CITY OF CENTRALIA CLIMATE RESILIENCE PLANNING

Climate Advisory Team Meeting Two

August 8, 2024

PERTEET
Better communities, by design

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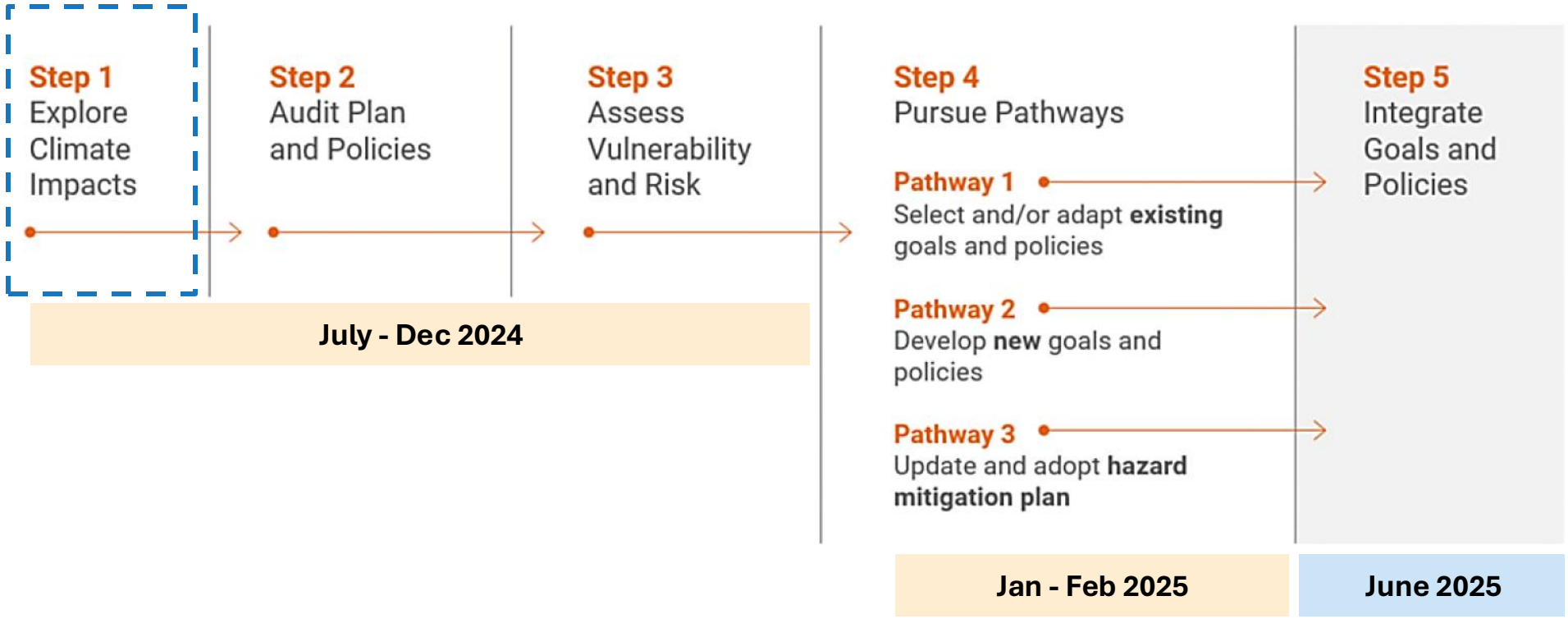
Today’s meeting

- Introductions
- Review community assets
- Introduce climate scenarios
- Review climate impacts and hazards
- Brainstorm Centralia’s vision statement
- Agree on next steps

Planning process snapshot

Adapted from the U.S. Climate Resilience Framework and Washington best practices



Community Assets

Overview

List social, economic, and environmental community assets, including community groups, places, natural resources, infrastructure, and services

What we'll look at

- Draft community asset list organized by sector
- Maps of critical assets to be used for evaluating asset-hazard pairs

