.
Sources: Orange County Transportation Authority, *Vulnerability Assessment*, Kimley Horn 2023.			

Based on the definitions above and relevant indicators, each asset-hazard pair was evaluated and given an appropriate sensitivity and adaptive capacity rating. Using the sensitivity and adaptive rating, an appropriate vulnerability rating was determined. Each asset-hazard pair describes climate indicators to determine sensitivity, adaptive capacity, and vulnerability ratings (Refer to **Appendix A: Lewis County Climate Element Workbook** for more details).

Risk Characterization

Similar to the Vulnerability Characterization described above, the same resources were used to determine the probability and magnitude ratings for each asset-hazard pair. The definitions for a low, medium, and high probability and magnitude rating are shown in **Table 2: Probability and Magnitude Definitions**.

Table 2: Probability and Magnitude Definitions[1]			
Probability		**Magnitude**	
Low	Very limited historic events recorded. Frequency of hazardous events to occur is periodic with likelihood of future events to occur episodically. For example, the likelihood of hazardous event(s) to occur once in 20 years.	Low	Minimal destruction to applicable assets with adequate functionality. In addition, minimal injuries and functionality to daily livelihood. Applicable assets may be easily repaired with available resources within a short duration of time without complications.
Medium	Limited, but some available historic events recorded. Frequency of hazardous events to occur is somewhat periodic. For example, likelihood of hazardous event(s) to occur once in 5 to 20 years.	Medium	Moderate destruction to applicable assets with decreased functionality. Injuries and functionality to daily livelihood are moderately heightened. Applicable assets may have increased difficulty for repair and functionality due to increased restoration times and complications. Health concerns are also a higher likelihood with strong suggestions for evacuation plans.
High	Recent, multiple historic events recorded. Hazardous events occur frequently. For example, likelihood of hazardous event(s) to occur within 5 years.	High	Extreme destruction to applicable assets with little to no functionality. Injuries and functionality to daily livelihood are extremely heightened. Applicable assets will have significant challenges for repair and elongated periods of construction before functionality can be

Table 2: Probability and Magnitude Definitions[1]			
			resumed. Health concerns are at an extreme likelihood with strong coercion for evacuation plans.

1. Definitions for low, medium, and high probability and magnitude were derived from the U.S. Climate Resilience Toolkit, https://toolkit.climate.gov/steps-to-resilience/assess-vulnerability-risk. Accessed June 2024.

Based on the definitions above and relevant indicators, each asset-hazard pair were evaluated and given an appropriate rating. Each asset-hazard pair describes climate indicators to determine probability, magnitude, and climate risk (Refer to **Appendix A** for more details). It is also important to note that the recommended decisions of "Take Action" or "Accept Risk" should be not understood as a "final" decision for the County. These decisions are strictly based on the structure of the climate workbook analysis.

Summary of Analysis

Based on the vulnerability and risk analysis, **Table 3: Asset Vulnerability and Climate Hazard Risks** showcase which asset/critical infrastructure are exposed to a priority climate hazard throughout the County. An asset-hazard pair which received a composite risk rating of medium or high are denoted with color scales associated with low (yellow), medium (orange), and high (red) ratings. Composite risk is comprised of an asset's level of vulnerability to a climate hazard and the probability and magnitude of impact to the asset from a climate hazard. A summary of asset vulnerability and climate hazard risks to critical infrastructure within the County is further provided below.

Table 3: Asset Vulnerability and Climate Hazard Risks					
	Priority Climate Hazards				
	Assets	Extreme Precipitation	Flooding	Reduced Snowpack/ Avalanche	Wildfire
Community Assets	General Government				
	Utility Substations				
	Radio Communications				
	Energy Facilities				
	Historic buildings & sites				
	Airports				
	Fiber optics				
	Fire stations				
	Shorelines				
	Civic centers				
	County Roads				
	Bridges & Railways				
	Solid waste infrastructure				
	Wastewater infrastructure				
	Water Supply				
	Educational Institutions				
1. Composite risk ratings are based on a low (yellow), medium (orange), and high (red). Boxes that are grey were not analyzed because of a lack of data from the CMRW tool.					

Although certain assets may not be exposed to a particular climate hazard, they may be affected by secondary hazards such as wildfire smoke/ash, landslides from riverine flooding and exposed soil following wildfire and precipitation events, flooding from overtopping of levees and unpredictable snowmelt, and heat waves from prolonged extreme heat events. The section below focuses on asset-hazard pairs with a Medium to High vulnerability rating and Medium to High composite risk rating. Additional details can be found in **Appendix A.**

Vulnerability

- ***Sensitivity[1]:*** Assets most vulnerable to priority climate hazards are fire stations, airports, roadway infrastructure, and civic centers. Rural households with mobility difficulties are also exposed and vulnerable to climate hazards. Assets are most likely to be impacted by hazards from increased flooding and wildfire frequency. Assets are in wildfire interface zones where there is an increased exposure to wildfire conditions i.e., fuel loads, resulting in wildfire events. Risk of flooding and wildfire hazards are expected to impact communities Countywide. Examples of climate impacts to assets are further described below:
    - Airports located in a 100-yr FEMA floodplain zones are potentially at risk of facing a temporary loss of functionality and operations.
    - The broadband pilot area of unincorporated County west of Chehalis to Pe Ell is located in wildfire interface zones, exposing fiber cables and towers to wildfire risk and resulting in potential destruction and loss of internet services to approximately 900 households and businesses.

[1] Information for this section is derived from the County's updated Multi-Jurisdictional Hazard Mitigation Plan.

- Hazards may cause irreparable damage to historic buildings and sites due to limited resources for replacement of damaged structures.
- Rail lines are exposed to flooding potential in 100-Year FEMA flood zones (Chehalis River in west, Newaukum River to southwest, and tributaries in south) and wildfire interface zones, particularly in northern County area. Rail lines may become structurally unstable and not operable, disrupting services that impacts the economy.
- UGA census tracts with high rates of mobility disabilities and low-income are more susceptible to being stranded and need to rely on relationships and emergency services for care – limited County resources in east and south County area, rural environment, far from care centers: Unincorporated Census tracts (530-419-70-700, -400), UGA census tracts (530-419-71-300, -200, -800, -900).
- Many bridges are located in floodplains, 25 of which are structurally deficient and functionally obsolete and 84 of which are experiencing critical scouring. 77 bridges are located within the 100-year floodplain and 78 bridges are located within the 500-year floodplain (2020 County Bridge Report). Structurally deficient and functionally obsolete bridges are more vulnerable to flood impacts and can delay evacuation for rural communities.

- ***Adaptive Capacity:*** Exposed assets can adjust to hazards by retrofitting older buildings and infrastructure and implementing design features that consider increased climate hazards. Other methods such as land use controls may be enforced to site assets in non-hazardous areas and create development standards that can withstand climate hazard events. Adaptive capacity measures are intended to increase climate resiliency and are further provided in "Recommended Actions" section below.

Composite Risk Characterization

- ***Probability:*** The frequency of priority climate hazards is anticipated to increase and become more unpredictable among all assets.
  - *Frequency of Extreme Precipitation*: Total precipitation from 25-year extreme precipitation storm events are expected to increase by an average of 6% by the end of the century.
  - *Frequency of Flooding*: Peak streamflow is anticipated to increase by 10-30% by the end of the century along the Cowlitz River, Tilton River lower tributaries, and Cispus River. Historical records predict that minor flooding may occur each winter, moderate flooding may occur every 2-5 years on the Chehalis and Cowlitz Rivers, and major flooding may occur every 5-7 years.
  - *Frequency of Reduced snowpack/avalanche*: Streamflow from reduced snowpack is projected to shift three to four weeks earlier than the 20th century average by mid-century.
  - *Frequency of Wildfire*: Increased extreme heat events are predicted to cause an average of 6 additional fire hazard days per year within the next 30 years. Wildfire risk is anticipated to increase by 26% by the end of the century, where areas east of I-5 freeway are 17-77% more likely to have conditions that are favorable to wildfire.
- ***Magnitude:*** Moderate destruction to certain assets will result in potential losses and consequences. Some assets are anticipated to experience significant destruction resulting in permanent losses. Some examples are included below:
  - Increased extreme precipitation events can destroy households through flooding from overtopping levees and may result in permanent displacement of more than 22,000 households by mid-century.

- More than 4,300 individuals who live in high wildfire risk areas (Morton, Randle, Packwood, Mossyrock), not including tourists and absentee landlords. Approximately 2,118 buildings are exposed valuating at $572.2 million.
- Broadband service zones correspond with a PUD electrical substation area, indicating that internet and electrical services located in east County and west County may be simultaneously interrupted. There is an existing fiber optic system along the eastern border of Lewis County.
- Airport closures due to climate-hazard events reduces revenue from recreational flying opportunities and firefighting-related activities. Operating expenses may increase due to additional labor and maintenance costs from climate hazard events. For example, extreme weather can damage pavement that more frequent airstrip maintenance.
- Flooding in Chehalis River basin is anticipated to experience an increase in FEMA 100-year floods by 33% by mid-century and is anticipated to impact more than 13,000 households.

Recommended Actions

This section is preliminary for discussion purposes only. Recommended actions are based on cumulative factors in the climate hazard analysis and is subject to change based on further discussions with the County and community members.

- Municipal code and other regulatory documents should consider updating development standards for buildings and infrastructure located in expanded FEMA 100-year flood zones and wildfire interface zones.
- Airport master plans should consider including climate adaptation measures for assets such as levees and siting of airstrips since hazards could impact the County's ability to respond to emergencies.
- Although emergency drinking water is provided separately by third party contractors (Red Cross, Salvation Army), water system plans should consider measures for recovering from climate hazard scenarios. Design standards for water treatment facilities should be flexible and account for contamination from landslides and liquefaction.
- Municipal code requirements on design, siting, and other development criteria for broadband infrastructure should consider future wildfire impacts. Construction of broadband infrastructure is primarily driven by the private market.
- Consider secondary evacuation routes at critical junctions. Investigate the possibility of a Study Plan that evaluates redundancy and contingencies for how individuals evacuate at critical junctions i.e., east County alternative evacuation route when bridge fails.
- Bridges should be reconstructed for increased flood and wildfire loads. Adaptation measures include applying fire blankets to bridges in high fire risk areas.

Kimley-Horn looks forward to collaborating with the County to identify potential opportunities to identify priority climate hazard impacts and increase resiliency among all sectors within the community.

Sincerely,

Heidi Rous
Climate Director, Kimley-Horn

On Behalf of County of Lewis, Washington State

Tasks 3.1-3.3: Assess sensitivity and adaptive capacity to characterize vulnerability						
Number	**Asset-Hazard Pair** *(from Column B of Task 1.3 tab)*	**Sensitivity — Task 3.1 (Low, Medium, or High)** ***refer to definitions for Low, Medium, or High in Cell H2**	**Adaptive Capacity — Task 3.2 (Low, Medium, or High)** ***refer to definitions for Low, Medium, or High in Cell N2**	**Vulnerability — Task 3.3** (*Low, Medium, or High*)	Notes *(The CMRW tool used in Step 1 describes general factors that affect a given sector's sensitivity (susceptibility to change). To qualitatively rate the sensitivity and adaptive capacity of a specific local asset or a broader asset category, start with a core question and then select indicators and available information (e.g., online census data, local plans, and community knowledge) to answer the question. Use the sensitivity and adaptive capacity ratings -- and other information, as desired -- to characterize the asset's vulnerability.)*	**Indicators Discussion** *(If desired, use this column to discuss your indicators and how they affected your ratings.)* For physical assets: 1. Age (What's the asset's age relative to its design life?); 2. Condition (What's the condition of the asset — poor, good, or excellent?); 3. Physical design (Is the asset physically protected from the hazard?) For environmental assets (i.e., fragmentation of forest, temperature range, exposure to pests & disease, etc.)
1	*General Government - Wildfire*	**Low**	**Low**	**Medium**	A majority of general government/administrative buildings are located in downtown Centralia with little to no tree canopy. Buildings are more likely to experience increased demands for air purification tech or building closure from wildfire events and may be limited for older buildings. Majority of County buildings in urban center of Centralia was built in mid-1900s, some in early 2000s. Retrofitting County buildings with air purification tech is a relatively low-cost adaptive solution, but can be high-cost from other construction activities i.e., mold infection, lead walls, etc. = **L (adaptive capacity).** Repairs/maintenance costs vary depending on building conditions, not in wildfire intermix zone (fuels loads) but in wildfire interface (exposure to wildfire effects i.e., smoke) zone = **L (sensitivity).**	Age; Condition; Physical design, Wildfire zone
2	Utility substations - wildfire *(Buildings & Energy)*	**Medium**	**Medium**	**Medium**	Increased energy demand from building usage may cause additional stress on infrastructure, leading to power outages and increased stress on PUD personnel, potentially increasing reliance on County or external agency personnel, but upgrades increase capacity of dealing with stressors = **L (sensitivity).** Increase reliance on back-up generators or other forms of energy, Substations are being upgraded by Lewis County PUD from 2021-2025. Unknown as to whether the upgrades include protection against climate hazards = **L (adaptive capacity).** Substations are more susceptible to wildfire damage in high wildfire risk areas. A local vulnerability assessment found that wildfire risk is higher in eastern County.	Age, Condition
3	Radio Communications - Wildfire *(Buildings & Energy)*	**Medium**	**Medium**	**Medium**	Drier vegetation and soils from extreme heat events increase likelihood of wildfires and landslides that may increase destruction of towers. Increased extreme heat events are predicted to cause average of 6 additional fire hazard days per year within the next 30 years, towers located in eastern County are more vulnerable = **M (sensitivity).** Towers are made of metal or wood. Equipment are typically located in concrete, brick, custom block bldgs, or fire station bldgs. Backup power mainly using batteries and generator, some using solar and UPS = **M (adaptive capacity).**	Condition, Physical design, Building material
4	Power Plant - Wildfire (*Buildings & Energy*)	**Low**	**Medium**	**Low**	Part of power plant is located in wildfire interface zone and in close proximity to intermix zone **= L (sensitivity)**. Plant will be completely decommissioned in 2025. Wildfire impacts power grid (poles, towers, power lines, etc.) which may stop power generation at power plant facilities. Would require alternative power sources = **M (adaptive capacity).**	Condition, Physical design, Building material

5	Wind farm - Wildfire	**Low**	**Low**	**Medium**	Not located in wildfire interface or intermix zone = **L (sensitivity)** - more susceptible to earthquake damage. Project lease contracts to third party to suppress wildfire on mitigation forest lands, wildfire suppression strategy per state natural conservation dept. Wildfire is unpredictable and unprecedented in the surrounding area per Skookumchuck wind energy project HCP; no design element that considers wildfire damage = **L (adaptive capacity).**	Condition, Wildfire zone, Conservation, Physical Design
6	Natural gas pipelines - Wildfire	**Medium**	**Medium**	**Medium**	Olympic and Williams pipelines distribute liquid petroleum and natural gas, respectively, throughout County. Pipelines run parallel to highways and large transportation corridors, exposing pipelines to wildfire risk = **M (sensitivity).** There may be extensive pipeline failure, taking hours, days, or weeks to repair resulting in temporary loss of service = **M (adaptive capacity).**	Physical design
7	Historical Buildings & Sites - Flooding *(Cultural Resources & Practices)*	**Low**	**Low**	**Medium**	Buildings constructed in mid-1800s or early 1900s, conditions may vary and are sensitive to changes but not located in flood hazard zones **= L. (Sensitivity)** More frequent flooding events can reduce access to culturally important sites and resources. Limited availability of physical resource (i.e., historic wood type, etc.) for rehabilitation = **L (adaptive capacity)**	Age, Condition
8	Historical Buildings & Sites - Wildfire *(Cultural Resources & Practices)*	**Medium**	**Low**	**High**	Buildings located in wildfire interface zones = **M (sensitivity).** More frequent wildfires can also reduce access to culturally important sites and resources; limited availability of physical resources to replace damaged historic buildings = **L (adaptive capacity).**	Age, Physical design
9	Airports - Extreme Precipitation & Flooding *(Economic Dev)*	**Medium**	**Medium**	**Medium**	Lewis County GOP is $2,573.06 million per year. Extreme precipitation events can warp pavement i.e., potholes, undulating surfaces, etc., requiring more frequent airstrip maintenance. $346,164 of damages at Chehalis-Centralia Airport. Packwood airport is located in a 100-yr FEMA floodplain where 1-3 ft. of flood can occur = **M (sensitivity).** Somewhat adaptive - can use recreational aircraft for critical needs. Packwood airport is situated close to Mt. Rainier NP - tourism dollars generate revenue = **M (adaptive capacity)**	Age, Condition, Physical design
10	Airports - Reduced Snowpack/Avalanche *(Economic Dev)*	**Low**	**Medium**	**Low**	Avalanche prone hillsides exist in high elevation mountainous areas in eastern County. County has high vulnerable population exposure to avalanche risk (WA state Enhanced haz mit plan). Airports are sited away from mountainous areas and within UGAs = **L (sensitivity).** Reduced snowpack affects peak streamflow timing which can result in temporary flooding during earlier months of the year, impacting general aviation activities such as emergency response, air ambulance service, flight training, and personal flying - about 85% of total operations are GA itinerant i.e., skydive operation, flying club, transient flying. Non-fire year annual operating revenue at Packwood airport is less than $2,000, fire-related years more than double annual operating revenue. Operating expenses total ~$30,000 for labor, maintenance, and internal/County transfers. Packwood airport master plan lists CIP projects that do not include climate adaptation measures i.e., levees, siting, etc., may increase maintenance costs and capital expenditures = **L (adaptive capacity)**	Airport activity, Physical design; Revenue

11	Airports - Wildfire *(Economic Dev)*	**Medium**	**Medium**	**Medium**	Airports located in wildfire interface zones (wildland fuel) = **M (sensitivity).** Loss of tourism/non-emergency related revenue but increases fire-related revenue = **M (adaptive capacity).**	Airport activity, Physical design; Revenue
12	Fiber optics - Extreme Precipitation & Flooding	**Medium**	**Medium**	**Medium**	Rural UGAs of the County are in need of fiber optic connections, the 2020 broadband assessment shows a pilot area in Pe Ell/western County area that will have updated broadband infrastructure, some areas exposed to 100-year FEMA floodplain = **M (sensitivity).** Site location, development standards, and design does not consider climate impacts per Chap. 15.50 of municipal code = **M (adaptive capacity).**	Location, Physical design, Municipal code
13	Fiber optics - Reduced snowpack/Avalanche	**Low**	**Medium**	**Low**	Reduced snowpack and avalanche less likely to occur in western County area where new broadband infrastructure is slated for development = **L (sensitivity)**. Code does not consider climate impacts to design, siting, etc. = **M (adaptive capacity)**	Location, Physical design, Municipal code
14	Fiber optics - Wildfire	**High**	**Low**	**High**	Broadband infrastructure located in wildfire interface zones in UGAs exposes fiber cables, towers, etc. to wildfire risk, can result in destruction and loss of service to internet **= H (sensitivity).** Code does not consider design, siting, etc. for future wildfire impacts, siting limited to pilot area; construction of infrastructure is private market driven **= L (adaptive capacity).**	Location, Physical design, Municipal code, Market
15	Shorelines - Flooding *(Ecosystem)*	**Low**	**High**	**Low**	SMP classifies shorelines for different uses - some uses allow recreation and development "high intensity, shoreline residential" while others conserve "rural/urban conservancy", "natural", and "aquatic" = **L (sensitivity).** SMP considers impacts of flooding to shoreline i.e., prohibit chemicals from agriculture and mining in shoreline areas subject to flooding, limit dredging to safety/restoration activities, etc. SMP uses 2010 FEMA flood zone maps and is outdated = **H (adaptive capacity)**	Use type, Shoreline classification, Flood zones
16	Shorelines - Reduced Snowpack/ Avalanche *(Ecosystem)*	**Low**	**High**	**Low**	Altered peak streamflow from reduced snowpack impacts all use types within shoreline areas. Streams/rivers with mean annual flow greater than 20 cubic feet per sec is a protected shoreline. Reduced peak streamflow impacts protection status and interpretation of allowed uses i.e., aquaculture, mining, recreation, etc. Increased maintenance needs for private facilities and public recreation facilities utilizing shoreline areas = **L (sensitivity).** Shoreline maps updated regularly to accommodate different uses and protection status = **H (adaptive capacity).**	Use type, Shoreline classification, Peak streamflow volume
17	Shorelines - Wildfire *(Ecosystem)*	**Low**	**High**	**Low**	Shoreline segments located in wildfire interface zones, wildfire intermix located throughout County due to fragmentation of forest = **L (sensitivity).** Wildfire impacts to shoreline varies depending on uses, increased impact for "high intensity", "shoreline residential", and "aquatic" shorelines due to residential and commercial developments; SMP does not consider impact of wildfire hazard on these developments, but County code and fire districts provide materials and education for fire risk prevention and mitigation = **H (adaptive capacity).**	Use type, Shoreline classification, Wildfire zone, Municipal code
18	Public Safety Radio - Extreme Precipitation *(Emergency Mgmt)*	**Medium**	**Medium**	**Medium**	Cost-prohibitive budget constraints associated with system upgrades (changing frequency) and equipment upgrades - limits ability to respond to emergencies and may require frequent maintenance and temporary loss of communication **= M (sensitivity).** Radio infra is limited to high elevation hillside areas and may be exposed to landslide hazard, does not require significant upgrades as frequency from channels can be altered to improve communications (source: 2023 Elevate report) = **M (adaptive capacity).**	Location, Radio upgrades

