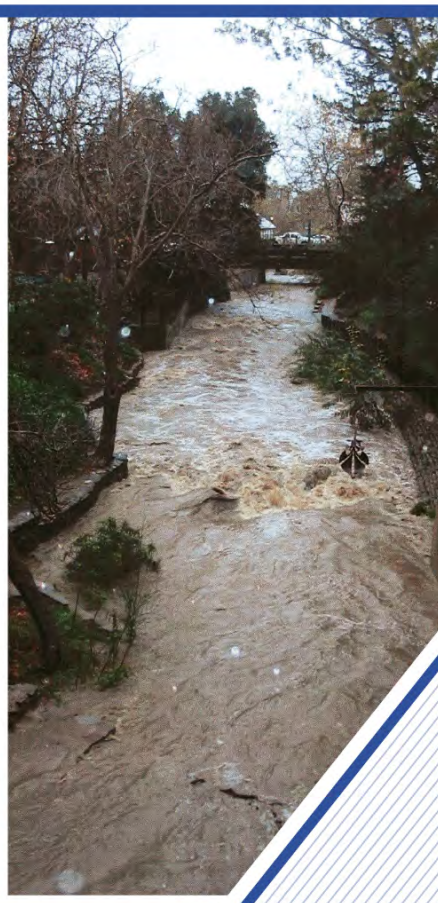
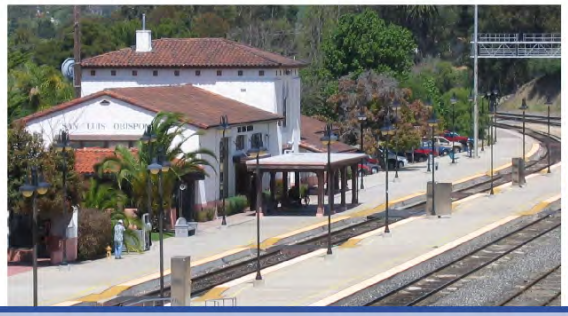
January 2021





Resilient SLO:
Baseline Conditions Report

City of San Luis Obispo
990 Palm Street
San Luis Obispo, CA 93401

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Prepared for:

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LIST OF ABBREVIATIONS

°F	Fahrenheit
CALFIRE	Department of Forestry and Fire Protection
Cal Poly	California Polytechnic State University at San Luis Obispo
CDC	Center for Disease Control and Prevention
COVID-19	2019 coronavirus disease
County	County of San Luis Obispo
City	City of San Luis Obispo
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
GIS	geographic information system
HASLO	Housing Authority of San Luis Obispo
HMP	San Luis Obispo County Multi-Jurisdictional Hazard Mitigation Plan
HPI	California Healthy Places Index
IPCC	Intergovernmental Panel on Climate Change
Report	Baseline Conditions Report
RTA	San Luis Obispo Regional Transit Authority
SR	State Route
USACE	US Army Corps of Engineers
UWMP	Urban Water Management Plan
WUI	wildland-urban interface
WRRF	Water Resource Recovery Facility

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1 INTRODUCTION

This Baseline Conditions Report (Report) has been developed as part of Resilient SLO, a planning process undertaken by the City of San Luis Obispo (City) to better understand the local impacts of climate change and incorporate climate adaptation and resilience strategies into the City's General Plan Safety Element, consistent with requirements in Senate Bill 379. Senate Bill 379 requires communities in California to incorporate strategies to mitigate the impacts of climate change in their general plan safety element and plays an important role in helping the City become more resilient to the current and future effects of climate change. Resilience refers to the capacity of individuals, communities, institutions, businesses, and systems to survive, adapt, and thrive in the face of chronic stresses and acute shocks (APA 2017). The Report has been developed to understand the City's current climate-related hazards and provide a baseline for key characteristics of the community that are likely to be affected by climate change. The Report serves as the first step in the development of the City's comprehensive climate change vulnerability assessment and provides a historical frame of reference to understand how climate change will affect the City. Figure 1-1 illustrates the four main steps of the Resilient SLO planning process. This report serves as the culmination of work complete in Step 1 of the process.

Figure 1-2 Resilient SLO Planning Process

The City has adopted its *Climate Action Plan for Community Recovery*, which focuses on reducing greenhouse gas (GHG) emissions produced from community activities. The plan sets an ambitious target of carbon neutrality by 2035, adopts sector-specific goals, and identifies concrete actions to chart a path toward achieving those goals. The City's efforts are consistent with other jurisdictions that are demonstrating leadership in reducing GHG emissions and sharing successes and lessons learned with other communities in support of widespread climate action at the speed and scale required to stabilize the increase in global temperature caused by climate change at or below 2 Celsius (C)2C.

While the City continues to reduce local emissions, it is important to recognize that warming due to anthropogenic activities from the pre-industrial period to the present will persist for centuries to millennia and continue to cause further long-term changes in the climate system. As stated by the Intergovernmental Panel on Climate Change (IPCC), human activities that generate GHG emissions are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels with increases likely reaching 1.5°C (2.7 between 2030 and 2052) if emissions continue to increase at the current rate (IPCC 2018). Trends, beginning in the 1950s, in the intensity and frequency of

climate and weather extremes have been detected when only 0.5°C of global warming occurred. These weather extremes including long-term drought, extreme heat events, increased wildfire risk, and extreme storm events are anticipated to increase in intensity and frequency as the average global temperature increases to between 1.5 and 2°C. Due to past and ongoing emissions at their current rate, estimated anthropogenic global warming is projected to increase at a rate of 0.2°C (likely between 0.1°C and 0.3°C) per decade due to past and ongoing emissions (IPCC 2018). As a result, the City must begin to prepare for the impacts of climate change, despite future trends in local and global GHG emissions.

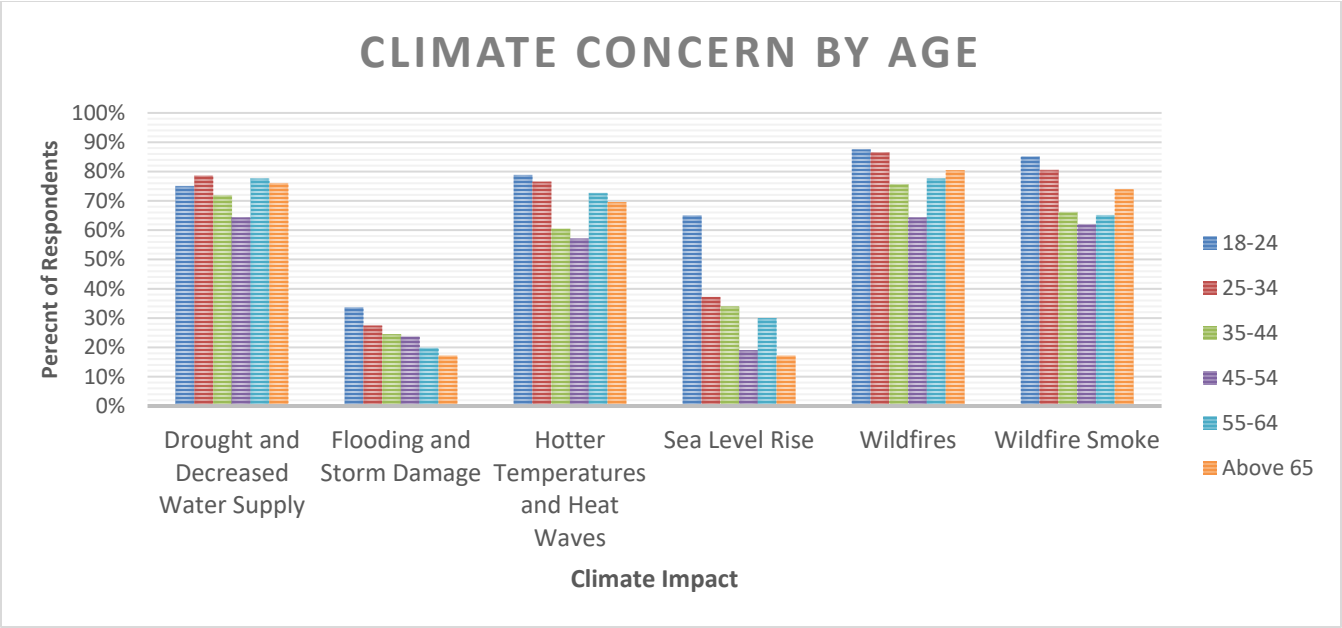
Because climate impacts and their severity will vary throughout the state, local resilience and adaptation planning focuses on understanding the anticipated regional and local climate impacts. The first step in this process is to assess existing hazards and sensitivities that may be affected by climate change. This Report focuses on identifying the City's historic and current exposure to climate-related hazards, as well as determining community assets (i.e., infrastructure, functions, and populations) that are likely to be affected. The document is organized into two sections:

- Existing Hazards Assessment—This section summarizes local and regional plans and resources and evaluates existing hazards that may be exacerbated by climate change. In the City, these climate hazards include flooding, extreme heat, and wildfire, as well as their secondary effects. This section also includes a brief discussion of the current COVID-19 pandemic. The existing climate hazards described in this section serve as a baseline against which to assess future climate conditions and the magnitude of changes that are projected to occur through the 21st century.
- Sensitive Infrastructure, Populations, and Community Functions—This section discusses the City's transportation system, critical facilities and infrastructure, socioeconomic trends and vulnerable populations, and community and economic functions that could be affected by climate change. To help explain how climate change may affect the City in the future, this section also describes how the City's community assets have been affected by climate-related hazards in the past. In addition, this section identifies specific populations in the City that are disproportionately affected by existing hazards and may be disproportionately affected by future climate hazards.

1.1 RESILIENT SLO COMMUNITY PRIORITIES SURVEY

As part of the development of this report, a community priorities survey was developed to gather input on overall community priorities regarding climate-related hazards, concerns related to climate change impacts, experience with past hazard events and response efforts, and priorities for local action. The survey, consisting of 19 questions, was open from August 31, 2020 – October 11, 2020 and had 328 responses. The survey results will be used to inform the vulnerability assessment and hazards report, as the next step in the Resilient SLO planning process, as well as the future community engagement and education activities. Highlights from the survey results have been included in this Report to help better understand the community's priorities regarding climate-related hazards.

As part of the survey, participants were asked what climate-related impact they were most concerned about. Figure 1-2 illustrates the responses to this question by age group. As shown in Figure 1-2, respondents were most concerned about wildfires and associated poor air quality events. Leading up to and during the survey response period, the City experienced poor air quality from several wildfires in the surrounding region, which may have influenced survey results. The large majority of respondents were also concerned about drought, increasing temperatures, and heat wave events and much less concerned about flooding and sea level rise. Survey results for this question also highlight that respondents in the 18-24 year old age cohort were the most concerned about almost all climate issues. To explore the full results of the community priorities survey, please refer to Appendix A of this report.



Sources: Resilient SLO Community Priorities Survey

Figure 1-2 City Resident's Climate Concern by Age

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2 EXISTING HAZARDS ASSESSMENT

This section provides an overview of local and regional plans, as well as a summary of existing hazards in the City that are anticipated to be affected by climate change. Plans and resources reviewed are the City's annex to the San Luis Obispo County Multi-Jurisdictional Hazard Mitigation Plan (HMP) (San Luis Obispo County 2019a), the current General Plan Safety Element (City of San Luis Obispo 2014), the California Governor's Office of Emergency Services' MyHazards mapping tool, Cal-Adapt, the California Heat Assessment Tool, the California Healthy Places Index (HPI), and geographic information system (GIS) data from the California Department of Transportation GIS Open Data and the City and County of San Luis Obispo Open Data Repository.

This section also includes background information on the overall climate and topography in the region and includes a detailed discussion of three existing hazards that may be exacerbated by climate change: flooding, extreme heat, long-term drought, and wildfire. Statistics and figures are provided to illustrate the extent of past impacts and geographic areas at risk for each hazard.

2.1 LOCAL AND REGIONAL PLANS

This section provides a general summary of local and regional plans related to existing hazards and describes how they can support increasing the City's resilience to the current and future impacts of climate change. The plans discussed in this section were used to develop this Report and help establish a planning framework to be used during various stages of the Resilient SLO development process.

2.1.1 San Luis Obispo County Multi-Jurisdictional Hazard Mitigation Plan

The HMP assesses all current human-made and natural hazards in San Luis Obispo County (County) and the incorporated cities in the County, including the City of San Luis Obispo. It also provides practical and cost-effective mitigation solutions to reduce the County's vulnerability to hazards and reduce both human and financial losses from hazardous events (San Luis Obispo County 2019a). The HMP, which was last updated in October 2019, includes community profiles for the incorporated cities, community services districts, and special districts in the County. The HMP and City specific Annex G acknowledges the role climate change will play in exacerbating future hazards and recognizes the importance of preparing climate-specific hazard mitigation strategies. Climate change considerations are discussed for each hazard. The following hazards discussed in the HMP specifically relate to climate change:

- adverse weather (e.g., thunderstorms, high winds, extreme heat);
- agricultural pest infestation, plant disease (e.g., tree mortality), and invasive species;
- naturally occurring biological agents (e.g., vector borne diseases);
- coastal storms, erosion, and sea level rise;
- dam failure;
- drought and water shortage;
- flooding;
- landslides and debris flow;
- soil hazards and land subsidence; and
- wildfires.

Annex G of the HMP (San Luis Obispo County 2019b),a community profile specific to the City, supersedes the City's previous Local Hazard Mitigation Plan (LHMP), which was first published in 2006 with an update in 2014. Annex G provides an in-depth discussion of the City's climate, economy, and demographics and presents an assessment of the City's vulnerability to natural and human-made hazards. Annex G also includes a capability assessment that provides an inventory of existing regulatory tools (e.g., ordinances, plans), personnel resources, financial resources (e.g., grants, fees), and partnerships that are currently used or could be used in the future to implement hazard mitigation activities. A mitigation action plan was developed, based on the capability assessment, and identifies mitigation strategies for each of the hazards discussed in the HMP.

Annex G of the HMP includes a detailed description of the planning process used to produce the plan, background information about the City, a hazard risk assessment, a capability assessment, mitigation strategies, and an implementation and monitoring plan. Annex G of the HMP also includes the following goal specific to preparing for climate impacts in the City. The Resilient SLO planning process supports objectives 3.A and 3.B.

GOAL 3: Prepare for and adapt to the impacts of climate change.

- Objective 3.A: Use, and update as needed, the best available science to estimate exposure, vulnerability, and risk of hazards as the result of climate change.
- Objective 3.B: Use the climate change exposure, vulnerability, and risk assessments to ensure mitigation investments, capital projects, and programs actively mitigate climate impacts.

2.1.2 City of San Luis Obispo General Plan Safety Element

The City's current General Plan Safety Element (City of San Luis Obispo 2014), which was adopted in 2000 and last revised in 2014, identifies goals and policies to avoid or minimize the loss of life, property, and prosperity that can result from disasters and to help the City and its residents recover quickly from unavoidable disaster events. The Safety Element identifies the level of risk for various hazards by evaluating the probability of loss, the City's capacity to reduce risks, the potential severity of loss, and the adequacy of knowledge about the hazard.

Hazards discussed in the Safety Element include flooding, fire, earthquakes and geologic hazards, hazardous materials, electromagnetic fields, airport hazards, and hazardous trees. The Safety Element also identifies programs and policies to aid the City in avoiding and preparing for emergencies, such as investing in City staff training, implementing the Standardized Emergency Management System, engaging citizens in preparedness education, and maintaining an Emergency Operations Center Plan. Although the City's current Safety Element does discuss climate-related hazards (e.g., wildfire, flooding), it does not include a discussion of climate change or assess how various hazards will be affected or exacerbated by climate change.

2.1.3 Urban Water Management Plan

In 2015, the City adopted the Urban Water Management Plan (UWMP) which evaluates the City's current and projected water supplies through the year 2035. The UWMP was prepared in accordance with the Urban Water Management Planning Act (Act), and; accordingly, will be updated every 5 years and submitted to the California Department of Water Resources. Goals in the UWMP related to this this Report include the following:

- assess current and future water use trends in the community;
- summarize the water supply and the water system;
- assess water supply reliability;
- document the water demand;
- manage measures in place to balance supply and demand; and
- demonstrate compliance with SB X7-7 which requires the City to develop urban water use targets to help meet the goal of a 20 percent reduction goal by 2020.

2.1.4 Waterway Management Plan

In 2003, the City developed and adopted its current Waterway Management Plan in coordination with the San Luis Obispo County Flood Control and Water Conservation District Zone 9 Advisory Committee. The purpose of this plan is to adopt an approach and schematic plans to address flooding, erosion, water quality, and ecological issues in the San Luis Obispo Creek Watershed that can be implemented with approval from various regulatory agencies.
The plan includes five key components to achieve the plan's objective. These include the following:

- Stream Maintenance and Management Program and guidance document for routine stream maintenance;
- new Drainage Design Manual for storm water, flood control, and bank repair design;
- Flood Management Plan that outlines the conceptual flood control alternatives;
- Bank Stabilization Program that provides a management framework and conceptual plans for addressing current and future bank instability problem areas; and
- Habitat Enhancement and Restoration Program that provides a conceptual plan and framework for stream resource enhancement, restoration, and protection.

2.1.5 Community Wildfire Protection Plan

The City of San Luis Obispo adopted the Community Wildfire Protection Plan (CWPP) in 2019. The purpose of the CWPP is to collaboratively address fire protection planning efforts occurring in the City, minimizing wildfire risk to watershed lands, assets, firefighters, and the public. The CWPP includes the following:

- the City's physical and social characteristics,
- wildfire history and landscape-scale fire hazard variables in the City,
- an evaluation of wildfire risk in priority areas, and
- strategies for reducing structural ignitability, conducting public education and outreach; and, reducing fuel loads, and minimizing wildfire risk in the community.

2.2 PLANNING RESOURCES

This section includes a brief summary of resources available to the public that will be used in the vulnerability assessment, some of which were used in this Report to identify baseline conditions for the assessment of future climate-related risk.

2.2.1 California Governor's Office of Emergency Services MyHazards Mapping Tool

The California Governor's Office of Emergency Services MyHazards mapping tool is an interactive map that displays information about earthquake, liquefaction, tsunami, flood, and fire hazards throughout the state. MyHazards also provides general information about each hazard and links to other resources for more detail about specific hazards and preparedness measures.

2.2.2 California Adaptation Planning Guide

In August 2020, the Governor's Office of Emergency Services completed an update to the *California Adaptation Planning Guide* (APG) (Cal OES, 2020). The California Adaptation Planning Guide (APG) is designed to support local government, regional organizations, and climate collaborative groups to integrate best practices and current science into their adaptation planning efforts. Guidance from the APG was used to develop this report and will be used as one of the primary guidance documents during the Resilient SLO planning process.

2.2.3 Federal Highway Administration's Vulnerability Assessment and Adaptation Framework

The Federal Highway Administration's (FHWA's) Vulnerability Assessment and Adaptation Framework is a guidance document developed to support transportation agencies and their partners assess the vulnerability of their transportation systems to extreme weather and the impacts of climate change. The document also helps agencies integrate climate adaptation considerations into transportation decision-making and provides an in-depth process for conducting a vulnerability assessment. Relevant sections of this document were used to develop this report and will be used as one of the primary guidance documents during the Resilient SLO planning process.

2.2.4 Cal-Adapt

Cal-Adapt is a tool developed by the University of California, Berkeley's Geospatial Innovation Facility, California Energy Commission, and California Strategic Growth Council that uses global climate simulation model data to provide a view of how climate change might affect California. Climate datasets on Cal-Adapt include historical observations, as well as downscaled climate projections, which are used to create charts and maps that display climate variables through time. Cal-Adapt includes climate variables, such as temperature, precipitation, sea level rise, snowpack, wildfire, streamflow, and drought.

2.2.5 California Heat Assessment Tool

The California Heat Assessment Tool is a tool developed by the California Natural Resources Agency as part of the state's Fourth Climate Change Assessment. The tool provides information for local and state health practitioners to better understand dimensions of heat vulnerability driven by climate changes and where action can be taken to mitigate the public health effects of extreme heat in the future.

2.2.6 CalEnviroScreen

CalEnviroScreen, a web-based tool developed by the California Office of Environmental Health Hazard Assessment (OEHHA), uses a science-based method for evaluating multiple pollution sources in a community while accounting for local vulnerabilities. The purpose of the tool is to identify which communities are most burdened by pollution from multiple sources and which are most vulnerable to its effects, taking into account the socioeconomic and health status of people living in those communities. The tool provides a set of indicator data that will help to identify portions of the City particularly vulnerable to climate-related hazards.

2.2.7 California Healthy Places Index

The California HPI, developed by the Public Health Alliance of Southern California, provides an interactive map, graphs, data tables, and a policy guide to examine local health factors and compare local conditions to those across the state. Climate health vulnerability indicators are built into the HPI by incorporating climate-related hazards data layers into the mapping (e.g., air conditioning access, public transit access); incorporating select climate-resiliency metrics into the HPI score, which combines 25 community characteristics into a single indexed score to describe a community's overall health; and addressing climate challenges in the policy guide.

2.3 EXISTING HAZARDS ASSESSMENT

This section provides an overview of existing climate-related hazards in the community and serves as a comparative baseline for assessing future climate conditions and the magnitude of changes that are projected to occur through the 21st century.

2.3.1 Geography and Climate

The City is located west of the Santa Lucia Mountains and 8 miles east of the Pacific Ocean in the Central Coast region of California. It occupies approximately 10.7 square miles and is surrounded primarily by protected open space and agriculture. Although the City itself is on average 300 feet above sea level, much of the terrain surrounding the City is mountainous, with prominent peaks such as Cerro San Luis and Bishop Peak at 1,292 and 1,559-feet above sea level, respectively (San Luis Obispo County 2019b).

San Luis Obispo experiences a Mediterranean climate, which is characterized by dry summers and mild, wet winters. Although this is the general trend, the region has historically experienced both unseasonably warm and cold periods. The City has an annual average temperature of 70.2 degrees Fahrenheit (°F) and average precipitation of 19 inches per year, occurring primarily in the winter and spring months. The City's climate is influenced by the proximity of the ocean, resulting in weather events including dense fog, offshore wind, and coastal storms (San Luis Obispo County 2019b).

2.3.2 Flooding

This section provides a summary of the San Luis Obispo Creek watershed and describes existing flooding issues in the City and the surrounding region. Two interchangeable, technical terms that characterize flood frequency are used throughout the section and are defined as follows:

- Recurrence Intervals: A common way to describe floods is by stating their recurrence intervals, which refer to how often, on average, a given flood may occur. A 100-year event, for example, is described as an event that may occur about once in every 100 years, on average. However, this terminology can be misleading because flood events are statistical occurrences, and events may occur more frequently than their recurrence interval suggests.
- Exceedance Probability: The exceedance probability of a given flood event is the percent chance that a larger flood will occur in any given year, and it is calculated by dividing the number 1 by the recurrence interval. Thus, the "100-year event" becomes the "1-percent exceedance event," or a flow rate that has a 1-percent chance in any given year of being equaled or surpassed by a larger flow rate. This representation, although interchangeable with the recurrence interval, provides a more helpful way to think about flood risk.

