Sunnyside Climate Element

Summary of Identified Hazards

2022 Hazard Mitigation Plan

Table 5-A. Hazard Identification and Risk Assessment – City of Sunnyside		
Natural Hazards	**2022 Countywide Risk Ranking**	**2022 City of Sunnyside Risk Ranking**
Agriculture Disease Outbreak	Medium	Medium
Avalanche	Low	Low
Drought	Medium	Medium
Earthquake	Low	Low
Extreme Temperatures	Medium	Medium
Flood	High	Low
Landslide/Mudslide/Debris Torrent/Erosion	Medium	Low
Public Health Emergency	High	High
Severe Weather	Medium	Medium
Severe Winter Weather	High	High
Volcanic Eruption	Low	Low
Wildfire	High	High
Technological and Human-caused Hazards	**2022 Countywide Risk Ranking**	**2022 City of Sunnyside Risk Ranking**
Cyber Incident	Medium	Medium
Dam and Levee Failure	High	Low
Hazardous Materials Incident	High	High
Nuclear/Radiological Incident	Low	Low
Terrorism	Low	Low

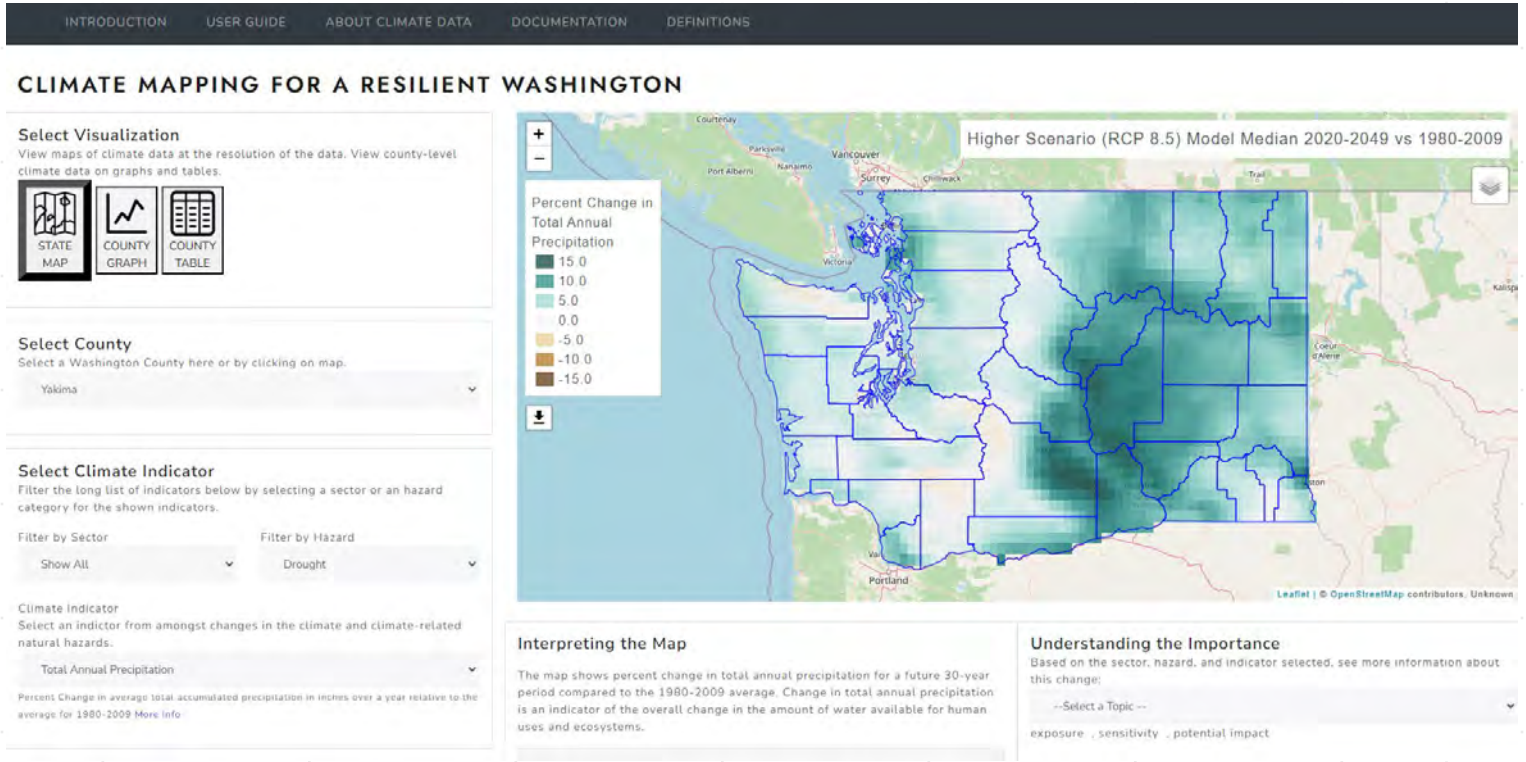
- The 2022 Yakima County Multi-Jurisdictional Hazard Mitigation Plan assessed several hazards in Yakima County and the City of Sunnyside
- Sunnyside ranks low to medium in most risk categories, but does include high risk categories in the Public Health Emergency, Severe Winter Weather, and Wildfire categories

City of SUNNYSIDE WASHINGTON

UW Climate Mapping Tool

The University of Washington College of the Environment has created an online “Climate Mapping for a Resilient Washington“ webtool that includes data and information on the expected changes in the climate and related natural hazards that can be customized for hazard- and sector-specific climate impacts. The selected data is then presented by explaining the exposure, sensitivity, and potential impact of any particular hazard as it relates to the following sectors:

- Agriculture
- Buildings and Energy
- Cultural Resources and Practices
- Economic Development
- Ecosystems
- Emergency Management
- Human Health
- Transportation
- Waste Management
- Water Resources
- Zoning and Development