What we need

- Input on completeness of the asset list
- Identify missing assets

Next steps

- Refine list as needed
- Review and approval from Core Project Team

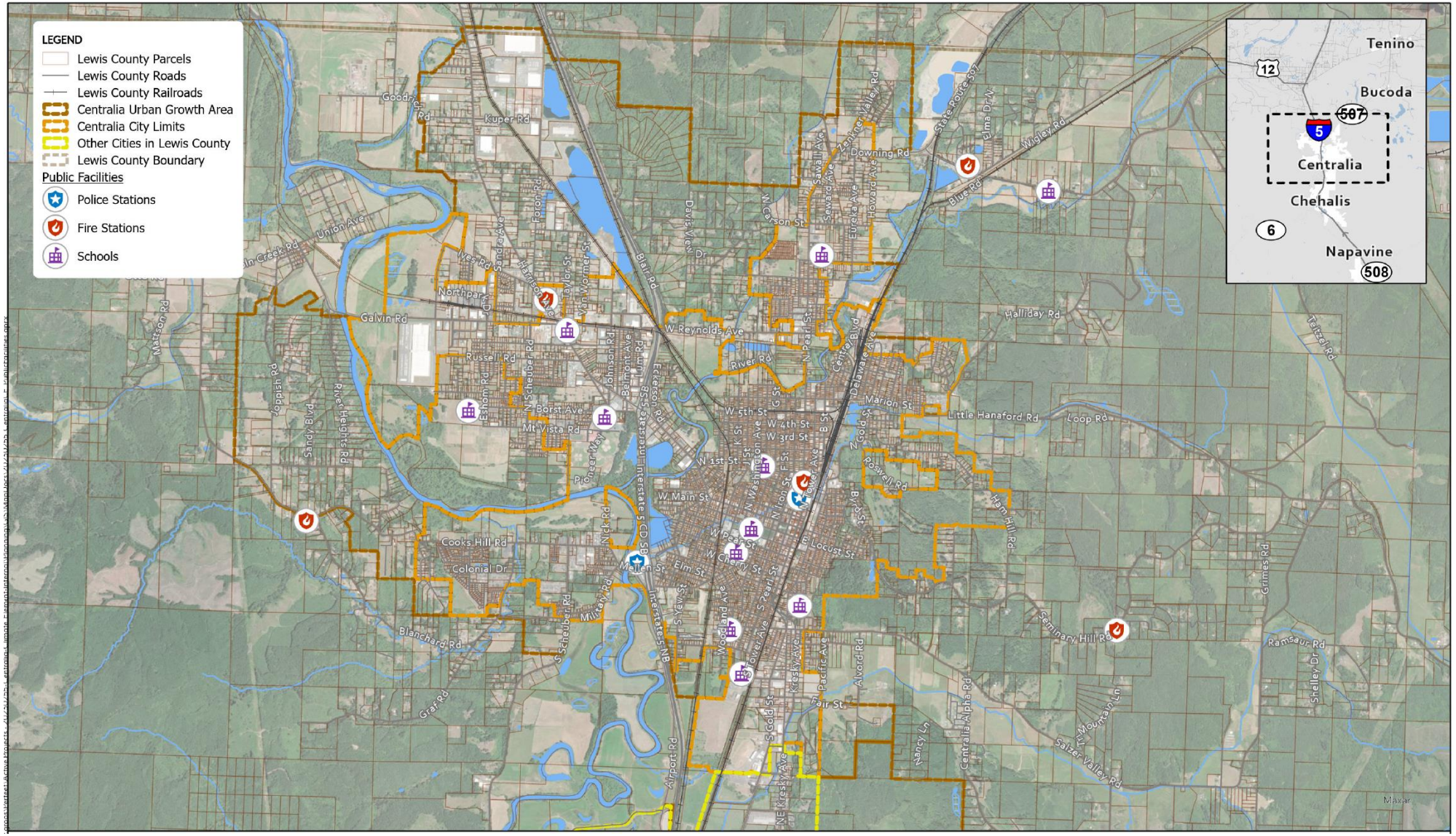
Asset categories

Agriculture & Food Systems	Commercial farms, community gardens, etc.
Buildings & Energy	Commercial buildings, power transmission lines, etc.
Cultural Resources & Practices	Salmon, shellfish, historic buildings and sites, etc.
Economic Development	Local businesses, industries, etc.
Ecosystems	Shoreline and riparian areas, open space, wetlands, etc.
Emergency Management	Fire and police stations, schools, equipment, etc.
Health & Well-being	Hospitals, clinics, community well-being, etc.
Transportation	Roads, sidewalks, trails, etc.
Waste Management	Transfer stations, waste hauling, hazardous waste, etc.
Water Resources	Groundwater supplies, water treatment facilities, etc.
Zoning & Development	Single and multi-family residences, apartments, commercial properties, etc.