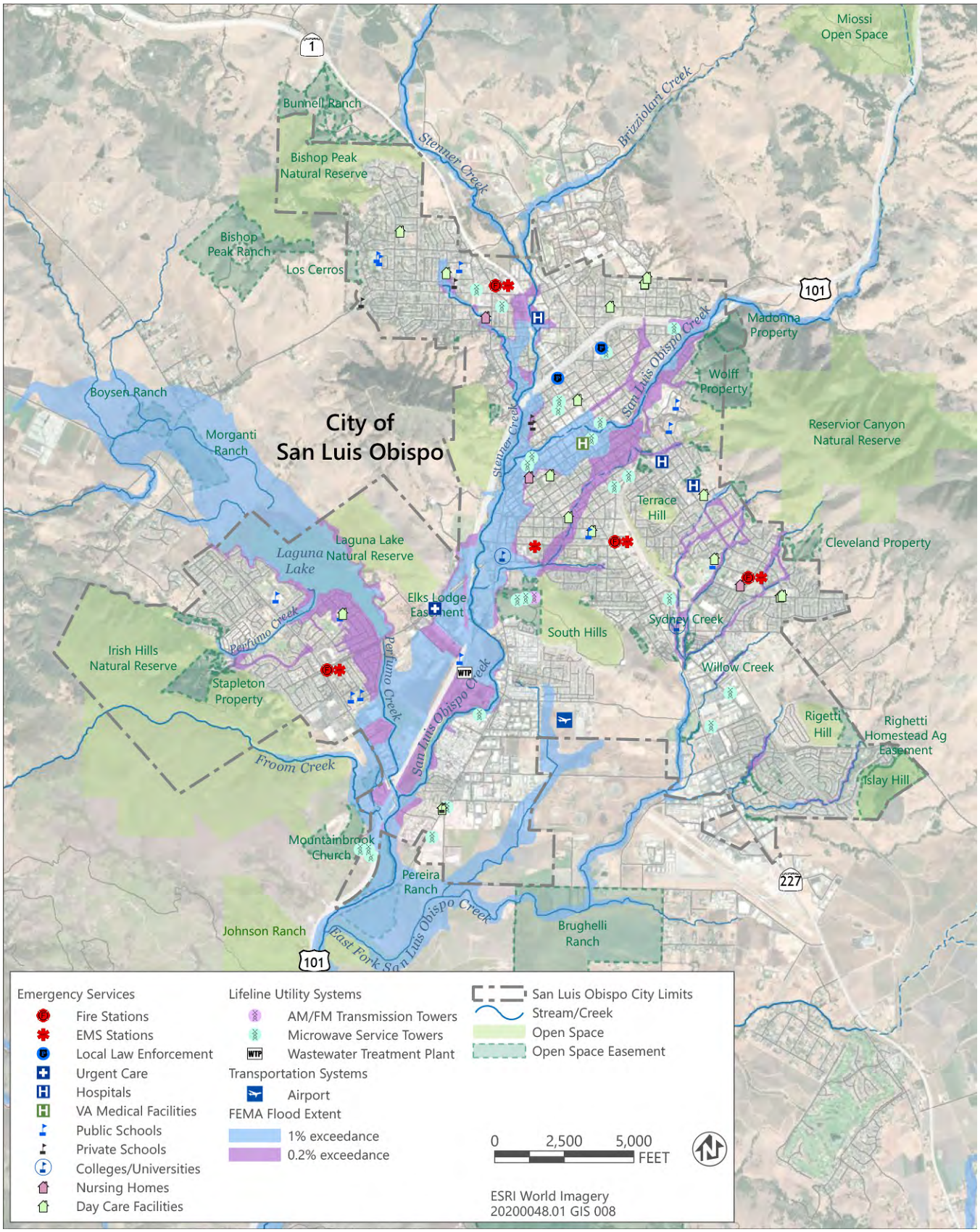
There are several overall mechanisms by which flooding can occur:

- dam inundation flooding, in which impounded water is released because of dam breaching;
- localized flooding, which occurs when intense rainfall overwhelms the capacity of local drainage infrastructure, causing the ponding of water; and
- riverine flooding, which occurs when channels (i.e., the relatively deep, narrow sections of creeks and rivers) cannot contain the flow volume moving through them, causing water to spill out into the overbank areas (i.e., the relatively wide, flat regions on one or both sides of the channel, also called "floodplains").

According to the HMP, the City is not at risk of dam inundation flooding, and localized flooding is considered a minimal risk. The highest flooding concern for the City is riverine flooding, which may include "flash" flood risks (San Luis Obispo County 2019b).

SAN LUIS OBISPO CREEK WATERSHED

As shown in Figure 2-1, San Luis Obispo Creek flows through the City in a northeast to southwest direction, passing through the downtown area and generally following U.S. Highway (U.S.) 101 on its way to the Pacific Ocean at Avila Beach. The watershed for San Luis Obispo Creek, the land area that captures rainfall and contributes water directly to the creek system, covers an area of approximately 84 square miles, ranging in elevation from approximately 2,460 feet in the upper watershed near the Cuesta Grade to its outlet into the Pacific Ocean. Along its main flow path, it transitions from steep canyons to the gently sloping alluvial plain underlying the City, descending more than 2,230 feet to downtown. In the City's downtown, San Luis Obispo Creek flows through the "under-city culvert," consisting of a system of covered, constructed channels between Osos Street and Chorro Street that is more than 1,000 feet long and 18–23 feet wide (Questa Engineering Corporation 2003, 2015), before emerging into Mission Plaza.



Sources: Data downloaded from City of San Luis Obispo in 2020 and County of San Luis Obispo in 2020 and processed by cbec eco engineering in 2020.

Figure 2-1 Waterways and Floodplain Areas in the City of San Luis Obispo with Critical Facilities

Further downstream, near the intersection of Marsh Street and Higuera Street, San Luis Obispo Creek is joined by a major tributary, Stenner Creek, which in turn receives flow from Brizzolara and Old Garden Creeks. San Luis Obispo Creek then continues south along the alluvial plain, intercepting Prefumo Creek as it exits Laguna Lake and joining East Fork San Luis Obispo Creek near the Higuera Street/U.S. 101 interchange by the Johnson Ranch Open Space. Near the confluence of San Luis Obispo Creek with Davenport Creek, the channel enters "the Narrows" (Questa Engineering Corporation 2003), passing through a steep, confined canyon before being joined by See Canyon Creek and discharging to the Pacific Ocean. Flows in the watershed are "flashy," meaning that water moves quickly through the system and that stream levels rise and recede rapidly in response to rainfall events. This is a result of the steep topography of the upper watershed and the relatively shallow soils, land cover, and rainfall characteristics for the region (Questa Engineering Corporation 2003).

HISTORICAL FLOODING

The San Luis Obispo Creek watershed has a long history of flooding, with a series of storms over the last 50 years that have caused millions of dollars' worth of damage.[1] Damaging flood events have occurred in 1868–1872, 1884, 1897, 1911, 1948, 1952, 1962, 1969, 1973, 1995, 1998, and 2001 (Questa Engineering Corporation 2003; City of San Luis Obispo 2014). The flooding events in January and March 1995 occurred during one of the wettest periods on record, causing the watershed to be relatively saturated for long periods, which prevented soils from absorbing incoming precipitation. The 1995 flooding events followed the 1994 Highway 41 fire, which burned major areas of the Stenner Creek and upper San Luis Obispo Creek watersheds and caused increased runoff and sediment delivery to channels. Flow spilled out of the San Luis Obispo Creek channel in the region around Marsh and Higuera Streets, causing extensive damage, and remained out of the creek banks for nearly 3 miles downstream. The events, for which the peak flow was estimated to be the 17-year flood event[2] (6-percent exceedance probability), caused $2.3 million in damage (Questa Engineering Corporation 2003). Prior events were even more damaging: The 1969 flood caused $6.92 million in damage, and the 1973 flood caused $13.6 million in damage. During the 1973 flood, depths of inundation over U.S. 101 exceeded 4 feet near the Madonna Inn and were up to 3 feet near the Prefumo Creek confluence (Questa Engineering Corporation 2003).

FLOOD RISK

Following the 1973 flood, watershed studies and plans were developed and updated, including the 1974 U.S. Army Corps of Engineers floodplain study of San Luis Obispo Creek (USACE 1974), 1977 Nolte & Associates study (George S. Nolte & Associates 1977), and 1978 Federal Emergency Management Agency (FEMA) flood insurance study. The extent of 100-yr and 500-yr flood zones, based on these studies, is shown in Figure 2-1.

In 2003, the City's WMP was completed, which relied on updated analyses for flow frequency. In general, the flow estimates provided by the WMP for a given recurrence interval are higher than those reported in the prior studies, leading to the recommendation that the WMP be used for design considerations for projects in the City, as a conservative assumption, as well as the adoption of the updated flow frequency estimates by the City. However, the FEMA inundation extents, shown in Figure 2-1, were generally validated by the 2003 WMP for the 100-year event despite the slightly higher depths reported by the WMP (Questa Engineering Corporation 2003). The FEMA inundation extents further indicate the 500-year flood hazard area, which was not assessed as part of the WMP, and they are still provided on the City's website and serve as an important reference. According to the WMP, nearly all streams in the San Luis Obispo Creek watershed have less than a 25-year (4-percent exceedance probability) flood capacity, with some experiencing flooding in the 10- to 15-year range (Questa Engineering Corporation 2003).

[1] Storm damages were normalized to reflect costs in the year 2000.

[2] According to the flood frequency analysis conducted for the 2003 Waterway Management Plan (Questa Engineering Corporation 2003), which represent updated flood frequency information compared to the Federal Emergency Management Agency study (1978).

Flood Risk Factors

For the San Luis Obispo Creek watershed, factors that may directly contribute to flooding are infrastructure-induced flow constrictions, wildfire, and degraded riparian corridors (Questa Engineering Corporation 2003). In terms of flooding from infrastructure, bridges often serve as flow constrictions because the abutments, or structures connecting the bridge deck to the ground, may occupy part of the floodplain for a channel in order to reduce the span width of the deck. In addition, bridge piers can intercept transported debris, particularly woody vegetation, and reduce conveyance through the structure. The U.S. 101 and Santa Rosa Street bridges over Stenner Creek were upgraded following the highly damaging 1973 flood to prevent these occurrences and reduce future flood risk (Questa Engineering Corporation 2003). The Marsh Street Bridge in the City's downtown, first built in 1909, is currently being replaced and is scheduled to be completed in January 2021. One of the greatest flow constrictions in the watershed is the undercity culvert. The capacity of the culvert was estimated in the 1977 publication *Flood Control and Drainage Master Plan for the San Luis Obispo Creek Watershed* (George S. Nolte & Associates 1977) at 4,500 cubic feet per second. This flow rate is below the 25-year event (4-percent exceedance probability) according to FEMA flood insurance studies (FEMA 1978), indicating that the culvert is unable to manage water flow during the 25-year flood event. The 2003 WMP, which provided updated estimates for flood frequency, estimated the capacity of the culvert to be close to the 15-year event (7-percent exceedance probability), Questa Engineering Corporation 2003). Flows exceeding the undercity culvert capacity may exit the channel at Osos Street or further upstream at the Santa Rosa or Marsh Street bridges and cause overland flooding within downtown, particularly along the Marsh Street corridor and areas surrounding the creek channel.

Post-wildfire runoff represents another risk for flooding because burned areas in the watershed will contribute more runoff and higher sediment loads than vegetated areas. As previously mentioned, the 1995 floods, which caused approximately $2.3 million in damages, followed the 1994 Highway 41 fire and the loss of vegetation on hillslopes contributed to high runoff volumes. Overall, about one third of the San Luis Obispo Creek watershed is considered by the California Department of Forestry and Fire Protection (CAL FIRE) to be in Very High Fire Hazard Severity Zones, based on an analysis of publicly available GIS data (CAL FIRE 2020). Wildfire impacts are further discussed in Section 2.2.4.

Finally, degradation of riparian corridors, the thin strips of trees and other vegetation lining the creeks, may contribute to flooding within the San Luis Obispo Creek watershed. Historically, riparian zones would have been composed of tall, single-trunk sycamores, cottonwoods, and willows, but these areas are now characterized by shrubby willow growth (Questa Engineering Corporation 2003). This results in more low-hanging branches coming into contact with flowing water, which increases the roughness of the creek channels and consequently reduces flow velocities. When the water is slowed, water levels in the channel are increased and overflow into surrounding lands becomes more likely.

Urbanization, the conversion of land to impervious surfaces as a result of urban development, has indirectly affected flood risk by altering the shape and function of the creek channels within the watershed. Overall, the San Luis Obispo Creek watershed is about 10 percent urbanized, meaning that 10 percent of the land area within the basin[3] that drains to the outlet of San Luis Obispo Creek at Avila Beach is covered by urban development. However, when considering only the portion of the watershed upstream of Los Osos Valley Road, the drainage basin is 15 percent urbanized (Questa Engineering Corporation 2003). Conversion to impervious surfaces accompanying urban development results in higher runoff rates because rainfall cannot be absorbed by the underlying soil from these surfaces. This causes water to enter the creek channels more quickly and leads to higher flow volumes and faster channel velocities on a more frequent basis. However, this effect may be reduced for increasingly large flood events. For periods of sustained, heavy rainfall, the watershed soils may be highly saturated at the time of peak rainfall and the watershed may; therefore, have a limited ability to absorb the incoming precipitation, even if the impervious surfaces had not been in place. The WMP concluded that while urban development since the 1960s has not had a large effect on increasing runoff volumes for large events (increases of less than 2 percent for the 100-yr/1-percent exceedance probability flood), notable increases in runoff for more frequent events were determined. Specifically, flows associated with the 2-yr (50 percent exceedance probability) event were shown to increase by up to 10-12 percent in the Mid-Higuera area as a result of urbanization trends from the 1960's to the early 2000's. Impacts from additional urbanization of the San Luis Obispo Creek

[3] Basin, or drainage basin, is another term for watershed.

watershed will need to be determined, as a result of build-out according to the general plans for the City, County, and the California Polytechnic State University at San Luis Obispo (Cal Poly). The County is currently progressing an update to the hydrologic study of East Fork San Luis Obispo Creek to further understand flood risk in key locations and impacts of urbanization on that region of the San Luis Obispo Creek watershed.

Although urban development from the 1960s to early 2000's has not had a large effect on directly increasing runoff volumes from large events (e.g., 100-year/1-percent exceedance probability) in the San Luis Obispo Creek watershed, it has greatly affected incision, or the deepening of channels through erosion (Questa Engineering Corporation 2003). The San Luis Obispo Creek watershed is vulnerable to erosion because the underlying Franciscan Complex is extensively fractured through tectonic forces and includes highly erodible layers (Questa Engineering Corporation 2003). Over time, incision can lead to a suite of flooding problems by altering the form and function of channels. Incision often results in the disconnection of creeks and rivers from their natural floodplains, as the channel cuts deeper and more narrowly into the land surface. This tends to increase flood risk downstream as the pulse of water moving through the basin following a rainfall event is concentrated in channels and accelerated, instead of flowing more slowly and shallowly over larger areas of land. As a result, the storage capacity of the watershed is minimized. Further, incision can lead to bank failure, in which the sloped sides of the channel become undercut by erosion related to frequent, fast-moving water and collapse inward, introducing large quantities of sediment and vegetation into the channel. This can in turn reduce flow capacity as the debris blocks portions of the channel, thereby causing localized flooding as water spills out of the channel and into surrounding areas. In some areas of the watershed, incision has been on the order of 6–10 feet, meaning that the channel bottoms are 6–10 feet lower than they have been historically (Questa Engineering Corporation 2003). So, while urbanization since the 1960s had not been shown by the WMP to greatly increase runoff volumes for large events, the effects of channel incision over long periods of time can still result in complex flood behavior that may ultimately worsen flooding from large storm events regardless of whether or not the runoff, and therefore the flow within the channel, is increasing markedly.

In addition to urbanization, there are several other causes of this widespread incision problem. The historic presence of small dams in the upper watershed (near Stagecoach Road, which has been removed, and the larger Reservoir Canyon facility) prevented large sediments (cobble and large gravels) from being transported downstream. Naturally, these eroded sediments would have continuously filled in the channels, but instead they became trapped behind the dams and filled in the small reservoirs. The creek channels continued to erode the underlying material, and with reduced incoming sediment to offset this erosion, the channels cut deeper into the landscape. While no longer occurring at historical levels, intensive livestock grazing in the late 1800's and early 1900's is a legacy factor that continues to affect incision (Questa Engineering Corporation 2003). As sheep, cattle, and other hooved animals walk across a landscape, their hooves can compress the soil and reduce its ability to absorb incoming precipitation, especially if grazing in high densities. Reduction in vegetation associated with grazing can also increase runoff rates as incoming precipitation encounters the land surface more quickly and directly. In the upper San Luis Obispo Creek watershed, intensive turn-of-20th century grazing has permanently increased runoff rates, which can subsequently drive channel incision by increasing flow rates for frequent (e.g., 2-yr) events. Further, changes to the creek channels themselves, from reducing the amount of mature vegetation along the creeks to straightening and relocating the channels for road construction, have caused water to move more quickly into and through the channel, increasing the erosive strength of the creeks and contributing to incision (Questa Engineering Corporation 2003).

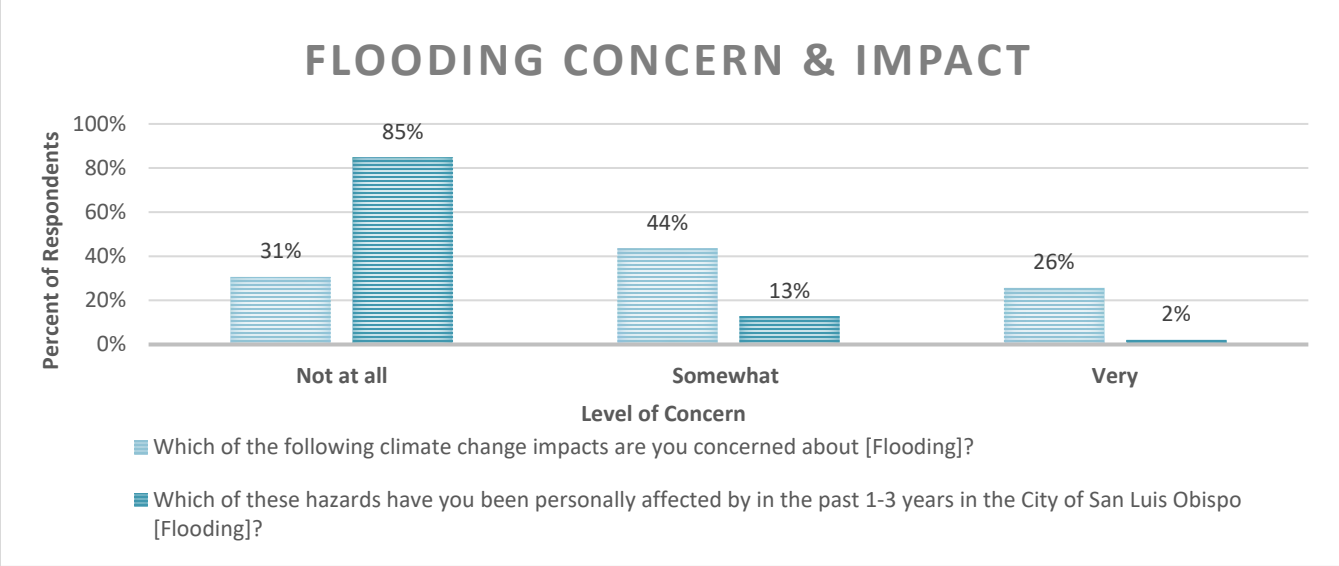
FLOOD MANAGEMENT

Flood management continues to be a high priority for the City, but there are several important barriers that can make management more difficult. First, much of the creek corridor that runs through the City along San Luis Obispo Creek and its tributaries is not owned by the City. Although the City has some authority under the City's Municipal Code for emergency removal of vegetation and other debris, general maintenance of the creeks falls upon the owners of property adjacent to the creek (City of San Luis Obispo 2015). Additionally, the creek corridor is highly confined in areas, particularly through downtown, making projects such as channel widening infeasible. Following the 1973 flood, the George S. Nolte & Associates study, completed in 1977, identified proposed flood control projects, but few were adopted because of the environmental effects associated with channel widening and other alternatives (Questa

Engineering Corporation 2003). Several areas of the City, including downtown areas along San Luis Obispo Creek, the intersection of U.S. 101 and Los Osos Valley Road, the Johnson Avenue railroad underpass, and areas surrounding Laguna Lake, have been at a high risk for frequent flooding (City of San Luis Obispo 2011). To address these issues, large projects have been proposed to manage flood risk in the increasingly urbanized City. One such proposed project is the Mid-Higuera Bypass Project, which would increase conveyance capacity of San Luis Obispo Creek between Marsh Street and Madonna Road. This area, downstream of the confluence of Stenner and San Luis Obispo Creeks, has flooded and received extensive damage in some of the historical floods previously mentioned. The planned removal of sediment and Arundo stands from San Luis Obispo Creek south of Los Osos Valley Road will also serve to reduce local flood risk.

COMMUNITY FLOODING CONCERNS

As part of the community priorities survey, when participants were asked to report on their level of concern for flooding, as shown in Figure 2-2, 70 percent of respondents indicated that they were "Somewhat" or "Very Concerned" about the issue. When asked about whether they had been impacted by flooding in the last 1-3 years, only 15 percent of respondents indicated "Somewhat" or "Very". Additionally, individuals with a household income of less than $50,000 and individuals aged 18 to 24 reported the highest level of concern for flooding. Individuals who identify as all other races and ethnicities, compared to individuals who identify as white or caucasian, also expressed a higher level of concern for flooding (i.e., 36 percent v. 24 percent, respectively).

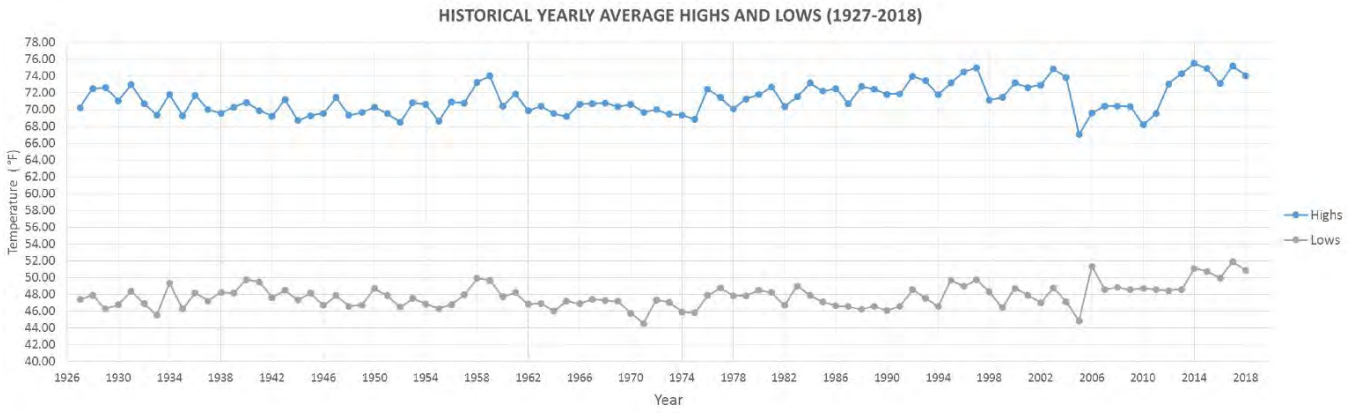


Sources: Resilient SLO Community Priorities Survey

Figure 2-2 City Resident's Flooding Concern and Impact

2.3.3 Average Temperatures, Extreme Heat, and Drought

The City is characterized by a Mediterranean climate. While the City is generally considered to have a mild climate, weather patterns and events have historically observed both unseasonably warm periods and cold spells. According to Cal-Adapt, during the historic period (1961–1990), the annual average maximum temperature in the City was 71.1°F and the annual average minimum temperature was 43.7°F (CEC 2019a). Although the City has not historically experienced many extreme heat conditions, the City could be experience increased sensitivity to extreme temperatures because residents are not acclimatized to or prepared for extreme heat conditions. Extreme heat events are described in this section in terms of their intensity (i.e., average maximum temperature), frequency (i.e., how often they occur), time of year in which they occur, and duration (total number of consecutive extreme heat days). Figure 2-3 includes the average annual maximum and minimum temperatures for the City from 1926 through 2018.



Sources: Cal Poly 2020

Figure 2-3 City Average Annual Temperature from 1928 to 2018 (Cal Poly Weather Station)

EXTREME HEAT DAYS AND WARM NIGHTS

Cal-Adapt defines an extreme heat day as a day in a year when the daily maximum temperature exceeds the 98th historical percentile of daily maximum/minimum temperatures based on observed historical data from 1961–1990 between April and October. Based on the parameters set in Cal-Adapt, an extreme heat day for the City is defined as a day with a maximum temperature of 89.6°F or above. An average of 4 extreme heat days per year occurred in the City during the historic period (1961–1990). Heat days have historically occurred between April and late October (CEC 2019b).

Cal-Adapt defines a warm night as a night when the daily minimum temperature is above the extreme heat threshold of 57.1°F, which is the 98th historical percentile of daily minimum temperatures in the historic period (1961–1990) between April and October. In the historic period (1961–1990), an average of four warm nights per year occurred in the City (CEC 2019b). Notably, in the summer of 2020, the City experienced several prolonged extreme heat periods. In August 2020, the daily maximum temperature, recorded at San Luis Obispo Airport, was above 90°F for seven consecutive days between August 14 and August 20, 2020, breaking several maximum daily temperature records during this period (NOAA 2020).

HEAT WAVE EVENTS

Cal-Adapt defines a heat wave as four or more consecutive extreme heat days. During the historic period (1961–1990), the maximum number of consecutive extreme heat days in the City was 2.6 days, which does not qualify as a heat wave event according to the Cal-Adapt definition. These partial heat wave events (2.6 days) have been infrequent in the City, with an average of 0.2 event per year during the historic period (1961–1990). Because prolonged heat events have been rare in the City, both the City's 2006 LHMP and the more recent Annex G of the County's HMP do not discuss or evaluate extreme heat events in depth. However, maximum daily temperature records continue to be exceeded with several heat waves events occurring in the City in recent years. Because extreme heat events have not been an issue historically for the City, this may make the City particularly vulnerable and unprepared when these events do occur.

URBAN HEAT ISLAND

Although the City's Mediterranean climate includes high temperatures during summer and fall months, the City's urban land use patterns can intensify periods of extreme heat through the "urban heat island" (UHI) effect. The UHI effect is generally understood as the phenomenon of urban areas being significantly warmer than surrounding rural areas because of human activity and land use patterns in the built environment. Several factors contribute to the effect, with the primary cause being changes in land surfaces (EPA 2008). The albedo of a surface is the measure of

the ability to reflect or absorb solar radiation, with darker surfaces having a lower albedo and absorbing more solar radiation. As urban areas develop over time, resulting in the development of more land surfaces with low albedos (e.g., asphalt pavement, dark building surfaces), more solar radiation is absorbed in these materials causing increased ambient temperatures and warmer nighttime temperatures. Another factor contributing to the UHI effect is the loss of evapotranspiration in urban areas. Evapotranspiration, the movement of water to the air from sources such as the soil, plants, and bodies of water, reduces ambient air temperatures (EPA 2008). As cities grow and often reduce the extent of available vegetation that contributes to evapotranspiration, UHI effects are exacerbated. Additionally, waste heat from human activities involving machinery (e.g., vehicle traffic, using air conditioning, industrial activity) can also contribute to the UHI effect, with excess heat absorbed by surrounding surfaces (Sailor 2011; Zhu et al. 2017).