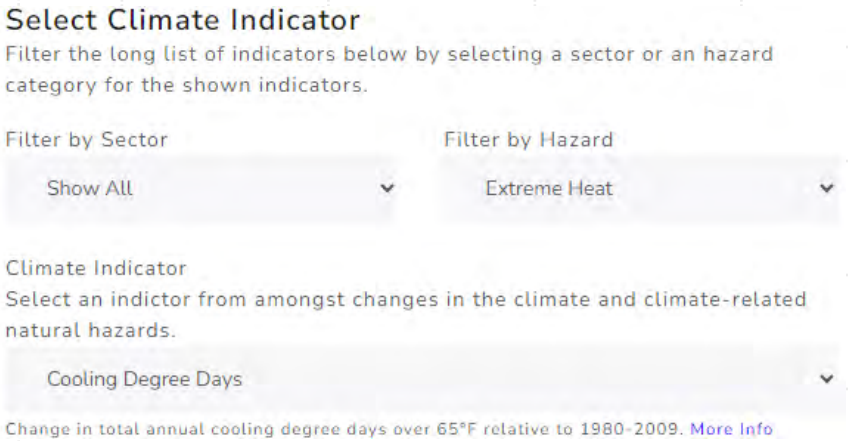


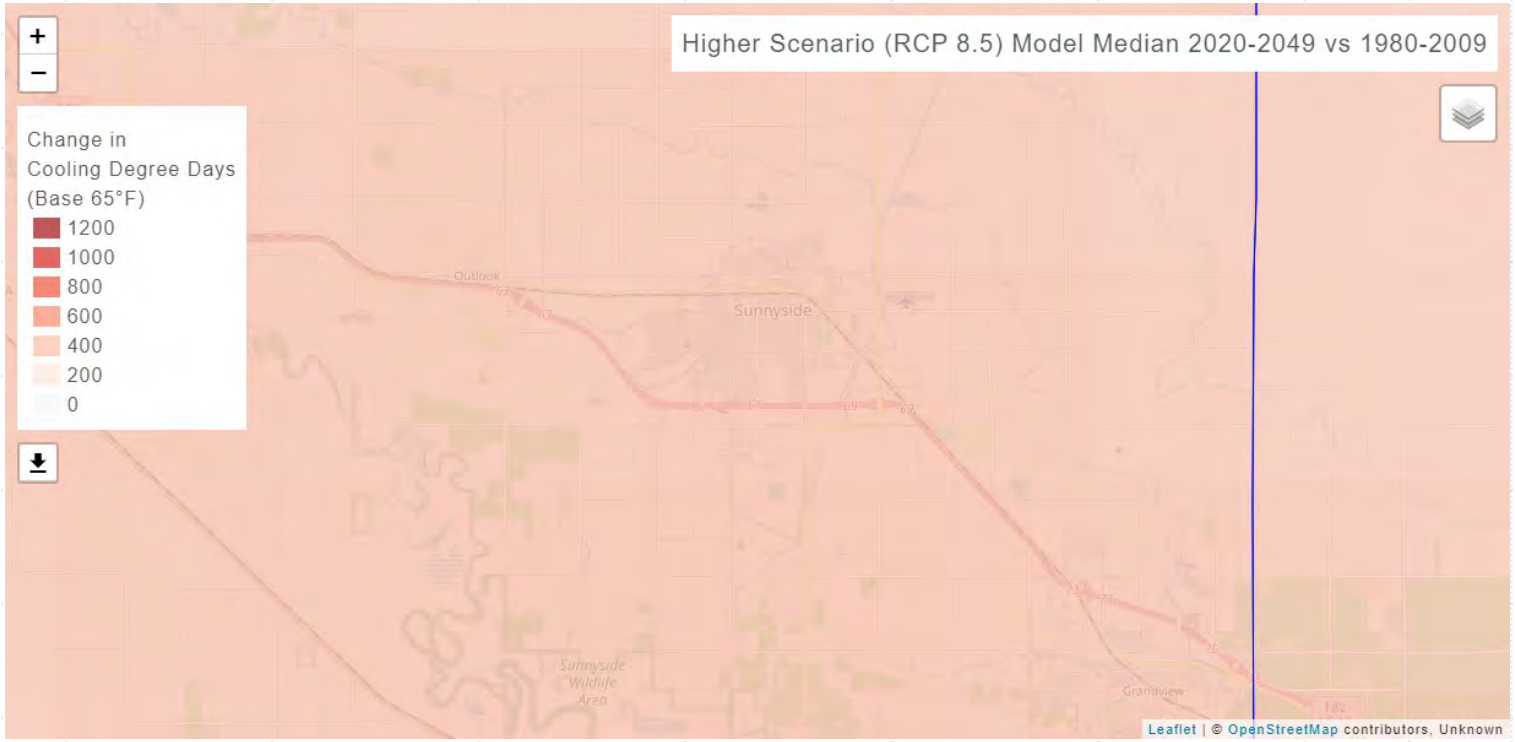
Washington County Climate Projections (uw.edu)

City of SUNNYSIDE WASHINGTON

Using the Tool

The webtool is very user-friendly and available for the public to identify and learn more about climate hazards. The different hazards can be selected through a drop-down filter, and each hazard has its own set of climate indicators. These can also be filtered by sector. For mapping future projections, we used the higher scenario and a time horizon of 2020-2049. The generate map can be downloaded for future use and analysis, and additional narrative information is also available.





Washington County Climate Projections (uw.edu)

City of SUNNYSIDE WASHINGTON

Hazards in Sunnyside

Drought

Precipitation Drought

The likelihood that any given year in the future 30-year period will have a total summer precipitation below 75% of the historic norm

Wildfire

Wildfire Danger

Additional 8 high fire danger days per year

Greater potential for wildfire activity when ignition sources and sufficient fuels are present

Extreme Heat

Summer Maximum Temperature

+ 3.7°F

Warmer summers directly affect the health and well-being of people and water availability for crops and ecosystems

Hot Days

Additional 10.5 days per year above 100°F

Additional days with temperature above 100°F is an indicator of potential damage to transportation infrastructure such as roads and bridges

90°F and 65°F Max Humidex

Additional 20 (90°) and 14.4 (65°F) days per year

Humidex is an indicator of day-time (90°) and night-time (65°F) heat stress

Cooling Degree Days

381 additional days through 2050

Greater energy demand for cooling buildings in summer

Extreme Precipitation

Heavy Precipitation Magnitude

5-16% increase in total precipitation

Heavy Precipitation is a measure of the 2-year storm

Extreme Precipitation Magnitude

15-18% increase in total precipitation

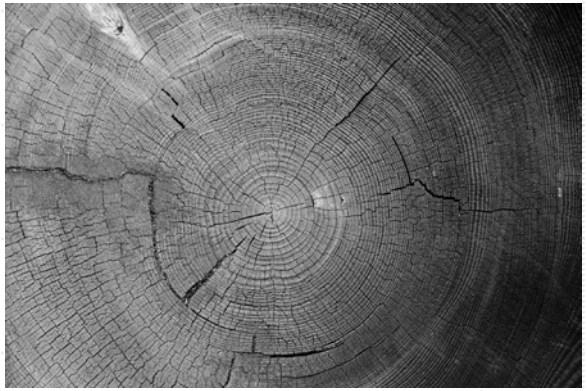
Extreme Precipitation is a measure of the 25-year storm

City of SUNNYSIDE WASHINGTON

Drought

Drought looks at changes in precipitation patterns throughout the year and the subsequent effect on water supplies. The data suggests a 12.3-15.1% increase in Total Annual Precipitation and a 2.6-10.9% increase in Late Summer Precipitation. However, since Eastern Washington generally sees lower precipitation than Western Washington, the modest gains in precipitation are still outweighed by the Precipitation Drought estimate. The data predicts a 26% chance that Sunnyside will see any year within the planning period where the total summer precipitation is below 75% of the historic average. The Drought hazard includes these additional sub-categories:

- Total Annual Precipitation
- Late Summer Precipitation



Potential Impacts:

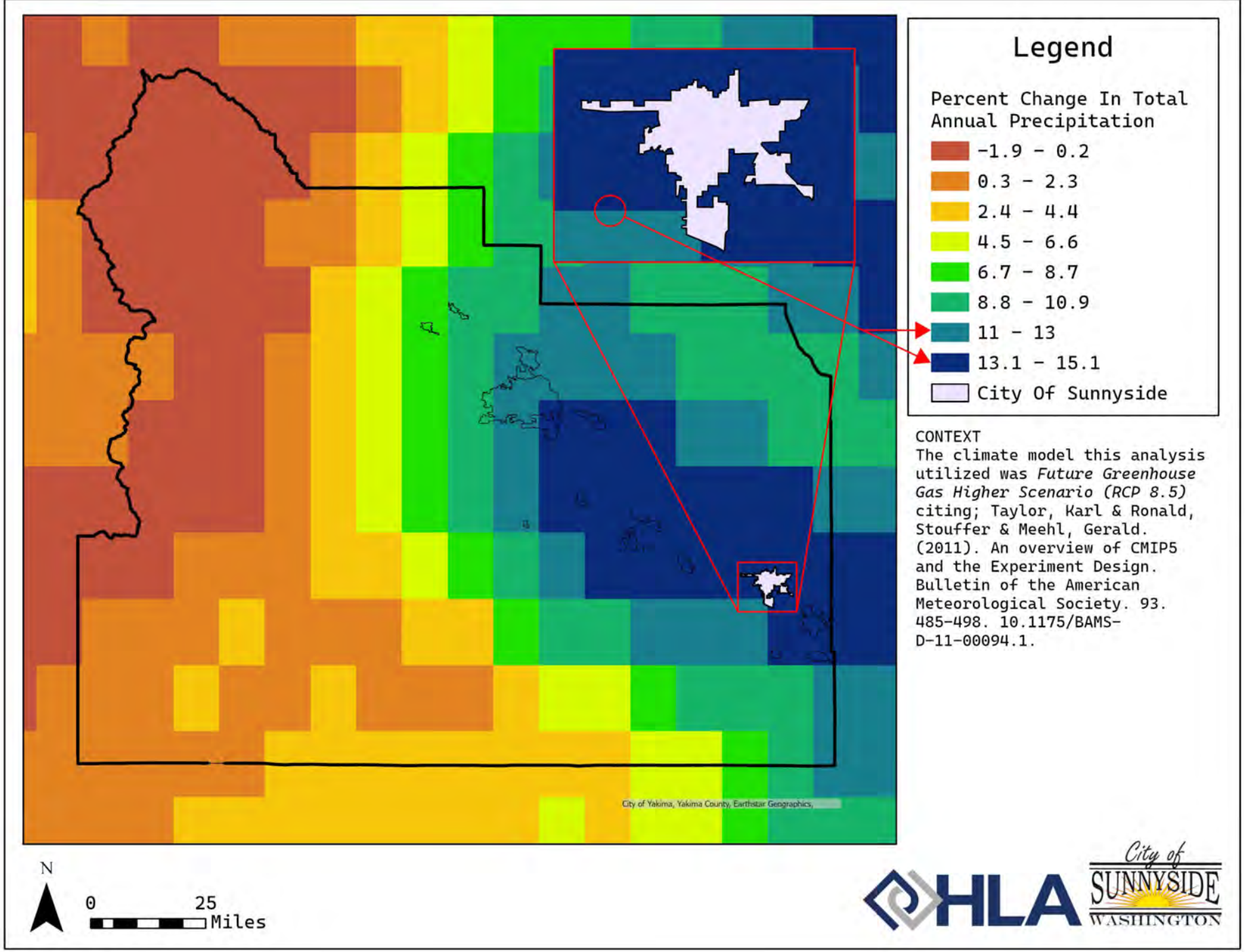
- Increased demand on water usage
- Lower streamflows
- Increased need for Emergency Services
- Mandatory or Voluntary water use restrictions