Centralia community assets

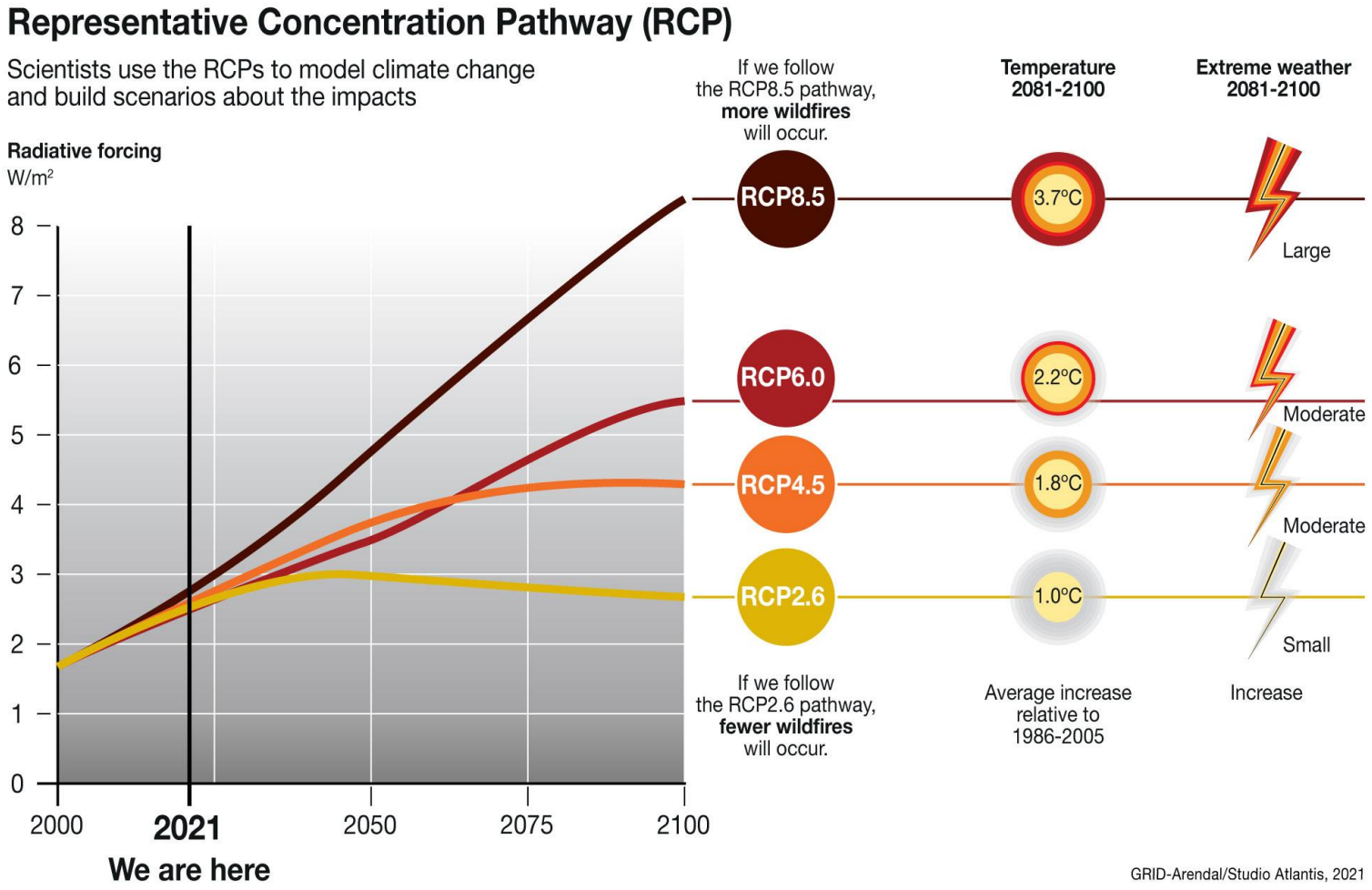
Agriculture & Food Systems	Ag Related Business, Public Services
Buildings & Energy	Commercial, industrial, and residential buildings, power infrastructure, radio towers, cell towers, schools, low-income housing
Cultural Resources & Practices	Downtown historic district, historic buildings, archaeological sites, culturally significant fish and wildlife, Hub City, public art
Economic Development	Retail Trade (17.5%), Health Care and Social Assistance (14%), Accommodation and Food Services (13.4%), Port of Centralia, Centralia Community College
Ecosystems	Chehalis and Skookumchuck Rivers and tributaries, wetlands, open spaces, trees
Emergency Management	Two fire stations, one police station
Health & Well-being	53 critical health and medical facilities, a variety of parks and recreation facilities, library, community centers, cold weather shelter, community organizations
Transportation	45 highway bridges (6 in the UGA), roads, sidewalks, trails including the Chehalis River Discovery Trail, railroad, railroad station, Amtrack, airport, public transit
Waste Management	Central Transfer Station, Lemay, Sutter Metals, wrecking yards
Water Resources	Water, wastewater, and stormwater infrastructure, including 4 reservoirs, 9 wells, water treatment facility, 24 pump stations, wastewater treatment facility, collection and distribution system, 2 dams
Zoning & Development	Centralia zoning map and codes, urban growth areas

Core public facilities



Climate Impacts and Hazards

Climate scenarios



Centralia climate data parameters:

- Source: UW Climate Impacts Group
- Scenario: RCP 8.5 following Lewis County
- Range: Lewis County
- Timeframe: 2020-2049 ‘near-term’
- Flooding GIS data only for 2050-2079 ‘mid-term’

Climate hazards and indicators explored

Drought

- Total Annual Precip
- Late Summer Precip
- Precipitation Drought
- Warm Season Streamflow
- Summer Streamflow
- Duration of Low Streamflow
- Low Streamflow
- Streamflow Timing
- Snowpack Drought

Extreme Heat

- Summer Maximum Temperature
- Hot Days
- 90°F Maximum Humidex Days
- 65°F Minimum Humidex Days
- Heating Degree Days
- Cooling Degree Days
- August Stream Temperature (°F)

Extreme Precip.