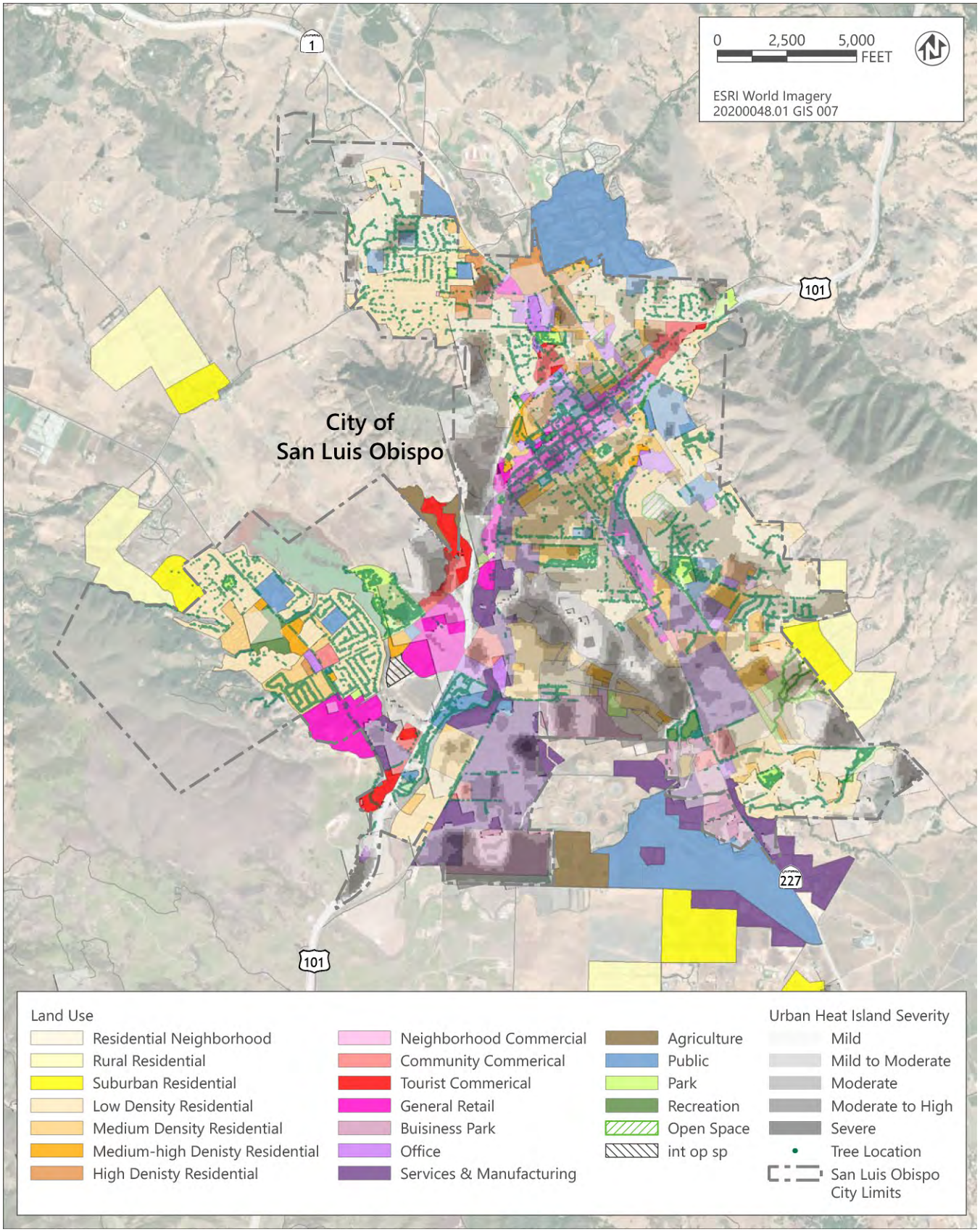
Several factors contribute to the UHI effect, including land use patterns; the presence of large, paved areas (e.g., roads and parking lots); traffic from high-volume roadways (Zhu et al. 2017), impervious surfaces (e.g., roofs); and the presence of vegetation and trees, which contribute to evapotranspiration. All these factors affect surface temperatures in urban areas. To show how the UHI effect is affecting various parts of the City, Figure 2-4 identifies land uses in the City, street trees owned and maintained by the City data from The Trust for Public Land, which has developed maps to identify hot spots in cities with above-average temperatures compared to the City as a whole.

LONG-TERM DROUGHT

Long-term drought can have significant environmental, agricultural, health, economic, and social consequences. San Luis Obispo County, along with larger areas of California, experiences periods of long-term drought that stress the ecosystem and water supplies; and subsequently, impact agriculture, public health, and the economy. Notable multi-year droughts that have affected the County and the City include:

- **1929 – 1934** – This statewide drought established the criteria commonly used in designing storage capacity and yield for large Northern California reservoirs; and hence, is one of the first major historic droughts noted in California.
- **1975-1977** — From November 1975 through November 1977, California experienced one of its most severe droughts. In 1976 and 1977, the winters brought only one-half and one-third of normal precipitation, respectively.
- **1987-1992** — San Luis Obispo County suffered adverse effects resulting from this statewide drought, when low precipitation and runoff levels greatly affected the Central Coast, adversely affecting about 30 percent of the state's population, much of the dry-farmed agriculture, and over 40 percent of the irrigated agriculture.
- **2007 – 2009 –** California proclaimed a statewide drought in 2009. The greatest impacts of this multi-year drought were suffered on the western side of the San Joaquin Valley, on agricultural communities where drought effects were coupled with the economic recession. Emergency response actions were necessary with regard to social services.
- **2012 – 2017** – Drought produced severe impacts to water wells throughout the San Luis Obispo planning area, with a high number of wells running dry. Water allotments were drastically reduced in many towns and to water agencies, with extremely high costs for procuring water. In addition, job loss occurred with many families requiring food supply and water supply assistance to homeowners experiencing dry wells. For the County of San Luis Obispo, there were 13 disaster declarations from 2012–2017, though total associated financial losses across the various economic sectors is not available for all these recent drought-related declarations.

The City relies on regional water supplies, the four primary sources including Whale Rock Reservoir, Salinas Reservoir, Nacimiento Reservoir, and recycled water (City of San Luis Obispo 2019a). As discussed in Section 2.1.3, the UWMP, which evaluates the City's current and projected water supplies through the year 2035, includes strategies to reduce water demand and prepare for long-term drought scenarios. Water demand modeling estimates that these sources provide a 7.5-year combined water supply, assuming an extended worst-case historical drought (San Luis Obispo County 2019a).

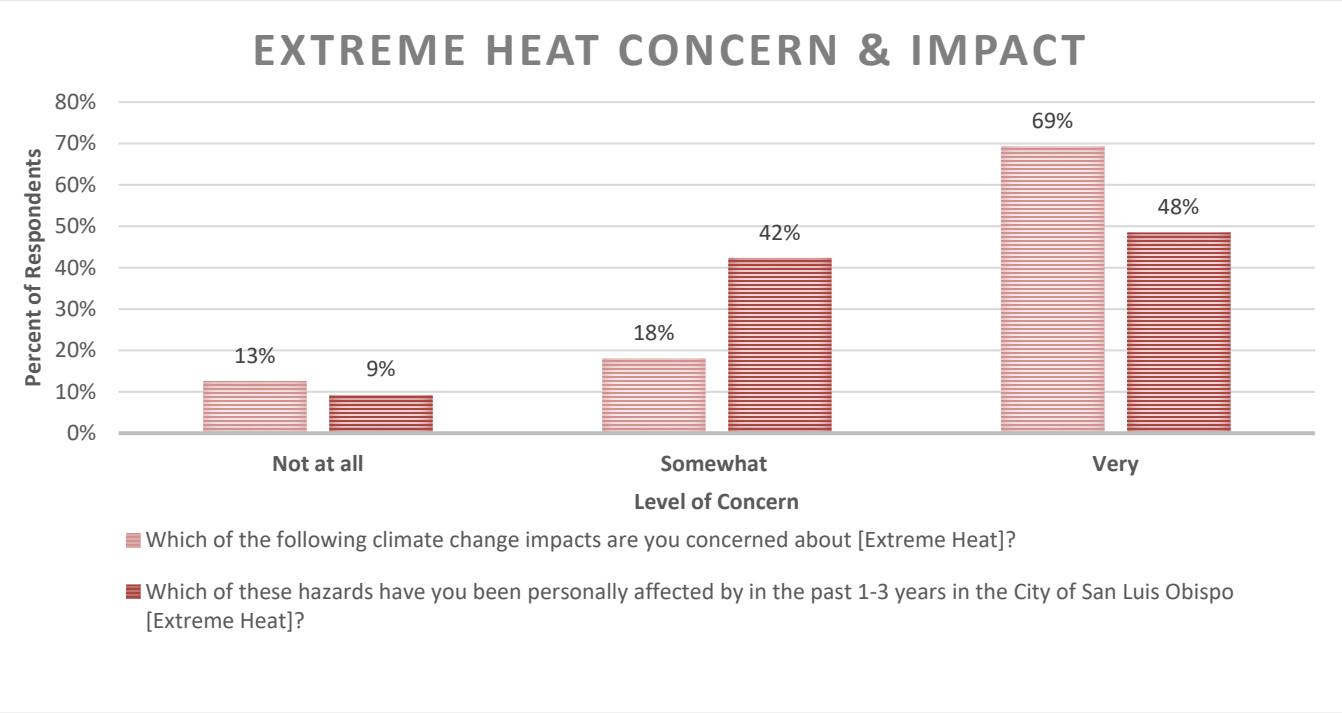


Source: Data received and downloaded from City of San Luis Obispo and the Trust for Public Land.

Figure 2-4 Urban Heat Island Effect and Tree Cover in the City

COMMUNITY EXTREME HEAT CONCERNS

As part of the community priority survey, when participants were asked to report on their level of concern for extreme heat, as shown in Figure 2-5, 87 percent of respondents indicated that they were "Somewhat" or "Very" concerned about the issue. Ninety percent of individuals indicated they had been "Somewhat" or "Very" impacted by extreme heat in the past 1-3 years. Additionally, individuals with a household income of less than $50,000 and individuals between the ages of 18 and 24 had the highest level of concern for extreme heat. Individuals who note their housing situation as "Renter" or "Other" indicate the highest level of concern for extreme heat (i.e., 79 percent versus 58 percent for homeowners).



Sources: Resilient SLO Community Priorities Survey

Figure 2-5 City Resident's Extreme Heat Concern and Impact

2.3.4 Wildfire

A wildfire is defined as an uncontrolled fire spreading through vegetative fuels that poses a threat to life and/or property (San Luis Obispo County 2019b). Wildfires can be ignited by natural events, such as lightning strikes, or can be caused by damaged infrastructure (e.g., downed power lines) or human activities (e.g., campfires, arson). Wildfires can move quickly, casting embers into downwind areas, and spread to developed areas, putting human live and properties at risk.

Three factors that contribute significantly to wildfire behavior are topography, fuel, and weather:

- Topography—An area's terrain and slope affect its susceptibility to wildfire spread. Both fire intensity and the rate of spread increase as slope increases because heat from a fire tends to rise through convection. For this reason, wildfires tend to spread more slowly downhill. The arrangement of vegetation on a hillside can also contribute to increased or decreased fire activity on slopes.
- Fuel—The type, condition, and volume of fuel material are key factors that influence wildfire behavior. Fuel sources are diverse and can include dead vegetative matter, live trees, brush, and cured grasses. Buildings and other structures, such as homes, can also be sources of fuel. Certain types of plants are more susceptible to burning or will burn with greater intensity, and dead, dry plant matter tends to burn more easily than living plant

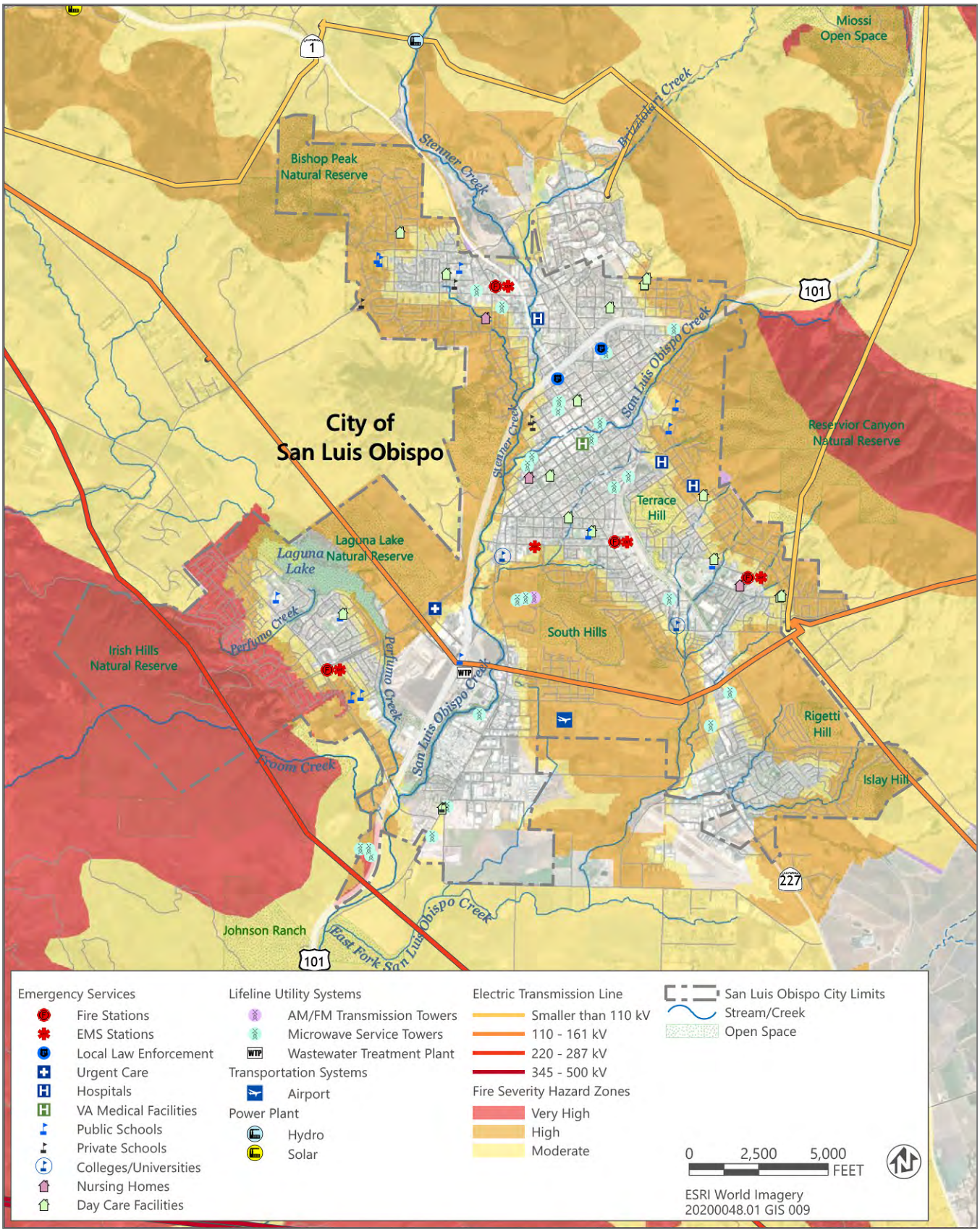
matter. Thus, fire risk is increased significantly during periods of prolonged drought. The density of vegetation increases the amount of combustible material available, also called the fuel load.

- **Weather**—Factors such as temperature, humidity, wind, and the occurrence of lightning affect the potential for wildfire and its spread. High temperatures and low humidity can dry out wildfire fuels, creating a situation in which fuel will ignite more readily and burn more intensely. Thus, wildfire risk increases during periods of drought. Wind is one of the most significant weather factors in the spread of wildfires. Higher wind speeds lead to faster wildfire spread and, oftentimes, greater fire intensity.

Environmental and climatic conditions in and around the City influence the frequency and magnitude of wildfires. The City often experiences high-wind events, such as the Santa Lucia winds, which originate inland and flow westward during the late summer and early fall, counter to the prevailing westerly winds that occur throughout much of the year. Santa Lucia winds contain little humidity, and summers in the City are hot and dry, with precipitation primarily occurring in the winter months. Thus, the combination of the relatively hot, dry Santa Lucia winds occurring at a time when vegetation in the County and the City is particularly dry following the summer months can contribute to the ignition and spread of large wildfires. Periods of low relative humidity, when dead trees and vegetation cannot absorb moisture from the air, can also increase the risk of wildfires (City of San Luis Obispo 2011).

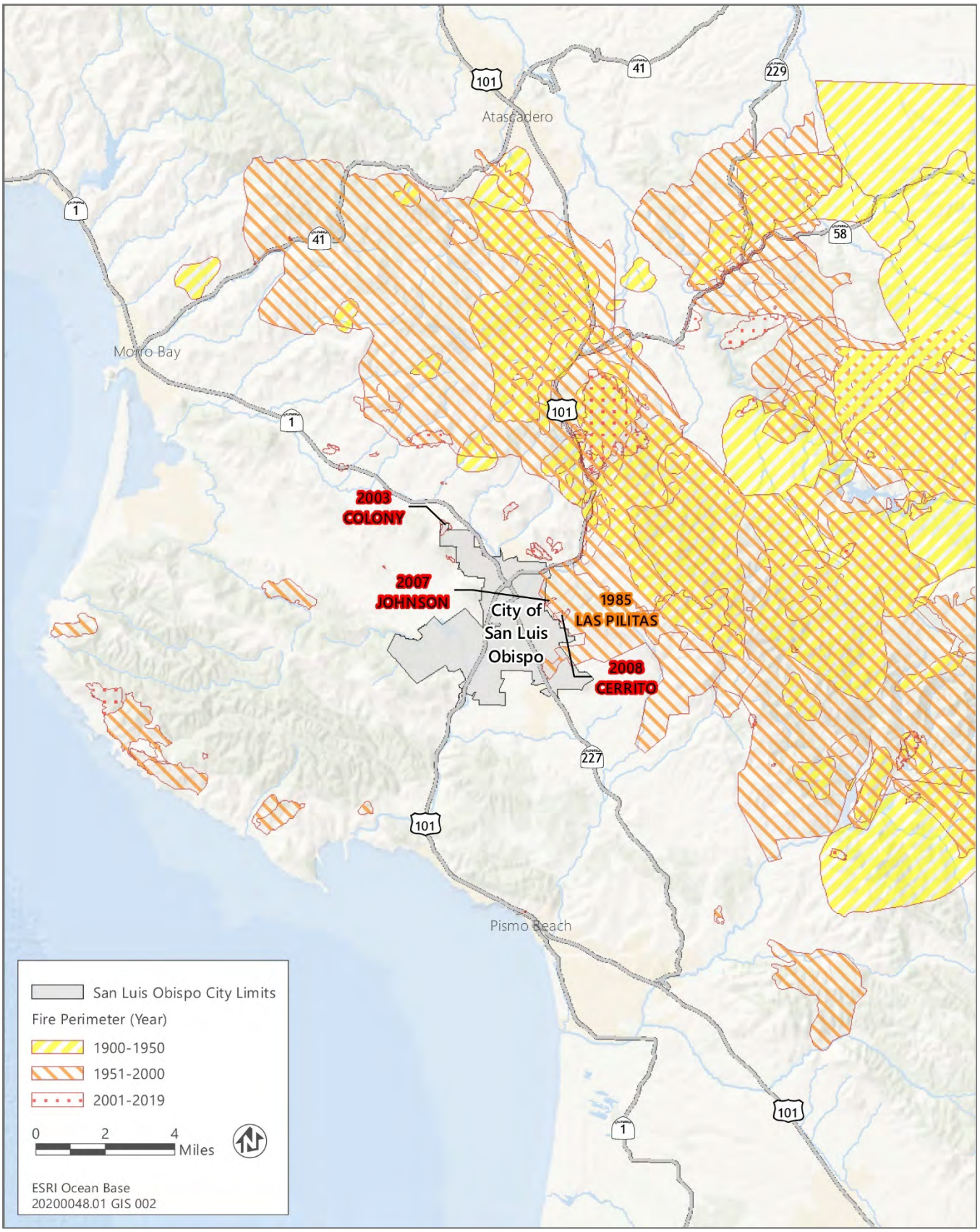
The risk of wildfires and subsequent impacts to property and life is greatest at the wildland-urban interface (WUI), which is where urban development borders wildland fuels. Wildfire risk is compounded in areas of the WUI that are also located in or near High or Very High Fire Hazard Severity Zones. Figure 2-6 includes CAL FIRE designated Fire Hazard Severity Zones in and surrounding the City. Portions of southwestern and northeastern parts of the City are located in or near a Very High Fire Hazard Severity Zones, and many of these portions of the City overlap with the WUI. Locations identified by CAL FIRE as Hazard Severity Zones for the City and County are identified in Appendix A. Beyond these areas of the City, the risk of urban fires decreases, with most of the areas surrounding the City located in a Moderate Fire Hazard Severity Zone.

Figure 2-7 shows the locations of fires that have occurred within 10 miles of the City between 1900 and 2020. Four fires (labelled in Figure 2-7) have occurred within City boundaries. Between 1900 and 2018, 490 wildfires have been recorded in the County (San Luis Obispo County 2019a). Notable fires that have occurred in the County include the Weferling fire (1960), the Las Pilitas fire (1985), the Chispa fire (1989), the Highway 41 fire (1994), the Highway 58 fire (1996), the Logan fire (1997), and the Chimney fire (2016). In total, these fires burned approximately 400,000 acres, destroyed numerous structures, and cost millions of dollars to suppress (City of San Luis Obispo 2019b). The Las Pilitas fire burned 75,000 acres and burned within City limits, damaging a number of structures (City of San Luis Obispo 2011). The 1994 Highway 41 fire burned more than 50,000 acres close to the City's northern boundary and destroyed 42 homes, 61 other structures, and 91 vehicles (San Luis Obispo County 2019a).