19	Public Safety Radio - Flooding *(Emergency Mgmt)*	**Medium**	**Medium**	**Medium**	Flooding can knock over towers and stop radio signals from being emitted and received. Costs associated with system upgrades (changing frequency) and equipment upgrades (law enforcement user radios for P25 capability) required, temporary loss of function from flooding of radio tower infrastructure = **M (sensitivity).** UGA census tracts with high rates of mobility disabilities and low-income are more susceptible to being stranded and need to rely on relationships and emergency services for care - limited County resources in east and south County area, rural environment, far from care centers = **M (adaptive capacity).** Unincorporated Census tracts (530-419-70-700, -400), UGA census tracts (530-419-71-300, -200, -800, -900) are disadvantaged: above 65th percentile low-income households, above 10% of adults have high school education or less. 96th percentile unemployed (CT -900). 19.41% of County has a disability.	Social assets, Natural disasters
20	Public Safety Radio - Wildfire *(Emergency Mgmt)*	**Medium**	**High**	**Low**	Fire coverage is limited in many County areas; Use of a simplex channel for fire hampers the ability of field users to communicate directly with each other and they must relay messages through dispatch in many situations - delayed response to emergencies and deployment of life-saving equipment. Delayed response and service to vulnerable populations i.e., elderly, mobility impaired persons, etc. = **M (sensitivity).** Destruction to radio towers adaptable by changing frequencies - County coordinates with ARES/RACES to augment radio communication during emergencies. Emergency mgm't plan lists channels, communication methods, and users for emergency support including safety and backup procedures = **H (adaptive capacity).** County's senior population (65+) = 20.69% Owner-occupied HH = 63.64% Hospitals per 10,000 people = 0.37	Social assets, Radio channel, Emergency response

21	Fire Stations - Extreme Precipitation *(Emergency Mgmt)*	**Medium**	**Medium**	**Medium**	Peak streamflow changes from extreme precip events cause secondary hazards like riverbank erosion and landslides that can undermine bldg structure stability; stations in flood plain/landslide hazard areas more likely to experience significant impact and loss of entirety of asset = **M (sensitivity).** Stations habitable space typically in upper stories while emergency response equipment in lower stories, loss of life can be mitigated = **M (adaptive capacity).**	Physical design
22	Fire Stations - Flooding *(Emergency Mgmt)*	**Medium**	**Low**	**High**	Flooding directly damages or destroys fire station buildings and infrastructure. 2007 flood is 100-year flood that resulted in 10 fire district vehicles damaged, 5 fire stations damaged, total costs of damages to all infra $ 166 million to replace infrastructure and equipment. Temporary loss of service and functionality to serve vulnerable populations = M (sensitivity). Fire station not designed for flood mitigation, protection zones i.e., levees or other structures = **L (adaptive capacity).**	Social assets, Costs
23	Fire Stations - Wildfire *(Emergency Mgmt)*	**Medium**	**Low**	**High**	Wildfire directly damages or destroys fire station buildings and infrastructure. Potential high costs to replace infrastructure and equipment. Temporary loss of service and functionality to serve vulnerable populations = **M (sensitivity).** Fire station designed for fire safety such as safe space buffers surrounding buildings = **L (adaptive capacity).**	Social assets, Costs
24	Airports - Extreme Precipitation & Flooding (*Emergency Mgmt)*	**Medium**	**Low**	**High**	Packwood Airport is located in Cowlitz River FEMA 100-Year flood zone and subject to 1-3 feet of flooding; closure of airport to runway activities; other airports are not in flood zone = **M (sensitivity).** Extreme precipitation events can warp pavement, requiring more frequent airstrip maintenance; divert emergency response services to other airports i.e., Chehalis-Centralia airport serves as primary local airport. Packwood airport master plan lists CIP projects that do not include climate adaptation measures i.e., levees, siting, etc., impacts ability to respond to emergencies = **L (adaptive capacity)**	Flood zone, Capital improvement programs
25	Airports - Wildfire *(Emergency Mgmt)*	**Medium**	**Low**	**High**	Airports located in wildfire interface zones (wildland fuel) - loss of emergency response services would occur or diverted to other airport i.e., Chehalis-Centralia airport = **M (sensitivity).** Potential wildfire damage; Fire stations and ARFF facilities located nearby to respond to aerial wildfire emergencies within 15 minutes = **L (adaptive capacity).**	Wildfire zone, Timing response
26	County roads - Extreme Precipitation *(Transportation)*	**Medium**	**Medium**	**Medium**	Extreme precipitation events can warp pavement or cause sinkholes, requiring more frequent road maintenance = **M (sensitivity).** Road closures impact evacuation routes, goods delivery, etc., pavement tech such as all-weather asphalt is available = **M (adaptive capacity)**	Physical design, Costs
27	County roads - Flooding *(Transportation)*	**Medium**	**Low**	**High**	Exposure and therefore sensitivity varies = **M (Sensitivity)** (Physical infrastructure damage is very costly - $4,479,000 of damages to state highway. Interstate 5 is frequently affected by flooding in the Chehalis River floodplain. Freight delays negatively impact economy - $47,070,000 economic impact from four-day I-5 closure). Road closures from flooding disrupt services, 7.1% unemployment, Percent Below Poverty Level: 13.17% Median HH Income: $60,581 = **L (adaptive capacity)**	Loss of revenue; Unemployment rates; Low income rates
28	County roads - Reduced snowpack/ Avalanche *(Transportation)*	**Low**	**Medium**	**Low**	Reduced snowpack may decrease avalanche severity but increase frequency, leading to road closures and increased repairs/maintenance. Avalanche damage to roads limited to remote hillside areas in eastern County = **L (sensitivity).** National weather service issues avalanche warnings, County public works closes roads that expose people to danger and fixes roads = **M (adaptive capacity).**	Communications; Location;
29	County roads - Wildfire *(Transportation)*	**Low**	**Low**	**Medium**	Conditions of County roads vary and are widespread = M; Roads can withstand wildfire events and is important for evacuation = **L (sensitivity);** If damaged from burned vegetation, becomes inaccessible and not adaptable to wildfire conditions = **L (adaptive capacity)**; Evacuation from disadvantaged census tracts make travel more burdensome and long, exposing to more hazards.	Condition; Physical design; Social assets

30	Bridges - Extreme Precipitation *(Transportation)*	**Low**	**Medium**	**Low**	Similar to roads, extreme precipitation can cause bridge deck material to deteriorate i.e., potholes, divots, etc. but would still be functional = L. Bridge repair and maintenance can be costly and labor intensive = **M (adaptive capacity).**	Condition

31	Bridges - Flooding *(Transportation)*	**Medium**	**Medium**	**Medium**	Many bridges are located in floodplains (77 bridges located within the 100-year floodplain and 78 located within the 500-year floodplain). Conditions vary b/c engineering design based on varying flood levels (1 bridge identified as structurally deficient, 24 identified as functionally obsolete, 84 as scour critical (2022 Bridge Report, Lewis County)). Ceres Hill bridge (#102) built in 1948 is most structurally deficient - not located in disadvantaged area, mostly agricultural and open space uses. May be important for evacuation = **M (sensitivity)**. Bridge repair or construction is expensive and labor intensive, new engineer standards set for increase flood levels to mitigate scouring and climate impacts, limited by funding and personnel = **M (adaptive capacity).**	Age; Condition; Physical design; Social assets
32	Bridges - Reduced snowpack/ Avalanche *(Transportation)*	**Medium**	**Medium**	**Medium**	Reduced snowpack may decrease avalanche severity but increase frequency, leading to bridge closures and increased repairs/maintenance. Snowmelt is projected to shift three to four weeks earlier than the 20th century average by the year 2050, snowmelt events that coincide with heavy rainfall events exacerbate bridge scouring = **M (sensitivity).** Bridge repair or construction is expensive and labor intensive, new engineer standards can be set for increased flood levels to mitigate scouring - new bridge designs are limited by available funding and personnel = **M (adaptivity).**	Condition; Physical design
33	Bridges - Wildfire *(Transportation)*	**High**	**High**	**Medium**	Bridges that are located throughout County are exposed to wildfire. Eastern County has higher wildfire risk than western County. There are more bridges in western County than eastern County, bridges are non-functional if burned = **H (sensitivity).** Only one main highway (HWY 12) from west to east County, which may be a critical evacuation route, and access for personnel to respond to emergencies. Adaptation measures include designing for fire loads, and applying fire blankets to bridges in high fire risk areas, no mention of fire mitigation in 2022 bridge report = **H (adaptive capacity).**	Physical design; Location in high fire risk zones; Asset serves disadvantaged census areas
34	Airports - Extreme Precipitation & Flooding *(Transportation)*	**Medium**	**Medium**	**Medium**	Airports used for transportation of goods and emergency services. Flooding would prevent transportation and interrupt business and stall responsiveness. Extreme precip can also cause interruptions by creating sinkholes on runway, stopping operations and requiring maintenance = **M (sensitivity).** Airports can be protected with levees/dikes or other measures = **M (adaptive capacity).**	Physical design; Location in flood zones; Loss of revenue
35	Airports - Reduced snowpack/ Avalanche *(Transportation)*	**Low**	**Medium**	**Low**	Avalanche prone hillsides exist in high elevation mountainous areas in eastern County. Airports are sited away from mountainous areas and within UGAs = **L (sensitivity).** Reduced snowpack affects peak streamflow timing which can result in temporary flooding during earlier months of the year, impacting general aviation activities such as emergency response, air ambulance service, flight training, and personal flying - about 85% of total operations are GA itinerant reasons. Emergency response i.e., military, evacuation, etc. planned = **M (adaptive capacity).**	Location; Aviation operations type
36	Airports - Wildfire *(Transportation)*	**Low**	**Medium**	**Low**	Airports located in wildfire interface zones (wildland fuel) - closure of airport for 6 months to recreational flying for aerial wildfire fighting = **L (sensitivity).** Airports are general aviation airports that connect to other airports within region for emergency response and military operations i.e., Chehalis-Centralia, Morton, Toledo = **M (adaptive capacity).**	Wildfire zone; Operations
37	Railways - Extreme Precipitation & Flooding	**Medium**	**Low**	**High**	Flooding of rail lines would temporarily pause delivery of goods and impact economy/business. Rail lines are located in 100-Yr FEMA flood zones (Chehalis river in west, Newaukum river to southwest, and tributaries in south) = **M (sensitivity).** Mitigation methods include relocating ralline, elevating rails, or decommissioning rail usage, which can be costly and labor intensive = **L (adaptive capacity).**	Exposure to frequent flooding, Location, Physical design
38	Railways - Reduced snowpack/ Avalanche	**Low**	**Medium**	**Low**	Reduced snowpack may decrease avalanche severity but increase frequency, leading to closures and increased repairs/maintenance. Railways are not located in avalanche-prone zones. Streamflow timing from snowpack runoff has limited impacts to railways = **L (sensitivity)**. No adaptation measures = **M (adaptive capacity)**	Location

39	Railways - Wildfire	**Medium**	**Low**	**High**	Portions of rail lines located in wildfire interface zones, particularly in northern County where the Industrial Access Transportation Study is taking place for future improvements. Significant impacts to economy would occur, fires destroys wood foundation making rail lines structurally unstable and inoperable = **M (sensitivity).** Mitigation includes utilizing other materials, fireproofing existing foundations, but are costly and labor intensive = **L (adaptive capacity).**	Physical design, Location in fire zones, Loss of revenue, Opportunity costs
40	Solid Waste transfer station - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Medium**	**Low**	Located in low risk liquefaction area. Decreased capacity due to waste generated from other storm events = **L (sensitivity).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may overfill due to post hazard event clean up = **M (adaptive capacity).**	Physical design
41	Solid Waste transfer station - Flooding *(Waste Mgmt)*	**Low**	**Medium**	**Low**	Not located in 100-year FEMA floodplain. Decreased capacity due to waste generated from other storm events = **L (sensitivity).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may go over due to post hazard event clean up = **M (adaptive capacity).**	Physical design
42	Solid Waste transfer station - Wildfire *(Waste Mgmt)*	**Low**	**Medium**	**Low**	Not located in wildfire interface zone. Decreased capacity due to waste generated from other hazard events **= L (sensitivity).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may go over due to post hazard event clean up = **M (adaptive capacity).**	Physical design
43	Sewer infrastructure - Extreme Precipitation *(Waste Mgmt)*	**Low**	**High**	**Low**	Infrastructure = Private septics, Middle Fork Water Sewer system, Onalaska Wastewater Treatment Plant ("OWTP" - built in 1975). OWTP collection system has 3 basins. Consists of an oxidation ditch, secondary clarifier, and sludge holding with chlorine disinfection prior to discharge to the Newaukum River. Sludge disposal method is to have a septic tank pumper pump an aerobic digestor out once every 2 months and dispose of in landfill or other proper methods. Discharge outfall pipe is 8-in. diameter suspended above an overflow channel before going to river (wet conditions) or percolating thru a gravel bar (dry conditions). Heavy precip would have limited impacts, private septics can contaminate groundwater due to high precip infiltration = **L (sensitivity).** Efficiency upgrades to system was proposed under a NPDES permit = **H (adaptive capacity).**	Age, Condition, Physical design
44	Sewer infrastructure - Flooding *(Waste Mgmt)*	**Medium**	**Medium**	**Medium**	Increased frequency of peak streamflow events may impact outfall pipe and discharge functions. Private septics can experience backup and temporary loss of function, contamination of drinking water. Part of the facility is in 1% annual chance climate change flood zone = **M (sensitivity).** Adaptation may include other treatment methods or temporary shutdown of facilities **= M (adaptive capacity).**	Condition, Physical design
45	Sewer infrastructure - Wildfire *(Waste Mgmt)*	**Low**	**Medium**	**Low**	Not located in wildfire interface zone. Located in wildfire intermix zone, similar to most County areas. Temporary loss of functionality if wildfire damages infrastructure, UV sanitation tech system includes a power distribution center and warning system. Failure scenarios considered in NPDES permit **= L (sensitivity).** Unsure if failure scenarios include climate hazards, would require consideration in new permit and infrastructure upgrades which may be costly and labor intensive = **M (adaptive capacity)**	Condition, Physical design, Cost
46	Dump stations - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Medium**	**Low**	Items are "dropped off" by individuals at transfer stations/Packwood Community drop off center. Located in low risk liquefaction area. Decreased capacity due to waste generated from other storm events = **L (sensitivity).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County. Increased hazard events, individuals may increase disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill = **M (adaptive capacity).**	Physical design

47	Dump stations - Flooding *(Waste Mgmt)*	**Low**	**Medium**	**Low**	Not located in 100-year FEMA floodplain. Decreased capacity due to waste generated from other storm events = **L (sensitivity).** Increased hazard events, individuals may increase disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill = **M (adaptive capacity).**	Physical design
48	Dump stations - Wildfire *(Waste Mgmt)*	**Low**	**Medium**	**Low**	Not located in wildfire interface zone. Decreased capacity due to waste generated from other storm events = **L (sensitivity)**. Increased hazard events, individuals may increase disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill = **M (adaptive capacity).**	Physical design
49	Water infrastructure - Reduced snowpack/Avalanche *(Water Resources)*	**Low**	**Medium**	**Low**	Vader-Enchanted Valley water treatment plant (source Cowlitz River), County wells (Middle Fork Newaukum river), private wells. Unpredictable peak streamflow's leading to temporary flooding, higher water temperatures, and/or seasonal drought, which can contaminate drinking water supplies = **L (sensitivity).** VEV drinking water is stored in 250,000-gal steel reservoir built in 1979 at ground level but elevated from ground at 315 ft. Wells are required to have a 100-ft. buffer to prevent contamination, pump house is routinely monitored. Design flexibility: design standards are set in Title 13 of County municipal code, water mains equipped with backflow prevention valves = **M (adaptive capacity).**	Age, Condition, Physical design, Design flexibility, Hazard type (exposure to landslide)
50	Water infrastructure - Wildfire *(Water Resources)*	**Medium**	**Low**	**High**	Debris from wildfires or mudslides/landslides resulting from wildfire damaged areas can contaminate water sources. VEV transmission main goes thru an area that experiences a lot of landslides, slowing down raw water supply which may temporarily impact potable water and firefighting supply = **M (sensitivity).** Design flexibility: design standards account for limiting contamination, does not account for climate hazards. Lewis County Comp Emergency Mgm't Plan outlines that Dept. of Emergency Mgm't contracts with third parties (Red Cross, Salvation Army) to provide bulk drinking water during emergencies = **L (adaptive capacity).**	Condition, Physical design, Hazard type, Design flexibility
51	Civic Centers - Extreme Precipitation *(Zoning & Development)*	**Low**	**Medium**	**Low**	Civic centers include recreation centers with large concentrations of people who may be exposed to hazard events and include vulnerable individuals i.e., children, elderly, special needs, etc. = **L (sensitivity).** Civic centers with appropriate facilities may act as temporary shelters for extreme hazard events, requires collaboration with Am Red Cross, NGOs, faith based orgs, Salvation Army, law enforcement/other County depts, Nat'l Guard = **M (adaptive capacity).**	Vulnerable groups, Population density
52	Civic Centers - Flooding *(Zoning & Development)*	**High**	**Medium**	**High**	Civic centers located thru-out County, and may be flooded in unincorporated City-adjacent areas/UGAs. Fixed buildings/civic centers located in 100-year FEMA floodplains would experience peak stream flows resulting in loss of building functions and services and possibly reconstruction = **H (sensitivity).** Certain sites may be selected as a secondary/alternate emergency operations center, in collab with above-mentioned organizations - limited to facilities with large indoor area, plumbing, road connectivity, and bldg design accessibility = **M (adaptive capacity).**	Building, Site selection, Vulnerable groups
53	Civic Centers - Reduced snowpack/ Avalanche *(Zoning & Development)*	**Low**	**Medium**	**Low**	Civic centers can act as temporary evacuation shelters, located in UGAs and cities. Avalanches occur in remote hillside areas away from UGAs and cities. Reduced snowpack affects peak streamflow timing that may temporarily flood, impacting civic centers in urban areas. Some bldgs located in 1% annual chance climate change flood **= L (sensitivity).** Civic centers that have capacity as evac shelter: Centralia college, Red Cross, Morton Hospital, Providence Hospital = **M (adaptive capacity)**	Flood zone, Shelters
54	Civic Centers - Wildfire *(Zoning & Development)*	**High**	**Medium**	**High**	UGAs located in wildfire interface zones expose fixed buildings/civic centers to wildfire risk. Would result in complete loss of building functions and services, reconstruction needed = **H (sensitivity).** EMP describes emergency/warning notification method and evacuation routes. County continues to collaborate with fire districts to educate property owners on defensible space and other prevention methods = **M (adaptive capacity)**	Site selection, Multiple agency collaboration, Communications

55	Colleges - Extreme Precipitation & Flooding	**Low**	**Medium**	**Low**	College campuses such as Centralia college and WSU extension are located in incorporated areas outside of 100-year FEMA flood zone = **L (sensitivity).** Campuses may act as a secondary facility for emergency operations, but are limited to non-flood areas **= M (adaptive capacity).**	Multiple agency collaboration
56	Colleges - Wildfire	**High**	**Medium**	**High**	College campuses are located in wildfire interface zones and exposing students, faculty, and staff to wildfire risk = **H (sensitivity).** Wildfires may significantly impact buildings even with fireproof designs i.e., defensible space, fireproof bldg materials, etc. = **M (adaptive capacity) .**	Physical design, fragmentation of forest, vulnerable populations

Tasks 3.4-3.5: Characterize risk and decide course of action

In Column B [*below*], list the assets you identified in Task 3.3 as having *medium* or *high* vulnerability. In Column C, characterize the **Probability** of hazard occurrence for each asset as *low, medium, or high* . In Column E, characterize the **Magnitude** of the potential loss/consequences as *low, medium, or high.* Put each asset's number [*from Column A*] in the appropriate cell of the Risk Characterization Matrix [*right*], and note the composite risk rating in Column G. Based on the asset's risk characterization, note your decision [*Take Action of Accept Risk*] in Column H.