Affected Sectors:

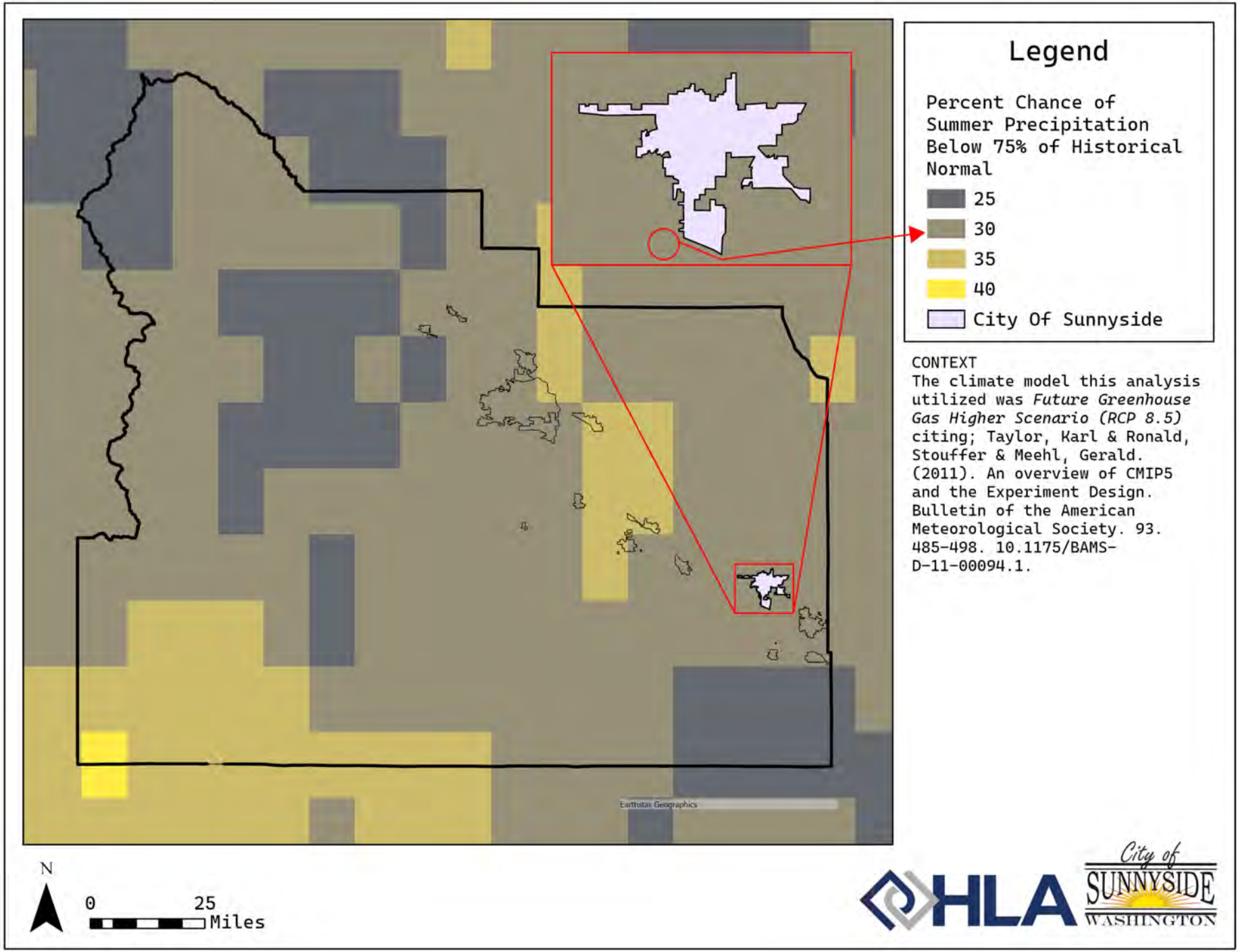
- Agriculture
- Economic Development
- Ecosystems
- Emergency Management
- Transportation
- Water Resources
- Zoning and Development

City of SUNNYSIDE WASHINGTON

Drought – Total Annual Precipitation



Drought – Late Summer Precipitation



Extreme Precipitation

Extreme Precipitation looks at changes in the intensity of precipitation and the effects on the built environment. The Extreme Precipitation hazard includes two additional sub-categories:

- Heavy Precipitation Magnitude
- Extreme Precipitation Magnitude

Potential Impacts:

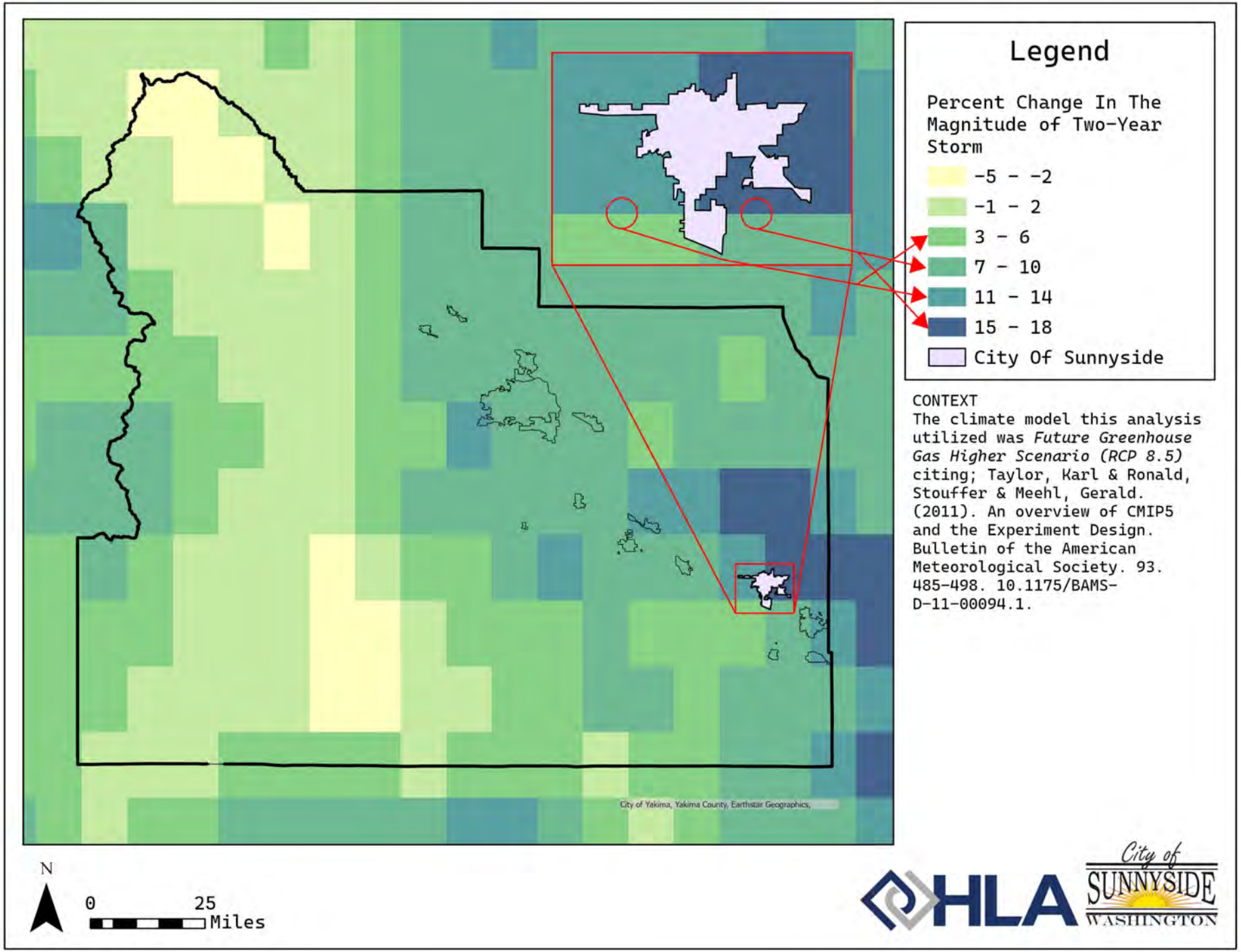
- Flash flooding, inundation of agricultural land – affects to crop quality and quantity
- Higher needed capacity for stormwater management
- Interruption and/or damage to transportation routes
- Increased emergency response demand