Source: San Luis Obispo County 2019a

Figure 2-6 Wildfire Hazard Severity Zones In and Surrounding the City of San Luis Obispo with Critical Facilities



Sources: Data downloaded from CalFire in 2020

Figure 2-7 Wildfire Perimeters for Wildfires within 10 Miles of the City of San Luis Obispo (1900–2020)

WILDFIRE MANAGEMENT

The City's Fire Department is the main agency responsible for wildfire response, management, and mitigation in the City, with many fires being addressed through mutual aid by both the City's Fire Department and CAL FIRE. Several agencies, including the County, provide support to incorporated areas, including the City, during wildfire events. Supporting agencies, such as CAL FIRE, are also available to mobilize during fire response if needed. In addition to having the authority to declare local emergencies, the County can provide support for evacuations, shelter, and other forms of assistance for municipalities, including the City (San Luis Obispo County 2016). The City can also declare a disaster declaration through the City's Disaster Council, absent the County. Because fire risk is highest for regions of the City within the WUI, the City has produced detailed maps of these regions, indicating evacuation routes and other critical information for responders. Locations identified by CAL FIRE as Hazard Severity Zones for the City and County are identified in Appendix A. The City's Community Wildfire Protection Plan serves as the primary document for assessing wildfire risk in different areas in the City and helping to implement a series of policies and strategies to reduce this risk. These policies, along with corresponding strategies, include:

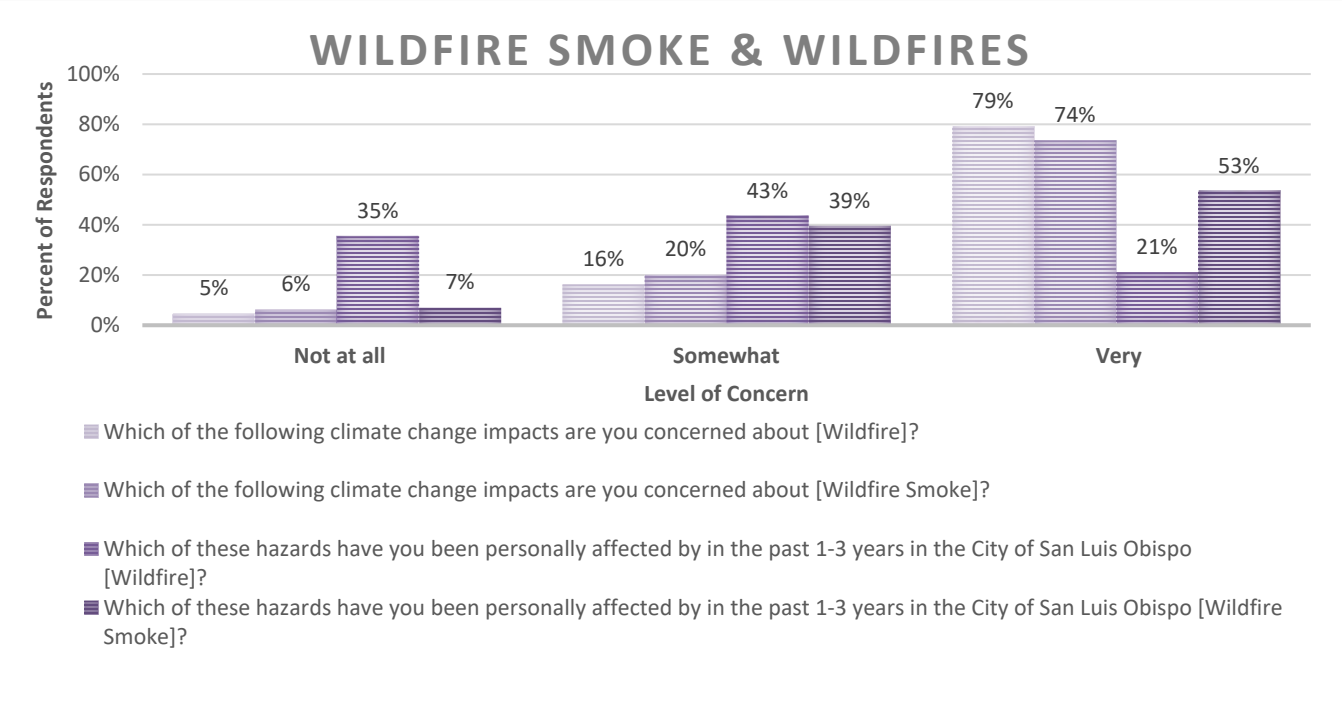
- Education - The goal of the Education policies and strategies are to prepare response organizations, communities, the public, and policy makers regarding appropriate community actions and interactions to reduce the unwanted impacts of fires in the WUI.
- Fuel - The goal of the fuel policies and strategies are to mitigate the unwanted impacts of wildfires on communities through proper vegetation management techniques that reduce hazardous fuels and the resulting wildfire intensity.
- Planning - The goal of the planning policies and strategies are to mitigate the unwanted impacts of wildfires on communities through community planning (including new resilient community design, retrofitting existing communities, and community recovery from the impact of fire), response planning, evacuation planning, and preparedness planning for responders, communities, and individuals and animals and livestock.
- Response - The goal of the response policies and strategies are to mitigate the unwanted impacts of wildfires on life, property and resources by having an efficient and effective response that includes properly trained personnel, appropriate equipment, and a community prepared to take appropriate action or evacuation.
- Ignition Resistance - The goal of the ignition resistance policies and strategies are to eliminate or mitigate structural ignitions from radiant heat, flame contact, or embers from WUI fires.

WILDFIRE SMOKE

While the City is at risk from the impacts of wildfires, the City and its residents are also susceptible to impacts of smoke from wildfires in the coastal mountain ranges of central California and the Los Padres National Forest to the east of the City. Wildfire smoke in the surrounding region and, due to wind patterns, wildfires along the central coast in general, can greatly reduce air quality in the City and cause public health impacts as well as impacts to tourism and normal community functions. Community public health factors that can increase the impacts of wildfire smoke include the prevalence of asthma in children and adults; chronic obstructive pulmonary disease; hypertension; diabetes; obesity; percent of population 65 years of age and older; and indicators of socioeconomic status, including poverty, income, and unemployment. Exposure to wildfire smoke, particularly exposure to vulnerable populations, can result in worsening of respiratory symptoms, increased rates of cardiorespiratory emergency visits, hospitalizations, and even death (Rappold et al. 2017). In the summer of 2020, wildfire smoke alerts were issued for San Luis Obispo County due to poor air quality caused by the Dolan Fire near Big Sur (The Tribune 2020a). Wildfire smoke can also have impacts on the labor market and the economy in general, with air quality affecting the ability of outdoor workers to perform their work and impact industries that operate in the open air (e.g., wineries, recreation activities, sporting events) (Borgschulte et al. 2019).

COMMUNITY WILDFIRE AND WILDFIRE SMOKE CONCERNS

As part of the community priorities survey, when asked about their concern for wildfires and wildfire smoke, as shown in Figure 2-8, 94 percent of participants indicated "Somewhat" or "Very". When asked about whether they have been personally affected by either event, 64 percent of respondents indicated "Somewhat" or "Very" for wildfires and 92 percent of respondents indicated "Somewhat" or "Very" for wildfire smoke. Additionally, wildfire smoke was of paramount concern for individuals within the lowest income group (i.e., 84 percent). Renters and individuals between the ages of 18 and 24 expressed the highest level of concern for wildfire and wildfire smoke. Individuals who identify as White or Caucasian express a slightly higher level of concern both wildfire and wildfire smoke than individuals who identify as all other Races/Ethnicities.



Sources: Resilient SLO Community Priorities Survey

Figure 2-8 City Resident's Wildfire and Wildfire Smoke Concern and Impact

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3 SENSITIVE INFRASTRUCTURE, POPULATIONS, AND FUNCTIONS

This section discusses the City's transportation and built environment; critical facilities and infrastructure, socioeconomic trends and vulnerable populations, and community and economic functions that could be affected by climate change. It helps develop a comprehensive understanding of the City's infrastructure and facilities, populations, and functions that are vulnerable to the impacts of climate change in order to understand how and why potential impacts may occur in the future and determine how these effects compare to baseline conditions. The specific topics discussed in this section were based on guidance in the APG and he FHWA's *Vulnerability Assessment and Adaptation Framework*, which provides guidance on assessing the climate vulnerabilities of the transportation system (FHWA 2017).

3.1 TRANSPORTATION SYSTEM AND BUILT ENVIRONMENT

This section provides an overview of the City's built environment, which includes the transportation network; utilities infrastructure; and critical facilities, such as police and fire stations, hospitals, community centers, and libraries. It also describes the City's existing transportation system, as well as the regional transportation network, focusing on physical infrastructure and facilities (e.g., bridges, roadways) and transportation behavior and trends (e.g., commute behavior, mode share, traffic on high-volume roadways) that are anticipated to be affected by climate change. It includes an analysis of all modes of transportation (e.g., driving, cycling, walking). This section also catalogs critical facilities and infrastructure in or near the City that may be affected by existing or future climate-related hazards. Critical facilities, for the purposes of this Report, are consistent with the critical facilities that provide essential public health and safety functions and included in the City's HMP.

3.1.1 Transportation System

The City includes facilities to accommodate various modes of transportation, including automobiles, local and regional transit, and walking and biking. Understanding the location and condition of transportation resources responsible for the movement of people and resources throughout the City is a key component when preparing for an emergency response during hazard events.

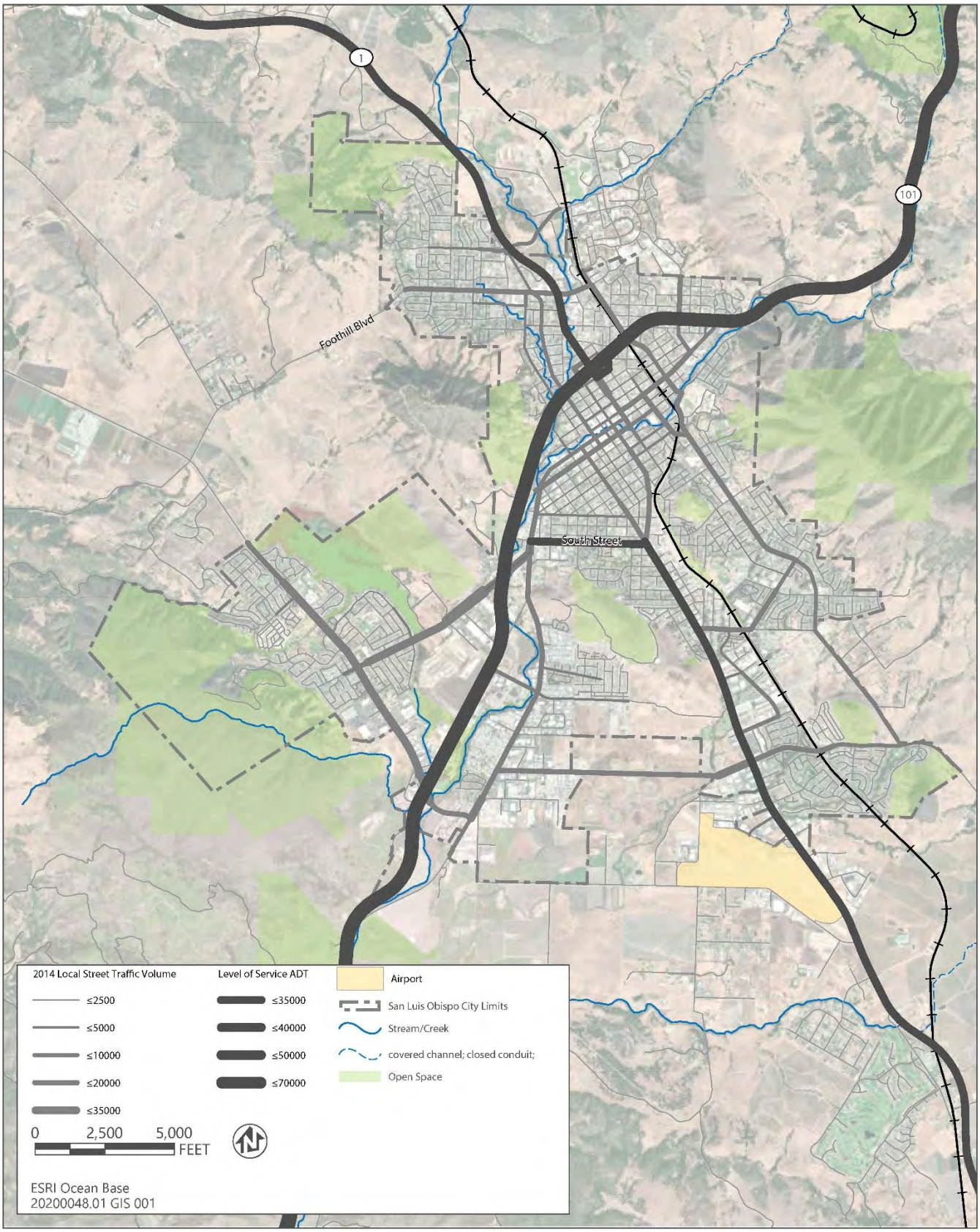
STREET NETWORK

The City contains several major transportation corridors, including U.S. 101, State Route (SR) 1, and SR 227. Most local streets have transportation infrastructure to support travel by multiple modes, including driving, walking, bicycling, and transit. There are 76 traffic signals throughout the City to assist in traffic management. Table 3-1 provides the level of service and annual average daily traffic figures for major highway segments in the City. Figure 3-1 shows traffic volume for U.S. 101, SR 1, SR 227, and local streets. The major regional arterials and highways that have the greatest volumes are Santa Rosa Street, Madonna Road, Broad Street, and Los Osos Valley Road.

Table 3-1 Annual Average Daily Traffic and Level of Service of Highway Segments in San Luis Obispo

Highway or State Route	Segment	Number of Lanes	Level of Service	Annual Average Daily Traffic
U.S. 101	S. Higuera to Monterey Road	4	D	70,000
SR 227	Los Ranchos Road to Tank Farm Road	2/3/4	F	20,000
SR 227	Tank Farm Road to Higuera Street	4	D	18,000-30,000
SR 1	U.S. 101 to Highland Drive	4	F	33,000-37,000

Source: City of San Luis Obispo & San Luis Obispo Council of Governments 2019



Sources: Data downloaded from City of San Luis Obispo in 2020 and County of San Luis Obispo in 2020

Figure 3-1 Major Roadways in San Luis Obispo by Traffic Volume

BICYCLE NETWORK

The City has a well-established bicycle network that offers both separated and shared street space. There are also ample bicycle parking racks throughout the City, primarily in the downtown area. The different types of bicycle facilities are described below and shown in Figure 3-2:

- **Class I Bikeways (Shared-Use Paths):** Class I bikeways provide a separate right-of-way and are designated for bicycle and pedestrian use only. These paths serve corridors where there is enough right-of-way, or space, to allow them to be constructed or where on-street facilities are uncomfortable because of vehicular volumes, speeds, or other roadway characteristics.
- **Class II Bikeways (Bicycle Lanes):** Class II bikeways are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage.
- **Class III Bikeways (Bicycle Routes and Neighborhood Greenways):** Class III bikeways are designated by signs or pavement markings for shared use with motor vehicles but have no separated bike right-of-way or lane striping. Class III bikeways provide a connection to other portions of the bike network but are located in places where dedicated facilities are infeasible or designate preferred routes for bicyclists through high-demand corridors. The City's Bicycle Transportation Plan also includes neighborhood greenways, a type of Class III bikeway that is further prioritized for bicycle and pedestrian travel, often including traffic volume and speed management elements, branded signs and pavement markings.
- **Class IV Bikeways (Protected Bike Lanes or "Cycle Tracks"):** Class IV bikeways provide a right-of-way designated exclusively for bicycle travel in a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, flexible posts, raised curbs, or parked cars.

As shown in Figure 3-2, there are several Class I through III bikeways proposed throughout the City as identified in the City's current Bicycle Transportation Plan (2013). The City is currently in the process of updating the Bicycle Transportation Plan and incorporating a pedestrian component, creating the City's First Active Transportation Plan (ATP). The ATP is anticipated to include further focus on planning physically-separated bikeways and pedestrian pathways and is planned for City Council consideration, and potential adoption in early 2021.

PEDESTRIAN NETWORK

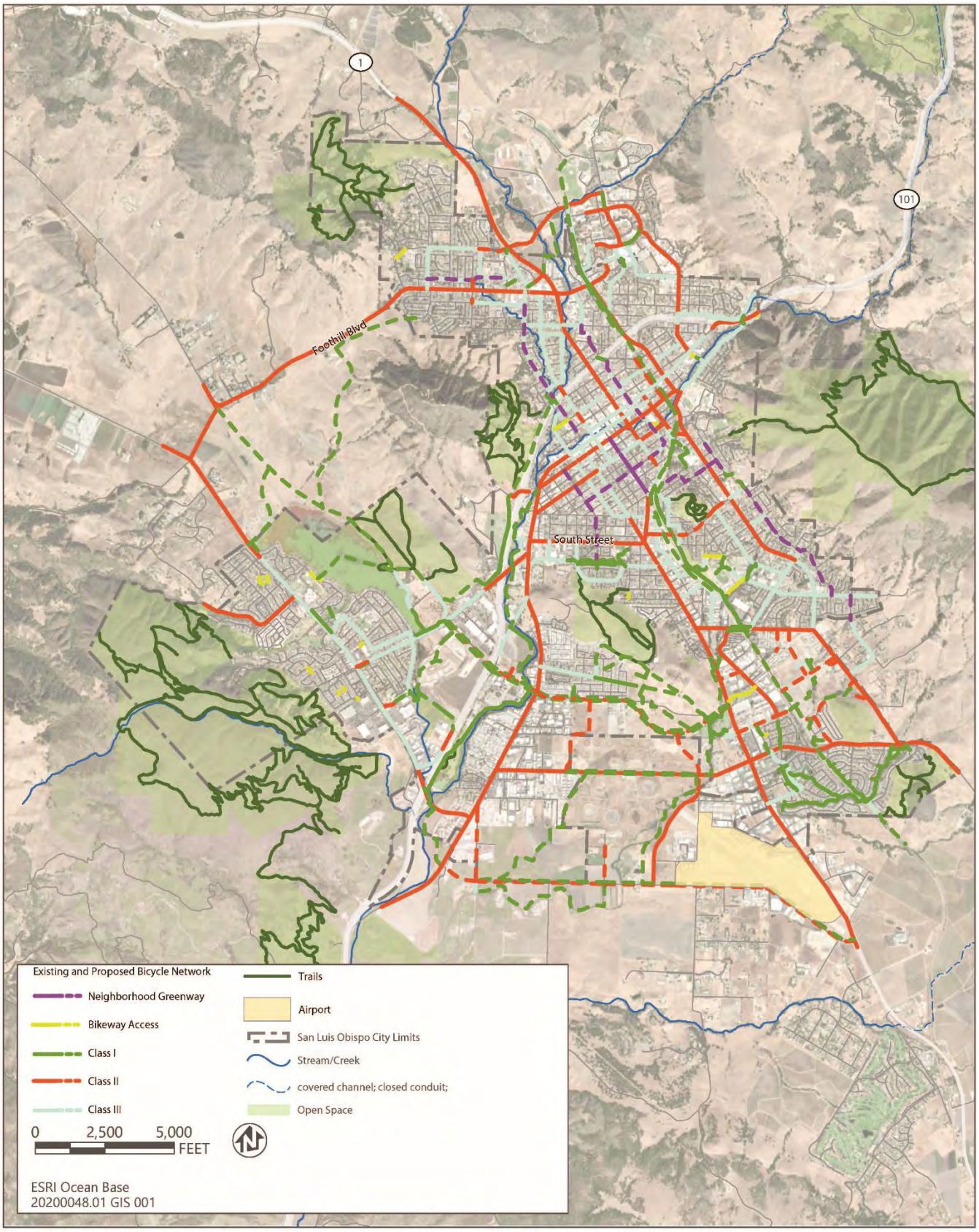
The pedestrian network in San Luis Obispo is well established with numerous sidewalks, multiuse trails, and hiking trails located throughout the City. Areas lacking pedestrian infrastructure are generally located in the northeastern part of the City. Figure 3-3 shows the pedestrian network, highlighting areas without sidewalks and showing existing Class I multiuse trails.

TRANSIT AND AIRPORT SERVICES

The City operates the SLO Transit bus service, which provides daily fixed-route transit services in the City and to the adjacent Cal Poly campus. According to the 2017–2020 Short Range Transit Plan (City of San Luis Obispo 2017), SLO Transit operates with varying service levels 7 days a week, with a fleet of 17 vehicles. SLO Transit completes more than 1 million passenger trips annually, defined as the total number of passenger boardings. The San Luis Obispo Regional Transit Authority (RTA) provides bus services in the County and provides connections between SLO Transit and RTA routes in the City's Downtown Transit Center. Figure 3-4 highlights transit service in the City and includes RTA regional routes that serve the City.

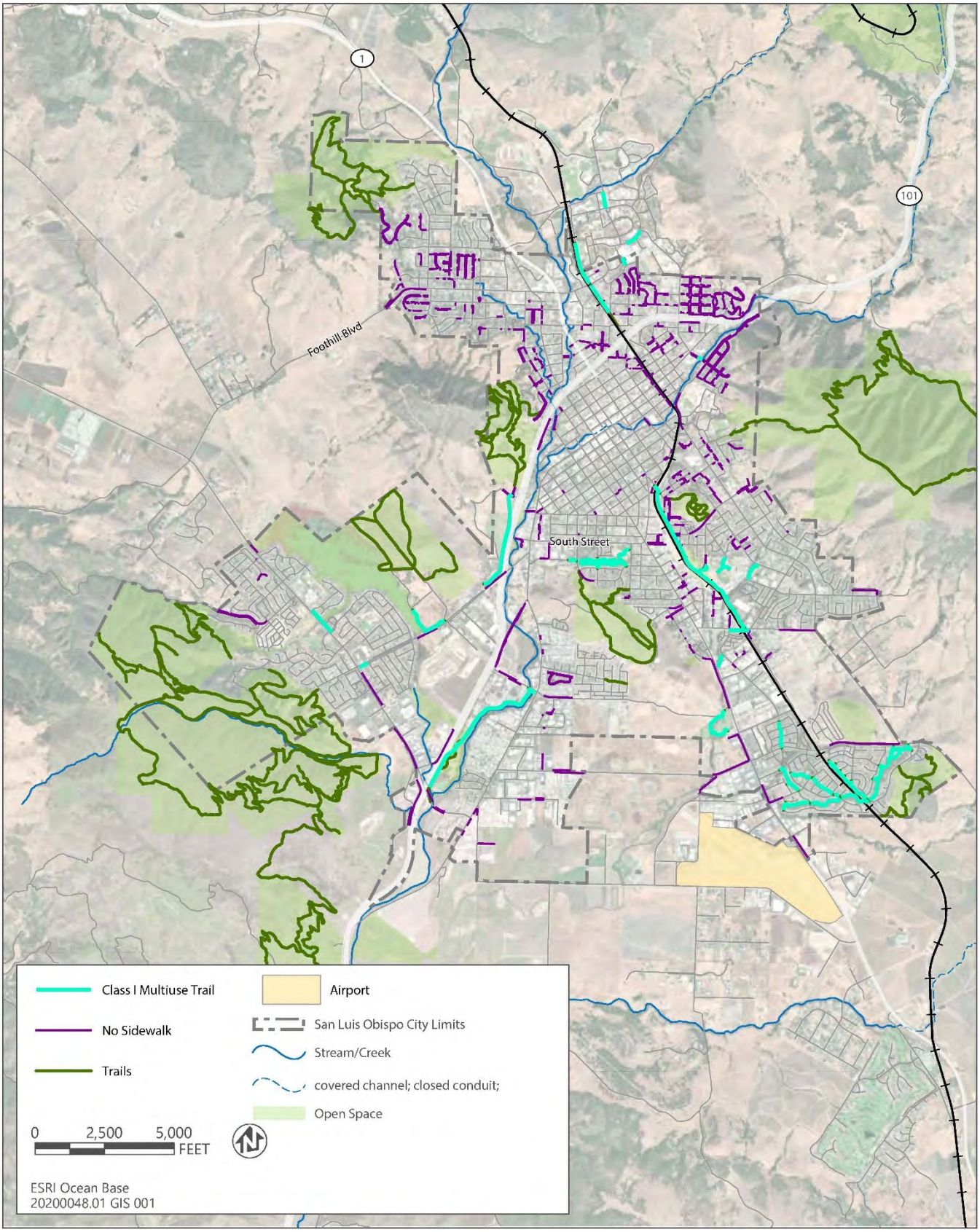
In addition to SLO Transit and RTA, Greyhound provides regional and long-distance bus routes via a stop in the City. The City also includes an Amtrak train station, which provides regional and interstate rail service to residents and visitors along railroad tracks owned and operated by the Union Pacific Railroad. The City's train station is located just a few blocks away to the southeast of downtown.

The City and County are served by the County-owned Regional Airport. The airport allows people to fly private aircrafts and to use commercial carriers to connect with national and global commercial carriers.