Number	**Asset-Hazard Pair** *(Note applicable sector(s) in parenthesis.)*	**Probability** ***refer to definitions for**	**Notes** *(Note the indicators, data, and ruleset used to characterize probability of loss.)*	**Magnitude** ***refer to definitions**	**Notes** *(Note the indicators, data, and ruleset used to characterize magnitude of loss.)*	**Composite Risk Rating** *(Low = Green;*	**Decision** (*Take Action* or *Accept Risk*)
1	*General Government - Wildfire*	**High**	**Costly retrofitting.** Repairs/maintenance costs for HVAC/air filtering vary depending on building conditions since asset is exposed to wildfire smoke**.** **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood Indicator: Location.** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% chance of being conducive to wildfire conditions each year (by late century).	**Medium**	More than 4,244 people who live in high wildfire risk areas (Morton, Randle, Packwood, Mossyrock) = **H (Probability).** This does not include tourists and absentee landlords who would need effective communication and evacuation plans/knowledge. ~2,118 buildings exposed, valuating $572.2 million = **M (Magnitude)**	**High**	**Take Action**
2	Utility substations - wildfire *(Buildings & Energy)*	**Medium**	Increased reliance on backup generators or other forms of energy. Substations are being upgraded by Lewis County PUD from 2021-2025, increasing chances of withstanding climate hazard events. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location, Operations.** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Electricity provided by the Lewis County Public Utility District No. 1 (PUD) serves all of Lewis County, except the City of Centralia and areas covered by Centralia City Light. Centralia City Light supplies power to customers in the City of Centralia and nearby areas, including Cooks Hill, Seminary Hill, and Salzer Valley. Puget Sound Energy offers natural gas service to customers in Centrali, Chehalis, Toledo, and Winlock. As described above, utility substations are spread throughout Lewis County. Increased extreme heat events are predicted to cause average of 6 additional fire hazard days per year by mid-century. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). Higher chance that substations located in high risk areas experience wildfire damage even with upgrades.	**Medium**	More than 4,244 people who live in high wildfire risk areas (Morton, Randle, Packwood, Mossyrock) can experience temporary disruption in livelihood via mandatory evacuations = **M (Probability).** This does not include tourists and absentee landlords in eastern County (near Mount Rainier) who would need effective communication and evacuation plans/knowledge. Approximately 2,118 buildings are exposed, valuating at $572.2 million = **M (Magnitude).**	**Medium**	**Take Action**

3	Radio Communications - Wildfire *(Buildings & Energy)*	**Medium**	**Delayed emergency response services.** Increased likelihood of wildfires and landslides that may increase destruction of towers located throughout the County. Radio towers are sometimes made of flammable material. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Social Assets</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century) = M (Probability). Higher chance that radio communication towers located in high risk areas in eastern County experience wildfire damage - more remote locations.	**Low**	More than 4,244 people who live in high wildfire risk areas (Morton, Randle, Packwood, Mossyrock) can experience temporary disruption in livelihood via mandatory evacuations. This does not include tourists and absentee landlords in eastern County (near Mount Rainier) who would need effective communication and evacuation plans/knowledge. There are a variety of telecommunications providers that offer service in Lewis County. Ongoing changes in cellular and fiber technology have transformed the delivery of telecommunications, and these shifts in equipment and providers have contributed to an industry that offers several options for customers. Anticipating future characteristics given these shifting conditions is highly unlikely. Moving into the future, improvements to telecommunication infrastructure and services will play an increasingly important role especially in underserved areas. The magnitude of wildfire on radio communications may impact how underserved areas improve their telecommunications; however, there are many shifts in equipment and providers for telecommunications that could accommodate these areas **= L (Magnitude);** Indicator: Social Assets	**Low**	**Accept Risk**
4	Power Plant - Wildfire (*Buildings & Energy*)	**Low**	**Decreased power supply.** Wildfire impacts power grid (poles, towers, power lines, etc.) which may temporarily stop/shut-down power generation and distribution at power plant facilities. Plant is planned to decommission by 2025. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Location</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Hydroelectrical facilities are mostly located on the western side of the County = **L (Probability).**	**Low**	Columbia Generating Station (CGS) is a nuclear project with generating capacity of 1,150 MW that is owned and operated by Energy Northwest (ENW). Based on the 2020 Integrated Resource Plan for Lewis County, under the current Bonneville Power Administration (BPA) power contract, Lewis PUD's contract high-water mark (HWM) is 115.4 aMW. The wildfire magnitude for power plants was based on the county's contracted load of nuclear power and the county's PUD fuel mix = **L (Probability).** The contracted nuclear power load compared to the generating capacity of the CGS is approximately 10% and nuclear in the PUD fuel mix is also 10.02% in 2021. Therefore, the magnitude of wildfire impacts to power plants is low as the county does not heavily rely on this power source = **L (Magnitude)**	**Low**	**Accept Risk**
5	Wind farm - Wildfire	**Low**	**Other hazard risk.** Skookumchuck wind energy farm is not highly susceptible to wildfire risk. Hires third party to suppress wildfire on mitigation forest lands, wildfire suppression strategy per state natural conservation dept. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Location</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). Lewis County PUD receives wind energy from the White Creek Wind Project and the Nine Canyon Wind Project which are located in Klickitat County and ten miles southeast of Kennewick, respectively. =**L (Probability)**	**Low**	Lewis County PUD receives about 6 average MW of power through its 10% share of the White Creek Wind Project. The project is located in southeast of Lewis County and has 89 turbines with a nameplate capacity of 204 MWs. Lewis County PUD's share is approximately 6 MW of the Nine Canyon Wind Project which has 63 turbines with a installed capacity of 95.9 MW, located east of Lewis County in Kennewick. The magnitude of wildfire on wind farms rely Lewis County's reliance to wind power and the location of the wind power sources. As described, the wind farms that source Lewis County PUD are not within the county and a small MW is shared with Lewis County for both projects; therefore, magnitude is low. = **L (Magnitude)**	**Low**	**Accept Risk**

6	Natural gas pipelines - Wildfire	**Low**	**Temporary loss of service.** Pipelines run parallel to highways and large transportation corridors, exposing pipelines to wildfire risk. There may be extensive pipeline failure, taking hours, days, or weeks to repair resulting in temporary loss of service. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood**: **Location** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). All of the natural gas consumed by homes and businesses in the Pacific Northwest comes from western Canada and the U.S. Rocky Mountain States. All the majority of natural gas moves straight to the customer through network of pipelines, local gas mains, and other utility infrastructure. Northwest consumers, however, also receive a share a significant share of their natural gas supply - mainly in winter - from underground storage reservoirs. =**L (Probability)**	**Low**	As natural gas is derived from western Canada and the U.S. Rocky Mountain States, the magnitude of wildfire impacting the pipelines that deliver this natural gas is low. Further, in winter where there is a lesser likelihood of wildfire, natural gas supply from underground storage reservoirs will have a lower magnitude of effects. = **L (Magnitude)**	**Low**	**Accept Risk**
7	Historical Buildings & Sites - Flooding *(Cultural Resources & Practices)*	**Low**	**Loss of cultural identity.** Not located in flood zones; however, more frequent flooding events can reduce access to culturally important sites and resources. Limited availability of physical resource (i.e., historic wood type, etc.) for rehabilitation. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: Location** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, there are 17,626 properties in Lewis County that have risk of flooding over the next 30 years,. This represents 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. Historic buildings/cultural sites are vulnerable to flooding from dam and levee failure w/in dam inundation areas: Skookumchuck Dam* (Condition = satisfactory), Mossyrock* (Condition = unsatisfactory) and Mayfield* (Condition = unsatisfactory) Dams. Percentage of affected properties w/ historic structures is unknown. *Dams have updated Emergency Action Plan.	**Low**	Buildings constructed in mid-1800s or early 1900s, conditions may vary and are sensitive to changes due to outdated building codes. Percentage of affected properties w/ historic structures or sites are unknown. Dam failure and high streamflow magnitude affecting historic sites/buildings is likely = **L (Probability);** thus, there is a low magnitude for impacts. = **L (Magnitude).**	**Low**	**Accept Risk**
8	Historical Buildings & Sites - Wildfire *(Cultural Resources & Practices)*	**Medium**	**Loss of cultural identity.** Buildings are located in wildfire interface zones. More frequent wildfires can reduce access to culturally important sites and resources. Rehabilitation efforts may be limited due to the availability of physical resources to replace damaged historic buildings. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Historical buildings are subject to increased wildfire risk.	**High**	Buildings constructed in mid-1800s or early 1900s, conditions may vary and are sensitive to changes. Most historical buildings are located in wildfire prone areas = **H (Probability);** therefore the magnitude of impacts should be highly considered for the goal of preserving historical buildings and sites.= **H (Magnitude)**	**High**	**Take Action**

9	Airports - Extreme Precipitation & Flooding *(Economic Dev)*	**Medium**	**Decreased revenue.** Some airports i.e., Packwood is located in a 100-yr FEMA floodplain where 1-3 ft. of flood can occur, warping pavement i.e., potholes, undulating surfaces, etc. and requiring more frequent airstrip maintenance. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Location, Revenue, Operations</u>** Climate change is projected to steadily increase the magnitude of 25-year storm, increasing total precipitation by 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation increases riverine streamflow within existing floodplains and could expand flooding to new areas not currently in existing floodplains, which could affect infrastructure and operations. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets, making it more costly to repair and maintain airport infrastructure. = **M (Probability)**	**Medium**	The magnitude of extreme precipitation regarding airports was determined based on the rate of heavier precipitation. With the steady increase of precipitation in the future, the magnitude of extreme precipitation regarding airports is medium as the operations of airports may be impacted with severe rain conditions = **M (Magnitude)**. In addition, the magnitude of flooding for airports is determined based on the flood history and proximity of major rivers that are near operating airports. = **M (Magnitude).**	**Medium**	**Take Action**

10	Airports - Reduced Snowpack *(Economic Dev)*	**Low**	**Other hazard risk.** Airports are sited away from avalanche-prone mountainous areas and within UGAs. Airports are located in flood zones that may experience temporary closures from riverine flooding due to earlier snowmelt. **Probability**: On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Location** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97%. April 1st snowpack readings are an indicator of water storage capacities - airports are not affected by water storage capacities from reduced snowpack = **L (Probability).**	**Low**	The magnitude of reduced snowpack on airports is evaluated based on how operations would be impacted. Reduced snowpack would indicate that there would be less flooding and precipitation; thus, operations would not be affected heavily as operations should be conducted regularly. =**L (Magnitude)**	**Low**	**Accept Risk**
11	Airports - Wildfire *(Economic Dev)*	**Medium**	**Increased operational costs/decreased revenue.** Airports are located in wildfire interface zones and subject to wildfire risk. Tourism continues to provide revenue to cover added costs. Airport master plans should address wildfire risk and exposure. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location, Revenue**, Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Airports are scattered all across Lewis County =**M (Probability) .** The County may experience Increased direct (fire damage to airports) and indirect costs (firefighting activities).	**Medium**	Airports are located in wildfire zones. As such, in the events of wildfires, operations would need to be halted and evacuations would occur. This may also increase flight cancelations and delayed restoration of the airports which decreases overall revenue and increases maintenance costs = **M (Magnitude)**	**Medium**	**Take Action**
12	Fiber optics - Extreme Precipitation & Flooding	**Medium**	**Site Constraints.** The pilot area in Pe Ell/western County area that will have updated broadband infrastructure, some portions of this area are exposed to 100-year FEMA floodplain. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: Location, Operations** Climate change is projected to steadily increase the magnitude of 25-year storm, increasing total precipitation by 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation increases riverine streamflow within existing floodplains and could expand flooding to new areas not currently in existing floodplains, which could affect infrastructure and operations. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability).**	**Medium**	According to the Lewis County PUD, service territory of fiber optics are divided into 17 broad service zones. Each of the broadband service zone correspond with a PUD electrical substation area. As there are multiple electrical substations throughout Lewis County, this indicates that the fiber optics associated with each substation may be impacted as it could interrupt service for many people= **M (Magnitude).**	**Medium**	**Take Action**
13	Fiber optics - Reduced snowpack	**Low**	**Other hazard impacts.** Reduced snowpack and avalanche are less likely to occur in western County area where new broadband infrastructure is slated for development (little to no exposure). **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Location, Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% =**L (Probability).**	**Low**	Reduced snowpack is less likely to occur in western County area where new broadband infrastructure is slated for development; however, existing fiber optic networks associated with electrical substations may be impacted as it could interrupt service for many people. **= L (Magnitude)**	**Low**	**Accept Risk**

14	Fiber optics - Wildfire	**Medium**	**Site Constraints.** Broadband infrastructure is located in wildfire interface zones in UGAs and exposes fiber cables, towers, etc. to wildfire risk. Site location, development standards, and design does not consider climate impacts per Chap. 15.50 of municipal code. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Location, Operations</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Increasing exposure to wildfire risk results in destruction of infrastructure and loss of service to internet/emergency communications.	**High**	Broadband infrastructure located in wildfire interface zones in UGAs exposes fiber cables, towers, etc. to wildfire risk, can result in destruction and loss of service to internet = **H (Magnitude).**	**High**	**Take Action**
15	Shorelines - Flooding *(Ecosystem)*	**Medium**	Riverine and lake shorelines experience flooding and bank erosion from flooding. The County's Shoreline Master Plan considers impacts of flooding to the shoreline i.e., prohibit chemicals from agriculture and mining in shoreline areas subject to flooding, limit dredging to safety/restoration activities, etc. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: <u>Ecosystem Health</u>** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. Vegetation and habitat that exist along shorelines would be impacted, including cultural resources and recreational uses. In addition, in 30 years, 31.7% of properties in Lewis County will have a risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability).**	**High**	The shore master plan (SMP) considers impacts of flooding to shoreline i.e., prohibit chemicals from agriculture and mining in shoreline areas subject to flooding, limit dredging to safety/restoration activities, etc. SMP uses 2010 FEMA flood zone maps and is outdated. Higher likelihood of flooding may indicate more episodic events of bank erosion and landslides that damage existing shorelines = **H (Magnitude)**	**High**	**Take Action**
16	Shorelines - Reduced Snowpack *(Ecosystem)*	**Low**	**Conflicting uses and changing ecosystem health.** Reduced peak streamflow impacts protection status and interpretation of allowed uses i.e., aquaculture, mining, recreation, etc. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts on occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: <u>Ecosystem Health</u>** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **L (Probability).** Decreased snowpack reduces peak streamflows that impact existing habitat and tribal resources. Enforcing allowable uses would require a Master Plan update to avoid conflicting uses that impact ecosystem habitat. Increased maintenance needs may increase for private facilities and public recreation facilities utilizing shoreline areas.	**Low**	Reduced snowpack indicates a lesser likelihood of flooding which impacts shorelines = **L (Magnitude)**	**Low**	**Accept Risk**
17	Shorelines - Wildfire *(Ecosystem)*	**Low**	**Other hazard risks - landslides, erosion**. Shoreline segments located in wildfire interface zones (wildfire risk) throughout the County. Wildfire impacts vary depending on uses. SMP does not consider impact of wildfire hazard on these developments, but County code and fire districts provide materials and education for fire risk prevention and mitigation. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Ecosystem Health</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **L (Probability).** Increased wildfire risk is an indicator for dry vegetation and soils that degrade ecosystem habitat and erode from flooding events.	**Low**	Wildfire impacts to shoreline varies depending on uses, increased impact for "high intensity", "shoreline residential", and "aquatic" shorelines due to residential and commercial developments = **L (Magnitude).**	**Low**	**Accept Risk**

18	Public Safety Radio - Extreme Precipitation *(Emergency Mgmt)*	**Medium**	Radio infrastructure is limited to high elevation hillside areas and may be exposed to landslides as a result of extreme precipitation events and dry soils/vegetation. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Communications, Operations</u>** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability)**	**Medium**	Public Safety radios are crucial for evacuation notices, regular news, weather updates, etc. Extreme precipitation may impact the telecommunications associated with the public safety radio; thus impacting the operational capacity and system reliability of public safety radios = **M (Magnitude)**	**Medium**	**Take Action**
19	Public Safety Radio - Flooding *(Emergency Mgmt)*	**Medium**	**Emergency services delay.** Radio towers are located throughout the County. Towers are typically located in remote hillside areas and are less susceptible to riverine flooding. Radio infrastructure needs to be updated - existing conditions include limited ability to respond to emergencies and may require frequent maintenance and temporary loss of communication. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: <u>Communications, Operations</u>** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability)**. Increased flooding events destroy radio infrastructure, resulting in communication losses and delays in emergency services.	**Medium**	Public safety radios are crucial for evacuation notices, regular news, weather updates, etc. Flooding may impact the structural integrity that house public safety radio; thus impacting the operational capacity and system reliability of public safety radios = **M (Magnitude)**	**Medium**	**Take Action**
20	Public Safety Radio - Wildfire *(Emergency Mgmt)*	**Medium**	**Emergency services delay.** Radio towers are located in wildfire risk areas throughout the County. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Communications, Operations</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Direct impacts include destruction of radio towers. Indirect impacts include delayed emergency response and deployment of emergency services/resources. Evacuation routes for mobility-impaired in rural areas subject to increased wildfire risk is necessary.	**Medium**	Fire coverage is limited in many County areas; Use of a simplex channel for fire hampers the ability of field users to communicate directly with each other and they must relay messages through dispatch in many situations, resulting in delayed responses to emergencies and deployment of equipment = **M (Magnitude).** Delayed response and service to vulnerable populations i.e., elderly, mobility impaired persons, etc. may be an issue, resulting in strong implications for identifying options in an evacuation plan = **M (Magnitude)**	**Medium**	**Take Action**

21	Fire Stations - Extreme Precipitation *(Emergency Mgmt)*	**Medium**	Peak streamflow changes from extreme precipitation events cause secondary hazards like riverbank erosion and landslides that can undermine the structural stability of fire stations. Stations located in flood plain/landslide hazard areas are more likely to experience significant damages and loss of entirety of asset. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: Operations, Structural stability, Response Time** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability)**	**Medium**	Extreme precipitation could lead to flooding in areas where fire stations are stationed. This may impact the structural integrity of fire stations; thus, hindering operations and decreasing response time in the event of emergencies = **M (Magnitude)**	**Medium**	**Take Action**
22	Fire Stations - Flooding *(Emergency Mgmt)*	**Medium**	**Delays in emergency response**. Stations located in flood plain/landslide hazard areas are more likely to experience significant damages and loss of entirety of asset. Stations located in flood zones are susceptible to riverine and stormwater flooding. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: Operations, Structural Stability, Response Time** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability).** Stations are anticipated to experience more frequent destruction of buildings that delay emergency response and is costly to recover.	**Medium**	Flooding of fire stations will inhibit smooth operations in the case of an emergency and increase response time durations = **M (Magnitude)**. In addition, the structural integrity of fire stations is compromised. = **M (Magnitude)**	**Medium**	**Take Action**
23	Fire Stations - Wildfire *(Emergency Mgmt)*	**Medium**	Stations located in wildfire risk areas are more likely to experience significant damages and loss of entirety of asset from wildfire events. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Operations, Structural Stability, Response Time, Siting** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently throughout Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Destruction of asset results in temporary loss of service and functionality to serve vulnerable populations. Fire stations are designed for fire safety such as safe space buffers surrounding buildings.	**Medium**	Wildfires will directly damage the structure of fire stations; thus inhibiting operations and decreasing the likelihood of smooth dispatchments to emergency events in need of their assistance. = **M (Magnitude)**	**Medium**	**Take Action**

24	Airports - Extreme Precipitation & Flooding (*Emergency Mgmt)*	**Medium**	**Delays in emergency services.** Some airports i.e., Packwood are located in 100-Yr FEMA flood zones and are subject to 1-3 inches of flooding, resulting in temporary closure of airport and delays in emergency services. **Probability**: According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Location, Operations, Response Time</u>** Climate change is projected to steadily increase the magnitude of 25-year storm, increasing total precipitation by 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation increases riverine streamflow within existing floodplains and could expand flooding to new areas not currently in existing floodplains, which could affect infrastructure and operations. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets, making it more costly to repair and maintain airport infrastructure. = **M (Probability).**	**Medium**	Packwood Airport is located in Cowlitz River FEMA 100-Year flood zone and subject to 1-3 feet of flooding; closure of airport to runway activities; other airports are not in flood zone = **M (Magnitude)**. Extreme precipitation events can warp pavement, requiring more frequent airstrip maintenance; divert emergency response services to other airports i.e., Chehalis-Centralia airport serves as primary local airport. = **M (Magnitude)**.	**Medium**	**Take Action**
25	Airports - Wildfire *(Emergency Mgmt)*	**Medium**	**Delayed emergency response times.** Airports are located in wildfire risk areas throughout the County. Fire stations and ARFF facilities located nearby to respond to aerial wildfire emergencies within 15 minutes. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Location, Operations, Response Time</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Airports are anticipated to experience increased wildfire risk, resulting in damage to structure or loss of services during wildfire events. Loss of emergency response services would occur or services diverted to other airport i.e., Chehalis-Centralia airport, delaying emergency services.	**Medium**	Airports located in wildfire interface zones (wildland fuel) increase chances of wildfire events resulting in loss of emergency response services. Services may stop or be diverted to other airport i.e., Chehalis-Centralia airport further delaying service response times **= M (Magnitude).**	**Medium**	**Take Action**
26	County roads - Extreme Precipitation *(Transportation)*	**Medium**	**Costly repairs and disruption to services.** Extreme precipitation events can damage pavement i.e., potholes, sinkholes, etc. on roads located throughout the County. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Safety, Structural Integrity, Location</u>** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability).** Increased extreme precipitation events means requiring more frequent road maintenance that is costly to repair and disrupt services. Interstate 5 is frequently affected by flooding in the Chehalis River floodplain. Freight delays negatively impact economy. For example, $47,070,000 economic impact occurred from a four-day I-5 closure due to the Chehalis river flood.	**Medium**	Extreme precipitation events can warp pavement or cause sinkholes, requiring more frequent road maintenance and potential for increased road accidents (hydroplaning) = **M (Magnitude).** Road closures impact evacuation routes, goods delivery, etc. Pavement technology such as all-weather asphalt is available but may be costly to implement = **M (Magnitude).**	**Medium**	**Take Action**