Affected Sectors:

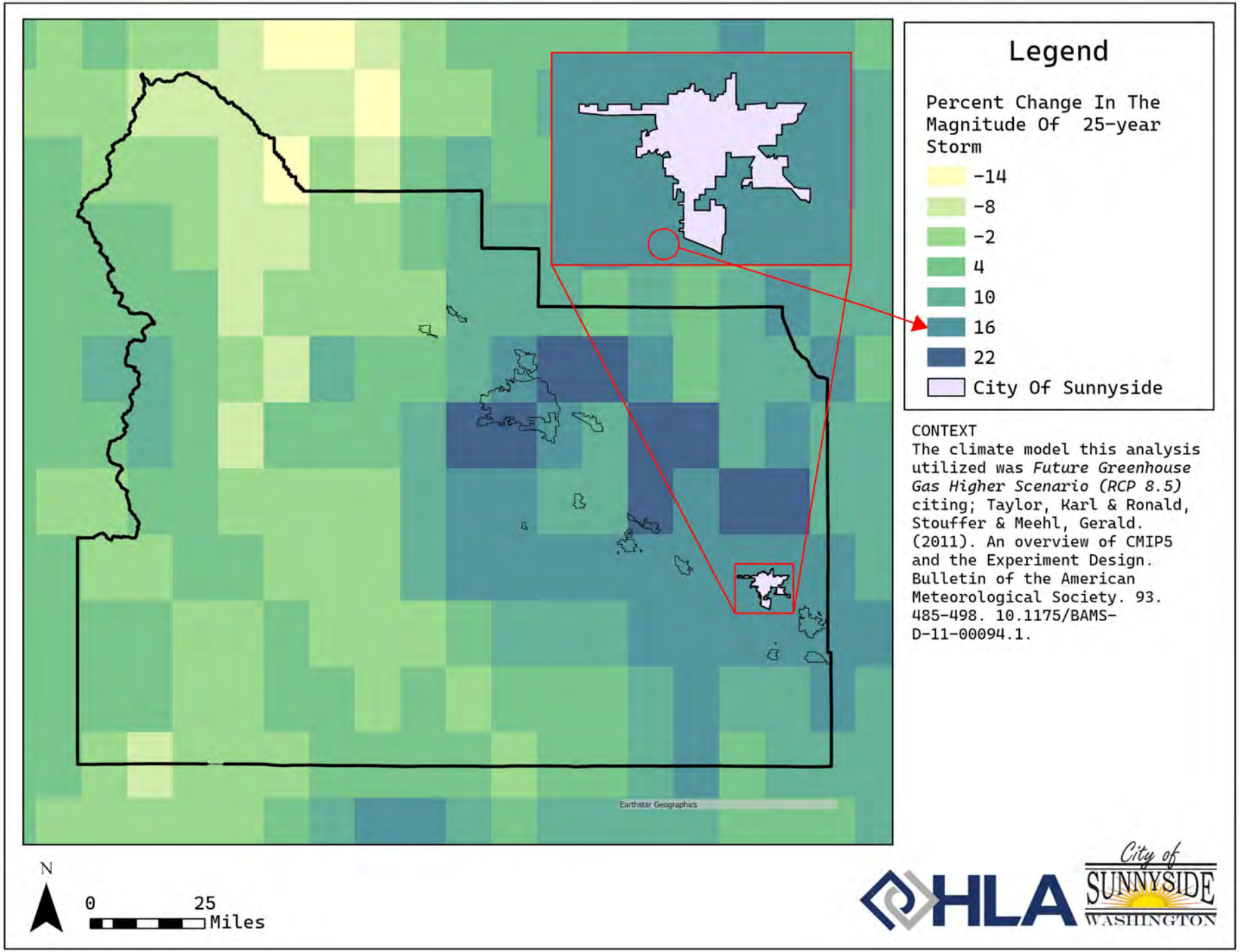
- Agriculture
- Economic Development
- Emergency Management
- Transportation
- Waste Management
- Zoning and Development

City of SUNNYSIDE WASHINGTON

Extreme Precipitation – Heavy Precip Magnitude



Extreme Precipitation – Extreme Precip Magnitude



Extreme Heat

Extreme Heat is an indicator on heat stress for people, ecosystems, and infrastructure. Sunnyside is expected to see the average summer temperature increase 3.7°F, an additional 8-days per year above 100°F, and an additional 20-days per year above 90°F. The Extreme Heat hazard includes six additional sub-categories:

- Summer Maximum Temperature
- Hot Days
- 90°F Humidex Days
- 65°F Humidex Days
- Heating Degree Days
- Cooling Degree Days

Potential Impacts:

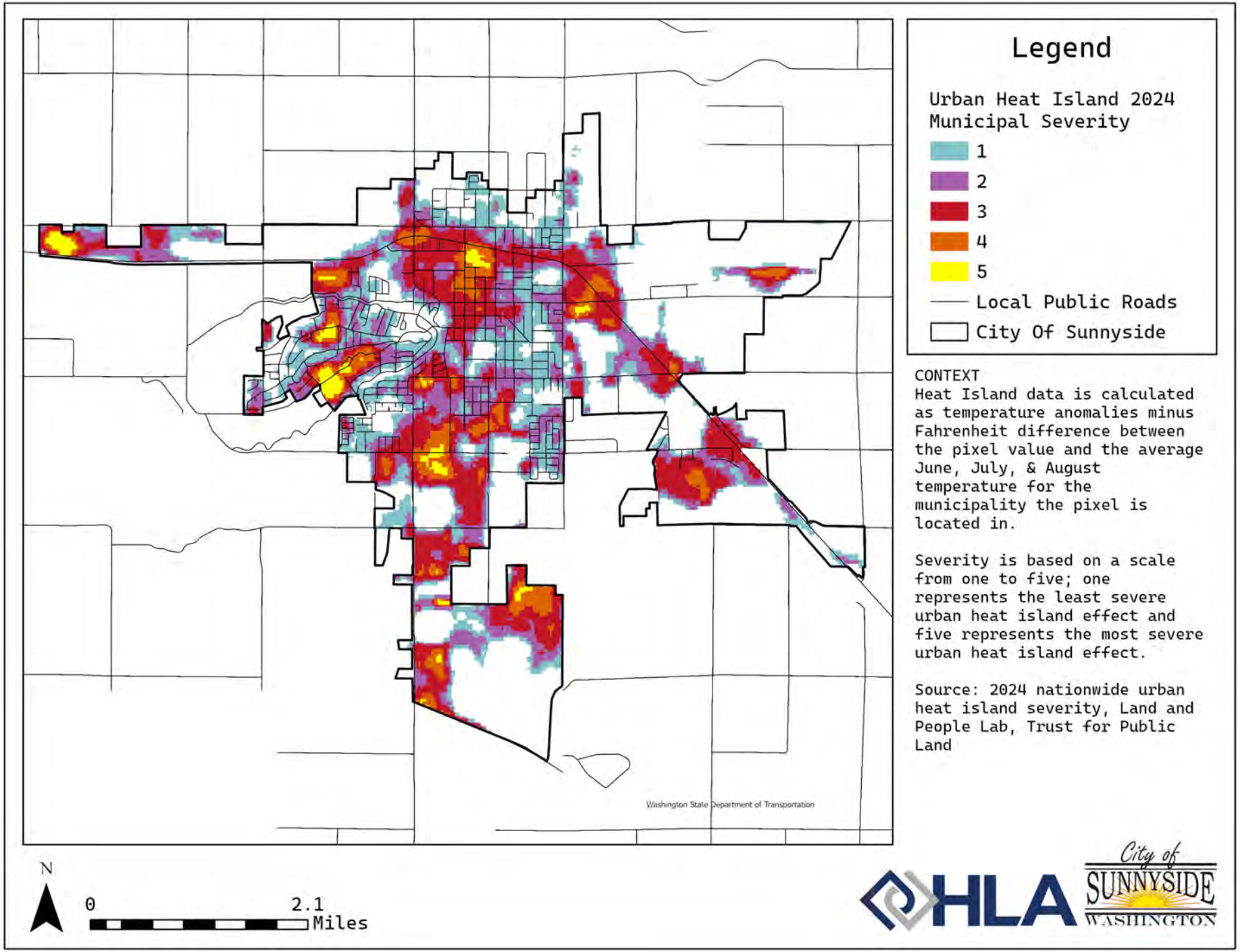
- Damaged crops, higher irrigation demand
- Decreases outdoor recreation opportunities
- Increased insect survival rates
- Increased damage potential to roads and bridges
- Increased demand on emergency services
- Increased heat-related deaths, illnesses, and hospitalizations
- Greater demand for air conditioning and infrastructure with cooling systems