- Heavy Precip Magnitude
- Extreme Precip Magnitude
- 1-inch Precip Days
- 2-inch Precip Days
- 3-inch Precip Days

Flooding

- Peak Streamflow
- Frequency of Peak Streamflow

Wildfire

- High Fire Danger Days
- Wildfire Likelihood

Source: UW Climate Impacts

Drought insights

Key data points

- 20% chance of a June-August summer below 75% of historical normal summer precipitation
- Up to 9% decrease in streamflow during warm months
- 1-2x more streamflow in winter
- Decreased snowpack

Importance

Less streamflow is expected to increase dependence on stored water and reduce water available for residential and commercial uses

Increased wildfire risk

Changes in the timing and intensity of precipitation and expected groundwater recharge may offset increases in water demand and evaporation

Sector impacts

Agriculture: Potential impacts to food sources and costs due to lack of water for irrigation and livestock

Cultural Resources: Limited migration, an increase in competition for resources, and altered survival rates for salmonids

Ecosystems: Reduced water availability and quality; increased water temperatures; reduced fuel moisture during the height of fire season; changes in vegetation

Emergency Management: Increased need for emergency services for water shortages

Water Resources: Increased conservation requirements and water use restrictions; impacts to hydropower capacity

Source: UW Climate Impacts

Extreme heat insights

Key data points

- Average summer maximum temperature 3.4 degrees warmer
- 20+ more days over 90 degrees
- 709 fewer heating degree days
- 175 more cooling degree days

Importance

Warmer stream temperatures can reduce water quality standards, discharge limits set on existing wastewater treatment facilities, and aquatic species and their habitats

An increase in temperatures will increase heat-related illnesses, deaths, and hospitalizations

Sector impacts

Agriculture: Stress and water availability for crops; potential impacts to timing and yields

Buildings & Energy: Greater potential energy demand for cooling buildings in the summer; lower demand for warming buildings in the winter

Ecosystems: Reduced summer soil moisture, affecting plants and animals; reduced tree growth; pest outbreaks

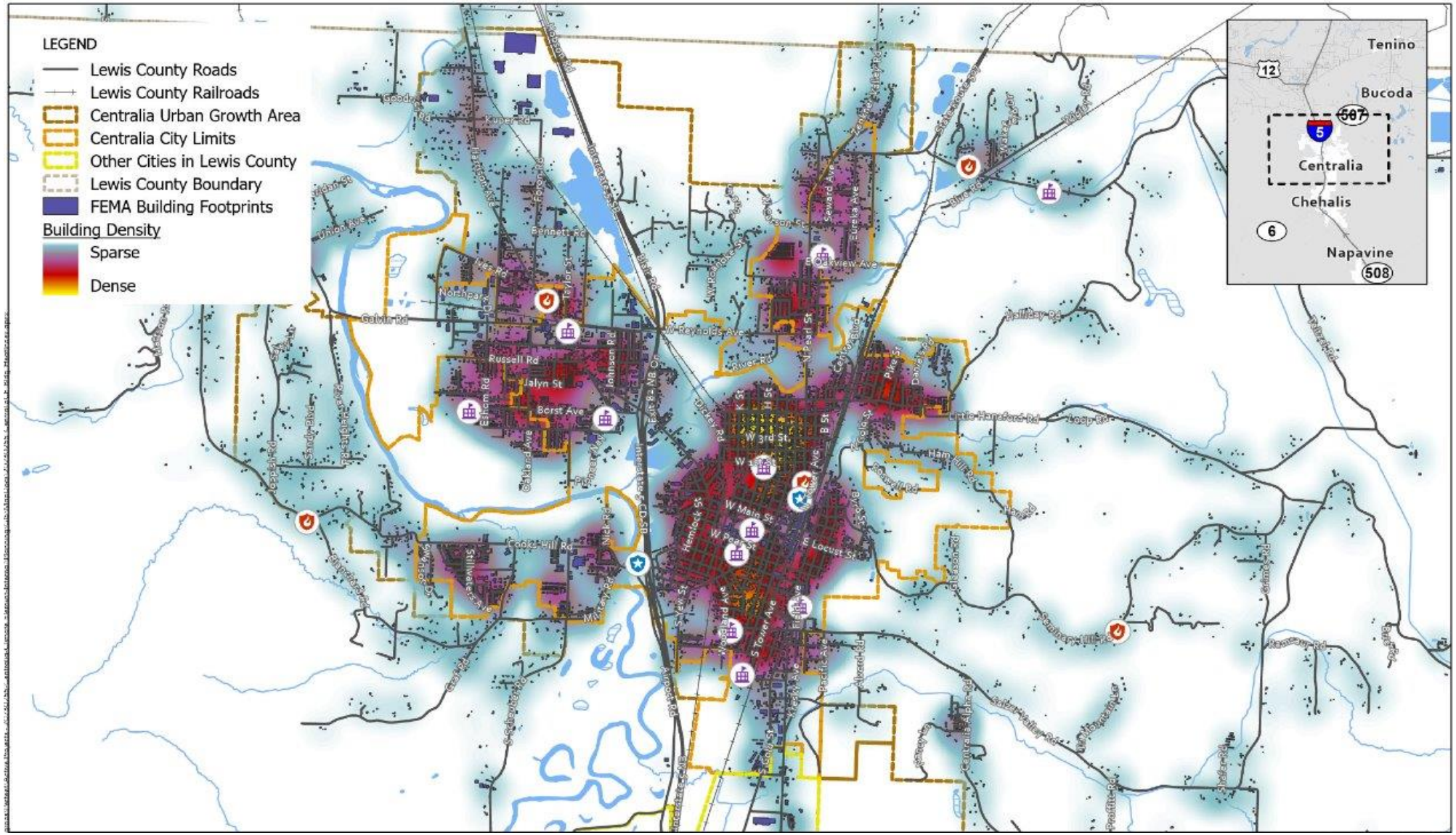
Health & Wellbeing: Nighttime and daytime heat stress for people; increased vector-borne disease and air pollution