27	County roads - Flooding *(Transportation)*	**High**	**Economic opportunity loss.** Roads throughout County are subject to flooding, including I-5 freeway and roads within 100-Yr floodplains. Flooded roads are subject to road closures and evacuation, disrupting services. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: <u>Operations, Structural Stability, Flood Prone Zone</u>** Climate change is projected to increase peak stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. Interstate 5 is frequently affected by flooding in the Chehalis River floodplain. = **H (Probability).** Other major impacts include freight delays that negatively impact the economy (for example, $47,070,000 economic impact from four-day I-5 closure).	**High**	Flooding may lead to the potential for increased road accidents and roadway closures= **H (Magnitude)**. Road closures impact evacuation routes, goods delivery, etc., pavement tech such as all-weather asphalt is available = **H (Magnitude).**	**High**	**Take Action**
28	County roads - Reduced snowpack *(Transportation)*	**Low**	**Operations:** Snowpack accumulation may lead to lane and road obstruction which reduces capacity and increases travel delay time. **Probability:** The considered hazard risks associated with county roads concentrate on the level of safety and structural stability of the roads. For instance, on average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. As the probability of snowpack is low within Lewis County, it is unlikely county roads will have a high risk of impact from snowpack. **Future Likelihood: <u>Safety, structural stability</u>** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **L (Probability)**. Thus, snowpack is projected to heavily decrease. The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season.	**Low**	Snowpack may not significantly increase the magnitude of impacts regarding county roads as there is a projected decrease in snowpack. However, it is important to note that snowpack would impact the structural stability and safety of county roads as there is increased likelihood of ice on the road which may lead to dangerous road conditions; however, with reduced snowpack, this is unlikely. = **L (Magnitude)**	**Low**	**Accept Risk**
29	County roads - Wildfire *(Transportation)*	**Medium**	**Operations:** Commonly after a wildfire, county roads may develop an increased susceptibility to erosion and can generally alter the terrain and ground conditions of the affected county road(s). This may lead to unsafe travel conditions during normal travel and emergency evacuations. Existing conditions of county roads are very varied and widespread. Additionally, roads can generally withstand wildfire events as a means for emergency evacuation. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Despite large fires being infrequent, wildfires can still be anticipated to have a medium probability of impacting county roads. **Future Likelihood: <u>Safety, Structural stability</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). **= M (Probability)**	**Medium**	Wildfires will directly damage road surfaces, cause road closures, and increase safety precautions. This may cause drivers to avoid certain roads due to safety concerns which leads to longer travel times. Further, emergency evacuation routes may become harder to reach; thus, increasing the human risk significantly. Repair of roads will also take certain durations of time and materials depending on the severity of the wildfire. = **M (Magnitude)**	**Medium**	**Take Action**

30	Bridges - Extreme Precipitation *(Transportation)*	**High**	**Structural Integrity:** Extreme precipitation may lead to flooding. Flooding can also cause scour around piers and abutments, which can damage bridges and cause structural integrity issues. These issues may range from insignificant to significant and may need varied construction times. Heavily damaged bridges from flooding may take extremely long periods of construction; thus, operations may halt for long periods of time. To combat this risk, updated engineer standards may need to be adopted to increase flood design measures and mitigate scouring. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Operations, Safety, Structural Integrity, Location</u>** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges that should be considered for future replacement or rehabilitation. =**H (Probability)**	**High**	Due to the various structurally categorized bridges, the magnitude of extreme precipitation varies. However, the damage mainly focusses on the weakening of the structural integrity of bridges (especially the already weakened ones) which could lead to expediated bridge collapses =**H (Magnitude).** In addition, the compose of bridge integrity emphasizes that bridges are not able to inadequately carry its intended traffic load; thus, operational usage of bridges due to extreme precipitation is decreased and safety concerns increase. Severe damage to bridges from extreme precipitation will take long durations of repair and resources which could halt the operation of specific bridges for long periods of time; thus significantly halting usability for many people. = **H (Magnitude)**	**High**	**Take Action**

31	Bridges - Flooding *(Transportation)*	**High**	**Structural Integrity:** Flooding can erode and damage bridge approach slabs and abutments. Flooding can also cause scour around piers and abutments, which can damage bridges and cause structural integrity issues. These issues may range from insignificant to significant and may need varied construction times. Heavily damaged bridges from flooding may take extremely long periods of construction; thus, operations may halt for long periods of time. To combat this risk, updated engineer standards may need to be adopted to increase flood design measures and mitigate scouring. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Extreme precipitation may eventually lead to flooding. Rainfall is light during the summer and frequent during the remainder of the year. However, it is important to note that many bridges are located in floodplains (approximately 77 bridges located within the 100-year floodplain and approximately 78 located within the 500-year floodplain). = **H (Probability)** **Future Likelihood: <u>Operations, Safety, Structural Integrity, Location</u>** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges that should be considered for future replacement or rehabilitation. As such, this indicates that the impacts associated with flooding may heavily affect bridges.= **H (Probability)**	**High**	Due to the various structurally categorized bridges, the magnitude of flooding varies. However, the damage mainly concentrates on the weakening of the structural integrity of bridges (especially the already weakened ones) which could lead to expediated bridge collapses = **H (Magnitude).** In addition, the composition of bridge integrity emphasizes that bridges are not able to adequately carry its intended traffic load; thus, operational usage of bridges due to flooding is decreased and safety concerns increase. = **H (Magnitude)** Severe damage to bridges from extreme precipitation will take long durations of repair and resources which could halt the operation of specific bridges for long periods of time; thus significantly halting usability for many people. = **H (Magnitude)**	**High**	**Take Action**
32	Bridges - Reduced snowpack *(Transportation)*	**Low**	**Structural Integrity:** Snowpack may lead to increased erosion and degrade bridges. Further, transportation with bridges may become dangerous for travel as ramps may become extra slippery as snow adheres to ground more quickly. To combat snowpack impacts to bridges, updated standardized engineering standards can be set for increased flood levels to mitigate scouring. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. = **L (Probability)** **Future Likelihood: <u>Operations, Safety, Structural Integrity, Location</u>** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = L (Probability). The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges should be considered for future replacement or rehabilitation. =**L (Probability)**	**Low**	Reduced snowpack indicates a decrease in flooding which helps decrease bridge impacts relating to snowpack. Further as there is reduced snowpack, there is a less likelihood of increased erosion which usually increases bridge degradation. **L = (Magnitude)**	**Low**	**Accept Risk**

33	Bridges - Wildfire *(Transportation)*	**High**	**Structural Integrity:** Wildfires burning undergrowth along valleys and washes can damage bridges by burning underneath them; thus, resulting in prolonged damage assessments and unsafe structural integrity. These impacts lead to unsafe travel utilizing bridges; as such, business destinations may be harder to reach, transportation of goods is delayed, and travel risks increase. Measures to combat wildfire risk include designing bridges for fire loads, and applying fire blankets to bridges in high fire risk areas. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Generally, bridges that are located throughout Lewis County are exposed to wildfire. There are more bridges in western County than eastern County. It is important to note that, burned bridges are non-functional as transportation on them may vary in risk. = **H (Probability)** **Future Likelihood: Safety, Structural stability, Operations** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges should be considered for future replacement or rehabilitation. = **H (Probability)**	**High**	The magnitude of wildfires will impact the structural integrity of bridges heavily as it will weaken the materials composed in the bridge. Consequently, the structural integrity of the bridge is compromised. This indicates potential bridge operation closures due to increased safety concerns. = **H (Magnitude)** Bridge closures will increase travel time and inconvenience for destinations as alternate routes will need to be utilized. **H (Magnitude)**	**High**	**Take Action**
34	Airports - Extreme Precipitation & Flooding *(Transportation)*	**High**	**Operations:** Extreme precipitation can usually lead to flooding. Extreme precipitation may halt operations as poor visibility increases. In turn, flight delays or cancellations may be increased during these severe weather events. Flooding may also damage airport infrastructure such as landing lights, radar and navigation installations, and communications networks will also inhibit the passage of aircraft. All these impacts may lead to severe economic losses in terms of passenger and freight traffic. To combat extreme precipitation and flooding, some measures such as utilization of levees/dikes or other measures may be used. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napa vine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Wewaykum Rivers and Coal, Selzer, and Dille Baugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Prinze Zone** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **H (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = H (Probability). Most airports are protected by a dike systems in events of flooding; however, flood events have occurred in the past (e.g. January 1990 flood event) which closed the Chehalis-Centralia Airport. = **H (Probability)**	**Medium**	Transportation in airports is impacted by extreme precipitation and flooding as airport closures may occur due to risky departure and landing conditions. This indicates that the magnitude of extreme precipitation and flooding to airport transportation is high as operations is halted; thus, travel, delivery of goods, medical supplies, and etc. are halted. New flight arrival and departure times will be necessary and delays should be accepted more frequently due to these weather conditions = **M (Magnitude)**	**High**	**Take Action**

35	Airports - Reduced snowpack *(Transportation)*	**Low**	**Operations:** Snowpack reduces visibility, clings to surfaces, and prompts runway maintenance procedures. Additionally, heavy snow may lead to roadways requiring more frequent maintenance. This may cause increased delays and decrease operation efficiency for airports. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. It is also important to note that airports are sited away from mountainous areas and within UGA's. **Future Likelihood: Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **L (Probability).** The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. = **L (Probability)**	**Low**	As mentioned in the probability notes, snowpack generally impacts many airport operations; however as Lewis County is projected to have a decrease of snowpack, the magnitude of snowpack impacts may be low. = **L (Magnitude)**	**Low**	**Accept Risk**
36	Airports - Wildfire *(Transportation)*	**High**	**Operations:** Wildfires will emit smoke from burning which leads to two immediate hazards: turbulence and reduced visibility. Thus, flight delays may become more frequent during wildfires as safety concerns are significantly increased. In addition to flight risk, airports impacted by wildfires may face structurally damage that may take long periods of reconstruction; therefore, lowering operation efficiency and general operations. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. However, airports are located in wildfire interface zones and will likely face impacts related to wildfire risks. **Future Likelihood Indicator: Location, Operations, Safety.** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). **= H (Probability)**	**High**	The magnitude of wildfires could burn down sections or all of an airport which would halt operations and repairs would need to begin as soon as possible. Repairs may need various resources and time which delays operation of airports. This may impact the travel of many people and supplies. In addition, as airports are located in wildfire interface zones, the magnitude of wildfire risks on the operations of airports may be significant. = **H (Magnitude)**	**High**	**Take Action**
37	Railways - Extreme Precipitation & Flooding	**High**	**Structural integrity and Operations:** Extreme precipitation can usually lead to flooding. Extreme precipitation can destabilize terrain, resulting in dirt or rocks on the tracks. Further, events of flooding can wash away railway tracks or even push train cars off the rails. Flooding may also lead to damage to rail infrastructure which can take days, weeks, or months to repair based on severity. Railway mitigation methods to prevent hazard damage include relocating ralline, elevating rails, or decommissioning rail usage; however, these methods are all costly and labor intensive. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Pronze Zone** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **H (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = H (Probability). A main railroad line (Burlington Northern Railway) crosses the floodplain from east to west on the Chehalis River near Chehalis. The tracks are subject to damage at various locations during large floods. = **H (Probability)**	**High**	The magnitude of extreme precipitation and flooding on railways would demonstrate a high magnitude as railways are located on a floodplain. This indicates a high potential for damaged rail infrastructure. This indicates that operations of this railroad will be severely impacted which could lead to long closure times for repair and return of functionality. = **H (Magnitude).**	**High**	**Take Action**

38	Railways - Reduced snowpack	**Low**	**Operations:** Snowpack has generally (either direct snowfall or drifting) can prevent rail operations from performing efficiently or at all. This is because the quantity of snowpack can be too much for the train to punch its way through without derailing or coming to other issues. On the contrary, reduced snowpack would not pose as a risk for trains to travel on railways effectively as blockages are unlikely. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. As snowpack is anticipated to reduce, operations of railways are not anticipated to face increased closures and/or delays. Further, there is a low probability of reduced snowpack risk to railways based on data mentioned above. Further, existing railways are also not located in avalanche-prone zones.**= L (Probability)** **Future Likelihood: Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97%**= L (Probability).** The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. As there is an increased percentage of snowpack decrease, operations are significantly anticipated to have fewer operational issues. **= L (Probability)**	**Low**	The magnitude of reduced snowpack on railways is low as railways will be able to operate under "normal" conditions as reduced snowpack would not likely increase blockages. = **L (Magnitude)**	**Low**	**Accept Risk**
39	Railways - Wildfire	**High**	**Operations:** Wildfires pose track damage to railways as stock damage and derailments, power and communication disruptions, and destabilization of track beds increase as soil erosion increases. Wildfire increases the potential for accelerated erosion primarily through its effects on vegetation and soil. Therefore, with damaged railways, operations may be delayed heavily for reconstruction. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Portions of rail lines are located in wildfire interface zones, particularly in northern County; thus, based on historically wildfire data and existing conditions, there is high probability of wildfire risk for railways. = **H (Probability)** **Future Likelihood Indicator: Operations, Structural Integrity** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). Intense heat and flames can damage railway tracks and signal systems, forcing service interruptions. Further, the Industrial Access Transportation Study in northern County where portions of existing rail lines are located is taking place for future improvements. **= H (Probability)**	**High**	The magnitude of wildfire on railways focuses on service/operations being halted. Wildfires have historically damaged railway tracks and signal systems which compromise smooth operations in terms of travel and communications. Further, as mentioned there are a lot of existing and future rail in wildfire zones= **H (Magnitude)**	**High**	**Take Action**

40	Solid Waste transfer station - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Pollution:** Extreme precipitation can potentially lead to flooding of a solid waste transfer station. Flooding of a solid waste transfer station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. Surges of debris from solid waste transfer stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: <u>Operations, Contaminants</u>** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution and increased lag time of solid waste collection times =**L (Probability).**	**Medium**	Located in low risk liquefaction area. Decreased capacity due to waste generated from other storm events which lowers the risk of solid waste contaminants= **M (Magnitude).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may overfill due to post hazard event clean up and hinder smooth operations = **M (Magnitude).**	**Low**	**Accept Risk**
41	Solid Waste transfer station - Flooding *(Waste Mgmt)*	**Low**	**Pollution:** Flooding of a solid waste transfer station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. Surges of debris from transfer stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. Transfer stations also allow waste to be temporarily houses in facilities before being transported to landfills out of the County; however, as mentioned, stations have a maximum capacity. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Pronze Zone, Contaminants** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution = **L (Probability).**	**Medium**	Not located in 100-year FEMA floodplain. Decreased capacity and contaminant risk due to waste generated from other storm events = **L (Magnitude). T**ransfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may go over due to post hazard event clean up and inhibit effective operations **= M (Magnitude).**	**Low**	**Accept Risk**

42	Solid Waste transfer station - Wildfire *(Waste Mgmt)*	**Low**	**Toxic contaminants:** Wildfire at solid waste transfer stations threaten the environment there through toxic pollutants emitted into the air, water, and soil. Further, wildfires that spread to solid waste transfer stations pose a risk to firefighters and civilians who are exposed to the hazardous chemical compounds they emit. The degree of risk is dependent on the contents buried in the landfill, the geography of the landfill, and the nature of the fire. For instance, in increased hazard events, individuals may increase disposal of weather-damaged personal property; thus, resulting in transfer stations having a maximum capacity which may overfill and exacerbate impacts. It is also important to note, transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Pronze Zone, Contaminants** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution = **L (Probability).**	**Medium**	Not located in wildfire interface zone. Decreased capacity and contaminant risk due to waste generated from other hazard events **= M (Magnitude).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may go over and impact operation schedules due to post hazard event clean up **= M (Magnitude).**	**Low**	**Accept Risk**
43	Sewer infrastructure - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Structural integrity and treatment quality:** Extreme precipitation influences the effects of flooding. As such, flooding or surge can damage sewer infrastructure and destroy process equipment, communications controls, field equipment, and important data records while blocking access to the plant. These impacts will result in decreased treatment quality as process equipment may be damaged; thus lowering, process efficiency and treated effluent quality. Adaptation for these impacts may include other treatment methods or temporary shutdown of facilities. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Structures, Contaminants, Health** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Older sewer infrastructure may not be upgraded with larger inflow and outflow volumes which may impact operations. = **L (Probability).**	**Medium**	Sewer infrastructures are normally built to handle 25, 50, 100-year storm volumes; however, older treatment plants may have decreased in efficiency and structural integrity; as such, a higher magnitude of damage may affect older plants and plants that are near floodplains. Older plants may need to be decommissioned or undergo construction for plant upgrades to decrease the magnitude of impacts from extreme precipitation. = **M (Magnitude)** In addition to impacts to operations and structural integrity, chemical contaminants utilized in different processes of sewer infrastructure may be leaked due to the extreme precipitation and impact waterways. = **M (Magnitude).**	**Low**	**Accept Risk**

44	Sewer infrastructure - Flooding *(Waste Mgmt)*	**Low**	**Structural integrity and treatment quality:** Flooding or surge can damage sewer infrastructure and destroy process equipment, communications controls, field equipment, and important data records while blocking access to the plant. These impacts will result in decreased treatment quality as process equipment may be damaged; thus lowering, process efficiency and treated effluent quality. Adaptation for these impacts may include other treatment methods or temporary shutdown of facilities. **Probability**: According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen throughout Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Exiting facilities are located in a 1% annual chance climate change flood zone; thus, there is a low probability of risk for sewer infrastructure from flooding. **Future Likelihood: Operations, Flood Prone Zone, Contaminants, Health**. Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, by mid-century, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. =**L (Probability)** Most in County rely on private septic systems. There is a steady increase projected in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Centralia's new wastewater treatment plant on Goodrich road is out of the 100-year floodplain and should remain operable through any floods up to and including the 100-year event. =**L (Probability).**	**Medium**	Sewer infrastructures are normally built to handle 25, 50, 100-year storm volumes; however, older treatment plants may have decreased in efficiency and structural integrity; as such, a higher magnitude of damage may affect older plants and plants that are near floodplains. Flooding of sewer infrastructure may impact inflow and outflow of sewage as some sewer infrastructures may not be built to handle extremely large volumes of sewage. Large influxes of sewage may lead to overflow of systems and sewage spillage which would impact waterways that lead to residential, commercial, and industrial pipes. = **M (Magnitude).**	**Low**	**Accept Risk**
45	Sewer infrastructure - Wildfire *(Waste Mgmt)*	**Low**	**Water contamination and structural integrity:** Wildfires may disrupt sewage infrastructure with impacts such as: direct structural damage to the infrastructure/facilities due to the fire or firefighting activities, loss of power, debris/contaminants in waste stream, and blockage and dirtying of pumps. It is also important to note, backup protocols for sewer infrastructure may not include climate hazard impacts; thus, new protocols, permits, and infrastructure upgrades may be costly and labor intensive. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Additionally, as most sewer infrastructure are not are located in wildfire intermix zones similar to the rest of Lewis county **Future Likelihood Indicator: Operations, Structural Integrity** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). =**L (Probability)**	**Medium**	The magnitude of wildfire impacts on sewer infrastructure may be detrimental as operations may significantly halt due to operational malfunctions as described in the probability notes section. However, as most sewer infrastructure is not located in wildfire interface zone, the magnitude of these impacts are decreased significantly. Further, it is located in a wildfire intermix zone, similar to most County areas. **= M (Magnitude)**	**Low**	**Accept Risk**

46	Dump stations - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Pollution:** Extreme precipitation can potentially lead to flooding of a dump station. Flooding of a dump station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. In addition, erosion from historic dump stations pose a greater threat than leaching. Surges of debris from dump stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: <u>Physical Design, Operations</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. =**L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. =**L (Probability).**	**Medium**	The magnitude of impacts would concentrate on the level of pollution that occurs; resulting in increased cleanups, equipment improvements, and operation costs. Items are "dropped off" by individuals at transfer stations/Packwood Community drop off center. Located in low risk liquefaction area**. = M (Magnitude).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County. Increased hazard events, individuals may increase disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill and lead to a decrease in operations/efficiency **= M (Magnitude).**	**Low**	**Accept Risk**
47	Dump stations - Flooding *(Waste Mgmt)*	**Low**	**Pollution:** Flooding of a dump station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. In addition, erosion from historic dump stations pose a greater threat than leaching. Surges of debris from dump stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. However, dump stations in Lewis County are not located in a 100-year FEMA floodplain; thus, the probability of flood events impacting dump stations is low. **Future Likelihood: <u>Operations, Flood Pronze Zone, Structure</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. =**L (Probability)** In addition, as flooding is an impact influenced by extreme precipitation, there is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution = **L (Probability).**	**Low**	The magnitude of impacts would concentrate on the level of pollution that occurs; resulting in increased cleanups, equipment improvements, and operation costs. However, the magnitude of impacts from flooding to dump stations is low as dump stations are not located in 100-year FEMA floodplain and are in a low risk liquefaction area. **= L (Magnitude).**	**Low**	**Accept Risk**

48	Dump stations - Wildfire *(Waste Mgmt)*	**Low**	**Toxic contaminants:** Wildfire at dump stations threaten the environment there through toxic pollutants emitted into the air, water, and soil. Further, wildfires that spread to dump stations pose a risk to firefighters and civilians who are exposed to the hazardous chemical compounds they emit. The degree of risk is dependent on the contents buried in the landfill, the geography of the landfill, and the nature of the fire. For instance, in increased hazard events, individuals may increase disposal of weather-damaged personal property; thus, resulting in stations having a maximum capacity which may overfill and exacerbate impacts. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent and dump stations are not located in fire interface zone. **Future Likelihood Indicator: Operations, Structural Integrity, Fire Prone Area** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). However, as mentioned above, dump stations are generally not located in fire interface zone(s)= **L (Probability)**	**Low**	Toxic contaminants emitted from wildfires that have spread to dump stations pose health, environmental, and economical impacts. These impacts may drastically influence the operations of dump stations; However, as stated, dump stations in Lewis County are not located in wildfire interface zone and the magnitude of these impacts are low = **L (Magnitude).**	**Low**	**Accept Risk**
49	Water infrastructure - Reduced snowpack *(Water Resources)*	**High**	**Water scarcity:** Reduced snowpack would lead to a decreased water supply for water infrastructure. A decreased supply of water for treatment can have a pronounced effect on process efficiency as well as associated operational costs. It is important to note that design standards set in Title 13 of the Lewis County municipal code, states water mains are to be equipped with backflow prevention valves. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts on occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **H (Probability)**. The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season, indicating decreased water storage capabilities Countywide. =**H (Probability).**	**High**	Reduced process efficiency may lead to reduced water quality; thus, can lead to reduced water which can lead to serious effects on aquatic organisms and plants, as well as potential human costs. The magnitude of impact regarding reduced snowpack to water infrastructure focuses on reduced process efficiency and operational costs. As there is a high probability of reduced snowpack affecting water infrastructure, the magnitude of decreased process efficiency and operation costs is heightened. Treated water faces a higher risk of being treated improperly; thus, impacting the subjects listed above. = **H (Magnitude)**	**High**	**Take Action**