Affected Sectors:

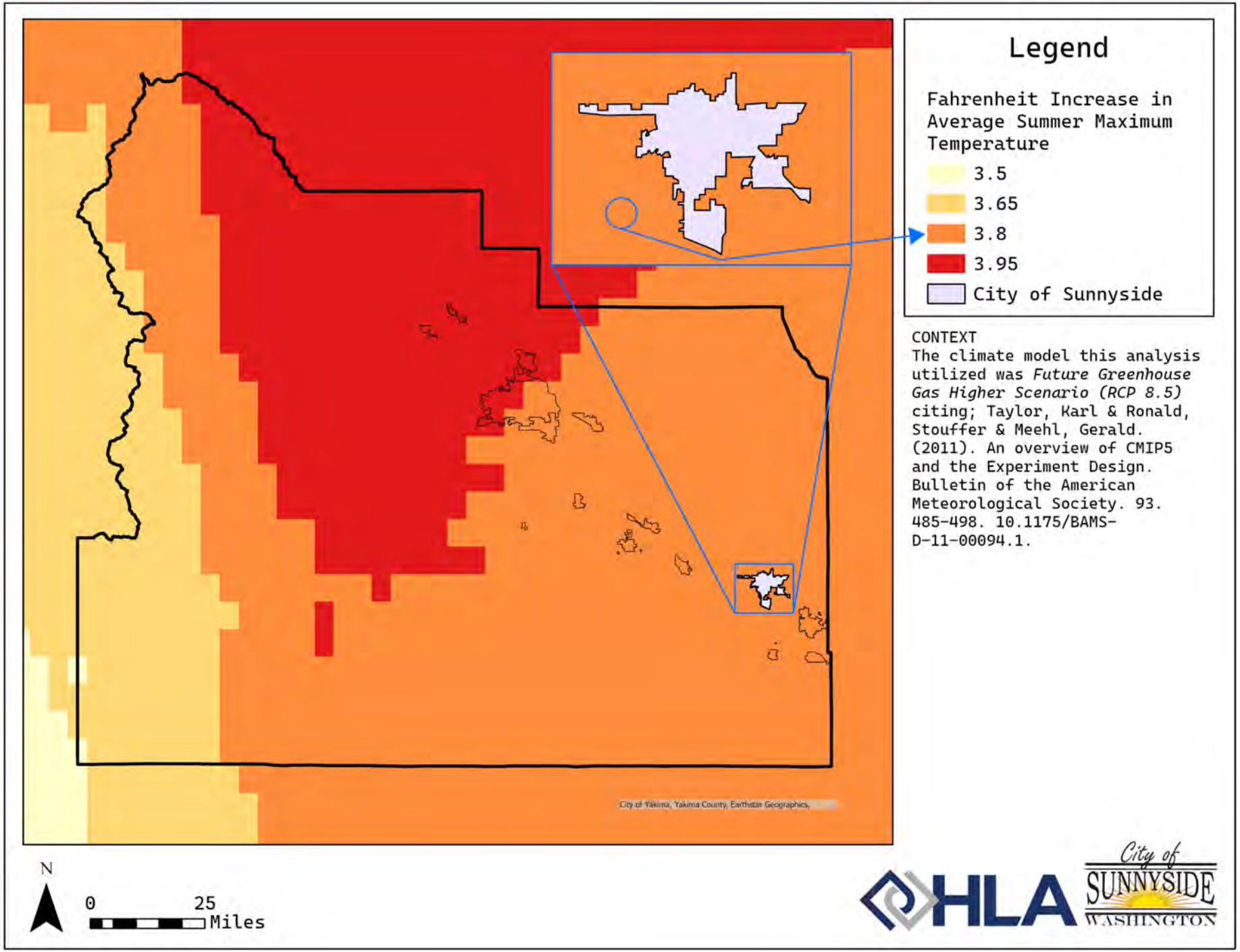
- Agriculture
- Building and Energy
- Ecosystems
- Economic Development
- Emergency Management
- Human Health
- Transportation
- Water Resources