Transportation: Potential damage to transportation infrastructure such as roads and bridges

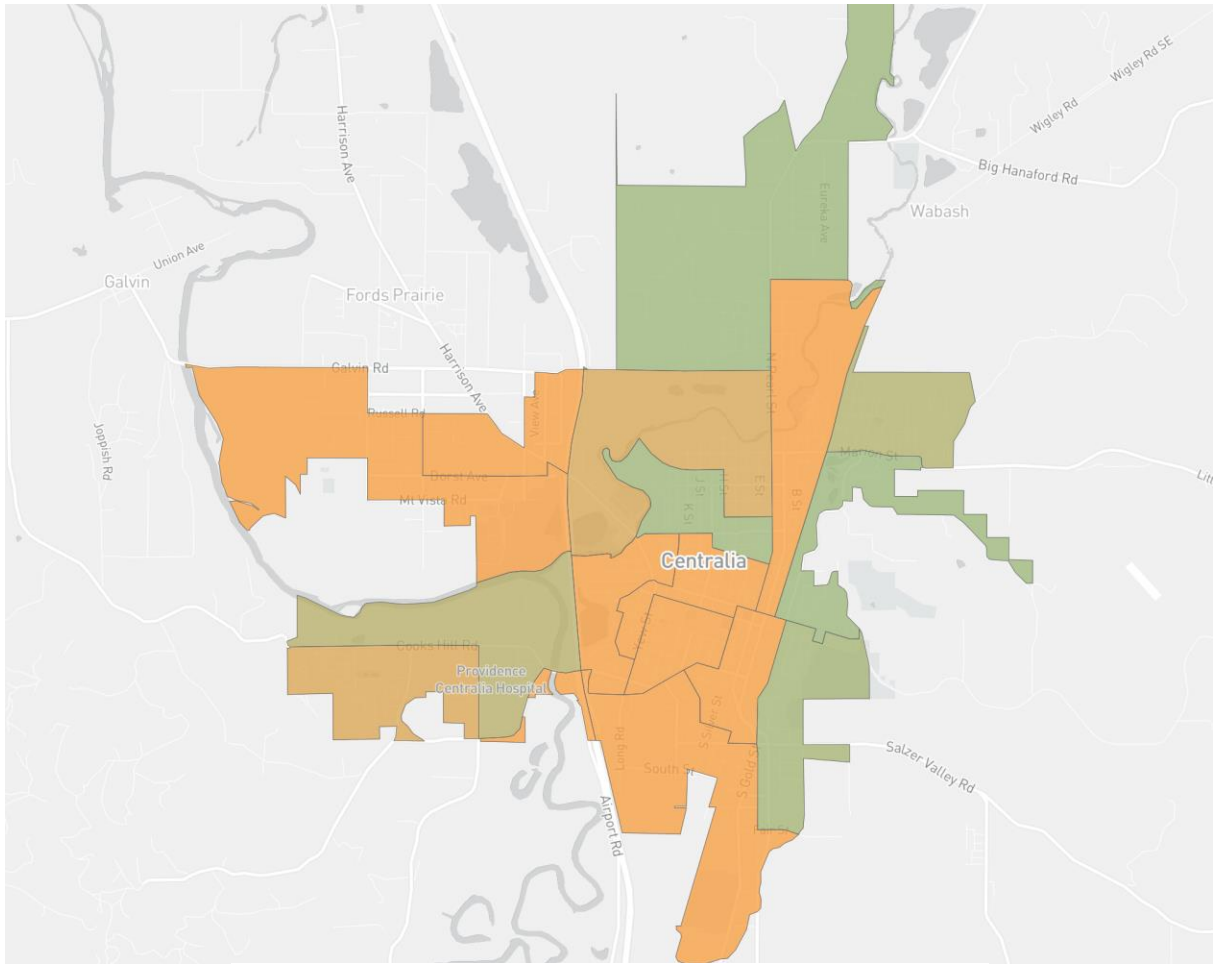
Note: To be updated with extreme cold scenario as well

Source: UW Climate Impacts

Centralia's heat index



Tree coverage



The Tree Equity Score

By prioritizing Tree Equity in urban planning, cities can enhance their resilience to climate impacts while promoting health and well-being across all communities.