50	Water infrastructure - Wildfire *(Water Resources)*	**Medium**	**Water contamination and structural integrity:** Wildfires have been historically known to compromise water quality during active burning and for months and years after the fire has been extinguished. Water infrastructures may face increased treatment costs, need for alternative supplies, and potentially diminished reservoir capacities. Extensive water system damage and related water quality contamination to water infrastructure may significantly impact the operations of the system; thus, leaving many businesses, residents, etc. loss of water for long periods of time. It is also important to note that many design standards account for limiting contamination, but it does not account for climate hazards. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood Indicator: <u>Operations, Structural Integrity, Contaminants</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). =**M (Probability)**	**High**	Debris (soot) from wildfires may compromise treatment of water and expediate filter deterioration in water treatment processes. Further, compromised treatment of water may impact outflow of water which may contaminate groundwater aquifers and nearby waterways. = **H (Magnitude).**	**High**	**Take Action**

51	Civic Centers - Extreme Precipitation *(Zoning & Development)*	**Low**	**Structural damage:** Civic centers may face increased problems regarding building stormwater management systems in place, vegetation (e.g. mold) issues, and roof damage due to extreme precipitation. In addition, with extreme precipitation, there is an increased potential of flooding. In civic centers, sheet flooding may cause structural damage to the buildings such as loose or buckling floors and foundation cracks. These impacts may significantly affect civic center operations. It is also important to note that many civic centers with appropriate facilities may act as temporary shelters for extreme hazard events, requires collaboration with American Red Cross, NGOs, faith based organizations, Salvation Army, and law enforcement/other County departments. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: <u>Vulnerable Groups, Population Density, Operations</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. **= L (Probability).**	**Medium**	Civic centers include recreation centers with large concentrations of people who may be exposed to hazard events and include vulnerable individuals i.e., children, elderly, special needs, etc. Many communities may utilize civic centers as part of their daily lives; however, extreme precipitation may hinder their ability to use these centers. Further, as described with increased extreme precipitation, the effects of structural damage to civic centers is greater; thus, further impacting the operations of these buildings as reconstruction would potentially take extended periods of time. = **M (Magnitude).**	**Low**	**Accept Risk**
52	Civic Centers - Flooding *(Zoning & Development)*	**Medium**	**Structural Damage:** Civic centers may face increased problems regarding building stormwater management systems in place and vegetation (e.g. mold) issues. Further, sheet flooding may cause structural damage to the buildings such as loose or buckling floors and foundation cracks. These impacts may significantly affect the structural aspects of civic centers; thus, a secondary impact of impacting the operations of civic centers. It is also important to note that many civic centers have been designated as evacuation shelters (Centralia College, Red Cross, Morton Hospital, Providence Hospital to name a few). **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: <u>Operations, Flood Pronze Zone, Structure</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability)**	**Medium**	Civic centers located thru-out County, and may be flooded in unincorporated City-adjacent areas/UGAs. Fixed buildings/civic centers located in 100-year FEMA floodplains would experience peak streamflows resulting in loss of building functions and services and possibly reconstruction. Civic centers not located in floodplain zones would be able to resume operations sooner than civic centers that are located in floodplain zones as structural damages may not be as significant as reconstruction periods are much shorter. However, civic centers located on floodplain zones may face increased structural damage; thus, will need to undergo longer periods of reconstruction, halting operations. **= M (Magnitude).**	**Medium**	**Take Action**

53	Civic Centers - Reduced snowpack *(Zoning & Development)*	**High**	**Water scarcity:** Reduced snowpack indicates changes in streamflows; thus, water supply that may be diverted for use in civic centers. For instance, civic centers need water supply for on-site facilities, recreational uses, sewage flow, etc. Reduced water supply could potentially pose restrictions on the water budget for civic centers to conserve supply. It is also important to note that many civic centers have been designated as evacuation shelters (Centralia College, Red Cross, Morton Hospital, Providence Hospital to name a few). **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: <u>Operations</u>** The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% =**H (Probability).** Based on the projection, there is a high probability of reduced snowpack; thus, water scarcity is more likely to occur and impact the operations of civic centers located in Lewis County.	**Medium**	The magnitude of reduced snowpack on civic centers would focus on the operational uses of civic centers. Water uses of civic centers are diverted into many purposes. Some of which include: landscape irrigation, fire sprinkler systems, toilet flushing, HVAC cooling, etc. As there is a high probability of reduced snowpack occurring for Lewis County, the magnitude of these activities being halted is a medium as some activities may not be necessary (e.g., landscape irrigation) for the full functionality of civic centers. However, activities such as HVAC cooling and fire sprinkler systems cannot be removed from the operations of a civic center. = **M (Magnitude)**	**High**	**Take Action**
54	Civic Centers - Wildfire *(Zoning & Development)*	**Medium**	**Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. County collaboration with fire districts to educate property owners on defensible space and other prevention methods will be more consistent. **Future Likelihood Indicator: <u>Location</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). =**M (Probability)**	**Medium**	UGAs located in wildfire interface zones expose fixed buildings/civic centers to wildfire risk. Would result in complete loss of building functions and services, reconstruction needed **= M (Magnitude).**	**Medium**	**Take Action**

55	Colleges - Extreme Precipitation & Flooding	**Low**	**Structural damage:** College buildings may face increased problems regarding building stormwater management systems in place, vegetation (e.g. mold) issues, and roof damage due to extreme precipitation. In addition, with extreme precipitation, there is an increased potential of flooding. In college campuses, sheet flooding may cause structural damage to the buildings such as loose or buckling floors and foundation cracks. These impacts may significantly affect college operations. Campuses may act as secondary facilities for emergency operations (staging areas), but are limited to non-flood areas. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. College campuses such as Centralia college and WSU extension are located in incorporated areas outside of 100-year FEMA flood zone. **Future Likelihood: <u>Operations, Location</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. However, as mentioned above, colleges within Lewis County are located outside of the 100-year FEMA flood zone.**= L (Probability)**	**Low**	As mentioned, structural damage would potentially occur with extreme precipitation and flooding. The magnitude of these hazards for instance may include long periods of time for reconstruction. This may lead to loss of revenue for colleges for a long duration of time. However, as colleges within Lewis County are outside of the 100-year FEMA flood zone, the magnitude of these effects impacting the colleges is low. = **L (Magnitude).**	**Low**	**Accept Risk**
56	Colleges - Wildfire	**Medium**	**Structural damage:** Wildfires have historically burned down structures, including homes. Structures that are impacted by wildfires may range in severity in terms of acreages destroyed and renovations required. College campuses are located in wildfire interface zones; therefore, exposing students, faculty, and staff to wildfire risk. Wildfires may significantly impact buildings even with fireproof designs i.e., defensible space, fireproof building materials, etc. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have historically been infrequent. **= M (Probability)** **Future Likelihood Indicator: <u>Operations, Location, Structure</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events; thus, increasing the likelihood of fires. Additionally, large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). The nearest college in Lewis County is located in the North Western part of Lewis County which includes Centralia County. Despite not having many college campuses, the likelihood of wildfire impacting the college is likely based on data described above. **= M (Probability)**	**High**	College campuses such as Centralia college and WSU extension may be impacted due to wildfires that have spread onto the campus/near campus. This can lead to indefinite closures of the campus; thus, halting education. Further, wildfire would lead to immediate evacuations of the college campuses and cease of operation for a duration of days for repairs and safety check-ups. = **H (Magnitude).**	**High**	**Take Action**

3	Radio Communications - Wildfire *(Buildings & Energy)*	**Medium**	**Delayed emergency response services.** Increased likelihood of wildfires and landslides that may increase destruction of towers located throughout the County. Radio towers are sometimes made of flammable material. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Social Assets** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century) = M (Probability). Higher chance that radio communication towers located in high risk areas in eastern County experience wildfire damage - more remote locations.	**Low**	More than 4,244 people who live in high wildfire risk areas (Morton, Randle, Packwood, Mossyrock) can experience temporary disruption in livelihood via mandatory evacuations. This does not include tourists and absentee landlords in eastern County (near Mount Rainier) who would need effective communication and evacuation plans/knowledge. There are a variety of telecommunications providers that offer service in Lewis County. Ongoing changes in cellular and fiber technology have transformed the delivery of telecommunications, and these shifts in equipment and providers have contributed to an industry that offers several options for customers. Anticipating future characteristics given these shifting conditions is highly unlikely. Moving into the future, improvements to telecommunication infrastructure and services will play an increasingly important role especially in underserved areas. The magnitude of wildfire on radio communications may impact how underserved areas improve their telecommunications; however, there are many shifts in equipment and providers for telecommunications that could accommodate these areas **= L (Magnitude);** Indicator: Social Assets	**Low**	**Accept Risk**
4	Power Plant - Wildfire (*Buildings & Energy*)	**Low**	**Decreased power supply.** Wildfire impacts power grid (poles, towers, power lines, etc.) which may temporarily stop/shut-down power generation and distribution at power plant facilities. Plant is planned to decommission by 2025. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Hydroelectrical facilities are mostly located on the western side of the County = **L (Probability).**	**Low**	Columbia Generating Station (CGS) is a nuclear project with generating capacity of 1,150 MW that is owned and operated by Energy Northwest (ENW). Based on the 2020 Integrated Resource Plan for Lewis County, under the current Bonneville Power Administration (BPA) power contract, Lewis PUD's contract high-water mark (HWM) is 115.4 aMW. The wildfire magnitude for power plants was based on the county's contracted load of nuclear power and the county's PUD fuel mix = **L (Probability).** The contracted nuclear power load compared to the generating capacity of the CGS is approximately 10% and nuclear in the PUD fuel mix is also 10.02% in 2021. Therefore, the magnitude of wildfire impacts to power plants is low as the county does not heavily rely on this power source = **L (Magnitude)**	**Low**	**Accept Risk**
5	Wind farm - Wildfire	**Low**	**Other hazard risk.** Skookumchuck wind energy farm is not highly susceptible to wildfire risk. Hires third party to suppress wildfire on mitigation forest lands, wildfire suppression strategy per state natural conservation dept. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). Lewis County PUD receives wind energy from the White Creek Wind Project and the Nine Canyon Wind Project which are located in Klickitat County and ten miles southeast of Kennewick, respectively. = **L (Probability)**	**Low**	Lewis County PUD receives about 6 average MW of power through its 10% share of the White Creek Wind Project. The project is located in southeast of Lewis County and has 89 turbines with a nameplate capacity of 204 MWs. Lewis County PUD's share is approximately 6 MW of the Nine Canyon Wind Project which has 63 turbines with a installed capacity of 95.9 MW, located east of Lewis County in Kennewick. The magnitude of wildfire on wind farms rely Lewis County's reliance to wind power and the location of the wind power sources. As described, the wind farms that source Lewis County PUD are not within the county and a small MW is shared with Lewis County for both projects; therefore, magnitude is low. = **L (Magnitude)**	**Low**	**Accept Risk**

6	Natural gas pipelines - Wildfire	**Low**	**Temporary loss of service.** Pipelines run parallel to highways and large transportation corridors, exposing pipelines to wildfire risk. There may be extensive pipeline failure, taking hours, days, or weeks to repair resulting in temporary loss of service. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood**: **Location** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). All of the natural gas consumed by homes and businesses in the Pacific Northwest comes from western Canada and the U.S. Rocky Mountain States. All the majority of natural gas moves straight to the customer through network of pipelines, local gas mains, and other utility infrastructure. Northwest consumers, however, also receive a share a significant share of their natural gas supply - mainly in winter - from underground storage reservoirs. = **L (Probability)**	**Low**	As natural gas is derived from western Canada and the U.S. Rocky Mountain States, the magnitude of wildfire impacting the pipelines that deliver this natural gas is low. Further, in winter where there is a lesser likelihood of wildfire, natural gas supply from underground storage reservoirs will have a lower magnitude of effects. = **L (Magnitude)**	**Low**	**Accept Risk**
7	Historical Buildings & Sites - Flooding *(Cultural Resources & Practices)*	**Low**	**Loss of cultural identity.** Not located in flood zones; however, more frequent flooding events can reduce access to culturally important sites and resources. Limited availability of physical resource (i.e., historic wood type, etc.) for rehabilitation. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: Location** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, there are 17,626 properties in Lewis County that have risk of flooding over the next 30 years,. This represents 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. Historic buildings/cultural sites are vulnerable to flooding from dam and levee failure w/in dam inundation areas: Skookumchuck Dam* (Condition = satisfactory), Mossyrock* (Condition = unsatisfactory) and Mayfield* (Condition = unsatisfactory) Dams. Percentage of affected properties w/ historic structures is unknown. *Dams have updated Emergency Action Plan.	**Low**	Buildings constructed in mid-1800s or early 1900s, conditions may vary and are sensitive to changes due to outdated building codes. Percentage of affected properties w/ historic structures or sites are unknown. Dam failure and high streamflow magnitude affecting historic sites/buildings is likely = **L (Probability);** thus, there is a low magnitude for impacts. = **L (Magnitude).**	**Low**	**Accept Risk**
8	Historical Buildings & Sites - Wildfire *(Cultural Resources & Practices)*	**Medium**	**Loss of cultural identity.** Buildings are located in wildfire interface zones. More frequent wildfires can reduce access to culturally important sites and resources. Rehabilitation efforts may be limited due to the availability of physical resources to replace damaged historic buildings. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Historical buildings are subject to increased wildfire risk.	**High**	Buildings constructed in mid-1800s or early 1900s, conditions may vary and are sensitive to changes. Most historical buildings are located in wildfire prone areas = **H (Probability);** therefore the magnitude of impacts should be highly considered for the goal of preserving historical buildings and sites.= **H (Magnitude)**	**High**	**Take Action**

9	Airports - Extreme Precipitation & Flooding *(Economic Dev)*	**Medium**	**Decreased revenue.** Some airports i.e., Packwood is located in a 100-yr FEMA floodplain where 1-3 ft. of flood can occur, warping pavement i.e., potholes, undulating surfaces, etc. and requiring more frequent airstrip maintenance. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Location, Revenue, Operations</u>** Climate change is projected to steadily increase the magnitude of 25-year storm, increasing total precipitation by 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation increases riverine streamflow within existing floodplains and could expand flooding to new areas not currently in existing floodplains, which could affect infrastructure and operations. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets, making it more costly to repair and maintain airport infrastructure. = **M (Probability)**	**Medium**	The magnitude of extreme precipitation regarding airports was determined based on the rate of heavier precipitation. With the steady increase of precipitation in the future, the magnitude of extreme precipitation regarding airports is medium as the operations of airports may be impacted with severe rain conditions = **M (Magnitude)**. In addition, the magnitude of flooding for airports is determined based on the flood history and proximity of major rivers that are near operating airports. = **M (Magnitude).**	**Medium**	**Take Action**

10	Airports - Reduced Snowpack *(Economic Dev)*	**Low**	**Other hazard risk.** Airports are sited away from avalanche-prone mountainous areas and within UGAs. Airports are located in flood zones that may experience temporary closures from riverine flooding due to earlier snowmelt. **Probability**: On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Location** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97%. April 1st snowpack readings are an indicator of water storage capacities - airports are not affected by water storage capacities from reduced snowpack = **L (Probability).**	**Low**	The magnitude of reduced snowpack on airports is evaluated based on how operations would be impacted. Reduced snowpack would indicate that there would be less flooding and precipitation; thus, operations would not be affected heavily as operations should be conducted regularly. = **L (Magnitude)**	**Low**	**Accept Risk**
11	Airports - Wildfire *(Economic Dev)*	**Medium**	**Increased operational costs/decreased revenue.** Airports are located in wildfire interface zones and subject to wildfire risk. Tourism continues to provide revenue to cover added costs. Airport master plans should address wildfire risk and exposure. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location, Revenue**, Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Airports are scattered all across Lewis County = **M (Probability) .** The County may experience Increased direct (fire damage to airports) and indirect costs (firefighting activities).	**Medium**	Airports are located in wildfire zones. As such, in the events of wildfires, operations would need to be halted and evacuations would occur. This may also increase flight cancelations and delayed restoration of the airports which decreases overall revenue and increases maintenance costs = **M (Magnitude)**	**Medium**	**Take Action**
12	Fiber optics - Extreme Precipitation & Flooding	**Medium**	**Site Constraints.** The pilot area in Pe Ell/western County area that will have updated broadband infrastructure, some portions of this area are exposed to 100-year FEMA floodplain. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: Location, Operations** Climate change is projected to steadily increase the magnitude of 25-year storm, increasing total precipitation by 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation increases riverine streamflow within existing floodplains and could expand flooding to new areas not currently in existing floodplains, which could affect infrastructure and operations. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability).**	**Medium**	According to the Lewis County PUD, service territory of fiber optics are divided into 17 broad service zones. Each of the broadband service zone correspond with a PUD electrical substation area. As there are multiple electrical substations throughout Lewis County, this indicates that the fiber optics associated with each substation may be impacted as it could interrupt service for many people= **M (Magnitude).**	**Medium**	**Take Action**
13	Fiber optics - Reduced snowpack	**Low**	**Other hazard impacts.** Reduced snowpack and avalanche are less likely to occur in western County area where new broadband infrastructure is slated for development (little to no exposure). **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Location, Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **L (Probability).**	**Low**	Reduced snowpack is less likely to occur in western County area where new broadband infrastructure is slated for development; however, existing fiber optic networks associated with electrical substations may be impacted as it could interrupt service for many people. **= L (Magnitude)**	**Low**	**Accept Risk**

14	Fiber optics - Wildfire	**Medium**	**Site Constraints.** Broadband infrastructure is located in wildfire interface zones in UGAs and exposes fiber cables, towers, etc. to wildfire risk. Site location, development standards, and design does not consider climate impacts per Chap. 15.50 of municipal code. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location, Operations** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Increasing exposure to wildfire risk results in destruction of infrastructure and loss of service to internet/emergency communications.	**High**	Broadband infrastructure located in wildfire interface zones in UGAs exposes fiber cables, towers, etc. to wildfire risk, can result in destruction and loss of service to internet = **H (Magnitude).**	**High**	**Take Action**
15	Shorelines - Flooding *(Ecosystem)*	**Medium**	Riverine and lake shorelines experience flooding and bank erosion from flooding. The County's Shoreline Master Plan considers impacts of flooding to the shoreline i.e., prohibit chemicals from agriculture and mining in shoreline areas subject to flooding, limit dredging to safety/restoration activities, etc. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: Ecosystem Health** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. Vegetation and habitat that exist along shorelines would be impacted, including cultural resources and recreational uses. In addition, in 30 years, 31.7% of properties in Lewis County will have a risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability).**	**High**	The shore master plan (SMP) considers impacts of flooding to shoreline i.e., prohibit chemicals from agriculture and mining in shoreline areas subject to flooding, limit dredging to safety/restoration activities, etc. SMP uses 2010 FEMA flood zone maps and is outdated. Higher likelihood of flooding may indicate more episodic events of bank erosion and landslides that damage existing shorelines = **H (Magnitude)**	**High**	**Take Action**
16	Shorelines - Reduced Snowpack *(Ecosystem)*	**Low**	**Conflicting uses and changing ecosystem health.** Reduced peak streamflow impacts protection status and interpretation of allowed uses i.e., aquaculture, mining, recreation, etc. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts on occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Ecosystem Health** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **L (Probability).** Decreased snowpack reduces peak streamflows that impact existing habitat and tribal resources. Enforcing allowable uses would require a Master Plan update to avoid conflicting uses that impact ecosystem habitat. Increased maintenance needs may increase for private facilities and public recreation facilities utilizing shoreline areas.	**Low**	Reduced snowpack indicates a lesser likelihood of flooding which impacts shorelines = **L (Magnitude)**	**Low**	**Accept Risk**
17	Shorelines - Wildfire *(Ecosystem)*	**Low**	**Other hazard risks - landslides, erosion**. Shoreline segments located in wildfire interface zones (wildfire risk) throughout the County. Wildfire impacts vary depending on uses. SMP does not consider impact of wildfire hazard on these developments, but County code and fire districts provide materials and education for fire risk prevention and mitigation. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Ecosystem Health** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **L (Probability).** Increased wildfire risk is an indicator for dry vegetation and soils that degrade ecosystem habitat and erode from flooding events.	**Low**	Wildfire impacts to shoreline varies depending on uses, increased impact for "high intensity", "shoreline residential", and "aquatic" shorelines due to residential and commercial developments = **L (Magnitude).**	**Low**	**Accept Risk**