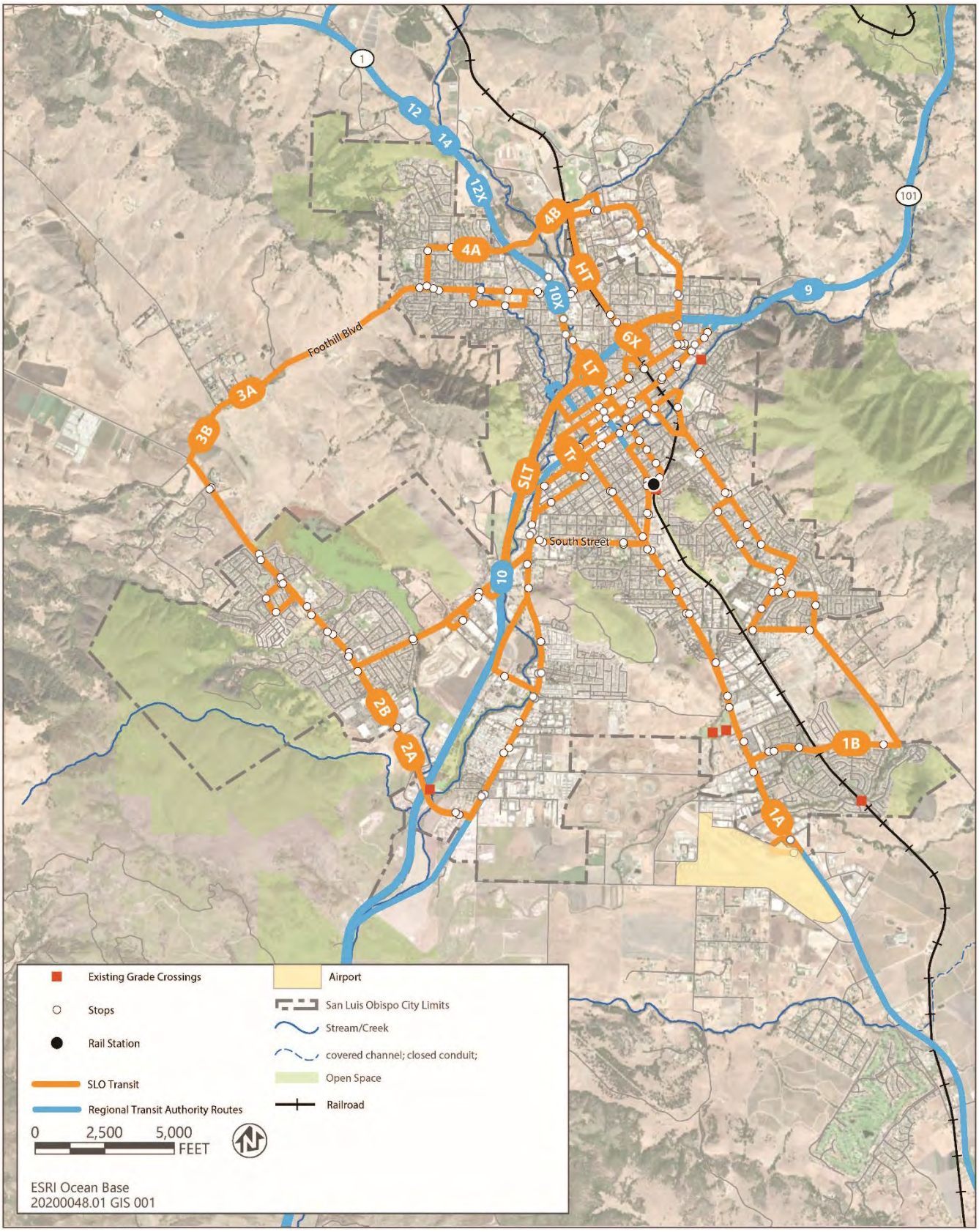
Sources: Data downloaded from City of San Luis Obispo in 2020 and County of San Luis Obispo in 2020

Figure 3-2 Existing and Proposed Bikeways



Sources: Data downloaded from City of San Luis Obispo in 2020 and County of San Luis Obispo in 2020

Figure 3-3 Pedestrian Infrastructure within San Luis Obispo

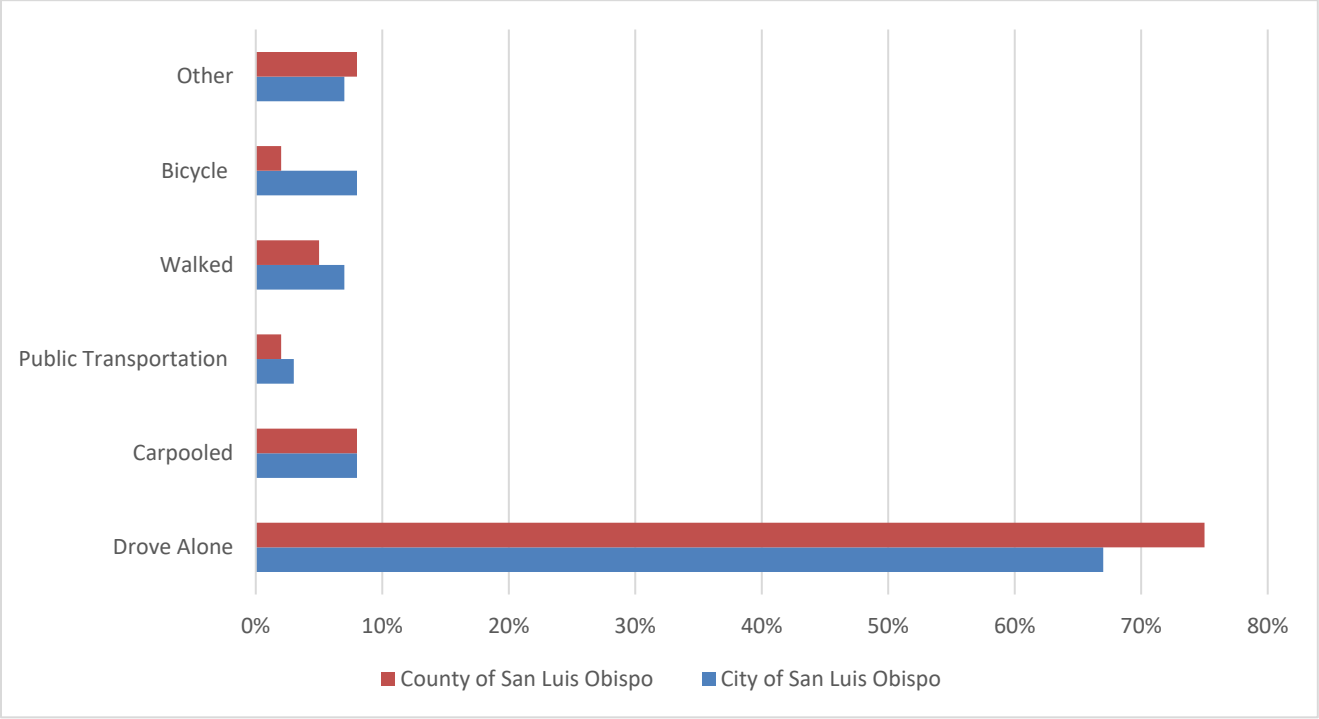


Sources: Data downloaded from City of San Luis Obispo in 2020 and County of San Luis Obispo in 2020

Figure 3-4 Public Transit Routes within San Luis Obispo

MODE SHARE

As shown in Figure 3-5, the percentage of residents in the City who commute using a non-automobile mode, such as bicycling, transit, or walking, is approximately 18 percent. In comparison, approximately 8 percent of County residents commute using a non-automobile mode. The share of City residents using transit is 3 percent, the share of residents walking to work is 7 percent, and the share of residents biking to work is 8 percent. Approximately 67 percent of residents drive alone to work, while 8 percent carpool. Figure 3-5 shows the commute characteristics by mode in the City, compared to the County data.



Source: U.S. Census Bureau 2018

Figure 3-5 Commuting Characteristics by Mode in the City and County

HAZARD IMPACTS ON THE TRANSPORTATION SYSTEM

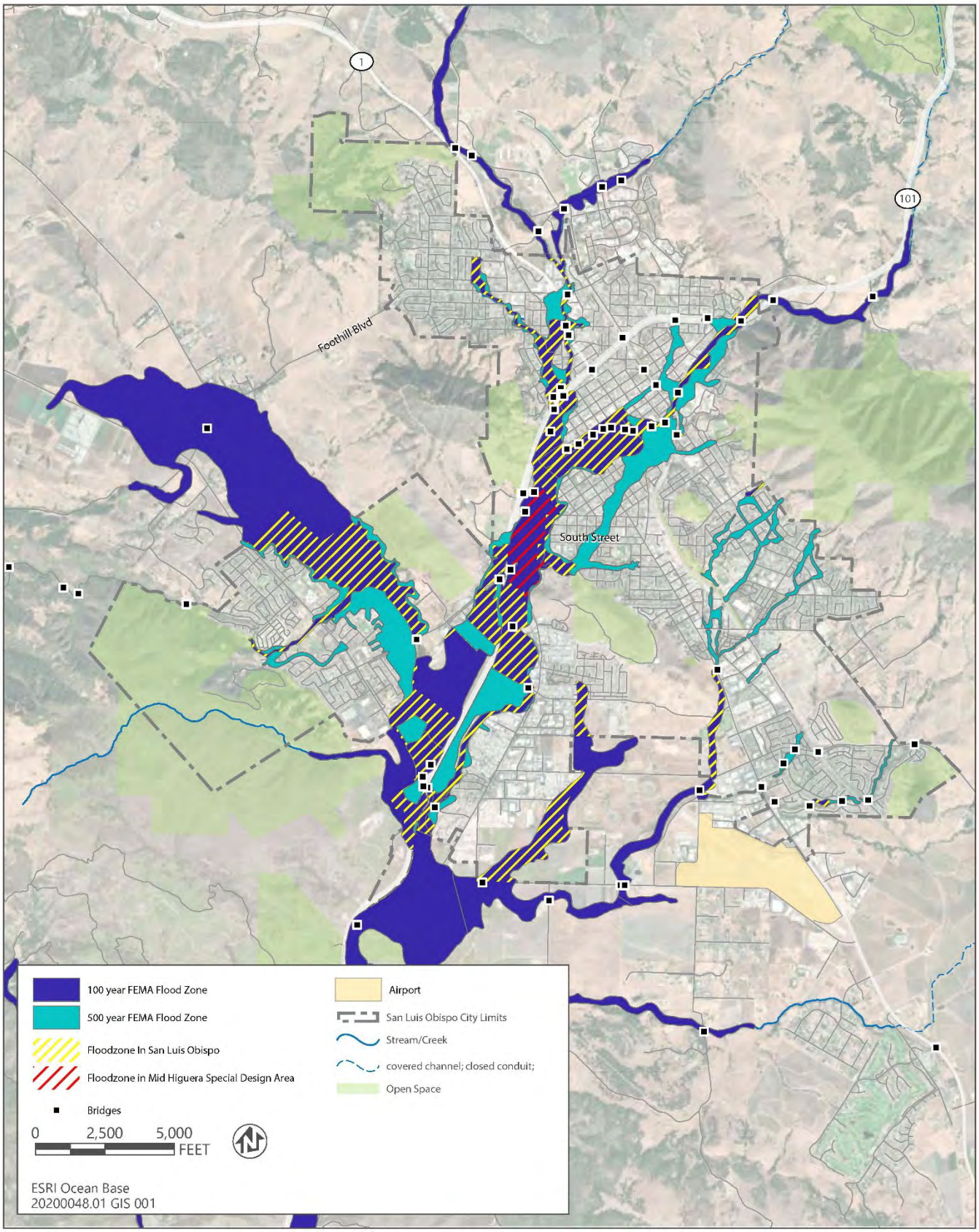
The transportation system facilitates movement of people and resources throughout the City and is both susceptible to existing hazards and a key component of effective emergency response during hazard events. Extreme heat events, wildfires and floods pose a direct physical threat to transportation facilities and infrastructure, damaging or destroying transit facilities, bridges, and roadways. Additionally, hazard events outside of the region may affect electricity infrastructure which could consequently affect electric ground transportation and transit absent strategic energy resilience efforts.

Transportation systems are designed and constructed to withstand certain variabilities in weather and temperature based on observations of historical weather trends for specific climate regions (Li et al. 2011). The performance of transportation assets may begin to decline when the severity of extreme heat periods exceeds historical ranges, for example, risk of damage to bridges due to thermal expansion increases significantly at temperatures above 100°F (Cambridge Systematics 2015). The characteristics of extreme heat events will affect different transportation assets differently.

The City's vulnerability to flooding impacts on the transportation system is largely dependent on the capacity of the City's flood management system to handle large storm events. Impacts on the transportation system from flooding events are generally caused by failures in a City's stormwater management or flood management system. For a full

discussion of the City's flood management system, see Section 2.3.2. When flooding does occur on roadways, impacts can include increased risk of roadway collisions, increased congestion due to road closures, and erosion of roadway materials (i.e., roadway subbase materials) that can cause increased roadway degradation overtime (Caltrans 2013). Figure 3-6 overlays the FEMA 100- and 500-year flood zones over the state and local bridges within the City boundary and the City's sphere of influence. As described in greater detail in Section 2.2.2, "Flooding," flood zones are located primarily along the San Luis Obispo Creek and Brizzolara Creek.

Extreme heat caused by wildfires can cause damage to roadway assets such as guard rails and signage. Route closures during or after major wildfire events can cause increased traffic congestion or travel time delays. Additionally, post-wildfire runoff, in which fire-scarred slopes produce mudslides and debris flows during storm events can also cause road closures and transportation system delays (Caltrans 2013).



Sources: Data downloaded from City of San Luis Obispo in 2020 and County of San Luis Obispo in 2020

Figure 3-6 Transportation Infrastructure and Facilities and Flood Zones

3.1.2 Critical Facilities and Infrastructure

Critical facilities and infrastructure provide essential services to the public, such as preserving the quality of life and providing essential public safety, emergency response, and disaster recovery functions. Different types of critical facilities include medical facilities, evacuation and community centers, potable water and wastewater facilities, fire stations, and local law enforcement stations. The County's HMP organizes critical facilities the following four categories:

- **Emergency Services** – Facilities or centers aimed at providing for the health and welfare of the whole population (e.g., hospitals, police, fire stations, emergency operations centers, evacuation shelters, schools).
- **Lifeline Utility Systems** – Facilities and structures such as potable water treatment plants, wastewater, oil, natural gas, electric power and communications systems.
- **Transportation Systems** – These include railways, highways, waterways, airways, and city streets to enable effective movement of services, goods and people.
- **High Potential Loss Facilities** – These include nuclear power plants, dams, and levees.

Transportation infrastructure is discussed in greater detail in Section 3.1.1, "Transportation System." Table 3-2 includes the City's critical facilities and infrastructure are that have been evaluated for their replacement value and are included in Appendix G of the HMP.

Table 3-2 Critical Facilities and Infrastructure in the City of San Luis Obispo

Category	Facility/Infrastructure Asset	Replacement Value
Community and Recreational Facilities	City Hall	$9,287,080
	Library	$1,604,146
	Ludwick Community Center	$2,559,501
	Meadow Park Recreational Center	$1,448,126
	Mitchell Park Senior Center	$1,068,158
	Sinsheimer Pool and Park	$2,623,419
Medical Facilities	Sierra Vista Regional Medical Center	N/A
	French Hospital Medical Center	N/A
Schools	California Polytechnic State University	N/A
	Cuesta College	N/A
	Laguna Middle School	N/A
	San Luis Obispo High School	N/A
Infrastructure	Critical Bridges	Varies
	Essential Bridges	Varies
	Higuera Box Culvert	$4,500,000
	Evacuation Route Roads	$50,000,000
	Other Essential City-Owned Roads	$120,000,000
	Communication Towers	N/A
Other City-Owned Facilities	City Corporation Yard	$4,884,929
	Community Development and Public Works Administration	$23,081,375
	Parking Garages	$31,674,135
	Parks and Recreation Building	$1,282,662
	Prado Day Center	$669,393
	Utilities Administration	$1,060,252

Category	Facility/Infrastructure Asset	Replacement Value
Police and Fire Stations	Dispatch Center	$6,701,098
	Fire Station #1	$5,483,205
	Fire Station #2	$511,872
	Fire Station #3	$594,009
	Fire Station #4	$507,087
	Police Main Building, Garage, Annex	$4,854,341
Potable Water and Wastewater Facilities	Fire Station #4 Well	N/A
	Pacific Beach Well	N/A
	Reservoirs	N/A
	Eight Sewer Lift Stations	N/A
	Sewer System Infrastructure (pipes) – Approx. 140 miles	N/A
	Water Resource Recovery Facility	$77,296,765
	Seven Water Pump Stations	N/A
	Water System Infrastructure (pipes) – Approx. 180 miles	N/A
	Eleven Treated Water Storage Tanks	N/A
	Water Treatment Plant	$51,486,423

Note: N/A = not available.

Source: Modified from Table G.9 in San Luis Obispo County 2019b

The San Luis Obispo Water Resource Recovery Facility (WRRF) is the City's only facility that is classified as a high potential loss facility, which is defined as a critical facility that presents a significant risk to the surrounding area if damaged (e.g., dams, nuclear power plants). Keeping wastewater contained is vital because wastewater contains contents such as human and animal waste, food scraps, oil, pesticides, fertilizers, heavy metals, and chemicals. Additionally, pathogenic bacteria, fungi, parasites, and viruses can live in wastewater before it is treated. In the event of a spill, untreated wastewater can contaminate surface water and groundwater resources and cause environmental and public health impacts, including contaminate drinking water, spread disease, cause algae blooms in waterways, and release toxic gases and odors. Flooding risk is relatively high for the WRRF because the facility is located within a 100-year floodplain with moderate liquefaction risk (San Luis Obispo County 2019b). Therefore, it is especially critical that mitigating the risks of flooding and liquefaction is prioritized for this facility.

HAZARD IMPACTS ON CRITICAL FACILITIES

Critical facilities and infrastructure are instrumental in the City's ability to respond to hazards that are affected by climate change. For this reason, they are given special consideration when planning and preparing for hazards so that these critical assets are not damaged and remain operational, especially during emergency events. Large flooding can cause significant issues for some critical facilities, specifically those involved in emergency services such as fire departments or police stations. Table 3-3 includes the name and type of facilities within the City that are within the 100-year and 500-year flood zones. Table 3-4 includes the name and type of facilities that are within the High and Very High Hazard Severity Zone designations which have been developed by CAL FIRE and discussed in detail in Section 2.3.4.

The risk of specific critical facilities to hazards is largely dependent on the type of critical facility and hazard affecting that facility. Both wildfires and floods can pose a direct physical threat to critical facilities and critical infrastructure, causing damage to or destroying buildings and structures and, subsequently causing disruptions to operation of those facilities during emergency events as well as day-to-day operations. Precipitation events, preceded by wildfires, can cause post-wildfire runoff events, placing increased stress on City infrastructure by causing increased erosion, increased siltation in waterways, increased risk of flooding from debris flow, and decreased water quality in rivers and streams. Extreme heat events can cause increased demand on utility infrastructure (e.g., increased electricity demand

for cooling) as well as cause increased demand on emergency services (e.g., increased hospital room visits). Impacts on the City's critical facilities can cause compounding effects on other community functions in the City. For example, impacts and disruptions to City's electricity grid will in turn affect businesses resulting in a potential loss of economic activity. These cascading effects will be explored further in later stages of the Resilient SLO project.

Table 3-3 Critical Facilities Located in 100-Year and 500-Year Flood Zones

Facility/Infrastructure Asset Name	Asset Type	Asset Category	Located in 100-Year Flood Zone	Located in 500-Year Flood Zone
San Luis Obispo WRRF	Waste Water Treatment Plant	Lifeline Utility Systems	Yes	Yes
N/A	Microwave Service Towers	Lifeline Utility Systems	Yes	Yes
N/A	Microwave Service Towers	Lifeline Utility Systems	Yes	Yes
N/A	Microwave Service Towers	Lifeline Utility Systems	Yes	Yes
Laurus College	Colleges / Universities	Emergency Services	Yes	Yes
Pacheo Elementary School	Day Care Facilities	Emergency Services	Yes	Yes
The Manse on Marsh	Nursing Homes	Emergency Services	Yes	Yes
San Luis Veterans Clinic	VA Medical Facilities	Emergency Services	Yes	Yes
N/A	Microwave Service Towers	Lifeline Utility Systems	No	Yes
Central California School	Colleges / Universities	Emergency Services	No	Yes
CL Smith Elementary School	Day Care Facilities	Emergency Services	No	Yes
Old Mission School	Private Schools	Emergency Services	No	Yes

Note: N/A = not available, WRRF = Water Resource Recovery Facility.

Source: Data retrieved from San Luis Obispo County 2019b

Table 3-4 Critical Facilities Located in Very High or High Fire Hazard Severity Zones

Facility/Infrastructure Asset Name	Asset Type	Asset Category	Fire Hazard Severity Zone	
			Very High	High
7 Microwave Service Towers	Microwave Service Towers	Lifeline Utility Systems	Yes	Yes
9 Microwave Service Towers	Microwave Service Towers	Lifeline Utility Systems	No	Yes
Garden Creek	Nursing Homes	Emergency Services	No	Yes
San Luis Obispo High School	Public School	Emergency Services	No	Yes
Pacific Beach High School	Public School	Emergency Services	No	Yes
Love to Learn	Day Care Facilities	Emergency Services	No	Yes
Old Mission Preschool	Day Care Facilities	Emergency Services	No	Yes
San Luis Obispo Classical Academy	Day Care Facilities	Emergency Services	No	Yes
Blue Sky Preschool	Day Care Facilities	Emergency Services	No	Yes
Cal Poly Preschool Lab	Day Care Facilities	Emergency Services	No	Yes
Love to Learn	Day Care Facilities	Lifeline Utility Systems	No	Yes
SLO Christian Academy	Private Schools	Emergency Services	No	Yes
SLO County Psychiatric Health Facility	Hospitals	Emergency Services	No	Yes
Medical Stop Urgent Care Service	Urgent Care	Emergency Services	No	Yes
Teach Elementary	Public Schools	Emergency Services	No	Yes
Peep – De'Groot Prepare School	Public Schools	Emergency Services	No	Yes
Clark Field (Historical)	Airport	Transportation Systems	No	Yes

Note: N/A = not available, WRRF = Water Resource Recovery Facility.

Source: Data retrieved from San Luis Obispo County 2019b

3.2 SOCIOECONOMIC TRENDS AND VULNERABLE POPULATIONS

Certain populations in urban areas are particularly vulnerable to a variety of hazards that are likely to be exacerbated by climate change. Vulnerabilities can include being disproportionately exposed to hazards and environmental pollution; being more sensitive to impacts because of preexisting health conditions; or having less resources or opportunities to prepare for and recover from hazard impacts. Vulnerable populations often include persons over the age of 65, infants and children, individuals with chronic health conditions (e.g., cardiovascular disease, asthma), low-income populations, athletes, and outdoor workers (CDC 2019). More broadly, any trait that would limit or prevent people from avoiding a hazard, seeking medical attention, or obtaining essential food, supplies, and/or care in an emergency would make them vulnerable to hazards.

The HPI score for the City combines 25 community characteristics across eight areas (i.e., economic, social, education, transportation, neighborhood, housing, clean environment, and health care) into a single indexed score correlated to life expectancy at birth. The HPI score ranking for the combined census tracts in the City places it in the 61st percentile, meaning it has healthier community conditions than 61 percent of other California census tracts. Although certain geographic areas and populations may be more vulnerable than others, by identifying these specific populations or geographic areas, the City can work to address these vulnerabilities and, in turn, make the whole community more resilient.

Compared to the City's overall HPI score, the City is doing particularly well in terms of education, performing better than 78 percent of other California census tracts in terms preschool enrollment and residents with a bachelor's degree or higher. However, the City ranks lower in terms of the economic factors score (39th percentile overall), which includes factors such as median household income, unemployment rate, and population with an income exceeding 200 percent of federal poverty level. The City also ranks low in terms of the housing factors score (17th percentile overall), which includes indicators such as housing habitability and low-income homeowners with a severe housing burden (HPI 2020). This summary provides highlights of the City overall HPI score. To see all information on individual indicators, visit the California HPI website (https://map.healthyplacesindex.org/).

3.2.1 Population Overview

The U.S. Census bureau estimates the City's population to be 47,459 persons as of July 2019 (U.S. Census Bureau 2019). Table 3-3 illustrates the City's demographics by sex, race, and age according to the U.S. Census. As shown, the large majority of residents identify as white with those identifying as Hispanic being the second largest demographic group. In terms of youth and elderly populations, 29 percent of City residents are either under 18 years or over 65 years old. The City is highly educated: 93 percent of the population over 25 years old has at least a high school degree, and 50 percent of the population over 25 years old has a bachelor's degree or higher (U.S. Census Bureau 2018). More specific information regarding the City's demographics will be explored further in the forthcoming Resilient SLO Hazards and Vulnerabilities Report.

Table 3-3 City Demographics by Sex, Race, and Age

Demographic Characteristics	City of San Luis Obispo	San Luis Obispo County	California
Population	47,459	283,111	39,512,223
Male	51%	51%	50%
Female	49%	49%	50%
White alone	84%	89%	72%
Hispanic or Latino	18%	23%	39%
Asian alone	6%	4%	16%
Two or more races	4%	4%	4%
Black or African American alone	2%	2%	7%
American Indian and Alaska Native alone	0.4%	1.4%	1.6%

Demographic Characteristics	City of San Luis Obispo	San Luis Obispo County	California
Persons under 5 years	3%	5%	6%
Persons under 18 years	13%	18%	23%
Persons 65 years and older	13%	21%	15%

Source: U.S. Census Bureau 2019

HOME OWNERSHIP

In 2019, the City had a total of 21,416 housing units (City of San Luis Obispo 2018). According to the 2018 American Community Survey, 91 percent are occupied and 9 percent are vacant. Homeownership versus renting provides a number of benefits including greater housing security, the ability to implement home improvement projects (e.g., energy efficiency improvements), and the ability to use a home to access financial resources (Brookings Institute 2018). The majority of housing units are rented (62 percent), while 38 percent are owned. Around 8 percent of occupied households do not have access to at least one automobile, and around 2 percent of occupied housing units have no telephone service available (U.S. Census Bureau 2018). Those who own homes, in general, have easier access to equity in their homes which provides more flexibility in emergency situations and are, therefore, less likely to become homeless from life events (Brookings Institute 2018).

HOUSING COSTS

Overall, the cost of living in San Luis Obispo is high relative to household income. Table 3-4 provides key information about housing costs in the City. As shown in Table 3-5, around 57 percent of renters spend 35 percent or more of their income on rent (U.S. Census Bureau 2018). Around 6 percent of all families and 14 percent of families with a female single parent had an income that fell below the poverty level in the span of a year (U.S. Census Bureau 2018).