City of SUNNYSIDE WASHINGTON

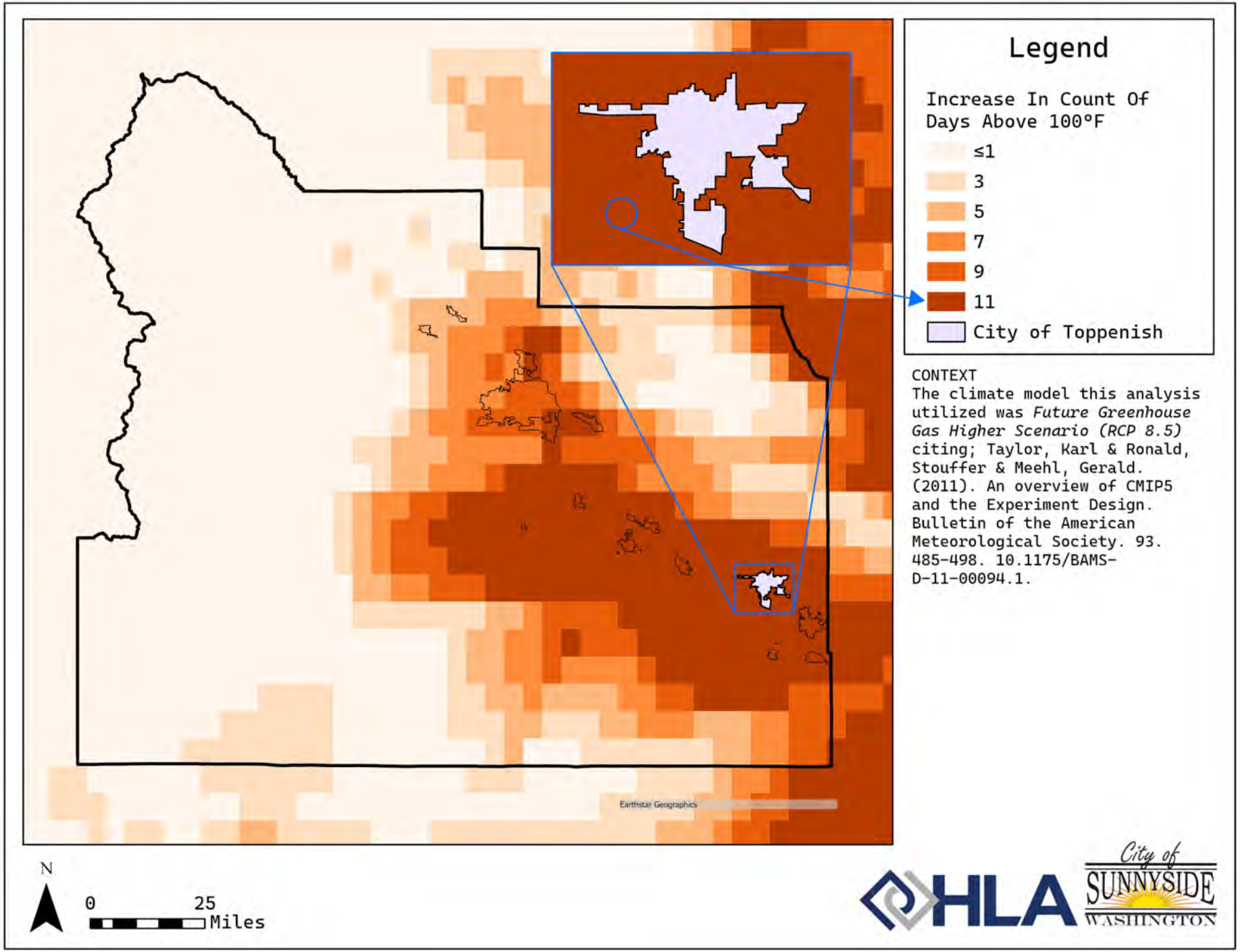
Extreme Heat – Urban Heat Island



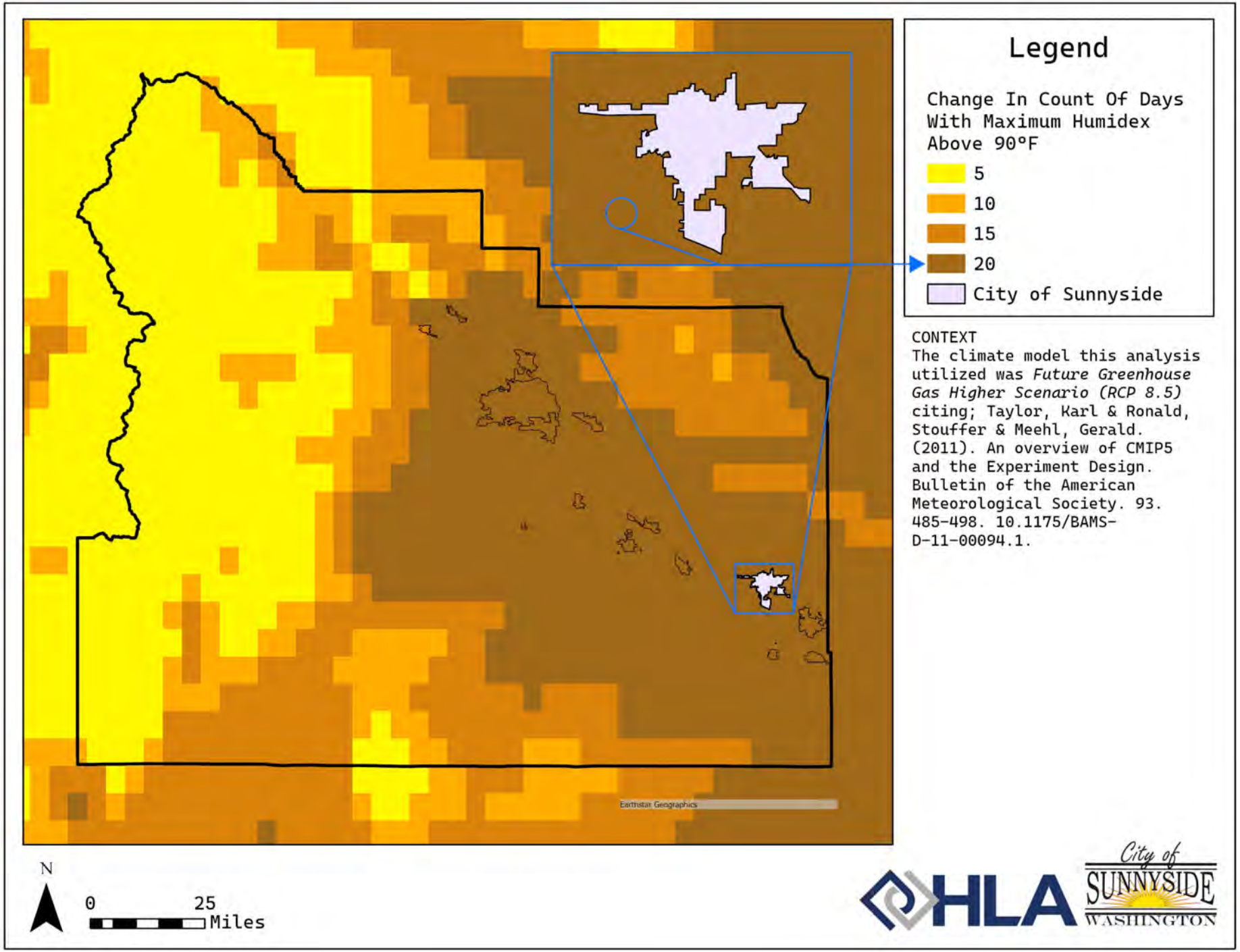
Extreme Heat – Summer Maximum Temperature