18	Public Safety Radio - Extreme Precipitation *(Emergency Mgmt)*	**Medium**	Radio infrastructure is limited to high elevation hillside areas and may be exposed to landslides as a result of extreme precipitation events and dry soils/vegetation. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Communications, Operations</u>** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability)**	**Medium**	Public Safety radios are crucial for evacuation notices, regular news, weather updates, etc. Extreme precipitation may impact the telecommunications associated with the public safety radio; thus impacting the operational capacity and system reliability of public safety radios = **M (Magnitude)**	**Medium**	**Take Action**
19	Public Safety Radio - Flooding *(Emergency Mgmt)*	**Medium**	**Emergency services delay.** Radio towers are located throughout the County. Towers are typically located in remote hillside areas and are less susceptible to riverine flooding. Radio infrastructure needs to be updated - existing conditions include limited ability to respond to emergencies and may require frequent maintenance and temporary loss of communication. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: <u>Communications, Operations</u>** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability)**. Increased flooding events destroy radio infrastructure, resulting in communication losses and delays in emergency services.	**Medium**	Public safety radios are crucial for evacuation notices, regular news, weather updates, etc. Flooding may impact the structural integrity that house public safety radio; thus impacting the operational capacity and system reliability of public safety radios = **M (Magnitude)**	**Medium**	**Take Action**
20	Public Safety Radio - Wildfire *(Emergency Mgmt)*	**Medium**	**Emergency services delay.** Radio towers are located in wildfire risk areas throughout the County. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: <u>Communications, Operations</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Direct impacts include destruction of radio towers. Indirect impacts include delayed emergency response and deployment of emergency services/resources. Evacuation routes for mobility-impaired in rural areas subject to increased wildfire risk is necessary.	**Medium**	Fire coverage is limited in many County areas; Use of a simplex channel for fire hampers the ability of field users to communicate directly with each other and they must relay messages through dispatch in many situations, resulting in delayed responses to emergencies and deployment of equipment = **M (Magnitude).** Delayed response and service to vulnerable populations i.e., elderly, mobility impaired persons, etc. may be an issue, resulting in strong implications for identifying options in an evacuation plan = **M (Magnitude)**	**Medium**	**Take Action**

21	Fire Stations - Extreme Precipitation *(Emergency Mgmt)*	**Medium**	Peak streamflow changes from extreme precipitation events cause secondary hazards like riverbank erosion and landslides that can undermine the structural stability of fire stations. Stations located in flood plain/landslide hazard areas are more likely to experience significant damages and loss of entirety of asset. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: Operations, Structural stability, Response Time** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability)**	**Medium**	Extreme precipitation could lead to flooding in areas where fire stations are stationed. This may impact the structural integrity of fire stations; thus, hindering operations and decreasing response time in the event of emergencies = **M (Magnitude)**	**Medium**	**Take Action**
22	Fire Stations - Flooding *(Emergency Mgmt)*	**Medium**	**Delays in emergency response**. Stations located in flood plain/landslide hazard areas are more likely to experience significant damages and loss of entirety of asset. Stations located in flood zones are susceptible to riverine and stormwater flooding. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: Operations, Structural Stability, Response Time** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability).** Stations are anticipated to experience more frequent destruction of buildings that delay emergency response and is costly to recover.	**Medium**	Flooding of fire stations will inhibit smooth operations in the case of an emergency and increase response time durations = **M (Magnitude)**. In addition, the structural integrity of fire stations is compromised. = **M (Magnitude)**	**Medium**	**Take Action**
23	Fire Stations - Wildfire *(Emergency Mgmt)*	**Medium**	Stations located in wildfire risk areas are more likely to experience significant damages and loss of entirety of asset from wildfire events. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Operations, Structural Stability, Response Time, Siting** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently throughout Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Destruction of asset results in temporary loss of service and functionality to serve vulnerable populations. Fire stations are designed for fire safety such as safe space buffers surrounding buildings.	**Medium**	Wildfires will directly damage the structure of fire stations; thus inhibiting operations and decreasing the likelihood of smooth dispatchments to emergency events in need of their assistance. = **M (Magnitude)**	**Medium**	**Take Action**
24	Airports - Extreme Precipitation & Flooding (*Emergency Mgmt)*	**Medium**	**Delays in emergency services.** Some airports i.e., Packwood are located in 100-Yr FEMA flood zones and are subject to 1-3 inches of flooding, resulting in temporary closure of airport and delays in emergency services. **Probability**: According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: Location, Operations, Response Time** Climate change is projected to steadily increase the magnitude of 25-year storm, increasing total precipitation by 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation increases riverine streamflow within existing floodplains and could expand flooding to new areas not currently in existing floodplains, which could affect infrastructure and operations. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets, making it more costly to repair and maintain airport infrastructure. = **M (Probability).**	**Medium**	Packwood Airport is located in Cowlitz River FEMA 100-Year flood zone and subject to 1-3 feet of flooding; closure of airport to runway activities; other airports are not in flood zone = **M (Magnitude)**. Extreme precipitation events can warp pavement, requiring more frequent airstrip maintenance; divert emergency response services to other airports i.e., Chehalis-Centralia airport serves as primary local airport. = **M (Magnitude)**.	**Medium**	**Take Action**

25	Airports - Wildfire *(Emergency Mgmt)*	**Medium**	**Delayed emergency response times.** Airports are located in wildfire risk areas throughout the County. Fire stations and ARFF facilities located nearby to respond to aerial wildfire emergencies within 15 minutes. **Probability**: Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood: Location, Operations, Response Time** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability).** Airports are anticipated to experience increased wildfire risk, resulting in damage to structure or loss of services during wildfire events. Loss of emergency response services would occur or services diverted to other airport i.e., Chehalis-Centralia airport, delaying emergency services.	**Medium**	Airports located in wildfire interface zones (wildland fuel) increase chances of wildfire events resulting in loss of emergency response services. Services may stop or be diverted to other airport i.e., Chehalis-Centralia airport further delaying service response times = **M (Magnitude).**	**Medium**	**Take Action**
26	County roads - Extreme Precipitation *(Transportation)*	**Medium**	**Costly repairs and disruption to services.** Extreme precipitation events can damage pavement i.e., potholes, sinkholes, etc. on roads located throughout the County. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: Safety, Structural Integrity, Location** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **M (Probability).** Increased extreme precipitation events means requiring more frequent road maintenance that is costly to repair and disrupt services. Interstate 5 is frequently affected by flooding in the Chehalis River floodplain. Freight delays negatively impact economy. For example, $47,070,000 economic impact occurred from a four-day I-5 closure due to the Chehalis river flood.	**Medium**	Extreme precipitation events can warp pavement or cause sinkholes, requiring more frequent road maintenance and potential for increased road accidents (hydroplaning) = **M (Magnitude).** Road closures impact evacuation routes, goods delivery, etc. Pavement technology such as all-weather asphalt is available but may be costly to implement = **M (Magnitude).**	**Medium**	**Take Action**
27	County roads - Flooding *(Transportation)*	**High**	**Economic opportunity loss.** Roads throughout County are subject to flooding, including I-5 freeway and roads within 100-Yr floodplains. Flooded roads are subject to road closures and evacuation, disrupting services. **Probability:** There are certain areas of Lewis County that are in more flood areas than others. According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. Flooding is most common from October through April, when storms from the Pacific Ocean, bring intense rainfall to the area. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: Operations, Structural Stability, Flood Prone Zone** Climate change is projected to increase peak stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. Interstate 5 is frequently affected by flooding in the Chehalis River floodplain. = **H (Probability).** Other major impacts include freight delays that negatively impact the economy (for example, $47,070,000 economic impact from four-day I-5 closure).	**High**	Flooding may lead to the potential for increased road accidents and roadway closures= **H (Magnitude)**. Road closures impact evacuation routes, goods delivery, etc., pavement tech such as all-weather asphalt is available = **H (Magnitude).**	**High**	**Take Action**
28	County roads - Reduced snowpack *(Transportation)*	**Low**	**Operations:** Snowpack accumulation may lead to lane and road obstruction which reduces capacity and increases travel delay time. **Probability:** The considered hazard risks associated with county roads concentrate on the level of safety and structural stability of the roads. For instance, on average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. As the probability of snowpack is low within Lewis County, it is unlikely county roads will have a high risk of impact from snowpack. **Future Likelihood: Safety, structural stability** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **L (Probability)**. Thus, snowpack is projected to heavily decrease. The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season.	**Low**	Snowpack may not significantly increase the magnitude of impacts regarding county roads as there is a projected decrease in snowpack. However, it is important to note that snowpack would impact the structural stability and safety of county roads as there is increased likelihood of ice on the road which may lead to dangerous road conditions; however, with reduced snowpack, this is unlikely. = **L (Magnitude)**	**Low**	**Accept Risk**

29	County roads - Wildfire *(Transportation)*	**Medium**	**Operations:** Commonly after a wildfire, county roads may develop an increased susceptibility to erosion and can generally alter the terrain and ground conditions of the affected county road(s). This may lead to unsafe travel conditions during normal travel and emergency evacuations. Existing conditions of county roads are very varied and widespread. Additionally, roads can generally withstand wildfire events as a means for emergency evacuation. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Despite large fires being infrequent, wildfires can still be anticipated to have a medium probability of impacting county roads. **Future Likelihood: <u>Safety, Structural stability</u>** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). = **M (Probability)**	**Medium**	Wildfires will directly damage road surfaces, cause road closures, and increase safety precautions. This may cause drivers to avoid certain roads due to safety concerns which leads to longer travel times. Further, emergency evacuation routes may become harder to reach; thus, increasing the human risk significantly. Repair of roads will also take certain durations of time and materials depending on the severity of the wildfire. = **M (Magnitude)**	**Medium**	**Take Action**
30	Bridges - Extreme Precipitation *(Transportation)*	**High**	**Structural Integrity:** Extreme precipitation may lead to flooding. Flooding can also cause scour around piers and abutments, which can damage bridges and cause structural integrity issues. These issues may range from insignificant to significant and may need varied construction times. Heavily damaged bridges from flooding may take extremely long periods of construction; thus, operations may halt for long periods of time. To combat this risk, updated engineer standards may need to be adopted to increase flood design measures and mitigate scouring. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Rainfall is light during the summer and frequent during the remainder of the year. **Future Likelihood: <u>Operations, Safety, Structural Integrity, Location</u>** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges that should be considered for future replacement or rehabilitation. = **H (Probability)**	**High**	Due to the various structurally categorized bridges, the magnitude of extreme precipitation varies. However, the damage mainly focusses on the weakening of the structural integrity of bridges (especially the already weakened ones) which could lead to expediated bridge collapses = **H (Magnitude).** In addition, the compose of bridge integrity emphasizes that bridges are not able to inadequately carry its intended traffic load; thus, operational usage of bridges due to extreme precipitation is decreased and safety concerns increase. Severe damage to bridges from extreme precipitation will take long durations of repair and resources which could halt the operation of specific bridges for long periods of time; thus significantly halting usability for many people. = **H (Magnitude)**	**High**	**Take Action**

31	Bridges - Flooding *(Transportation)*	**High**	**Structural Integrity:** Flooding can erode and damage bridge approach slabs and abutments. Flooding can also cause scour around piers and abutments, which can damage bridges and cause structural integrity issues. These issues may range from insignificant to significant and may need varied construction times. Heavily damaged bridges from flooding may take extremely long periods of construction; thus, operations may halt for long periods of time. To combat this risk, updated engineer standards may need to be adopted to increase flood design measures and mitigate scouring. **Probability:** In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Extreme precipitation may eventually lead to flooding. Rainfall is light during the summer and frequent during the remainder of the year. However, it is important to note that many bridges are located in floodplains (approximately 77 bridges located within the 100-year floodplain and approximately 78 located within the 500-year floodplain). = **H (Probability)** **Future Likelihood: Operations, Safety, Structural Integrity, Location** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges that should be considered for future replacement or rehabilitation. As such, this indicates that the impacts associated with flooding may heavily affect bridges.= **H (Probability)**	**High**	Due to the various structurally categorized bridges, the magnitude of flooding varies. However, the damage mainly concentrates on the weakening of the structural integrity of bridges (especially the already weakened ones) which could lead to expediated bridge collapses = **H (Magnitude).** In addition, the composition of bridge integrity emphasizes that bridges are not able to adequately carry its intended traffic load; thus, operational usage of bridges due to flooding is decreased and safety concerns increase. = **H (Magnitude)** Severe damage to bridges from extreme precipitation will take long durations of repair and resources which could halt the operation of specific bridges for long periods of time; thus significantly halting usability for many people. = **H (Magnitude)**	**High**	**Take Action**
32	Bridges - Reduced snowpack *(Transportation)*	**Low**	**Structural Integrity:** Snowpack may lead to increased erosion and degrade bridges. Further, transportation with bridges may become dangerous for travel as ramps may become extra slippery as snow adheres to ground more quickly. To combat snowpack impacts to bridges, updated standardized engineering standards can be set for increased flood levels to mitigate scouring. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. = **L (Probability)** **Future Likelihood: Operations, Safety, Structural Integrity, Location** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = L (Probability). The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges should be considered for future replacement or rehabilitation. = **L (Probability)**	**Low**	Reduced snowpack indicates a decrease in flooding which helps decrease bridge impacts relating to snowpack. Further as there is reduced snowpack, there is a less likelihood of increased erosion which usually increases bridge degradation. **L = (Magnitude)**	**Low**	**Accept Risk**
33	Bridges - Wildfire *(Transportation)*	**High**	**Structural Integrity:** Wildfires burning undergrowth along valleys and washes can damage bridges by burning underneath them; thus, resulting in prolonged damage assessments and unsafe structural integrity. These impacts lead to unsafe travel utilizing bridges; as such, business destinations may be harder to reach, transportation of goods is delayed, and travel risks increase. Measures to combat wildfire risk include designing bridges for fire loads, and applying fire blankets to bridges in high fire risk areas. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Generally, bridges that are located throughout Lewis County are exposed to wildfire. There are more bridges in western County than eastern County. It is important to note that, burned bridges are non-functional as transportation on them may vary in risk. = **H (Probability)** **Future Likelihood: Safety, Structural stability, Operations** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Within Lewis County's Bridge inventory there are 204 NBI reportable bridges and 17 short span bridges. One of the County's bridges is classified as structurally deficient (SD), 24 are classified as functionally obsolete (FO) , and 84 are coded as scour critical. Bridges classified as FO and structurally deficient bridges should be considered for future replacement or rehabilitation. = **H (Probability)**	**High**	The magnitude of wildfires will impact the structural integrity of bridges heavily as it will weaken the materials composed in the bridge. Consequently, the structural integrity of the bridge is compromised. This indicates potential bridge operation closures due to increased safety concerns. = **H (Magnitude)** Bridge closures will increase travel time and inconvenience for destinations as alternate routes will need to be utilized. **H (Magnitude)**	**High**	**Take Action**

34	Airports - Extreme Precipitation & Flooding *(Transportation)*	**High**	**Operations:** Extreme precipitation can usually lead to flooding. Extreme precipitation may halt operations as poor visibility increases. In turn, flight delays or cancellations may be increased during these severe weather events. Flooding may also damage airport infrastructure such as landing lights, radar and navigation installations, and communications networks will also inhibit the passage of aircraft. All these impacts may lead to severe economic losses in terms of passenger and freight traffic. To combat extreme precipitation and flooding, some measures such as utilization of levees/dikes or other measures may be used. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napa vine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Wewaykum Rivers and Coal, Selzer, and Dille Baugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Prinze Zone** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **H (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = H (Probability). Most airports are protected by a dike systems in events of flooding; however, flood events have occurred in the past (e.g. January 1990 flood event) which closed the Chehalis-Centralia Airport. = **H (Probability)**	**Medium**	Transportation in airports is impacted by extreme precipitation and flooding as airport closures may occur due to risky departure and landing conditions. This indicates that the magnitude of extreme precipitation and flooding to airport transportation is high as operations is halted; thus, travel, delivery of goods, medical supplies, and etc. are halted. New flight arrival and departure times will be necessary and delays should be accepted more frequently due to these weather conditions = **M (Magnitude)**	**High**	**Take Action**
35	Airports - Reduced snowpack *(Transportation)*	**Low**	**Operations:** Snowpack reduces visibility, clings to surfaces, and prompts runway maintenance procedures. Additionally, heavy snow may lead to roadways requiring more frequent maintenance. This may cause increased delays and decrease operation efficiency for airports. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. It is also important to note that airports are sited away from mountainous areas and within UGA's. **Future Likelihood: Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **L (Probability).** The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. = **L (Probability)**	**Low**	As mentioned in the probability notes, snowpack generally impacts many airport operations; however as Lewis County is projected to have a decrease of snowpack, the magnitude of snowpack impacts may be low. = **L (Magnitude)**	**Low**	**Accept Risk**
36	Airports - Wildfire *(Transportation)*	**High**	**Operations:** Wildfires will emit smoke from burning which leads to two immediate hazards: turbulence and reduced visibility. Thus, flight delays may become more frequent during wildfires as safety concerns are significantly increased. In addition to flight risk, airports impacted by wildfires may face structurally damage that may take long periods of reconstruction; therefore, lowering operation efficiency and general operations. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. However, airports are located in wildfire interface zones and will likely face impacts related to wildfire risks. **Future Likelihood Indicator: Location, Operations, Safety.** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). = **H (Probability)**	**High**	The magnitude of wildfires could burn down sections or all of an airport which would halt operations and repairs would need to begin as soon as possible. Repairs may need various resources and time which delays operation of airports. This may impact the travel of many people and supplies. In addition, as airports are located in wildfire interface zones, the magnitude of wildfire risks on the operations of airports may be significant. = **H (Magnitude)**	**High**	**Take Action**

37	Railways - Extreme Precipitation & Flooding	**High**	**Structural integrity and Operations:** Extreme precipitation can usually lead to flooding. Extreme precipitation can destabilize terrain, resulting in dirt or rocks on the tracks. Further, events of flooding can wash away railway tracks or even push train cars off the rails. Flooding may also lead to damage to rail infrastructure which can take days, weeks, or months to repair based on severity. Railway mitigation methods to prevent hazard damage include relocating ralline, elevating rails, or decommissioning rail usage; however, these methods are all costly and labor intensive. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Pronze Zone** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **H (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = H (Probability). A main railroad line (Burlington Northern Railway) crosses the floodplain from east to west on the Chehalis River near Chehalis. The tracks are subject to damage at various locations during large floods. = **H (Probability)**	**High**	The magnitude of extreme precipitation and flooding on railways would demonstrate a high magnitude as railways are located on a floodplain. This indicates a high potential for damaged rail infrastructure. This indicates that operations of this railroad will be severely impacted which could lead to long closure times for repair and return of functionality. = **H (Magnitude).**	**High**	**Take Action**
38	Railways - Reduced snowpack	**Low**	**Operations:** Snowpack has generally (either direct snowfall or drifting) can prevent rail operations from performing efficiently or at all. This is because the quantity of snowpack can be too much for the train to punch its way through without derailing or coming to other issues. On the contrary, reduced snowpack would not pose as a risk for trains to travel on railways effectively as blockages are unlikely. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. As snowpack is anticipated to reduce, operations of railways are not anticipated to face increased closures and/or delays. Further, there is a low probability of reduced snowpack risk to railways based on data mentioned above. Further, existing railways are also not located in avalanche-prone zones. **= L (Probability)** **Future Likelihood: Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% **= L (Probability).** The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. As there is an increased percentage of snowpack decrease, operations are significantly anticipated to have fewer operational issues. **= L (Probability)**	**Low**	The magnitude of reduced snowpack on railways is low as railways will be able to operate under "normal" conditions as reduced snowpack would not likely increase blockages. = **L (Magnitude)**	**Low**	**Accept Risk**
39	Railways - Wildfire	**High**	**Operations:** Wildfires pose track damage to railways as stock damage and derailments, power and communication disruptions, and destabilization of track beds increase as soil erosion increases. Wildfire increases the potential for accelerated erosion primarily through its effects on vegetation and soil. Therefore, with damaged railways, operations may be delayed heavily for reconstruction. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Portions of rail lines are located in wildfire interface zones, particularly in northern County; thus, based on historically wildfire data and existing conditions, there is high probability of wildfire risk for railways. = **H (Probability)** **Future Likelihood Indicator: Operations, Structural Integrity** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid-century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). Intense heat and flames can damage railway tracks and signal systems, forcing service interruptions. Further, the Industrial Access Transportation Study in northern County where portions of existing rail lines are located is taking place for future improvements. **= H (Probability)**	**High**	The magnitude of wildfire on railways focuses on service/operations being halted. Wildfires have historically damaged railway tracks and signal systems which compromise smooth operations in terms of travel and communications. Further, as mentioned there are a lot of existing and future rail in wildfire zones= **H (Magnitude)**	**High**	**Take Action**

40	Solid Waste transfer station - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Pollution:** Extreme precipitation can potentially lead to flooding of a solid waste transfer station. Flooding of a solid waste transfer station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. Surges of debris from solid waste transfer stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: <u>Operations, Contaminants</u>** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution and increased lag time of solid waste collection times = **L (Probability).**	**Medium**	Located in low risk liquefaction area. Decreased capacity due to waste generated from other storm events which lowers the risk of solid waste contaminants= **M (Magnitude).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may overfill due to post hazard event clean up and hinder smooth operations = **M (Magnitude).**	**Low**	**Accept Risk**
41	Solid Waste transfer station - Flooding *(Waste Mgmt)*	**Low**	**Pollution:** Flooding of a solid waste transfer station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. Surges of debris from transfer stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. Transfer stations also allow waste to be temporarily houses in facilities before being transported to landfills out of the County; however, as mentioned, stations have a maximum capacity. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Pronze Zone, Contaminants** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution = **L (Probability).**	**Medium**	Not located in 100-year FEMA floodplain. Decreased capacity and contaminant risk due to waste generated from other storm events = **L (Magnitude). T**ransfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may go over due to post hazard event clean up and inhibit effective operations **= M (Magnitude).**	**Low**	**Accept Risk**