- Temperature regulation
- Air quality improvement
- Water management
- Mental and physical health
- Social equity

www.treeequityscore.org

Get all block groups to a Tree Equity Score of 75

9 of 17 have a Tree Equity Score below 75

Drag to adjust target score

12,765 trees will be needed to get all block groups to a score of **75**. See the significant benefits to the community this will create.

Total canopy added
3.4%

Annual ecosystem service value
$135,255.78

Jobs supported
92

CARBON

Carbon sequestered
202.4
tons

Carbon sequestered equal to:
145
gas-powered cars offset

Carbon sequestered equal to:
85
homes' energy use offset

WATER

Stormwater runoff prevented
4.4
million gallons

Stormwater runoff equal to:
220
standard swimming pools

Rainfall intercepted
17.4
million gallons

AIR

Pm2.5 pollution removed
472.5
lbs

Pm2.5 pollution equal to:
218
gas-powered cars offset

Nitrogen dioxide removed
1,216.5
lbs

Sulfur dioxide removed
388.8
lbs

Pm10* pollution removed
1,911.1
lbs

Ozone removed
6,606.2
lbs

Extreme precipitation insights

Key data points

- 11% increase in the total precipitation of the 2-year storm
- 11% increase in total precipitation of the 25-year storm
- More days with 1 inch of precipitation or more

Importance

Changes in the intensity of heavy precipitation are more likely to cause damage to infrastructure than changes in seasonal and annual precipitation

Heavy and extreme precipitation magnitudes are anticipated to increase flooding, landslides, and erosion

Sector impacts

Emergency Management: More frequent flooding will create a higher need for emergency management services

Transportation: Damaged transportation routes, infrastructure such as roads, bridges, railways, and drainage structures, and increased maintenance and repair costs

Stormwater Infrastructure: Existing infrastructure will be unable to handle the increased flows, causing more flooding

Zoning & Development: Increased costs and area required for stormwater management may limit development in some areas; floodplain boundaries may increase

Source: UW Climate Impacts

Flooding insights

Key data points

- Decrease of 25-year return interval to just 12.8 - 13.5 years
- Increase of peak streamflow by 4-6%

Importance

An increase in the annual peak streamflow indicates a potential for higher streamflows and larger areas inundated every year at high flows

Increased flooding may potentially expand the flood zones and lead to increased landslides and erosion

Sector impacts

Economic Development: Disruptions to travel, damaged property, and temporary business closures; insurance premiums potentially dropped or canceled

Emergency Management: Increased strain on emergency management

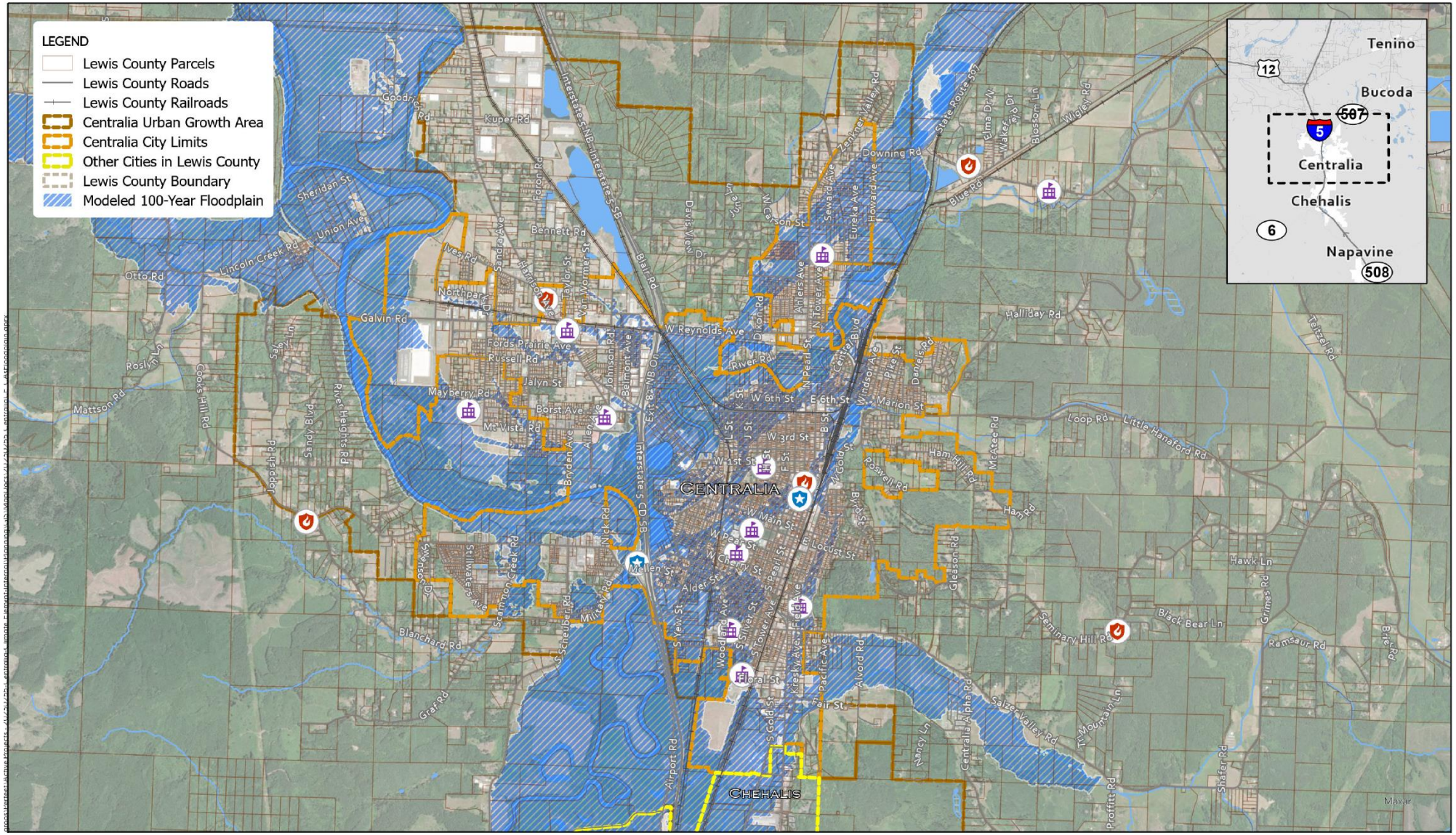
Transportation: Damaged transportation routes, roads, bridges, railways, and drainage structures, and increased maintenance and repair costs