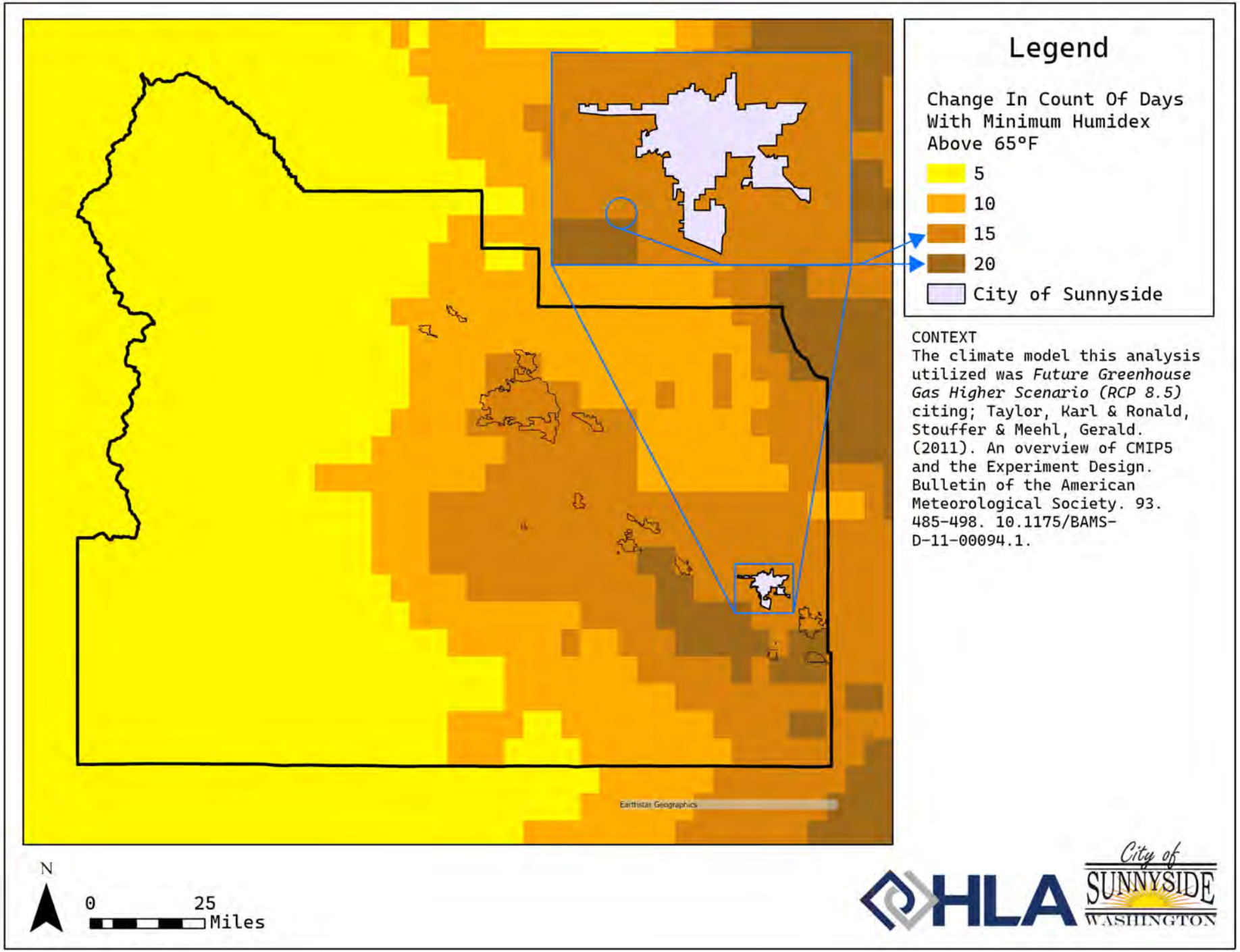
Extreme Heat – Hot Days



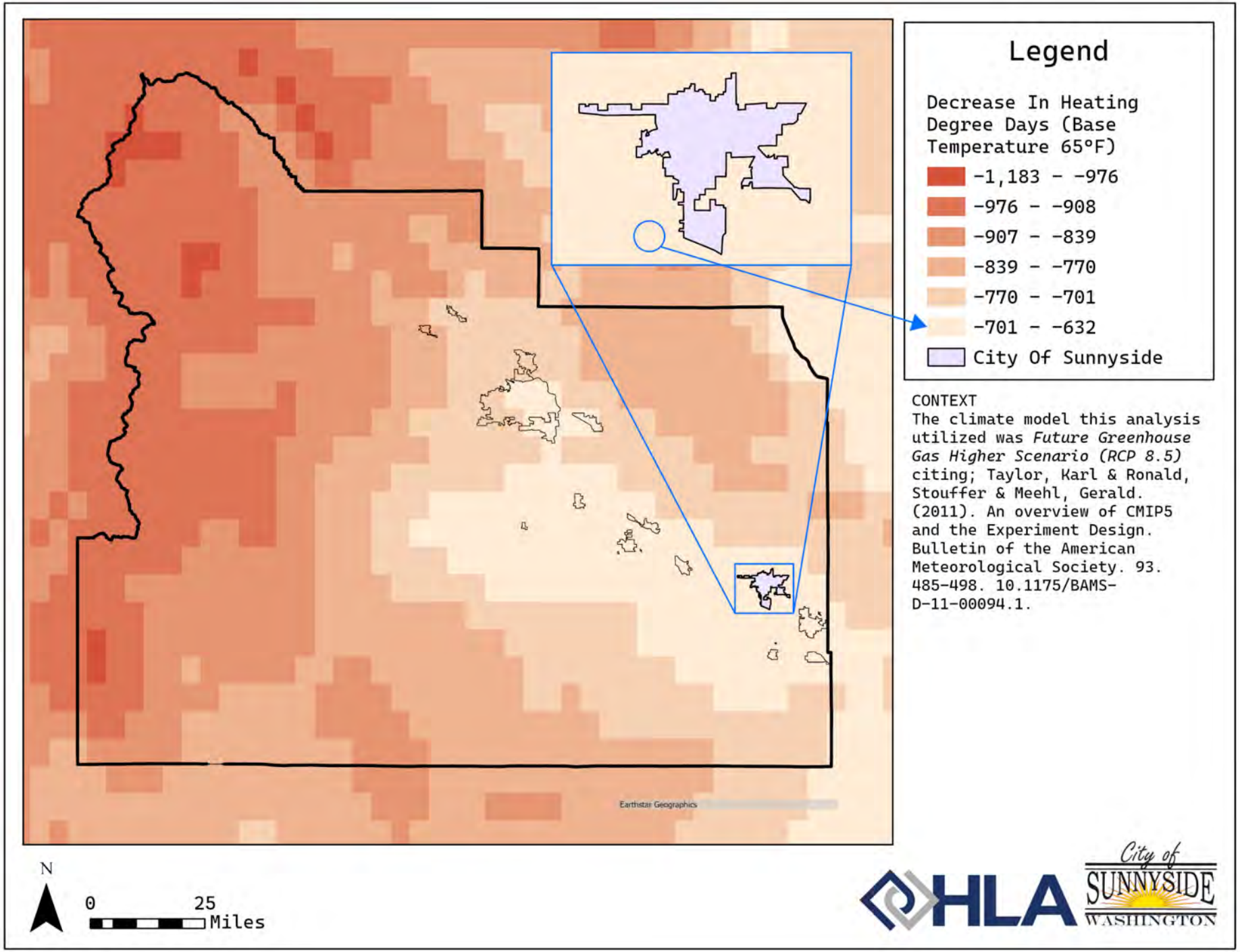
Extreme Heat – 90º Max Humidex



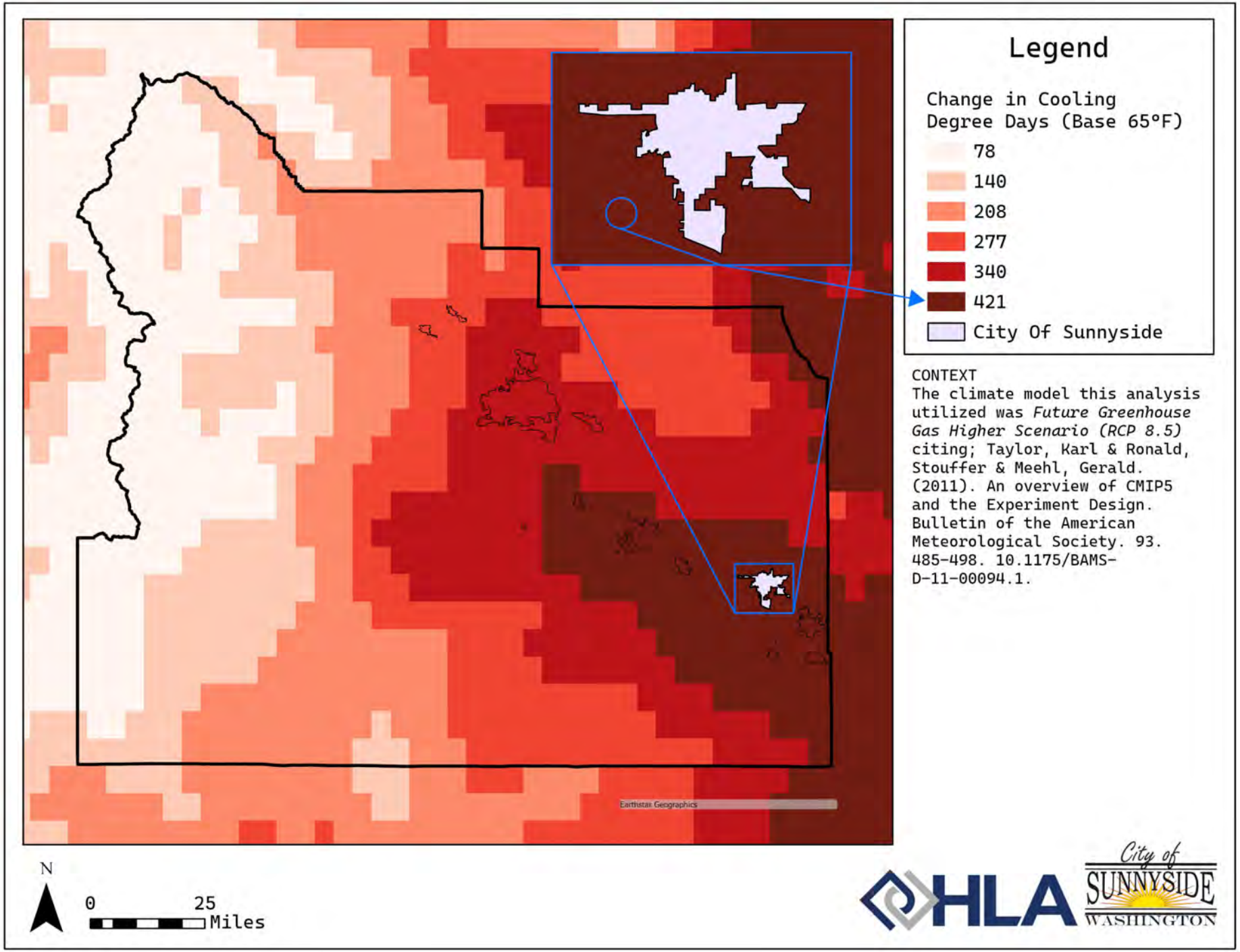
Extreme Heat – 65º Min Humidex



Extreme Heat – Heating Degree Days



Extreme Heat – Cooling Degree Days



Wildfire

Wildfire activity has more of an indirect effect on Sunnyside, primarily due to travelling smoke. The Wildfire hazard includes two additional sub-categories:

- Wildfire Danger
- Wildfire Likelihood

Potential Impacts:

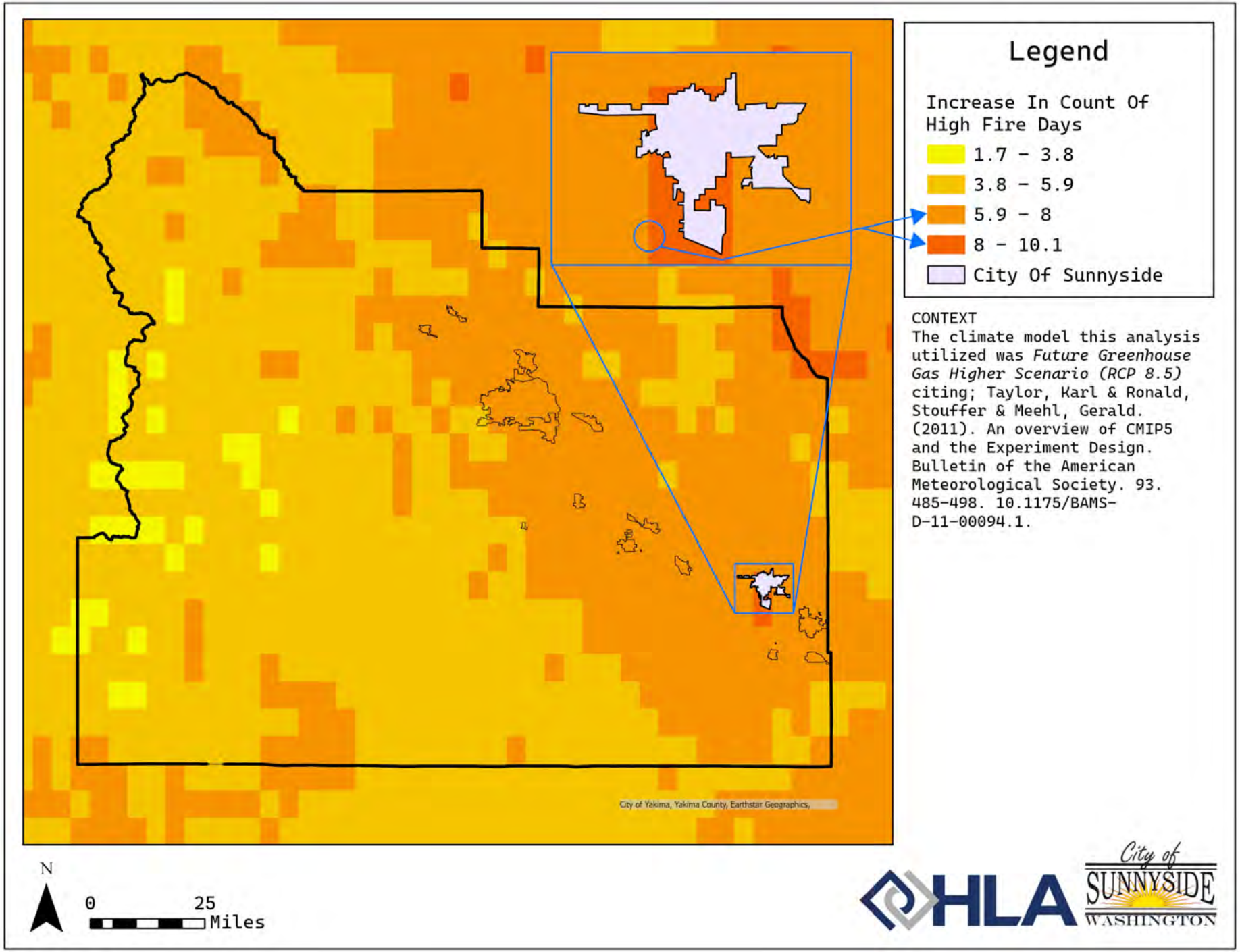
- Business interruption
- Limited outdoor recreation
- Damage to crops and livestock
- Poor air quality – respiratory health effects
- Travel disruption

Affected Sectors:

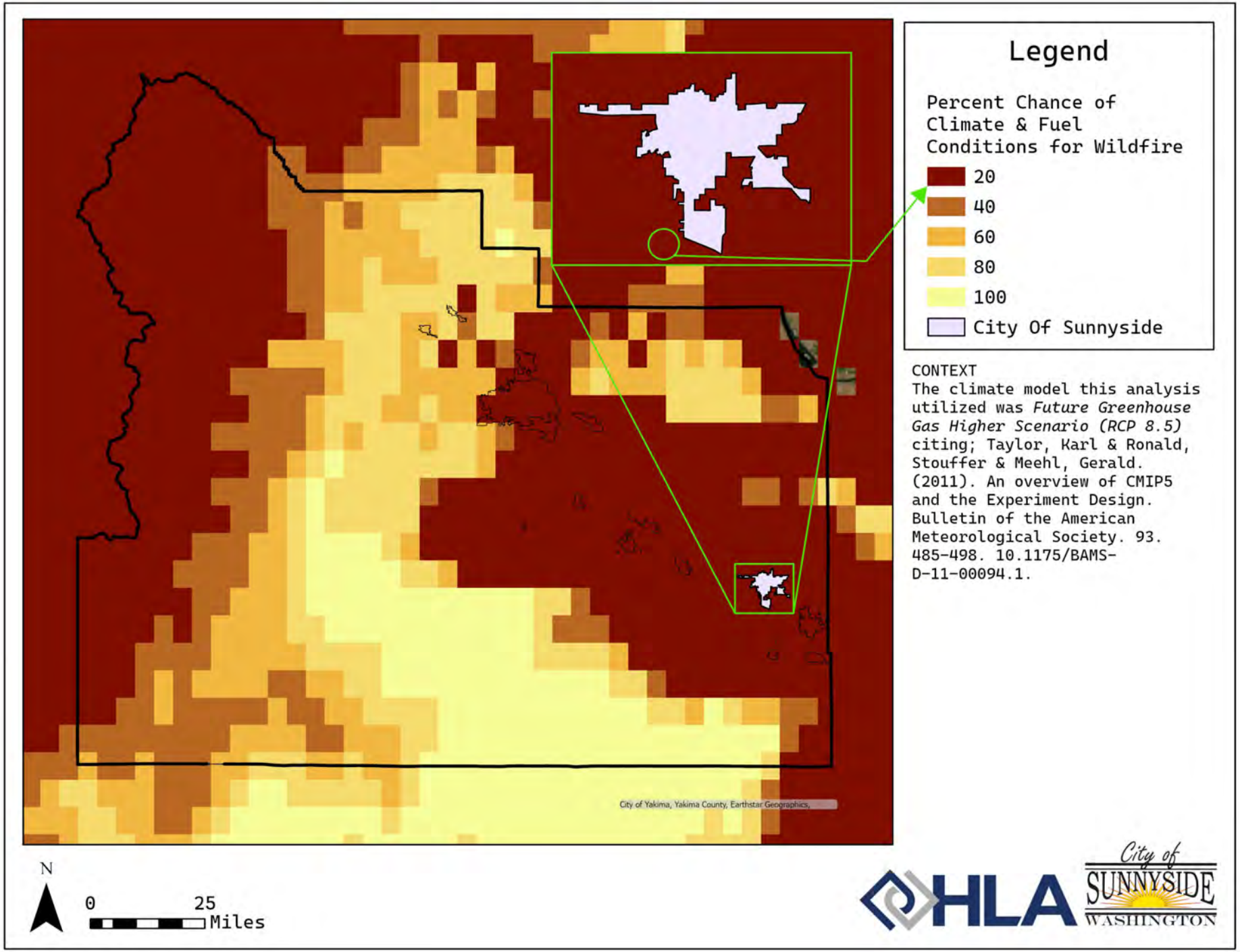
- Agriculture
- Buildings and Energy
- Cultural Resources and Practices
- Economic Development
- Ecosystems
- Emergency Management
- Human Health
- Transportation
- Waste Management
- Water Resources.
- Zoning and Development

City of SUNNYSIDE WASHINGTON

Wildfire – Wildfire Danger



Wildfire – Wildfire Likelihood



Sunnyside Climate Element

“The WA Department of Commerce climate planning grant is supported with funding from Washington’s Climate Commitment Act. The CCA supports Washington’s climate action efforts by putting cap-and-invest dollars to work reducing climate pollution, creating jobs, and improving public health. Information about the CCA is available at www.climate.wa.gov.”