42	Solid Waste transfer station - Wildfire *(Waste Mgmt)*	**Low**	**Toxic contaminants:** Wildfire at solid waste transfer stations threaten the environment there through toxic pollutants emitted into the air, water, and soil. Further, wildfires that spread to solid waste transfer stations pose a risk to firefighters and civilians who are exposed to the hazardous chemical compounds they emit. The degree of risk is dependent on the contents buried in the landfill, the geography of the landfill, and the nature of the fire. For instance, in increased hazard events, individuals may increase disposal of weather-damaged personal property; thus, resulting in transfer stations having a maximum capacity which may overfill and exacerbate impacts. It is also important to note, transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Flood Pronze Zone, Contaminants** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution = **L (Probability).**	**Medium**	Not located in wildfire interface zone. Decreased capacity and contaminant risk due to waste generated from other hazard events **= M (Magnitude).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County, stations have a maximum capacity which may go over and impact operation schedules due to post hazard event clean up **= M (Magnitude).**	**Low**	**Accept Risk**
43	Sewer infrastructure - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Structural integrity and treatment quality:** Extreme precipitation influences the effects of flooding. As such, flooding or surge can damage sewer infrastructure and destroy process equipment, communications controls, field equipment, and important data records while blocking access to the plant. These impacts will result in decreased treatment quality as process equipment may be damaged; thus lowering, process efficiency and treated effluent quality. Adaptation for these impacts may include other treatment methods or temporary shutdown of facilities. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: Operations, Structures, Contaminants, Health** Climate change is projected to increase the stream flows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Older sewer infrastructure may not be upgraded with larger inflow and outflow volumes which may impact operations. = **L (Probability).**	**Medium**	Sewer infrastructures are normally built to handle 25, 50, 100-year storm volumes; however, older treatment plants may have decreased in efficiency and structural integrity; as such, a higher magnitude of damage may affect older plants and plants that are near floodplains. Older plants may need to be decommissioned or undergo construction for plant upgrades to decrease the magnitude of impacts from extreme precipitation. = **M (Magnitude)** In addition to impacts to operations and structural integrity, chemical contaminants utilized in different processes of sewer infrastructure may be leaked due to the extreme precipitation and impact waterways. = **M (Magnitude).**	**Low**	**Accept Risk**

44	Sewer infrastructure - Flooding *(Waste Mgmt)*	**Low**	**Structural integrity and treatment quality:** Flooding or surge can damage sewer infrastructure and destroy process equipment, communications controls, field equipment, and important data records while blocking access to the plant. These impacts will result in decreased treatment quality as process equipment may be damaged; thus lowering, process efficiency and treated effluent quality. Adaptation for these impacts may include other treatment methods or temporary shutdown of facilities. **Probability**: According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen throughout Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. Exiting facilities are located in a 1% annual chance climate change flood zone; thus, there is a low probability of risk for sewer infrastructure from flooding. **Future Likelihood: Operations, Flood Prone Zone, Contaminants, Health** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, by mid-century, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** Most in County rely on private septic systems. There is a steady increase projected in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Centralia's new wastewater treatment plant on Goodrich road is out of the 100-year floodplain and should remain operable through any floods up to and including the 100-year event. = **L (Probability).**	**Medium**	Sewer infrastructures are normally built to handle 25, 50, 100-year storm volumes; however, older treatment plants may have decreased in efficiency and structural integrity; as such, a higher magnitude of damage may affect older plants and plants that are near floodplains. Flooding of sewer infrastructure may impact inflow and outflow of sewage as some sewer infrastructures may not be built to handle extremely large volumes of sewage. Large influxes of sewage may lead to overflow of systems and sewage spillage which would impact waterways that lead to residential, commercial, and industrial pipes. = **M (Magnitude).**	**Low**	**Accept Risk**
45	Sewer infrastructure - Wildfire *(Waste Mgmt)*	**Low**	**Water contamination and structural integrity:** Wildfires may disrupt sewage infrastructure with impacts such as: direct structural damage to the infrastructure/facilities due to the fire or firefighting activities, loss of power, debris/contaminants in waste stream, and blockage and dirtying of pumps. It is also important to note, backup protocols for sewer infrastructure may not include climate hazard impacts; thus, new protocols, permits, and infrastructure upgrades may be costly and labor intensive. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. Additionally, as most sewer infrastructure are not are located in wildfire intermix zones similar to the rest of Lewis county **Future Likelihood Indicator: Operations, Structural Integrity** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). = **L (Probability)**	**Medium**	The magnitude of wildfire impacts on sewer infrastructure may be detrimental as operations may significantly halt due to operational malfunctions as described in the probability notes section. However, as most sewer infrastructure is not located in wildfire interface zone, the magnitude of these impacts are decreased significantly. Further, it is located in a wildfire intermix zone, similar to most County areas. **= M (Magnitude)**	**Low**	**Accept Risk**

46	Dump stations - Extreme Precipitation *(Waste Mgmt)*	**Low**	**Pollution:** Extreme precipitation can potentially lead to flooding of a dump station. Flooding of a dump station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. In addition, erosion from historic dump stations pose a greater threat than leaching. Surges of debris from dump stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: <u>Physical Design, Operations</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. = **L (Probability).**	**Medium**	The magnitude of impacts would concentrate on the level of pollution that occurs; resulting in increased cleanups, equipment improvements, and operation costs. Items are "dropped off" by individuals at transfer stations/Packwood Community drop off center. Located in low risk liquefaction area**. = M (Magnitude).** Transfer stations allow waste to be temporarily housed in facilities before being transported to landfills out of the County. Increased hazard events, individuals may increase disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill and lead to a decrease in operations/efficiency **= M (Magnitude).**	**Low**	**Accept Risk**
47	Dump stations - Flooding *(Waste Mgmt)*	**Low**	**Pollution:** Flooding of a dump station may increase the volume of leachate generated by raising the percolation and piezometric head of the leachate, which will cause the leachate leakage to increase. In addition, erosion from historic dump stations pose a greater threat than leaching. Surges of debris from dump stations may also increase. With increased hazard events, it is likely for an increase in disposal of weather-damaged personal property, resulting in stations having a maximum capacity which may overfill. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. However, dump stations in Lewis County are not located in a 100-year FEMA floodplain; thus, the probability of flood events impacting dump stations is low. **Future Likelihood: <u>Operations, Flood Pronze Zone, Structure</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** In addition, as flooding is an impact influenced by extreme precipitation, there is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. Solid waste facilities in flood prone areas may increase the risk of unwanted waste distribution = **L (Probability).**	**Low**	The magnitude of impacts would concentrate on the level of pollution that occurs; resulting in increased cleanups, equipment improvements, and operation costs. However, the magnitude of impacts from flooding to dump stations is low as dump stations are not located in 100-year FEMA floodplain and are in a low risk liquefaction area. **= L (Magnitude).**	**Low**	**Accept Risk**

48	Dump stations - Wildfire *(Waste Mgmt)*	**Low**	**Toxic contaminants:** Wildfire at dump stations threaten the environment there through toxic pollutants emitted into the air, water, and soil. Further, wildfires that spread to dump stations pose a risk to firefighters and civilians who are exposed to the hazardous chemical compounds they emit. The degree of risk is dependent on the contents buried in the landfill, the geography of the landfill, and the nature of the fire. For instance, in increased hazard events, individuals may increase disposal of weather-damaged personal property; thus, resulting in stations having a maximum capacity which may overfill and exacerbate impacts. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent and dump stations are not located in fire interface zone. **Future Likelihood Indicator: Operations, Structural Integrity, Fire Prone Area** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). However, as mentioned above, dump stations are generally not located in fire interface zone(s)= **L (Probability)**	**Low**	Toxic contaminants emitted from wildfires that have spread to dump stations pose health, environmental, and economical impacts. These impacts may drastically influence the operations of dump stations; However, as stated, dump stations in Lewis County are not located in wildfire interface zone and the magnitude of these impacts are low = **L (Magnitude).**	**Low**	**Accept Risk**
49	Water infrastructure - Reduced snowpack *(Water Resources)*	**High**	**Water scarcity:** Reduced snowpack would lead to a decreased water supply for water infrastructure. A decreased supply of water for treatment can have a pronounced effect on process efficiency as well as associated operational costs. It is important to note that design standards set in Title 13 of the Lewis County municipal code, states water mains are to be equipped with backflow prevention valves. **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts on occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Operations** Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **H (Probability)**. The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season, indicating decreased water storage capabilities Countywide. = **H (Probability).**	**High**	Reduced process efficiency may lead to reduced water quality; thus, can lead to reduced water which can lead to serious effects on aquatic organisms and plants, as well as potential human costs. The magnitude of impact regarding reduced snowpack to water infrastructure focuses on reduced process efficiency and operational costs. As there is a high probability of reduced snowpack affecting water infrastructure, the magnitude of decreased process efficiency and operation costs is heightened. Treated water faces a higher risk of being treated improperly; thus, impacting the subjects listed above. = **H (Magnitude)**	**High**	**Take Action**

50	Water infrastructure - Wildfire *(Water Resources)*	**Medium**	**Water contamination and structural integrity:** Wildfires have been historically known to compromise water quality during active burning and for months and years after the fire has been extinguished. Water infrastructures may face increased treatment costs, need for alternative supplies, and potentially diminished reservoir capacities. Extensive water system damage and related water quality contamination to water infrastructure may significantly impact the operations of the system; thus, leaving many businesses, residents, etc. loss of water for long periods of time. It is also important to note that many design standards account for limiting contamination, but it does not account for climate hazards. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. **Future Likelihood Indicator: Operations, Structural Integrity, Contaminants** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). = **M (Probability)**	**High**	Debris (soot) from wildfires may compromise treatment of water and expediate filter deterioration in water treatment processes. Further, compromised treatment of water may impact outflow of water which may contaminate groundwater aquifers and nearby waterways. = **H (Magnitude).**	**High**	**Take Action**

51	Civic Centers - Extreme Precipitation *(Zoning & Development)*	**Low**	**Structural damage:** Civic centers may face increased problems regarding building stormwater management systems in place, vegetation (e.g. mold) issues, and roof damage due to extreme precipitation. In addition, with extreme precipitation, there is an increased potential of flooding. In civic centers, sheet flooding may cause structural damage to the buildings such as loose or buckling floors and foundation cracks. These impacts may significantly affect civic center operations. It is also important to note that many civic centers with appropriate facilities may act as temporary shelters for extreme hazard events, requires collaboration with American Red Cross, NGOs, faith based organizations, Salvation Army, and law enforcement/other County departments. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. In terms of precipitation, the total average annual precipitation ranges from 47 inches at Centralia to 62 inches at Packwood. On the average, annual precipitation is 46.7 inches, with annual records showing a range from a low of 28 inches to a high of 60 inches. **Future Likelihood: <u>Vulnerable Groups, Population Density, Operations</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **L (Probability)** There is a steady increase in percent change in the magnitude of 25-year storm ranging from an increase of precipitation that falls in the range of 7-18%. This increase indicates that Lewis County is expected to experience an increase in total precipitation of the 25-year storm. Heavier precipitation is an indicator of flooding which could affect infrastructure and operations. **= L (Probability).**	**Medium**	Civic centers include recreation centers with large concentrations of people who may be exposed to hazard events and include vulnerable individuals i.e., children, elderly, special needs, etc. Many communities may utilize civic centers as part of their daily lives; however, extreme precipitation may hinder their ability to use these centers. Further, as described with increased extreme precipitation, the effects of structural damage to civic centers is greater; thus, further impacting the operations of these buildings as reconstruction would potentially take extended periods of time. = **M (Magnitude).**	**Low**	**Accept Risk**
52	Civic Centers - Flooding *(Zoning & Development)*	**Medium**	**Structural Damage:** Civic centers may face increased problems regarding building stormwater management systems in place and vegetation (e.g. mold) issues. Further, sheet flooding may cause structural damage to the buildings such as loose or buckling floors and foundation cracks. These impacts may significantly affect the structural aspects of civic centers; thus, a secondary impact of impacting the operations of civic centers. It is also important to note that many civic centers have been designated as evacuation shelters (Centralia College, Red Cross, Morton Hospital, Providence Hospital to name a few). **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. The major floods are caused by the overflow of the Chehalis and Newaukum Rivers and Coal, Salzer, and Dillenbaugh Creeks, as well as the Cowlitz and Tilton Rivers. The earliest documented flood on the Chehalis River occurred in December 1887 and since then, there have been major floods every 10-15 years. There have been 13 Presidential Declarations for flooding in the County between 1971 and 2012. **Future Likelihood: <u>Operations, Flood Pronze Zone, Structure</u>** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. = **M (Probability)**	**Medium**	Civic centers located thru-out County, and may be flooded in unincorporated City-adjacent areas/UGAs. Fixed buildings/civic centers located in 100-year FEMA floodplains would experience peak streamflows resulting in loss of building functions and services and possibly reconstruction. Civic centers not located in floodplain zones would be able to resume operations sooner than civic centers that are located in floodplain zones as structural damages may not be as significant as reconstruction periods are much shorter. However, civic centers located on floodplain zones may face increased structural damage; thus, will need to undergo longer periods of reconstruction, halting operations. **= M (Magnitude).**	**Medium**	**Take Action**

53	Civic Centers - Reduced snowpack *(Zoning & Development)*	**High**	**Water scarcity:** Reduced snowpack indicates changes in streamflows; thus, water supply that may be diverted for use in civic centers. For instance, civic centers need water supply for on-site facilities, recreational uses, sewage flow, etc. Reduced water supply could potentially pose restrictions on the water budget for civic centers to conserve supply. It is also important to note that many civic centers have been designated as evacuation shelters (Centralia College, Red Cross, Morton Hospital, Providence Hospital to name a few). **Probability:** On average, snowfall in the region is not heavy, but the potential exists for extremely large amounts of occasion. The average annual snowfall is approximately 9 inches, with recorded extreme annual maximums at 45 inches. Most of the snowfall occurs in the month of January, with the monthly average at about 4.5 inches. **Future Likelihood: Operations** The April 1st snowpack is used as an indicator for the amount of stored water that becomes available during the melt season. Based on the April 1st snowpack readings, there is steady decrease in this snowpack with a decrease ranging from 68% to 97% = **H (Probability).** Based on the projection, there is a high probability of reduced snowpack; thus, water scarcity is more likely to occur and impact the operations of civic centers located in Lewis County.	**Medium**	The magnitude of reduced snowpack on civic centers would focus on the operational uses of civic centers. Water uses of civic centers are diverted into many purposes. Some of which include: landscape irrigation, fire sprinkler systems, toilet flushing, HVAC cooling, etc. As there is a high probability of reduced snowpack occurring for Lewis County, the magnitude of these activities being halted is a medium as some activities may not be necessary (e.g., landscape irrigation) for the full functionality of civic centers. However, activities such as HVAC cooling and fire sprinkler systems cannot be removed from the operations of a civic center. = **M (Magnitude)**	**High**	**Take Action**
54	Civic Centers - Wildfire *(Zoning & Development)*	**Medium**	**Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have been infrequent. County collaboration with fire districts to educate property owners on defensible space and other prevention methods will be more consistent. **Future Likelihood Indicator: Location** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events and increase the likelihood of fires. County admin buildings are predominantly located in west County area which has low wildfire risk (average of less than 4,000 acres burned annually in western WA since 1984). However, Large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). = **M (Probability)**	**Medium**	UGAs located in wildfire interface zones expose fixed buildings/civic centers to wildfire risk. Would result in complete loss of building functions and services, reconstruction needed **= M (Magnitude).**	**Medium**	**Take Action**

55	Colleges - Extreme Precipitation & Flooding	**Low**	**Structural damage:** College buildings may face increased problems regarding building stormwater management systems in place, vegetation (e.g. mold) issues, and roof damage due to extreme precipitation. In addition, with extreme precipitation, there is an increased potential of flooding. In college campuses, sheet flooding may cause structural damage to the buildings such as loose or buckling floors and foundation cracks. These impacts may significantly affect college operations. Campuses may act as secondary facilities for emergency operations (staging areas), but are limited to non-flood areas. **Probability:** According to the Lewis County GIS Web Map, there are multiple flood zones near Centralia, Chehalis, and Napavine. However, flooding and drainage problems from heavy storms can happen anywhere in Lewis County. College campuses such as Centralia college and WSU extension are located in incorporated areas outside of 100-year FEMA flood zone. **Future Likelihood: Operations, Location** Climate change is projected to increase the streamflows which is expected to increase riverine flooding within existing floodplains and could expand flooding to new areas not currently in existing floodplains. In addition, in 30 years, 31.7% of properties in Lewis County will have risk of flooding with major impacts for residential and severe for commercial, infrastructure, and road assets. However, as mentioned above, colleges within Lewis County are located outside of the 100-year FEMA flood zone. **= L (Probability)**	**Low**	As mentioned, structural damage would potentially occur with extreme precipitation and flooding. The magnitude of these hazards for instance may include long periods of time for reconstruction. This may lead to loss of revenue for colleges for a long duration of time. However, as colleges within Lewis County are outside of the 100-year FEMA flood zone, the magnitude of these effects impacting the colleges is low. = **L (Magnitude).**	**Low**	**Accept Risk**
56	Colleges - Wildfire	**Medium**	**Structural damage:** Wildfires have historically burned down structures, including homes. Structures that are impacted by wildfires may range in severity in terms of acreages destroyed and renovations required. College campuses are located in wildfire interface zones; therefore, exposing students, faculty, and staff to wildfire risk. Wildfires may significantly impact buildings even with fireproof designs i.e., defensible space, fireproof building materials, etc. **Probability:** Wildfires occur every year in Lewis County, average of at least 10 wildfires a year (2008-2023, no record for 2022). In 2022-2023, ~6,917 acres burned comprising 85% of total acres burned since 2008 (1,207.98 acres burned 2008-2022). Large fires have historically been infrequent. **= M (Probability)** **Future Likelihood Indicator: Operations, Location, Structure** Climate change is projected to increase high fire danger days contributed from hotter dryer summers/east wind events; thus, increasing the likelihood of fires. Additionally, large wildfires are anticipated to occur more frequently in Lewis County - western County is predicted to experience 11-12 additional high fire danger days each year (by late century). Eastern county will have a 30% chance each year that there will be the climate and fuel conditions conducive to wildfires (by mid century). Larger east county areas will have a 30-50% of conducive wildfire conditions each year (by late century). The nearest college in Lewis County is located in the North Western part of Lewis County which includes Centralia County. Despite not having many college campuses, the likelihood of wildfire impacting the college is likely based on data described above. **= M (Probability)**	**High**	College campuses such as Centralia college and WSU extension may be impacted due to wildfires that have spread onto the campus/near campus. This can lead to indefinite closures of the campus; thus, halting education. Further, wildfire would lead to immediate evacuations of the college campuses and cease of operation for a duration of days for repairs and safety check-ups. = **H (Magnitude).**	**High**	**Take Action**

Appendix H Community Engagement Plan

Engagement plan starts on the next page.





Lewis County 2045

Shaping the Future of Lewis County

Comprehensive Plan Periodic Update

Community Engagement Plan

Public Review Draft
April 2024

How to Comment

You may submit comments to the Lewis County Community Development staff on the Comprehensive Plan Update by:

Email: mindy.brooks@lewiscountywa.gov

U.S. Mail: Community Development, Planning Division 2025 NE Kresky Avenue Chehalis, WA 98532 Attention: Mindy Brooks

For more information visit:

tinyurl.com/LewisCounty2045

Executive Summary

Lewis County is preparing a Comprehensive Plan Periodic Update in accordance with the requirements of the Washington State Growth Management Act. The comprehensive plan is a document used by the County, created with input from the community, to establish a vision for the future. The vision will influence actions taken by the County over the next 20 years to manage land use, housing, transportation, economic development, and environmental conditions in the community.

Community engagement is the core of this Comprehensive Plan Periodic update, also called Lewis County 2045. Engagement with the community throughout this effort will help shape vision, goals and planning policy in Lewis County for the next 20 years. County staff will collect input from elected officials, Lewis County residents, business owners, stakeholders, and other governmental agencies and combine that with the best available data to assess conditions in the community. Community engagement in support of Lewis County 2045 will take place from April 2024 to November 2024. Staff will also present project progress updates at public meetings and hearings, such as the Board of County Commissioners and others throughout the project (Figure 1).

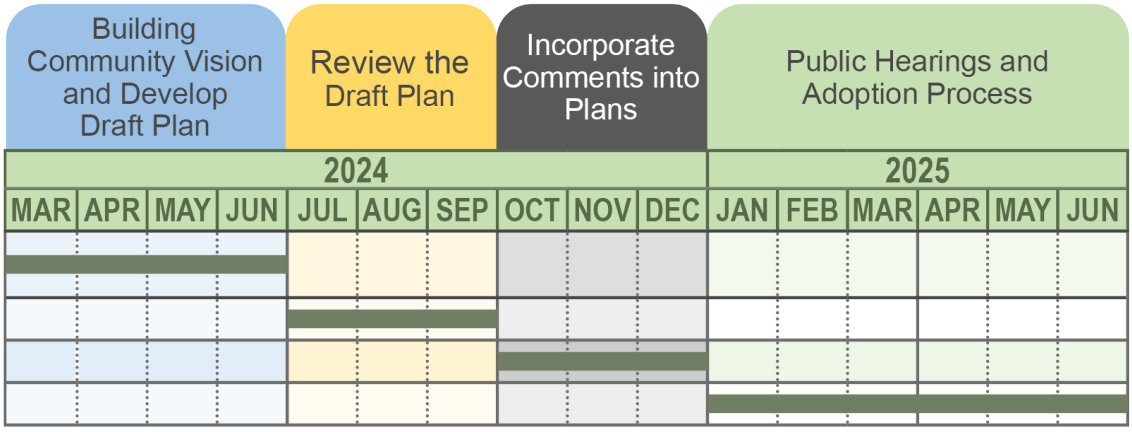


Figure 1 Engagement Schedule

This Community Engagement Plan will outline the approach and tools to inform, involve, and consult with members of the community. The purpose of community engagement is to understand diverse viewpoints and visions for the future. All County residents are encouraged to participate. Staff will use the results of engagement to update the plan.