Waste Management: Additional waste and debris that may exceed or strain Centralia's capacity for cleanup

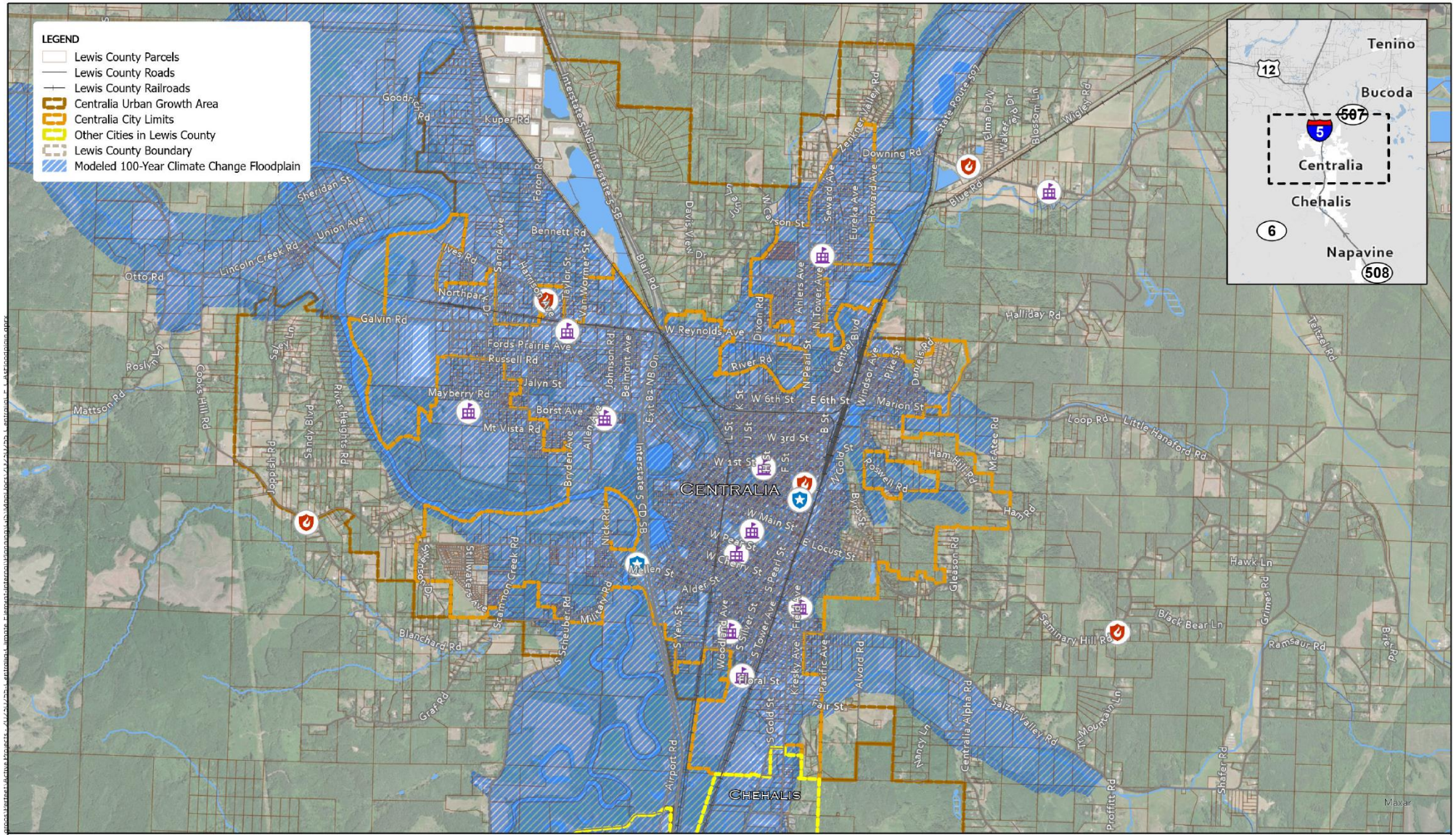
Zoning & Development: Low-lying areas may require higher-capacity water drainage systems; urban flooding may create development restrictions on new buildings