Table 3-4 Housing Cost Characteristics

Housing Characteristic	Housing Cost
Median monthly cost for owners with a mortgage	$2,340
Median monthly cost for renters	$1,461 per unit
Median household income	$52,740

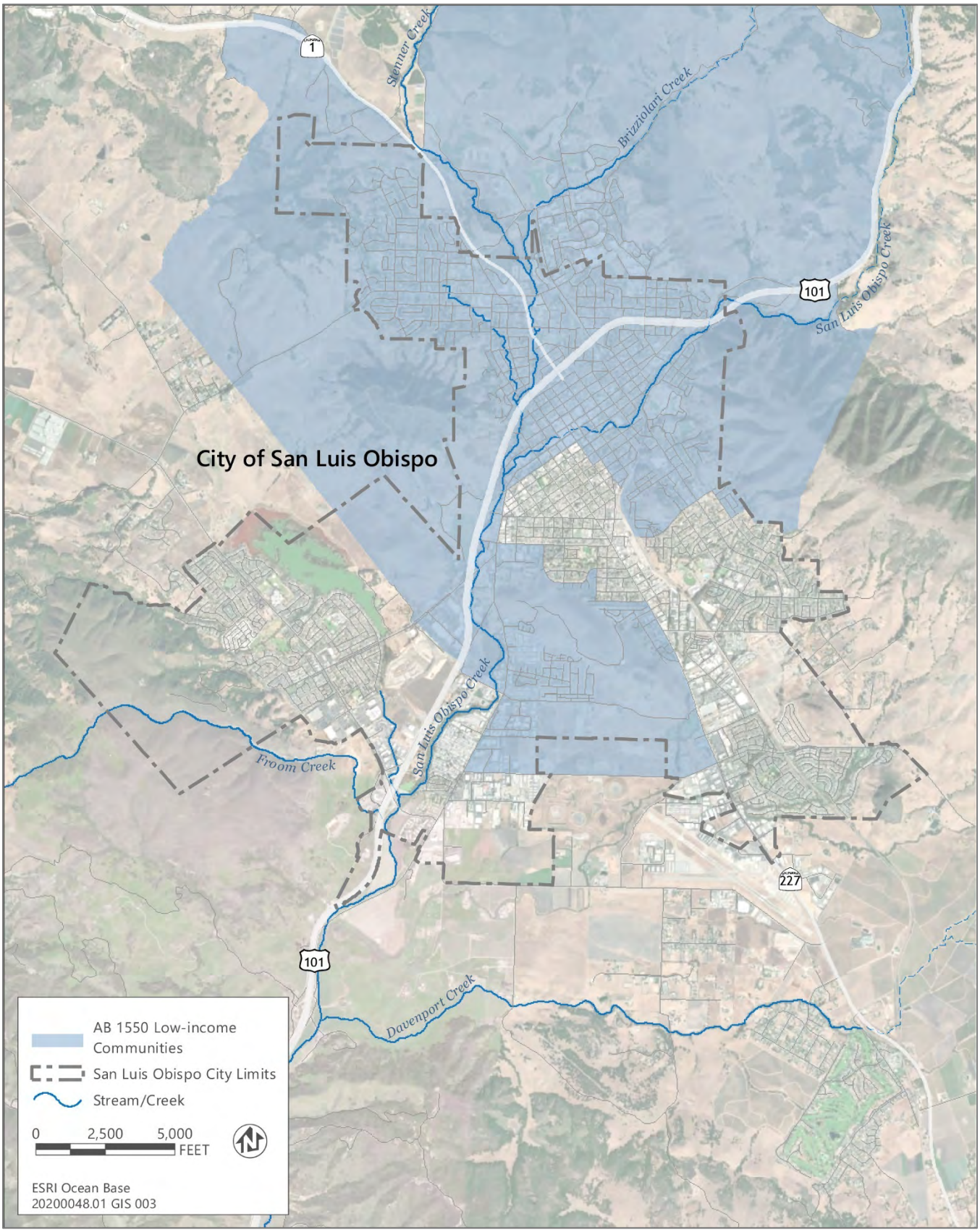
Source: U.S. Census Bureau 2018

As illustrated in Figure 3-7, the City has a substantial low-income population, as mapped consistently with definitions provided in Assembly Bill 1550, which defines low-income communities as census tracts with median household incomes at or below 80 percent of the statewide median income or with median household incomes at or below the threshold designated as low income by the California Department of Housing and Community Development's list of state income limits adopted pursuant to California Code Section 50093. As demonstrated in Figure 3-7, this population is located primarily in the northern and central parts of the City.

Table 3-5 Gross Rent as a Percentage of Monthly Household Income

Housing Characteristic	Percent of Occupied Units
Less than 15 percent	7%
15 to 20 percent	8%
20 to 25 percent	9%
25 to 30 percent	13%
30 to 35 percent	6%
35 percent or more	57%

Source: U.S. Census Bureau 2018



Source: CalEPA 2020

Figure 3-7 Low-Income Communities as Defined under Assembly Bill 1550

Research has found that housing affordability is one of the strongest predictors of rates of homelessness in a community, with higher median rents leading to higher rates of homelessness and higher rates of sheltered homeless populations. To better understand the issue of homelessness, the U.S. Interagency Council on Homelessness categorizes homeless individuals in three basic groups: chronically homeless (i.e., people who have experienced long-term homelessness), episodic homeless (i.e., people who alternate between permanent housing and supportive housing or shelters), and transitional homeless (i.e., people who become temporarily homeless because of an event, such as loss of employment) (U.S. Interagency Council on Homelessness 2009). There are approximately 482 homeless individuals in the City (City of San Luis Obispo 2020a).

EMPLOYMENT

Employment characteristics of City residents can highlight key vulnerabilities to climate impacts. Below are some examples of key employment characteristics for City residents as well as jobs located in the City.

Resident Employment Characteristics

- Of the City's population over 16 years of age, approximately 60 percent are employed, 2 percent are unemployed, and 38 percent are not in the labor force (e.g., students) (U.S. Census Bureau 2018).
- Typically, without considering the impact of COVID-19, around 3 percent of workers use public transportation to commute to work, 76 percent drive (combined alone and carpooled), 7 percent walk, 9 percent commute via other means, and around 5 percent work from home (U.S. Census Bureau 2018).
- Approximately 2 percent of the employed population works in the agriculture, forestry, fishing, hunting, and mining industries, and around 4 percent work in the construction industry (U.S. Census Bureau 2018). These workers generally work outdoors more often and for longer periods than other professions and are therefore, often have higher exposure to hazards, including extreme heat and wildfire smoke.

City Employment Industries

- The City serves a regional employment center for the County with a jobs-to-housing ratio of 2.7 jobs (including Cal Poly and the Men's Colony) for every one housing unit (City of San Luis Obispo 2018), illustrating the influx of workers from other areas in the County and elsewhere into the City for employment opportunities.
- In 2018, the largest employment industries in the City were the educational services industry (15 percent), accommodations and services (15 percent), retail trade (12 percent), and health care and social services (12 percent) (U.S. Census Bureau 2018).

DISABILITY STATUS

Individuals with disabilities, especially those who are also unemployed or underemployed, are especially vulnerable to climate hazards largely because they, along with youth and senior populations, often rely heavily on family or caretakers for transportation and other basic needs (e.g., taking medications, cooking food). Around 9 percent of the City's total civilian noninstitutionalized population has a disability, with the majority of these people 65 years and over. Around 35 percent of people 65 years and over in the City have reported having a disability (U.S. Census Bureau 2018).

HEALTH INSURANCE COVERAGE

People who do not have health insurance coverage are disproportionately at risk during emergencies because they may not be able to receive the care they need or be able to pay for treatment. Table 3-6 includes various sectors of the workforce without health insurance and insurance the vulnerability of unemployed residents to emergency hazard events.

Table 3-6 Health Insurance Coverage

Population Sector	No Health Insurance Coverage (public or private)
Total Population	5%
Unemployed Residents	17%
Employed Residents	5%
Not in the labor force	7%

Source: U.S. Census Bureau 2018

HOUSEHOLD SIZE AND CHARACTERISTICS

Single parents are often the sole providers for their households, making the household increasingly susceptible if any major life event were to occur (e.g., an illness, job loss). Single parents also have an increased burden regarding childcare, as they must be able to pay for childcare during work hours or be able to bring their children to work. Single-parent households also are likely to rely on only one source of income and are therefore, more likely to qualify as low income. Around 10 percent of households have a single parent (4 percent male householder, 6 percent female householder) (U.S. Census Bureau 2018).

Elderly populations, especially those who live alone, have a preexisting health condition, or are not able to drive, are vulnerable to climate hazards because they may be more sensitive to extreme heat and may not have the ability to move or adapt as quickly during hazardous situations compared to others. Eleven percent of householders who live alone are 65 years and over (U.S. Census Bureau 2018).

LANGUAGE

Cultural and linguistic isolation can make it difficult for people to access or understand important information regarding preparing for and responding to emergency situations. Approximately 6 percent of the City's population primarily speaks a language other than English and reports that they are able to speak English less than "very well" (U.S. Census Bureau 2018). Table 3-7 includes information about languages spoken in the City as well as what percentage of residents that speak another language do not speak English "very well" and may experience linguistic isolation.

Table 3-7 Languages Spoken by City Residents

Language Spoken	Percentage of Population	Percentage of population that speak English less than "very well"
Speak only English	83%	n/a
Speak Spanish	11%	33%
Other Indo-European Language	2.5%	26%
Asian-Pacific Island Language	3%	45%
Other Languages	0.5%	21%

Notes: n/a = not applicable

Source: U.S. Census Bureau 2018

STUDENTS

Young adults from the ages of 20–34 represent a large portion of the City's population (42 percent of the total population) largely because of enrollment at two colleges, Cal Poly and Cuesta College, the City's junior college (U.S. Census Bureau 2018). University students often have less access to vehicles on campus. For example, students at Cal Poly are not allowed to keep cars on campus during their freshman year (Cal Poly n.d.). As part of Cal Poly's emergency management planning, the university has contracted with multiple bus and shuttle companies in San Luis Obispo County to provide emergency transportation services, if needed, and worked with the San Luis Obispo

County Office of Emergency Services to ensure transportation resources would be available during large scale disaster events (Cal Poly 2018).

Generally, university students rely on on-campus housing or renting housing off campus. Because these students often have less control over their housing conditions, they could potentially have a reduced ability to deal with extreme heat or other hazards. In 2017, a brush fire broke out adjacent to the Cal Poly campus, requiring an evacuation event for many of students living in on-campus housing, further highlighting the impacts of hazard events on student populations. The two main universities located near the City are:

- Cal Poly, whose campus is located adjacent to the City boundary to the northeast, hosts the most students of the two schools with 20,503 total undergraduate students enrolled in fall 2019 (NCES 2020).
- Cuesta College, whose total undergraduate enrollment for fall 2019 was 11,281 students, with the majority being in state (96 percent) (NCES 2020).

As highlighted in the discussion above, there are several sectors of the City's population to consider when identifying vulnerable populations in the City, as suggested by the APG. Potentially vulnerable populations in the City include:

- low-income populations identified as part of Assembly Bill 1550,
- populations experiencing linguistic isolation,
- youth and senior populations,
- populations without access to a vehicle or limited mobility,
- people with disabilities or existing health conditions (e.g., asthma),
- housing insecure or homeless populations,
- populations living in coastal and inland floodplains or along the WUI,
- unemployed or underemployed populations,
- people without access to affordable health care or food, and
- outdoor and migrant workers.

3.2.2 Hazard Sensitivities for Vulnerable Populations

This sections provides a general discussion of how certain vulnerable populations may be at increased risk from climate-related hazards. The section is not intended to be an extensive analysis of all hazard sensitives for all vulnerable populations in the City. A more in-depth analysis of specific risks for vulnerable populations in the City will be included in forthcoming steps of the Resilient SLO project.

EXTREME HEAT IMPACTS

Extreme heat most severely affects populations that are more prone to heat-related illness, populations who are more exposed to weather because of the nature of their work or living situation, and populations that are less able to adapt to extreme heat. For example, youth (i.e., infants and children up to 4 years of age), elderly populations (i.e., those over 65 years old), people who are overweight, and people who are ill or on certain medications are at high risk of experiencing heat-related illness and, therefore, have greater vulnerability compared to other groups (CDC 2012). Increased temperatures have been reported to cause heat stroke, heat exhaustion, heat syncope, and heat cramps, with certain vulnerable populations at increased probability of experiencing these effects (Kovats and Hajat 2008). Extreme heat can also worsen air quality, quickening the production of ozone in areas with increased concentrations of ozone precursors (i.e., oxides of nitrogen and reactive organic gases) (Knowlton et al. 2004). Additionally, people who work outdoors (e.g., agricultural workers, construction, and utility workers) and homeless individuals are more likely to be exposed to the sun during extreme heat days, giving them exposure vulnerability.

Research has found that low-income residents spend a larger proportion of their income on utilities, including electricity used for cooling, with these residents being disproportionally affected during extreme heat events (Voelkel et al. 2018). Additionally, research has found that low-income neighborhoods can often have less tree coverage and park space, further contributing to the disproportionate impact on low-income residents (Zhu and Zhang 2008). Unhoused

individuals are also at increased risk from extreme heat events with, generally, less access to places to cool off and health care resources during these events. Additionally, decreased access to transportation services can further increase exposure and health risks from extreme heat events for the unhoused community (Ramin and Svoboda 2009).

FLOOD IMPACTS

Flooding events can occur very suddenly and unexpectedly. People who live in or near flood zones, especially those who have limited mobility, are most at risk of injury or death. Homeless populations living along waterway embankments or in flood zones are also at high risk during flooding events. These populations, along with people whose businesses are located in or near flood zones, are vulnerable to having their home or livelihood damaged or destroyed by flooding. Destructive floods can also affect the local economy when businesses or services must close for repairs or be rebuilt, in turn affecting low-income populations. When essential City infrastructure is affected by floods (e.g., transportation infrastructure, utilities, water infrastructure), people can have a more difficult time obtaining food, water, or medications, and this difficulty can disproportionately affect those with disabilities and elderly people who rely more heavily on others for assistance and supplies.

WILDFIRES

Wildfires can have serious short- and long-term effects. Immediate effects of wildfires include decreased air quality, resulting in negative health impacts on local populations, especially those who have preexisting health conditions, such as asthma. People who live within a High or Very High Fire Hazard Severity Zone and/or within the WUI are disproportionately vulnerable to wildfires. Impacts from wildfire events in and near urban centers can include loss of life, property damage, and damages to critical facilities and infrastructure. Regional and localized wildfires can also result in secondary impacts, including road closures and subsequent disruptions to the transportation system, interruptions to typical economic and community functions, short and long-term housing shortages, and public health impacts from wildfire smoke. While the City is not at very high risk from the direct impacts of wildfires, the City's location makes it susceptible to impacts of wildfire smoke from wildfires in the coastal mountain ranges of central California.

Community public health factors that can increase the impacts of wildfire smoke include the prevalence of asthma in children and adults; chronic obstructive pulmonary disease; hypertension; diabetes; obesity; percent of population 65 years of age and older; and indicators of socioeconomic status, including poverty, income, and unemployment. Exposure to wildfire smoke, particularly exposure by vulnerable populations, can result in worsening of respiratory symptoms, increased rates of cardiorespiratory emergency visits, hospitalizations, and even death (Rappold et al. 2017). Similar to flooding, wildfires can affect the local economy and damage infrastructure, in turn affecting low-income populations and making it especially difficult for some people to obtain food, water, or medications.

3.3 COMMUNITY AND ECONOMIC FUNCTIONS

This section discusses important community functions (e.g., utility operations, emergency services) and economic functions (e.g., major employment sectors) that may be affected by existing hazards. Hazard planning is especially important for the City, as it is the civic, economic, and cultural hub of the Central Coast (San Luis Obispo County 2019b).

3.3.1 Community Functions

The City provides many essential services and employment opportunities to the broader County community and serves as the governmental and cultural hub of the Central Coast region. The City has multiple regionally significant medical facilities, including two major private hospitals, as well as urgent care facilities, assisted living communities, and community health care centers. Notably, the Sierra Vista Regional Medical Center provides high-level medical and urgent care services for the County, including the County's only neurosurgery program, high-risk pregnancy program, dedicated pediatric unit, and neonatal intensive care unit (San Luis Obispo Chamber of Commerce 2020).

The City also remains an important educational resource for the region. As discussed in Section 3.2, "Socioeconomic Trends and Vulnerable Populations," the City is home to Cal Poly and Cuesta College. Cal Poly consistently ranks among the top public universities in the nation with renowned engineering, architecture, business, and agriculture programs.

The City's Fire, Parks and Recreation, Police, Public Works, and Utilities Departments, among others, provide essential public services that make the City safe and enjoyable for residents and visitors of both the City and County. The City relies on regional water supplies, the four primary sources being Whale Rock Reservoir, Salinas Reservoir, Nacimiento Reservoir, and recycled water (City of San Luis Obispo 2019a). Electric and gas utilities are provided by Pacific Gas and Electric Company.

The City not only provides high-quality services and a high quality of life to its residents, but also offers a unique travel destination for visitors from the United States and internationally. The City is located in a region that offers a variety of outdoor attractions including beaches, state parks, wineries, and outdoor recreational spaces for surfing, hiking, and mountain biking. The City is also known as a tourist destination for its charming downtown, events such as the Thursday Night Farmers' Market, historic Spanish mission, recreational trails, and a thriving wine industry, including the following major attractions and community landmarks:

- Mission San Luis Obispo de Tolosa: Founded in 1772, this historic mission was the fifth Spanish mission constructed in California.
- San Luis Obispo Wine Country: There are over 250 wineries throughout Paso Robles, Edna Valley, and San Luis Obispo County that are national and international tourist destinations.
- Recreation and Open Space: Recreational opportunities and natural open space is abundant in and around the City, with trails for hiking, cycling, and horseback riding, as well as City parks, hot springs, and golf courses. Additionally, the City is located close to the coast, where residents and visitors can enjoy activities such as surfing, kayaking, or whale watching (City of San Luis Obispo 2020b).

COMMUNITY SERVICES

The City as well as community partners offer a number of community services which support the City's overall community function. These services often focus on providing support to underserved community members who may not have equitable access to opportunities or service accessible to the general population. Included below is a list of organizations and services offered to the community which helps support overall community function.

- 40 Prado Homeless Services Center - The Community Action Partnership of San Luis Obispo, in partnership with Community Health Centers, operates the 40 Prado Homeless Services Center which helps individuals and families improve their health and stability and move them towards self-sufficiency. Services provided at the shelter include overnight accommodations (up to 100 beds), meals, showers, laundry, mail/phone services, access to case management, primary medical care, and animal kennels
- Housing Authority of San Luis Obispo - The Housing Authority of San Luis Obispo (HASLO) works to build and maintain affordable housing for citizens in the County. HASLO works with individuals and organizations to provide housing, education, and employment opportunities for families of modest means to become self-sufficient and improve their quality of life.
- SLO Food Bank - The SLO food bank provides food, supplies, and resources to over 80 different nonprofit organizations throughout the County. The organization also provides assistance to households applying for food assistance as well as other services.
- San Luis Obispo Chamber of Commerce - The San Luis Obispo Chamber of Commerce works to enhance the economic prosperity and community well-being of San Luis Obispo County by supporting and advocating for local businesses. Members of the Chamber of Commerce are provided with business support services, networking opportunities, classes and trainings, and promotional services, all in support of helping local businesses thrive.

3.3.2 Economic Functions

The City is the economic center of the County with many County residents commuting to the City for employment opportunities. Fourteen of the top 25 employers in the County are located in the City (San Luis Obispo County 2019a). Cal Poly and Cuesta College provide the City and the surrounding region with a young and highly educated workforce. The City acquires the majority of its yearly revenue from sales and use taxes ($26 million), property taxes ($18 million), and fees and service ($14.5 million) (City of San Luis Obispo 2020c). Major economic industries in the City include education, health care, tourism, and retail. Table 3-8 shows percentage of jobs by industry sector located in the City.

Table 3-8 Employment by Economic Sector in the City of San Luis Obispo for 2018

Industry	Employment (% of total)
Education services, health care, and social assistance	26.40%
Arts, entertainment, recreation, and accommodation and food services	17.20%
Retail trade	12.80%
Professional, scientific, management, and administrative and waste management services	11.90%
Manufacturing	6.10%
Construction	4.40%
Other services, except public administration	4.40%
Finance, insurance, and real estate	3.80%
Public administration	3.80%
Transportation, warehousing, and utilities	2.90%
Wholesale trade	2.10%
Information	2.10%
Agriculture, forestry, fishing and hunting, and mining	1.90%

Source: U.S. Census Bureau 2018

EDUCATION

As the top employer in both the City and the County, Cal Poly is of significant local and regional economic importance. Student, faculty, staff, and visitor spending off campus generates substantial revenue for local businesses and landowners. Approximately $160.8 million was spent by students at off-campus businesses and for housing during the 2012-2013 academic year, generating millions of dollars of tax revenue for the City, most notably from property and sales taxes (Cal Poly 2014). Cal Poly is also inextricably linked with the tourism industry, as many people come to tour the school or visit friends and family attending the university.

TOURISM

Tourism is one of the most dominant economic strengths of the City, as demonstrated by the City's high employment in retail, arts, entertainment, recreation, and accommodation and food service industries, shown in Table 3-4. The City's tourism sector largely relies on transportation infrastructure, weather, public spaces, the health and abundance of natural resources, and local attractions and services to maintain this vital industry. In the City's 2018-19 budget, 25 percent of the City's revenue came from sale tax while 10 percent came from the transient occupancy tax, generated from visitors staying at the various hotels in the City. As a result, the City relies heavily on tourism and regional visitors to provide important services to residents including public safety, street paving, bicycle, and pedestrian improvement, and other City services. In November 2020, residents in the City voted to extend a voter-approved sales tax at a new 1.5 cent rate, previously set at 0.5 cents (The Tribune 2020b). Given the City's heavy reliance on the tourism industry, the City is particularly vulnerable to climate impacts (e.g., wildfire) that would affect this industry.

AGRICULTURE

Although agriculture is not a major employment sector within the City itself, agriculture is the predominant land use surrounding the City and generates significant economic value for the County. The top five crops and livestock produced in the region by total crop value include grapes (for wine), broccoli, strawberries, avocados, and cattle. The grape and wine industry have large influence on agricultural production in the County with grapes alone accounting for approximately 27 percent of all crop value in 2018, San Luis Obispo County produced one billion dollars in crop value, demonstrating the significance of agriculture in supporting the County's economy (County of San Luis Obispo 2018).

HAZARD SENSITIVITIES ON COMMUNITY AND ECONOMIC FUNCTIONS

Flooding, extreme heat, drought, and wildfire can disrupt community and economic functions by damaging or destroying structures and infrastructure that are essential for providing those functions. In addition to the direct and immediate destruction of the structures and infrastructure that support community and economic functions, climate-related hazards may have long-term indirect effects on the community. For instance, climate-related hazards could alter the visual aesthetic associated with the City (e.g., type/density of vegetation, scarring of the landscape from wildfire/brushfire events), causing a perceived change in attractiveness to prospective visitors and students, affecting tourist- and education-related services, such as hotels, restaurants, retail, and universities.

Agriculture is a sector that is susceptible to climate-related hazards and even small changes in annual average temperatures and precipitation. Extreme heat results in higher evaporation rates, leading to decreased reservoir storage and soil saturation; can negatively affect plant growth and cattle health; and can increase the risk of certain pest infestations. Flooding can oversaturate soils, cause erosion of soils, and pose a threat to livestock in floodplains. Wildfire and wildfire smoke can destroy or damage crops, injure or kill livestock, and destroy ranching and agriculture infrastructure (CEC 2012). Impacts on the agriculture industry would, in turn, affect the tourism industry because many people visit the region for its wineries and other agricultural businesses.

The City's economy has generally been stable in recent history, with the unemployment rate ranging from 4 percent to 5 percent from 2000 to 2007. The national economic recession in 2008 caused unemployment to increase to 9 percent in 2009 (City of San Luis Obispo 2010). The current economic impacts of COVID-19 are especially pronounced in the tourism industry because of travel restrictions, closures, and social-distancing requirements. Given potential similarities in economic impacts between COVID-19 and certain hazards (e.g., wildfires and associated smoke), which place restrictions on businesses and households, it is important to understand and learn from how the City is being affected by the COVID-19 pandemic. Approximately 40 percent of the excess unemployment attributable to COVID-19 in the United States is in the leisure and hospitality sector, compared to prepandemic conditions of 11 percent. This is notable based on the large portion of jobs in the City concentrated in the tourism and service industries. Future climate impacts, particularly those involving natural resources or affecting the ability of tourists to visit the City and surrounding areas (e.g., wildfire, wildfire smoke, extreme heat), may have similar economic effects on the City. Through the end of 2020, it is estimated that the travel industry on a national level will experience $505 billion in losses, resulting in substantial decreases in federal, state, and local taxes (U.S. Travel Association 2020). Additionally, because the City relies on sales tax revenue to fund maintenance and services, these impacts could, in turn, lead to changes in the City's capacity to respond to or mitigate future hazard scenarios. However, it is possible that the current recession is temporary, especially regarding the tourism industry and that the travel economy will continue to lag only until COVID-19 cases decrease, a vaccine is developed and distributed, and travel-related businesses can open at increased capacity (Visit SLO CAL 2020).

4 REPORT FINDINGS AND NEXT STEPS

This Report sets the stage for the next steps in the Resilient SLO planning process as well as the update to the City's Safety Element by establishing an understanding of existing hazards, populations, and community assets, and how hazards have historically affected these community assets. Included below are important findings from the summary report.

Flooding

- The San Luis Obispo Creek watershed has a long history of flooding, with a series of storms over the last 50 years that have caused millions of dollars' worth of damage. Damaging flood events have occurred in 1868–1872, 1884, 1897, 1911, 1948, 1952, 1962, 1969, 1973, 1995, 1998, and 2001 (Questa Engineering Corporation 2003; City of San Luis Obispo 2014).
- For the San Luis Obispo Creek watershed, factors that may directly contribute to flooding are infrastructure-induced flow constrictions, wildfire, and degraded riparian corridors (Questa Engineering Corporation 2003). Post-wildfire runoff represents another risk for flooding because burned areas in the watershed will contribute more runoff and higher sediment loads than vegetated areas.