Project Description

Lewis County 2045 is an opportunity for the community to review the current conditions, reevaluate goals, values and policy and look ahead to the next 20 years. Building on the existing comprehensive plan, the update will consider how the County will plan for people, jobs, housing, parks, transportation, and the infrastructure needed to support growth. The anticipated adoption of the updated comprehensive plan is June 30, 2025.

Lewis County 2045 will not only be an opportunity to meet the requirements of state law but to create a new community vision. Building a strong and defensible community vision based on continuous and accessible community engagement will allow for streamlined implementation of the comprehensive plan. This will help administrators, elected officials and agencies make informed decisions moving forward. Consistent with the County's Community Engagement Framework, the goal of the community engagement plan (CEP) is to describe how the community will be engaged and at what points specific tools will be used.

Promise to the Public

Community engagement takes many different forms and can be viewed as a spectrum ranging from informing the community about projects to fully collaborating with the community to develop the plan (see Figure 2). This CEP will employ a variety of engagement approaches to provide the community members the ability to select their preferred level of participation.



Figure 2 Lewis County Engagement Spectrum

The engagement tactics used for this effort will focus on informing, involving, and collaborating with stakeholders. The extent to which each stakeholder participates will depend on the stakeholders themselves.

County staff and consultants involved throughout this process will be mindful of the following engagement promises:

- Promise to inform: We will keep the community well informed from start to finish.
- Promise to involve: We will consult with specific stakeholders and make sure that their needs and concerns are directly reflected in the plan where possible.
- Promise to collaborate: We will gather advice and innovative ideas from the community and incorporate them into the plan's decisions to the maximum extent possible.

- Promise to circle back: We will share how feedback was used to demonstrate the importance of community engagement process. We will acknowledge people's time and participation after each activity (surveys, interviews, community meetings, etc.). The County and consultant team will summarize feedback and input gathered and make these engagement summaries available through the report titled Engagement Results on the project website.
- Promise to provide adequate public notice: We will inform the public of opportunities to participate in a timely manner, at least a week in advance of a meeting or activity where feedback is sought. When applicable, we will follow public notice requirements according to the rules of Washington Administrative Code (WAC 365-196-600). The County will consider the following notification channels to keep the community informed:
    - County website
    - Email
    - Public/commercial local radio
    - Posting on community boards
    - Utility notices and other city/County communication
    - Social Media
- Promise to be transparent: The Board of County Commissioners will have ultimate power of decision to adopt the plan. The public is invited to every meeting with the Board and may provide comments about the topics we are presenting. .

Interests and Impacts

The comprehensive planning process is complex, and it can be difficult to communicate the nexus between planning policy and changes which might impact the community as the plan is implemented.

Lewis County 2045 will focus technical work and community engagement on understanding concerns and opportunities in the following areas:

Growth

Residents and business owners may be impacted by population growth in the following ways: traffic and proposed transportation solutions, changes to density of housing, access to quality community services (e.g., police, school, internet), and impacts on public facilities (e.g., water districts.

Agricultural and Forestry Lands

People who own farms or forestry land may be concerned about how growth and development could impact the economic use of their property.

Housing

Existing and new residents may be interested in changes to housing regulations and how that may impact the housing choices in the future.

Critical Areas

Those who own property near identified critical areas regulated by the state (e.g., wetlands, streams, floodplains) may be concerned about impacts that would hinder their ability to use their property.

Hazard Mitigation

Those impacted by flooding, wildfire or other natural hazards may want to understand their risks and know what mitigation options will be considered to help them build resiliency over time.

Lewis County 2045 Roles and Responsibilities

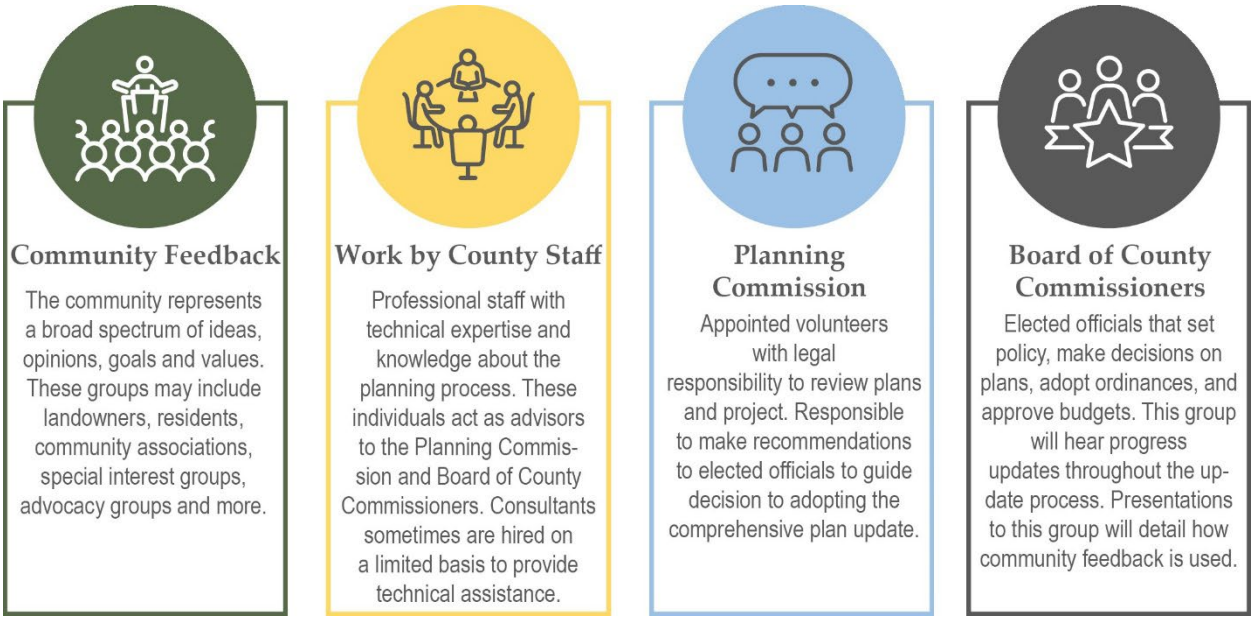


Figure 3 Roles and Responsibilities

Community Stakeholders

This section includes the types of stakeholders in Lewis County. A stakeholder is any individual who may have an interest in the future of Lewis County. Most stakeholders may fall into more than one group. All stakeholders are equally valuable to this process and the County desires to engage with community members from all areas. County staff are especially interested in hearing from stakeholders who have never participated in planning efforts, and those living in areas vulnerable to natural hazards.

This list is not comprehensive and may be updated as the project progresses.

Key stakeholder groups

- Property owners
- Residents
- Part Time Residents
- Renters
- Business owners
- Employees
- Elected officials (including County Commissioners)
- Developers
- Tribes
- People with Limited English Proficiency
- Communities with Disabilities
- Churches
- Schools and school districts
- Library
- Individual cities, towns, unincorporated communities
- Community organizations

- Fire Departments
- Police Departments
- Water/Sewer Districts
- Tourists/Visitors
- Agricultural industry
- Seniors
- Youth
- Students
- Religious organizations

Previous Engagement

This strategy will build on engagement work carried about by the County in the Winter of 2023-2024. The County held facilitated workshops with the goal of asking the community to help prioritize the most important topics to address during Lewis County 2045. Meetings were held in the following locations:

- **Salkum** - Salkum Timberland Library
- **Mineral**- Mineral American Legion Building
- **Toledo** - Cowlitz Prairie Grange
- **Randle** - Randle Fire Station

During the workshops, County staff asked attendees "What is your vision for Lewis County in 20-years?" The attendees identified priorities in several relevant topics. Meeting notes are available in a separate document titled "Engagement Results" which is available on the County website.

Key themes identified in the workshops include:

- Rural character
- Transportation
- Economic development
- Housing
- Infrastructure
- Critical areas
- Public health
- Natural hazards
- Recreation and tourism
- Forestry and farms
- Land use

This feedback, including all feedback gathered during the events and opportunities identified in this plan, will be shared with the Lewis County Planning Commission and Board of County Commissioners to help staff inform Lewis County 2045.

Engagement Strategy

This engagement approach will prioritize making project details interesting, accessible, and relevant to the communities. This CEP aims to create a program for participation to "involve a broad cross-section of the community, so groups not previously involved in planning become involved" (WAC 365-196-600). Staff will seek opportunities to meet the public where they are by participating in existing community-hosted events, interest groups' reoccurring meetings (e.g., Farm Bureau), and other public meetings, as well as planning community 'pop- ups' in frequently visited locations.

The community engagement strategy goals are to:

- Engage with stakeholders early in the planning process.
- Understand community character, what makes Lewis County special.
- Build long-term, collaborative working relationships with community partners and stakeholders.
- Capture community vision.
- Balance state law and with community vision.
- Clearly communicate how feedback is used.
- Engage with the community in its full diversity to promote inclusivity.

Lewis County 2045 will rely on a set of clear messages to explain the process, needs and outcomes of the comprehensive plan update.

- Every 10 years, the communities of Lewis County will come together to create a vision for the County's future.
- The comprehensive plan is a tool that will help the County respond to growth and change over the next 20 years.
- The plan anticipates the needs of current and future residents, business owners and visitors to Lewis County.
- The plan will cover a range of issues including housing, land use, transportation, utilities, public facilities, parks, resiliency, economic development, and more. The comprehensive plan will guide growth in Lewis County over the next 20 years.
- Good policy should reflect input and experience of stakeholders.
- Interested members of the community are encouraged to join in the effort and help shape the future of Lewis County.
- The Lewis County Board of County Commissioners will formally adopt Lewis County 2045 and staff will use it as a framework for guiding growth and development.
- The Engagement Report will summarize stakeholder feedback and how it was used to craft policy.

Part of the CEP strategy is to coordinate with Tribal Governments associated with Lewis County including:

- Confederated Tribes of the Chehalis Reservation
- Cowlitz Tribe
- Nisqually Indian Tribe
- Quinault Tribe
- Puyallup Tribe
- Squaxin Island Tribe
- Steilacoom Tribe

The County recognizes that Tribal Governments may engage at their discretion. The County will include interested Tribal Governments in Lewis County 2045 to the extent they are able and willing to participate.

Mindful of HB 1717 (2022) requirements, Lewis County will:

- Invite Tribal Governments to voluntarily participate in the comprehensive planning process.
- Share process updates and continue to invite, regardless of their level of participation in the process.
- Share draft materials as they are available.
- Facilitate communication between tribes and the County, including support to resolve issues related to plan changes and regulations.
- Invite tribal governments to participate in the development of countywide policies, including policies that allow for the protection for cultural resources if desired.

Engagement Approach

Staff, and their consultant, "pledge consistent, meaningful, and timely engagement of the Lewis County community." The project will take place over four key phases, which include: Building the community vision and creating the draft plan, reviewing the draft plan, incorporating comments, and public hearings and adoption. Different tactics will be used in different phases to encourage the most meaningful participation. The County has identified a range of engagement tactics to connect with stakeholders. These engagement tactics may be used at different times throughout the project. This section will outline the engagement tactics to be used throughout the update process.



Figure 4 Engagement Tactics

Community Meetings – Collaborate

County staff will hold community meetings to collaborate with the public. The project team will prioritize attending existing community events that are widely and regularly attended to reach as many stakeholders as possible.

Meeting types will vary by need and phase but may include:

- Community events – use regularly scheduled meetings as an opportunity to share project details (e.g., Realtor's Lunch and Learn).

- Community interviews – The County will hold one-on-one conversations with certain groups or individuals who may have specific interest or expertise in a particular topic. These conversations may be held virtually, in-person or over email. These conversations will be organized as needed.
- Open house events – The County may hold open house events where the public can attend to learn about the project and provide input on goals and policies. These events will provide an open format to allow stakeholders to talk to County staff, learn more about the project and provide feedback.
- Climate resilience focused interviews – The County will hold one-on-one discussions with individuals who may have a specific interest in natural hazard mitigation efforts.

Survey – Involve

Lewis County will host two community-wide surveys throughout the planning process. These will be short, informal surveys to encourage community members to share their feedback. Surveys will include a targeted 5-6 questions. The first will coincide with the visioning phase (April to May 2024). The purpose of this survey is to understand the interests and values of the stakeholders. The second survey will coincide with the draft plan release (timeframe to be determined). The purpose of this survey will be gathering feedback on the draft plan and make updates leading to a final plan.

Webpage – Inform

A project webpage has been created on lewiscountywa.gov titled: Comprehensive Plan Periodic Update. This webpage will host project documents, updates, schedule of events are more.

Navigate directly to the webpage using this link: tinyurl.com/LewisCounty2045

There are three main purposes for the website:

- Provide timely updates and materials to learn about the comprehensive plan document and process in greater detail.
- Advertise upcoming opportunities to get the community involved.
- Report back to the community on collected engagement data.

Social Media – Inform

There will not be a social media account for Lewis County 2045, instead staff will share information to existing platforms to encourage participation. Social media will be used to share project information, public meetings, and comment opportunities.

Platforms to share information with include, but are not limited to:

- East Lewis County News
- Lewis County News and Events
- Living Lewis County
- Lewis County Happenings 2.0

Community Engagement Summaries – Inform

Engagement summaries will be completed for each activity to detail conversations, feedback, and next steps (e.g. survey, meeting, interview, or pop-up series). These summaries will be available on the County website in a document titled Engagement Results, which will be updated throughout the project. Summaries will also be shared with the Lewis County Planning Commission and the Board of County Commissioners. Staff will notify email subscribers when these summaries are available.

Educational Materials - Inform

County staff will work with local colleges and districts to create learning materials to engage students and prepare materials to distribute to parents and guardians of students. In addition to coordination with students, the County may use these materials to engage and encourage conversations with community groups and organizations such as:

- Youth councils
- Senior center
- Agriculture organizations
- Farms
- Major employers
- Health departments
- Social services

Community Pop-ups – Involve

Staff and consultants will host pop-up tabling activities at specific community locations, (e.g., grocery stores). Each pop-up tabling opportunity will provide project information in an informal setting with the aim of connecting with groups who may not otherwise participate.

Community Events – Involve

The County will partner with organizations throughout Lewis County to host a table or booth to engage with stakeholders who may not participate in public meetings or online surveys. Staff will prioritize attending existing community events that are widely and regularly attended to reach as many stakeholders as possible. Examples are the Onalaska Apple Festival or the Packwood Mountain Festival.

Presentations to Board of County Commissioners and Others – Inform

Throughout the project, County staff will provide updates to interested groups of elected officials, including the County Commission to describe the process, communicate engagement efforts and outcomes and give updates on the plan development.

Translation and interpretation - Inform

The County intends to reach and engage with those who may not speak English fluently. In Lewis County, Spanish is the most common primary language after English. The County will provide all basic project information, surveys, and other significant outreach materials will be translated into Spanish. Interpreters may also be included for in-person meetings and open houses.

	Building Community Vision and Develop Draft Plan				Review the Draft Plan			Incorporate Comments into Plans			Public Hearings and Adoption Process					
Task	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**
Inform	• Website, email and social media • Translation • Engagement summaries • Educational Materials				• Website, email and social media • Translation • Engagement summaries • Educational Materials			• Website, email and social media • Translation			• Website, email and social media • Translation • Engagement summaries					
Involve	• Community Events and pop-ups • Survey				• Community Events and pop-ups • Survey						• Community Events and pop-ups					
Collaborate	• Community Meetings, including interviews • Board of County Commissioners and Planning Commission meetings				• Community Meetings, including interviews • Board of County Commissioners and Planning Commission meetings			• Community Meetings, including interviews • Board of County Commissioners and Planning Commission meetings			• Community Meetings, including interviews • Public Hearings • Board of County Commissioners and Planning Commission meetings					

Figure 5 Engagement Tactics and Phases

Anticipated Barriers to Participation

The County understands that there may be existing barriers to participation. This CEP has identified potential barriers and strategies to overcome these. Engagement will be mindful of these barriers and strategies to maintain an accessible process.

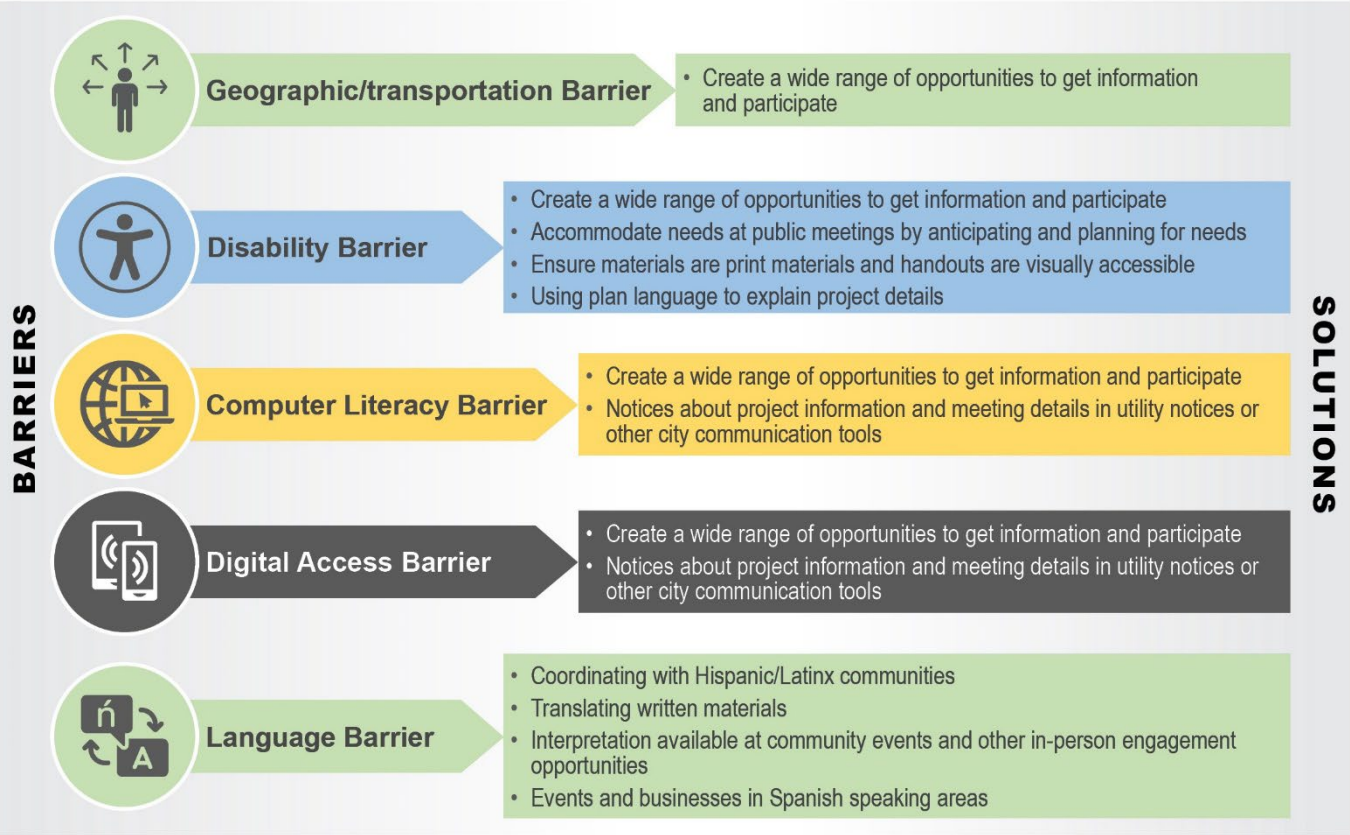


Figure 6 Engagement Barriers and Solutions

Climate Resilience Element

In 2023, the Washington Growth Management Act (GMA) was amended to require Comprehensive Plans begin including the climate change and resiliency element to ensure local governments prepare to adapt to and mitigate the effects of a changing climate. This new requirement requires goals and policies to improve climate preparedness, response, and recovery efforts. Lewis County 2045 will define climate and resilience as: strategies to cope with and manage the impact of severe weather events and associated natural hazards to prevent impacts from getting worse. This will build on two key studies completed by the County:

- 2023 Lewis County Hazard Mitigation Plan Update
- Flooding information/studies around I-5

The County aims to create a climate and resilience element in the plan that reflects the community priorities and values and increases the chance of community buy-in. Lewis County will conduct

engagement in support of this element concurrently with other engagement efforts and identify specific opportunities for members of the community living in areas identified has having risks associated with natural hazards including flooding, wildfire, extreme heat, etc.

Engagement goals

- Educate the community about climate resilience and hazard mitigation throughout the engagement process.
- Educate the community about their role in the planning effort and the importance of their input.
- Focus on communities most impacted by natural hazards for targeted interviews, focus groups, and community advisory committees.
- Integrate community feedback into the development of the climate and resilience element and clearly communicate how feedback is being used.

Key messages

- The community has an opportunity to shape the vision and direction of the County's climate resiliency planning efforts.
- The climate and resilience elements are not guidance, they will be integrated into Lewis County 2045 documents to support the County in mitigating risks associated with natural hazards.
- Feedback will help guide the development of the County's climate resiliency strategies.

Engagement approaches

- Develop key messages to implement and share during community engagement events.
- Develop specific survey questions to aid in the development of climate and resilience section.
- Climate resilience focus groups/interviews.
- Prepare educational materials or presentations to share at schools and community colleges.

Budget

The County does not expect large direct expenses for this engagement effort. Any funds allocated to engagement are expected to go toward print materials (e.g. public meeting boards, fliers, signs) and providing light refreshments for in-person meetings (Figure 7).

ITEM	ESTIMATED COST
Print Materials (Including signs and fliers)	$1,000.00
Food for Events	$500.00
Event Space / Rental	No Cost Anticipated
Total	$1,500.00

Figure 7 Anticipated Budget