Source: UW Climate Impacts

OCB 100-year floodplain



Flood scenario under climate change



Wildfire insights

Key data points

- More high fire danger days where 100-hour fuel moisture is less than the 20th percentile
- After 2050, 30% chance that any year will have climate and fuel conditions that are favorable to wildfire

Importance

More high fire danger days indicate a greater potential for wildfire activity

An increasing likelihood of wildfire indicates a greater potential risk of damaging infrastructure, interrupting businesses, or impacting public health and well-being

Smoke poses significant risk to outdoor workers and recreation – impacts across sectors; smoke from other regions beyond Washington

Sector impacts

Buildings & Energy: Interruption of energy transmission and distribution; increased need for air filtration systems in buildings; higher chance that substations located in high-risk areas experience wildfire damage even with upgrades

Cultural Resources: Potential damage to historical and cultural sites, and hindered access to culturally important sites and resources

Emergency Management: Increased need for fire bans and associated enforcement and personnel to respond to wildfires

Water Resources: Compromised water quality and increased water treatment costs; potential need for alternative supplies; people left without water

Source: UW Climate Impacts

Next step – planning task 1.3

Connecting community assets with climate-influenced hazards:

1. Identify pairings: Match community assets with potential climate hazards
2. Select indicators: Choose relevant climate indicators for each pair
3. List stressors: Identify non-climate factors that could worsen impacts
4. Analyze consequences: Describe the potential effects of each climate impact
5. Validate: Review past impacts and gather stakeholder insights

Vision Statement

A vision for climate resilience

A statement about the social, economic, and environmental places, traditions, and values that matter most to your community members

Today: Review context and examples; brainstorm ideas

Next step: Finalize vision in September to share with the community

Current statements for Centralia

2018 Comprehensive Plan

- A vibrant community with the highest levels of livability
- A community where citizens will consider it a special privilege to live and work
- Country character with diverse ethnic and economic neighborhoods
- A thriving business community
- Ongoing commitment to historic preservation
- Investment in significant cultural activities
- Quality education at all levels
- Maximum efficiency and effectiveness in the provision of governmental services
- The most enviable and livable small city in the State of Washington

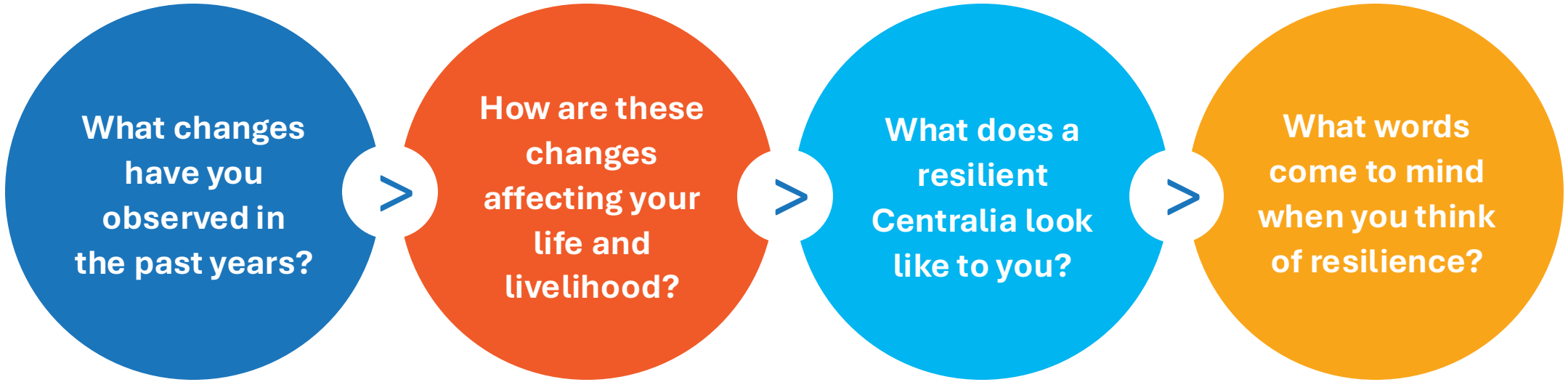
2021 Strategic Plan

The natural beauty of the area will be enhanced through habitat protection and green areas:

- A beautiful natural environment that attracts visitors and new residents
- Surface water and groundwater of high quality and quantity; protection for the community's critical aquifer
- Increased community resiliency and minimal public and private losses from natural events such as flooding

Current statements for Centralia

Vision statement brainstorm



Next Steps

Next steps

1. Review draft vision statement
2. Prepare for September 19th community event
3. Review asset-hazard pairs
4. Select priority climate hazards

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