Extreme Heat and Drought

- For this report (see Section 2.3.3 for details), an extreme heat day for the City is defined as a day with a maximum temperature of 89.6°F or above. On average, 4 extreme heat days per year occurred in the City during the historic period (1961–1990). Although the City has not historically experienced many extreme heat conditions, the City could be experience increased sensitivity to extreme temperatures because residents are not acclimatized to or prepared for extreme heat conditions.
- San Luis Obispo County, along with larger areas of California, experience periods of long-term drought that stress the ecosystem and water supplies and, subsequently, impact agriculture, public health, and the economy. The City relies on regional water supplies, the four primary sources including Whale Rock Reservoir, Salinas Reservoir, Nacimiento Reservoir, and recycled water (City of San Luis Obispo 2019a) and has developed and regularly updates the Urban Water Management Plan to help manage the City's water supply.

Wildfire and Associated Impacts

- The City often experiences high-wind events, such as the Santa Lucia winds, which originate inland and flow westward during the late summer and early fall, counter to the prevailing westerly winds that occur throughout much of the year. The combination of the relatively hot, dry Santa Lucia winds occurring at a time when vegetation in the County and the City is particularly dry following the summer months can contribute to the ignition and spread of large wildfires.
- The risk of wildfires and subsequent impacts to property and life is greatest at the wildland-urban interface (WUI), which is where urban development borders wildland fuels. Wildfire risk is compounded in areas of the WUI that are also located in or near High or Very High Fire Hazard Severity Zones which can be seen in Figure 2-7 in the Report.
- While the City is not at very high risk from the direct impacts of wildfires, the City's location makes it susceptible to impacts of wildfire smoke from wildfires in the coastal mountain ranges of central California. Community public health factors that can increase the impacts of wildfire smoke include the prevalence of asthma in children and adults; chronic obstructive pulmonary disease; hypertension; diabetes; obesity; percent of population 65 years of age and older; and indicators of socioeconomic status, including poverty, income, and unemployment.

Sensitive Infrastructure

- Critical facilities and infrastructure are instrumental in the City's ability to respond to hazards that are affected by climate change. For this reason, they are given special consideration when planning and preparing for hazards so that these critical assets are not damaged and remain operational, especially during emergency events.

- Transportation systems are designed and constructed to withstand certain variabilities in weather and temperature based on observations of historical weather trends for specific climate regions (Li et al. 2011). The performance of transportation assets may begin to decline when the severity of extreme heat periods exceeds historical ranges, for example, risk of damage to bridges due to thermal expansion increases significantly at temperatures above 100°F (Cambridge Systematics 2015).
- The City's vulnerability to flooding impacts on the transportation system is largely dependent on the capacity of the City's flood management system to handle large storm events. Impacts on the transportation system from flooding events are generally caused by failures in a City's stormwater management or flood management system.

Vulnerable Populations and Community Functions

- Around 8 percent of occupied households in the City do not have access to at least one automobile, and around 2 percent of occupied housing units have no telephone service available (U.S. Census Bureau 2018), which can both result in increased risk during evacuation scenarios.
- Overall, the cost of living in San Luis Obispo is high relative to household income. Approximately 57 percent of renters spend 35 percent or more of their income on rent (U.S. Census Bureau 2018). Those who own homes, in general, have easier access to equity and provide more flexibility in emergency situations and are, therefore, less likely to become homeless from life events (Brookings Institute 2018).
- Approximately 6 percent of the City's population primarily speaks a language other than English and reports that they are able to speak English less than "very well" (U.S. Census Bureau 2018), which may cause issues with communication during emergency events.
- In 2018, the largest employment industries in the City were the educational services industry (15 percent), accommodations and services (15 percent), retail trade (12 percent), and health care and social services (12 percent) (U.S. Census Bureau 2018).
- The City is the economic center of the County with many County residents commuting to the City for employment opportunities. Fourteen of the top 25 employers in the County are located in the City (San Luis Obispo County 2019a).
- Tourism is one of the most dominant economic strengths of the City, as demonstrated by the City's high employment in retail, arts, entertainment, recreation, and accommodation and food service industries. The City's tourism sector largely relies on transportation infrastructure, weather, public spaces, the health and abundance of natural resources, and local attractions and services to maintain this vital industry.
- In the City's 2018-19 budget, 25 percent of the City's revenue came from sale tax while 10 percent came from the transient occupancy tax, generated from visitors staying at the various hotels in the City. As a result, the City relies heavily on tourism and regional visitors to provide important services to residents including public safety, street paving, bicycle, and pedestrian improvement, and other City services. Given the City's heavy reliance on the tourism industry, the City is particularly vulnerable to climate impacts (e.g., wildfire) that would affect this industry.

4.1 NEXT STEPS

The next step in the planning process is to use downscaled global climate projections to evaluate how climate change will affect the City in the near-term, by midcentury, and by late century. A detailed analysis will be conducted to assess how existing hazards may be exacerbated by the effects of climate change and how these exacerbated hazards may affect the City and its population. Additionally, a Resilience Roundtable will be developed, composed of experts and community stakeholders to inform the planning. These steps will result in the preparation of a full hazards report, which will describe the project activities to date and help inform what resilience strategies should be included in the City's Safety Element update to mitigate the current and future impacts of climate change.

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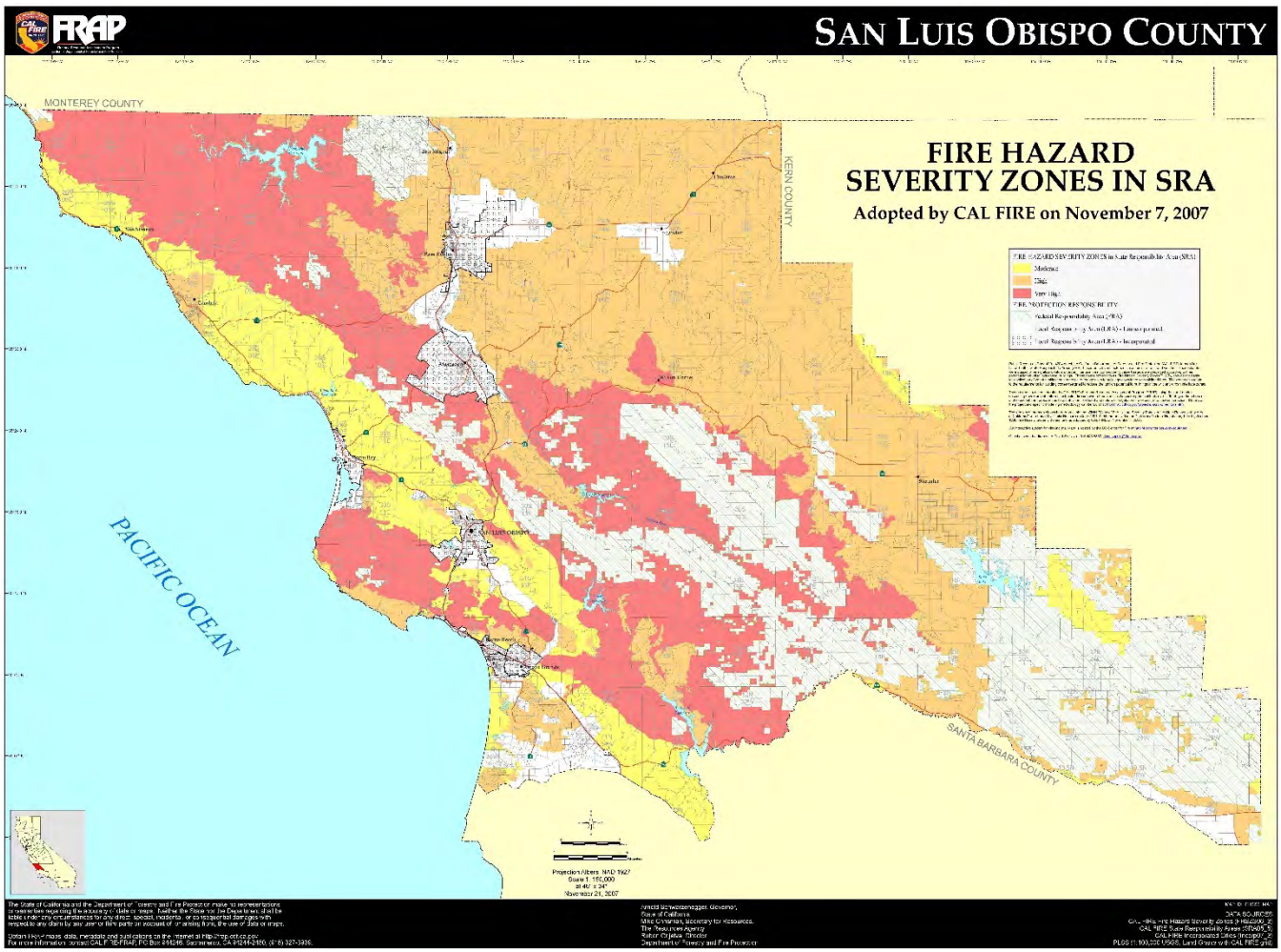
Appendix A

CAL FIRE San Luis Obispo County
Hazard Severity Zone Map


SAN LUIS OBISPO COUNTY
FRAP
MONTEREY COUNTY
KERN COUNTY
SANTA BARBARA COUNTY
PACIFIC OCEAN
FIRE HAZARD
SEVERITY ZONES IN SRA
Adopted by CAL FIRE on November 7, 2007

Appendix B

Resilient SLO Community Priorities Survey

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Authors
Catherine Foster and Amber McGarvey

1 RESILIENT SLO COMMUNITY PRIORITY SURVEY: RESULTS SUMMARY

1.1 PURPOSE

Resilient SLO, an initiative of the City of San Luis Obispo, will result in an update to the City's General Plan to include strategies for building community resilience to the impacts of climate change. The project team consists of the Local Government Commission as the project managers and Ascent Environmental, Inc. as the lead technical consultant. Resilient SLO is designed to be a comprehensive, innovative, and inclusive planning process – one that elevates community voice in decision-making, utilizes best-available science and practices, and focuses on the real challenges that individuals face in the city of San Luis Obispo: climate change, the ongoing COVID-19 pandemic, and economic uncertainty. The Community Priority Survey is one means of the inclusive planning process. This survey sought to gather broad input on overall community priorities, concerns related to climate change impacts, experience with past hazards and response efforts, and priorities for local action. Results will be utilized in the short-term to inform the vulnerability assessment and future community engagement and education activities. Long- term outcomes from the larger Resilient SLO project include educational activities to ensure San Luis Obispo residents and businesses are equipped with the information and strategies to prepare and build resilience to climate change risks and hazards, a comprehensive vulnerability assessment of the city's physical assets, and infrastructure, an updated Safety Element of the General Plan with identified adaptation strategies across key sectors, an implementation guide that translates strategies into detailed work plans and model policies to catalyze action, trainings for City staff and supporting organizations to build collective capacity to respond to climate change hazards and disasters, and an Implementation Guide with work plans and model policies to catalyze action.

1.2 METHODOLOGY

This survey was the first opportunity for community members to give feedback on their concerns related to climate impacts, hazards, and vulnerabilities to be addressed in the larger Resilient SLO initiative. To inform the updates to the hazard mitigation plan and Safety Component of the General Plan, the project team was interested in hearing from community members on their climate impact experiences and their priorities, in order to incorporate effective planning measures. The climate impacts mentioned in the core questions came from impacts identified for the region in California's 4th Climate Change Assessment. Other priority areas were sourced from current events and stressors, such as COVID-19. The project team began drafting the survey in July 2020. Team leads on the project from the City, the Local Government Commission, and Ascent Environmental, Inc. met bi-weekly on project deliverables.

1.3 QUESTIONS

The survey consisted of 19 questions, including 13 multiple-choice and 6 open-ended. The survey included 4 demographic questions to evaluate whether respondents reflected the diversity of the local community. Respondents were also asked the zip code of both their residence and employment to gauge whether they lived or worked in the City. The remaining questions evaluated community priorities, concerns over climate hazards and impacts, experiences with hazards, evaluation of the City's response to past hazards, and interest in further information on resilience and adaptation topics. The survey opened on August 31st, 2020.

The scale and categories for each core multiple-choice question are noted below:

Question	Scale	Categories
Which of the following issues are you currently concerned about?	Level of Concern: ▶ Not at all ▶ Somewhat ▶ Very	▶ Access to Healthy Food ▶ Affordable Housing ▶ Air Pollution ▶ COVID-19 ▶ Earthquakes ▶ Job Security and Economic Vitality ▶ Social Equity and Justice ▶ Transportation affordability and accessibility ▶ Tree health and maintenance ▶ Water Pollution/ Stream health
Which of the following climate change impacts are you concerned about?	Level of Concern: ▶ Not at all ▶ Somewhat ▶ Very	▶ Drought and Decreased Water Supply ▶ Flooding and Storm Damage ▶ Hotter Temperatures and Heat Waves ▶ Sea Level Rise ▶ Wildfires ▶ Wildfire Smoke
How concerned are you that climate change will impact any of the following areas?	Level of Concern ▶ Not at all ▶ Somewhat ▶ Very	▶ Access to Beaches and Open Space ▶ Community Culture ▶ Employment and Job Security ▶ Evacuations ▶ Property Value ▶ Public Health and Safety ▶ Transportation Disruptions ▶ Utility Disruptions and Power Outages
Which of these hazards have you been personally affected by in the past 1-3 years in the City of San Luis Obispo?	Level of Impact ▶ Not at all ▶ Somewhat ▶ Significantly	▶ Air Pollution ▶ Drought and Water Supply ▶ Erosion ▶ Extreme Rainfall ▶ Flooding ▶ Hotter Temperatures and Heat Waves ▶ Tule Fog ▶ Wildfires ▶ Wildfire Smoke
For each hazard that you were affected by, please rank your level of satisfaction with the City's response.	Level of Satisfaction ▶ Not at all ▶ Somewhat ▶ Very	▶ Air Pollution ▶ Drought and Water Supply ▶ Erosion ▶ Extreme Rainfall ▶ Flooding ▶ Hotter Temperatures and Heat Waves ▶ Tule Fog ▶ Wildfires ▶ Wildfire Smoke
How would you prioritize the following actions in the city of San Luis Obispo?	Rank Order (1-7)	▶ Parks ▶ Public transportation ▶ Housing ▶ Trails

Question	Scale	Categories
		▶ Space for Businesses ▶ Land Preservation ▶ Agricultural Land Preservation

1.4 DEMOGRAPHIC QUESTIONS

The city sought to reach out to respondents that were representative of the diverse population of the City of San Luis Obispo. Respondents were given the option of providing key demographic details respondents or declining to answer. The questions included in this section are detailed below:

[Age] What is your age?

- Under 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- Above 65
- Prefer not to say

[Race/Ethnicity] How would you describe yourself? Please select all that apply.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic, Latino, or Spanish origin
- Middle Eastern or North African
- Native Hawaiian or Other Pacific Islander
- White or Caucasian
- Other (please specify)
- Prefer not to say

[Household Income] What was your total household income before taxes in 2019?

- Less than $30,000
- $30,000- $39,999
- $40,000 - $59,999
- $60,000 - $79,999
- $80,000 - $99,999
- $100,000 or more
- Prefer not to say

1.5 OUTREACH

Original plans for survey outreach included in-person events and in-person survey opportunities to complement online and phone surveys. Due to COVID-19 and quarantine restrictions, these forms of outreach could not take place; outreach had to be fully remote. The primary form included an online survey on the city's OpenGov web portal which also regularly hosts surveys for other city initiatives outside this project and for regularly scheduled city meetings that are broadcast on the website. In an effort to bridge the digital divide, the project team worked with the city to establish a phone line for respondents to call in their responses. However, no respondents utilized the phone line to respond. In-person events would have reached more respondents who do not have internet access but the inability to hold in-person events affected the ability to fulfill that form of engagement.

To promote the phone-line and online survey, the project team reached out over e-mail or social media to organizations, businesses and agencies that serve populations who live, work, or go to school in San Luis Obispo. These promotional partners were asked to share the survey with their audiences and were given a promotional toolkit with sample email language and social media posts. A wide variety of organizations were contacted (approximately 126), in the hopes of reaching the diverse composition of the local community. Organizations contacted included local educational institutions, non-profits, coalitions, professional associations, cultural organizations, and businesses. Most outreach was conducted by email; 115 organizations were contacted via email. Highly trafficked social media accounts were also contacted. 11 organizations and/or individuals were contacted via social media. Promotional partners received a promotional kit, which included sample e-mail language, sample social media posts plus photo postcards, and a high level overview of key details, to share with their constituents. The survey deadline, originally the end of September, was extended to October 11th to give more time for responses. Once the deadline was extended, organizations were notified of the extension. In addition to outreach through promotional partners, the survey was also shared on 1-2 times per week on City's social media accounts.

On September 17th, a Spanish version of the survey was created on Survey Monkey. On September 29th, the entire promotional kit was translated to Spanish to conduct more outreach to the Spanish speaking community and shared with promotional contacts. Promotional asks to Latino, Hispanic, and Spanish-speaking cultural groups primarily went through Cal Poly students. Despite reaching out to organizations, the Spanish language survey posted on Survey Monkey did not receive any responses.

1.6 PROCESS OF ANALYSIS

1.6.1 Core Questions

Responses for each multiple-choice core question were analyzed to reveal the following:

a. Areas of Highest Concern/Impact/Satisfaction (for all Respondents)

b. Areas of Highest Concern/Impact/Satisfaction (for key Demographic Groups)

In evaluating the areas of highest concern/impact/satisfaction for all Respondents, we included all relevant measures for the specific category (ex. "Not at all", "Somewhat", "Very/ Significantly"). Responses are shown as absolute numbers (total counts) unless otherwise indicated.

In evaluating the Highest Concern/Impact/Satisfaction for select demographic groups, we chose to only focus on "Very" or "Significant" responses. Although a "somewhat" response indicates some level of concern/impact/satisfaction (as compared to a "not at all"), it was decided that a "Very" or "Significant" response was more indicative of a respondent's paramount concern. Thus, all responses for select Demographic Groups represent the percentage or total of respondents indicating "Very or "Significant" for the specific category.

Additionally, further grouping was performed on both Household Income and Race/Ethnicity for the ease of analysis and interpretability.

Household Income was re-structured into the following three groups:

- Less than $50,000
- $50,000 - $100,000
- $100,000 +

Race/Ethnicity was re-structured into the following two groups:

- White or Caucasian
- All other Races/Ethnicities

1.6.2 Open-Ended Questions

The survey contained six open-ended questions. Open-ended responses were categorized by topic area and analyzed for emerging themes. A word cloud has also been created to highlight key categories. The full text of responses will be available in the Appendix.

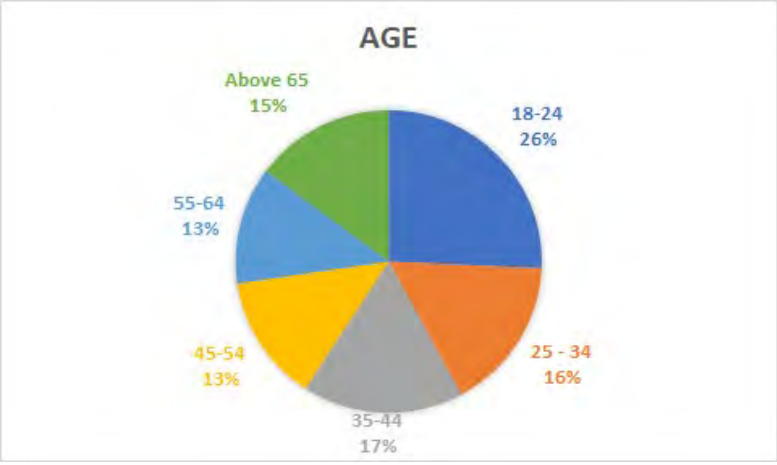
1.7 RESULTS

1.7.1 Overview

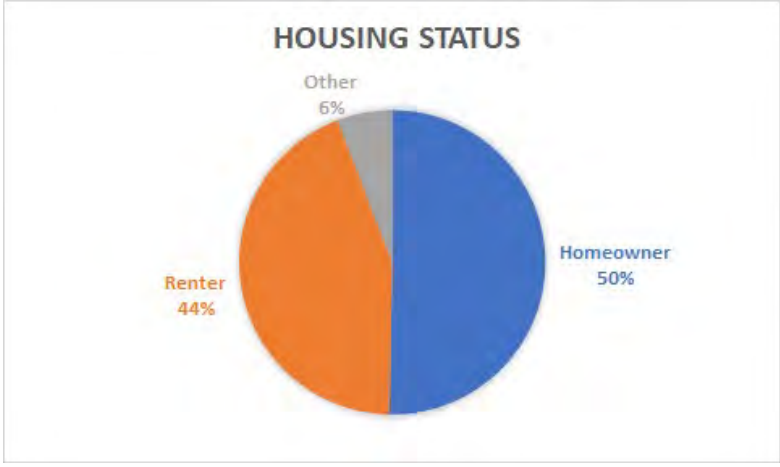
The English version of the survey was initiated on August 31st and closed on October 11th. The English version of the survey had 413 visitors and 331 responses. However, because of duplicate responses, only 328 responses were included in the analysis. Engagement with the survey generated over 16 hours of public comment. 290 of the respondents indicated that they lived or worked in a City zip code, while 41 responses came from a zip code outside of City limits. All responses, both in-City and out of City zip codes were analyzed. The Spanish Version of the survey, published two weeks after the English survey, had no respondents. The phone-in option was not utilized either.

1.7.2 Demographics

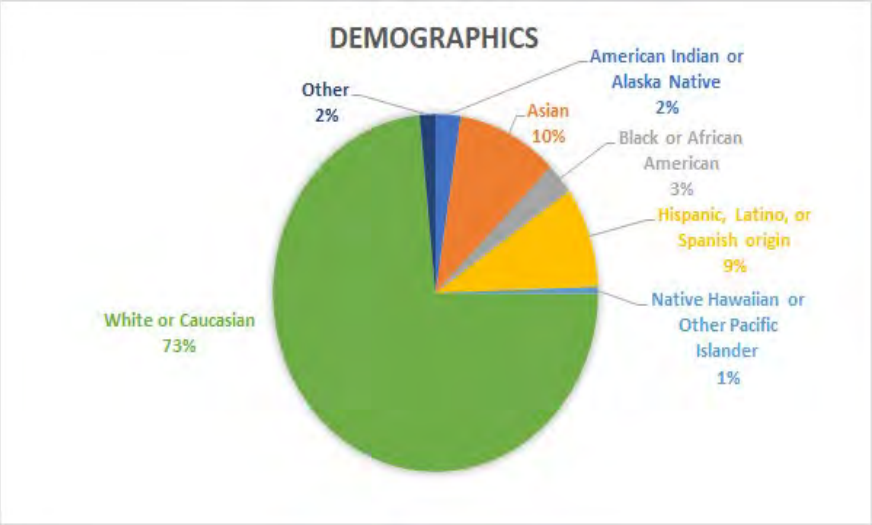
Respondents were asked to answer basic demographic information including age, housing status, income and ethnicity. These questions were asked to assess how well the survey respondents reflected the actual community make-up of San Luis Obispo. Respondents were asked to identify what 10-year age block they belonged to. The highest percentage of respondents were 18-24 (26%), followed by 25-34 (16%), 35-44 (17%), above 65 (15%), 45-54 (13%), and 55-64 (13%).



Half of respondents were homeowners (50%), 44% were renters, and 6% selected "other".



The most common household income selected by respondents was $100,000-149,000 (58), followed by 200,000 or more (33). In contrast, 30 respondents selected the lowest income bracket (less than 10,000), and 14 selected the second lowest income bracket: $10,000-14,999.



Respondents most commonly described themselves as White or Caucasian (234), followed by Asian (32), Hispanic, Latino or Spanish origin (29), Black or African American (9), American Indian or Alaskan Native (8), and Native Hawaiian or other Pacific Islander (2). It is worth noting that 42 respondents chose "prefer not to say" when describing their racial identity.

As a reference point, Demographic results from the survey were compared with the 2018 American Community Survey to determine if the survey respondents over or under represented the demographics of SLO residents. Details on representation are noted below.

Demographic	2018 American Community Survey (%)	Community Priority Survey Results (#, %)	Over or Under Represented?
Housing Situation			
Homeowner	68%	164, 49.5%	Under
Renter	35%	146, 44%	Over
Age			
Under 18	13.1%	0, 0%	Under

Demographic	2018 American Community Survey (%)	Community Priority Survey Results (#, %)	Over or Under Represented?
18 - 24	34.9%	80, 25%	Under
25 - 34	13.6%	51, 16%	Over
35 - 44	8.3%	53, 16%	Over
45 - 54	8.7%	42, 13%	Over
55 - 64	8.9%	40, 12%	Over
Above 65	12.5%	46, 14%	Over
Ethnicity/Race			
American Indian or Alaskan Native	.3%	8, 2%	Over
Asian	5.6%	31, 9%	Over
Black or African American	2.0%	5, 2%	Equal
Hispanic, Latino or Spanish origin	18.3%	23, 7%	Under
Native Hawaiian or Pacific Islander	.1%	2, 1%	Over
White or Caucasian	70.7%	237, 72%	Over
Other	.2%	3, 1%	Over
Household Income			
Less than $10,000	11.6%	30, 9%	Under
$10,000 - $14,999	7.3%	15, 5%	Under
$15,000 - $24,999	11.2%	9, 3%	Under
$25,000 - $34,999	6.3%	15, 5%	Under
$35,000 - $49,999	11.2%	17, 5%	Under
$50,000 - $74,999	15.2%	30, 9%	Under
$75,000 - $99,999	10.8%	29, 9%	Under
$100,000 - $149,999	12.8%	59, 18%	Over
$150,000 - $199,999	5.8%	32, 10%	Over
$200,000 or more	7.8%	33, 10%	Over

Hispanic, Latino or Spanish origin were the most underrepresented when compared to the 2018 American Community Survey. The survey respondents were also younger than the 2018 American Community Survey results. The two youngest age groups were underrepresented, especially those under 18 whom were not represented at all. All other age groups were slightly overrepresented. 12 respondents chose "prefer not to say" on this demographic question. Otherwise, all results were within 4 percentage points of the 2018 American Community Survey showing a successful sample of SLO demographics.

The demographic question that most respondents declined to answer was about total household income with 57 choosing "prefer not to say." The highest three income brackets were overrepresented while lower income brackets were underrepresented compared to the 2018 American Community Survey results. This could be correlated with the higher percentage of survey respondents in younger age groups, who tend to make less money than older Americans later in their careers.

All respondents had to choose an answer when asked about their housing situations. The options included "Homeowner, Renter, and Other." Homeowners were under represented by respondents while renters were over represented. 19 chose "Other" to specify their housing situation. Some of them were students living at home or in student housing.

1.7.3 Open-Ended Questions

Details for each open-ended question are provided below:

- Of the open-ended questions, Question 5, "If there are other community issues not listed above that you are concerned about, please provide them here," had the most responses (153).
- Question 16, "What climate change adaptation and community resilience topics are you interested in learning more about?" had the 2nd highest number of responses (105).
- Question 14 garnered the third most responses (95), and asked "Do you have suggestions for how the City of San Luis Obispo can improve response efforts (to hazards)?"
- Question 13 had the 4th most respondents (83) and "Do you have any comments to share regarding how you were affected by past hazards and/or city response efforts?"
- Question 7, "If there are other climate change impacts not listed above that you are concerned about, please provide them here," had 77 responses.
- Questions 9 and 11 had the lowest number of respondents (54) and (37) respectively. Question 9 asked for additional areas impacted by climate change of concern. Finally, question 11 asked for additional hazards that respondents have been personally affected by over the past 1-3 years.
- Responses to key open-ended questions are discussed in detail in the results below.
- There were 604 total responses to open-ended questions.

Question	Number of Responses
5: "If there are other community issues not listed above that you are concerned about, please provide them here"	153
16: "What climate change adaptation and community resilience topics are you interested in learning more about?"	105
14: "Do you have suggestions for how the City of San Luis Obispo can improve response efforts (to hazards)?"	95
13: "Do you have any comments to share regarding how you were affected by past hazards and/or city response efforts?"	83
7: "If there are other climate change impacts not listed above that you are concerned about, please provide them here"	77
9: "If there are other areas impacted by climate change not listed above that you are concerned about, please provide them here."	54
11: "If there are other hazards that you have been personally affected by in the past 1-3 years in the City that are not listed above, please provide them here."	37

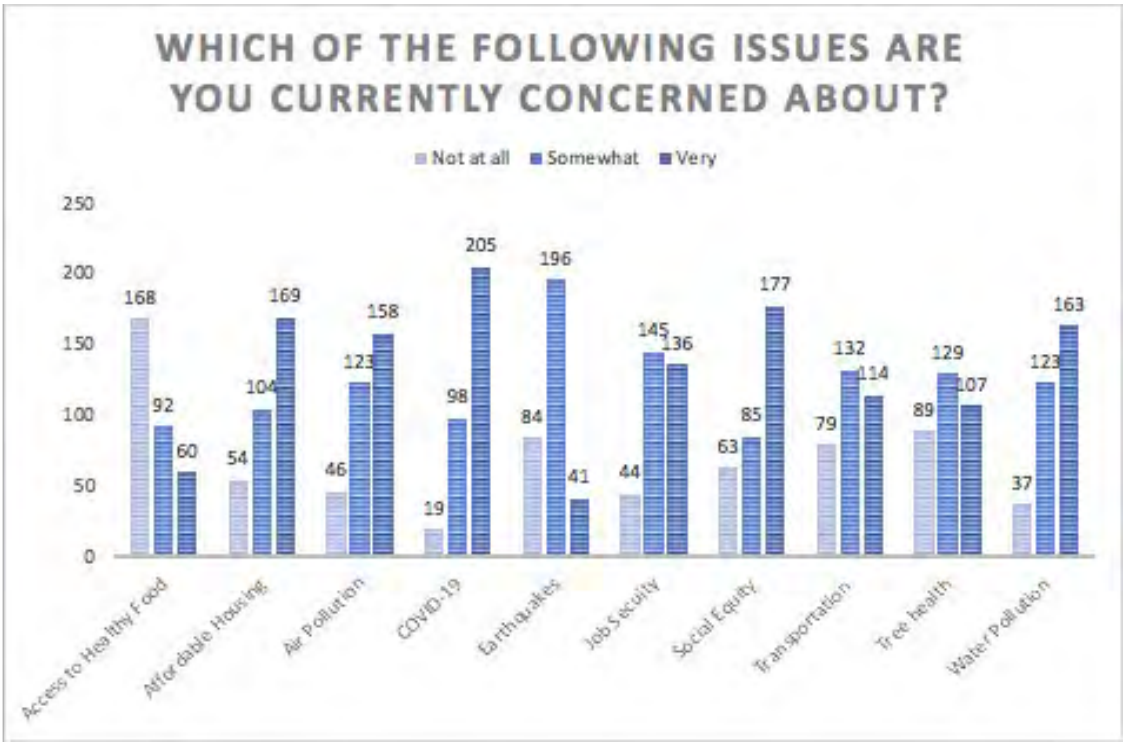
1.7.4 Core Questions

WHICH OF THE FOLLOWING ISSUES ARE YOU CURRENTLY CONCERNED ABOUT?

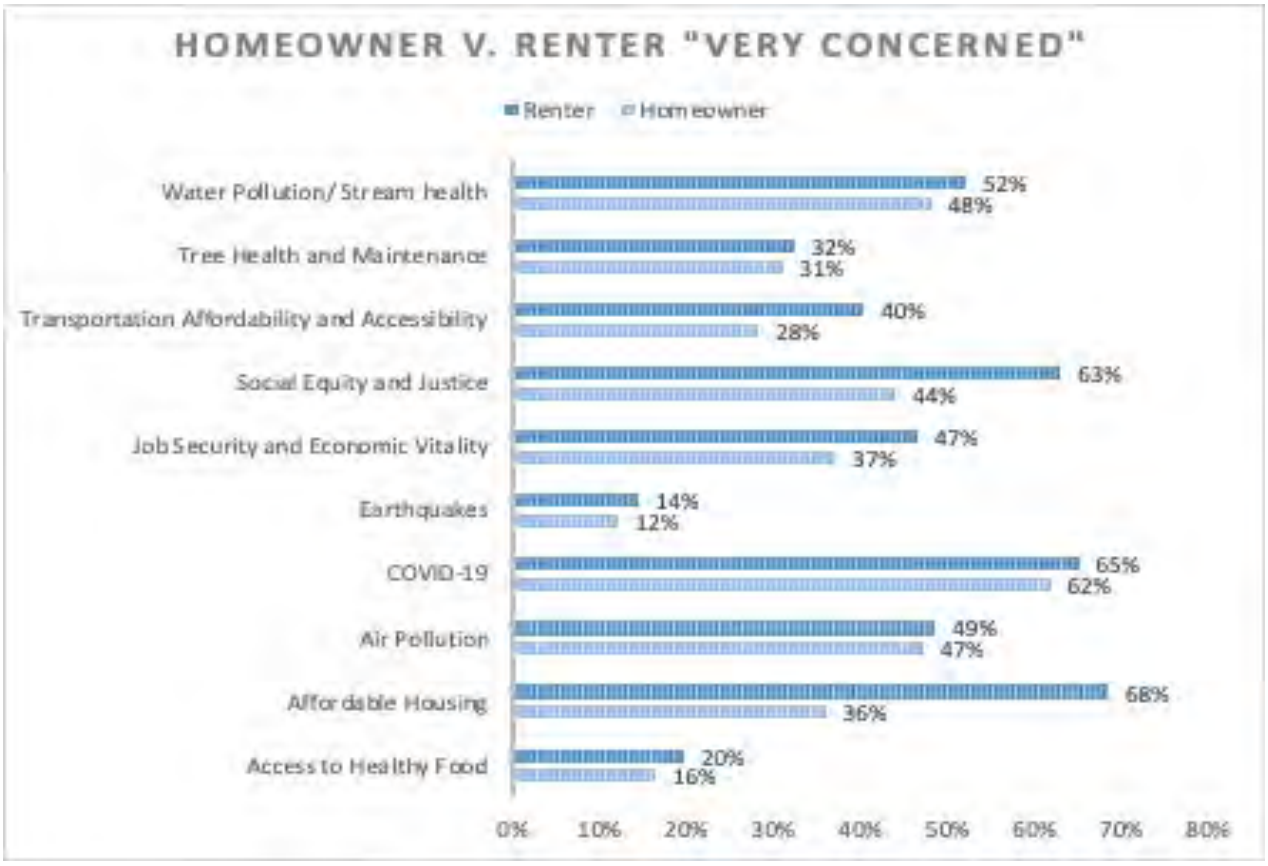
Overall Results

Level of Concern	Not at all	Somewhat	Very
Access to Healthy Food	168	92	60
Affordable Housing	54	104	169
Air Pollution	46	123	158
COVID-19	19	98	205
Earthquakes	84	196	41
Job Secuity	44	145	136
Social Equity	63	85	177
Transportation	79	132	114
Tree health	89	129	107
Water Pollution	37	123	163

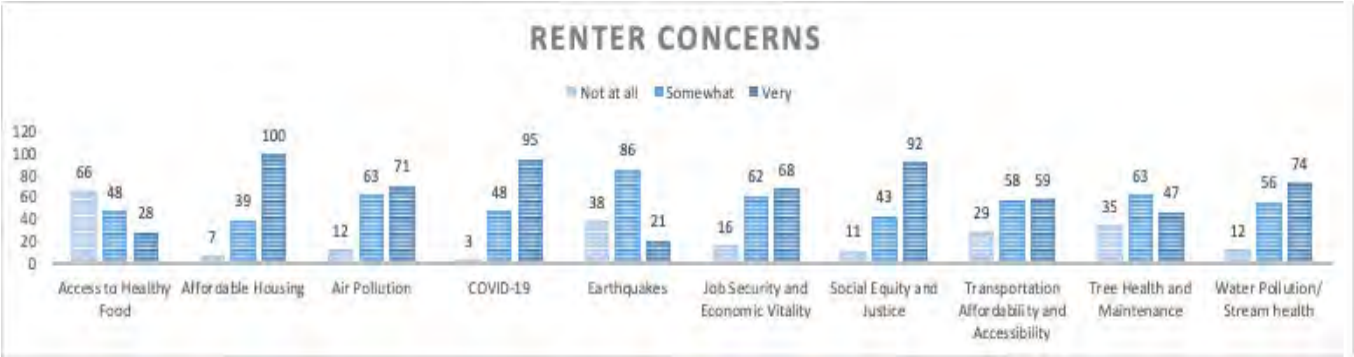
Respondents were most concerned about issues that are affecting their day-to-day life in 2020. As noted on the Figure above, this includes COVID-19, Air Pollution, Job Security, Social Equity and Affordable Housing. The strong concern for COVID-19 is not surprising; during the time period the survey was open, COVID-19 still had California counties in various stages of quarantine/lockdown. Additionally, the already competitive housing market in the state went through changes as some cities saw rents shift unpredictably. Furthermore, the summer saw high periods of social unrest as cases of police brutality and racial injustice were brought to the national spotlight. Beginning in August, wildfires broke out across the state following dry conditions, lighting, high-winds, and extreme heat. 2020 has also seen the largest wildfire in California's history, and the multiple fires occurring caused poor air quality for wide swaths of the state including the central coast.



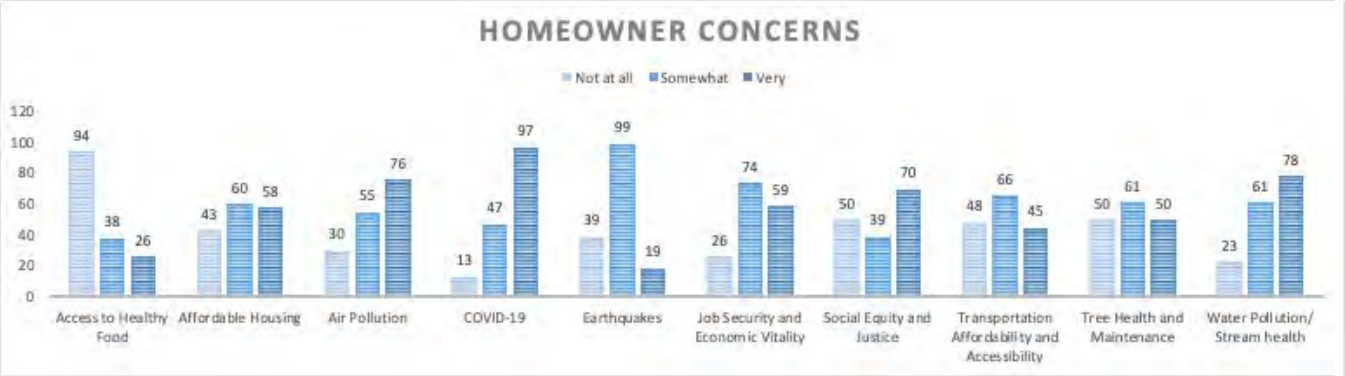
Variation by Housing Situation



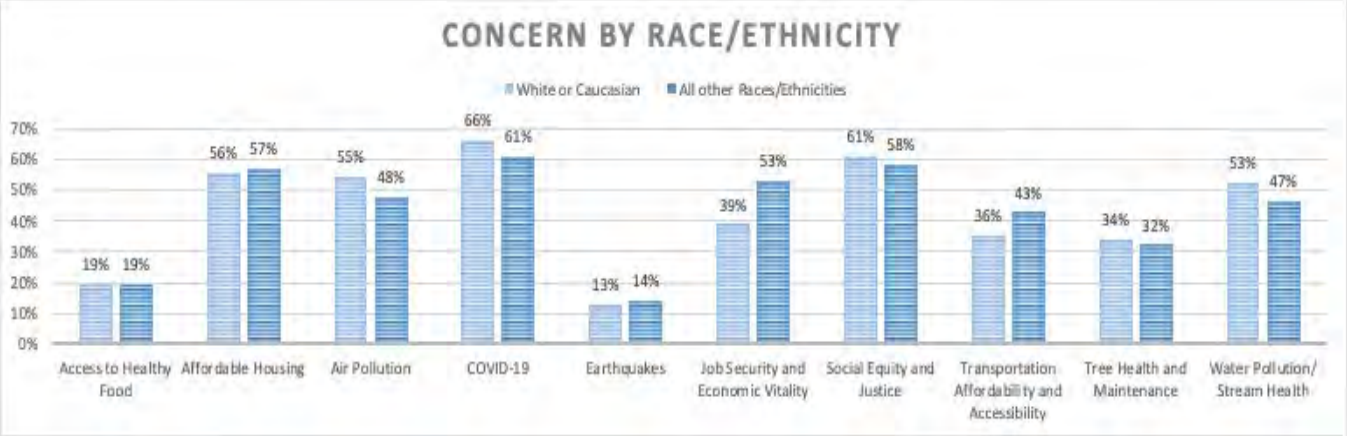
As noted in the graph above], renters and homeowners shared a similar amount (+/- 1 - 4%) of concern for a variety of key issues - Water Pollution, Tree Health, COVID-19, Healthy Food, Earthquakes, and Air Pollution. The three areas of greatest misalignment were Affordable Housing (68% v. 36%); Social Equity and Justice (63% v. 44%); and Transportation Affordability and Accessibility (40% v. 28%). The variation in Affordable Housing is understandable given the status of the respondents as "renters"'; homeowners are likely to be less concerned about housing affordability due to already owning a home. The variation in Social Equity and Justice is unclear, but could be connected to the age of the respondents (i.e. a correlation between age and homeowner status) or another unifying variable. The same could be said for Transportation Affordability and Accessibility with the added caveat for income.



Overall, the top three concerns for homeowners are COVID-19 (62%), Water Pollution/Stream Health (48%), and Air Pollution (47%). The top three concerns for renters are Affordable Housing (68%), COVID-19 (65%) and Social Equity and Justice (63%).

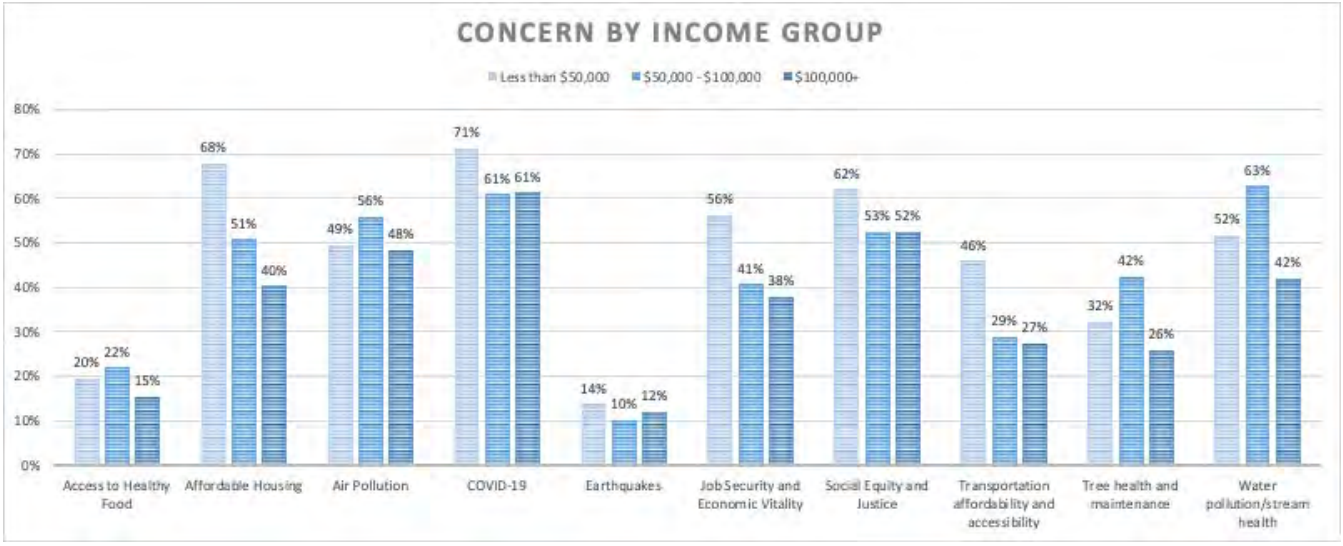


Variation by Race/Ethnicity



Level of climate concern between different racial and ethnic groups (in this case, Caucasian v. All other Races/Ethnicities) was fairly uniform on most key issues. The largest divergence occurred for Job Security and Economic Vitality (39% v. 53%); Air Pollution (55% v. 48%); and Transportation Affordability and Accessibility (36% v. 43%). Overall, the top three concerns for White or Caucasian respondents are COVID-19 (66%), Social Equity and Justice (61%) and Affordable Housing (56%). For participants identifying as one or more other races, their top three concerns are identical with some variation in level of concern (61%; 58%; 57% respectfully).

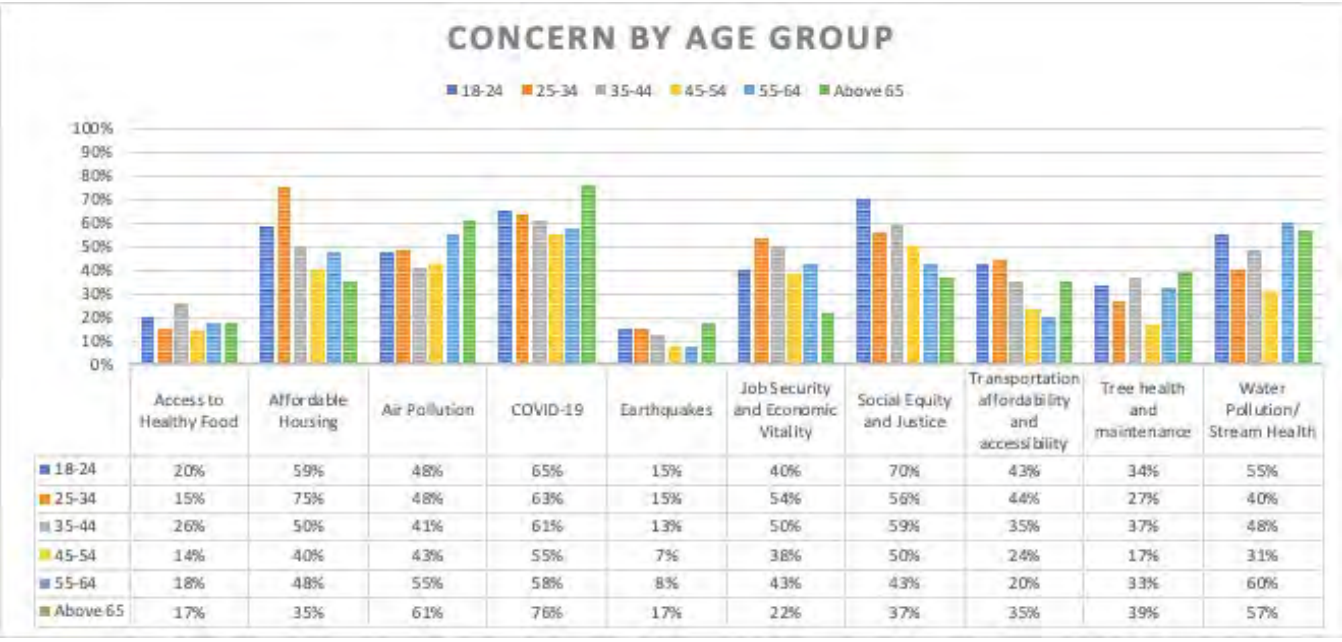
Variation by Income Group



Responses by income group are noted in the figure above. There is great variability in the level of concern Individuals have for key climate and adaptation subjects. The one exception to this observation is a clear concern for COVID-19 across all income groups. Unsurprisingly, individuals within the lowest household income group ("Less than $50,000), expressed a much higher level of concern for Affordable Housing (68% v. 51%, 40% respectfully); Job Security and Economic Vitality (56% v. 41%, 38%); and Transportation Affordability and Accessibility (46% v. 29%, 27% respectfully). Individuals within the other two income groups ($50,000 - $100,000 and $100,000 +) were more aligned in their levels of concern; the one main exception for this is concern for Water Pollution/ Stream Health (63% v. 42%).

Overall, individuals with a household income of less than $50,000 were most concerned about COVID-19 (71%); Affordable Housing (68%); and Social Equity and Justice (62%). Individuals with a household income between $50,000 - $100,000 were most concerned with Water Pollution/ Stream Health (63%); COVID-19 (61%); and Air Pollution (56%). Individuals with a household income of $100,000 or more were most concerned with COVID-19 (61%); Social Equity and Justice (52%); and Air Pollution (48%).

Variation by Age



	Access to Healthy Food	Affordable Housing	Air Pollution	COVID-19	Earthquakes	Job Security and Economic Vitality	Social Equity and Justice	Transportation affordability and accessibility	Tree health and maintenance	Water Pollution/ Stream Health
18-24	20%	59%	48%	65%	15%	40%	70%	43%	34%	55%
25-34	15%	75%	48%	63%	15%	54%	56%	44%	27%	40%
35-44	26%	50%	41%	61%	13%	50%	59%	35%	37%	48%
45-54	14%	40%	43%	55%	7%	38%	50%	24%	17%	31%
55-64	18%	48%	55%	58%	8%	43%	43%	20%	33%	60%
Above 65	17%	35%	61%	76%	17%	22%	37%	35%	39%	57%

When evaluated on the dimension of age, individuals expressed some similar concerns. COVID-19 continues to be a trend with the majority (50% +) of individuals expressing a high level of concern. More specifically, individuals above the age of 65 were most concerned with COVID-19 (76%); individuals between the ages of 45 and 54 were the least concerned with COVID-19 (55%).

Aside from COVID-19, other top concerns included Social Justice and Equity – a first or secondary concern for individuals within the following age groups: 18 - 24; 35 - 44; and 45 - 54. Individuals between the ages of 25 and 34 are also concerned about Social Justice and Equity (56%), but their paramount concern is Affordable Housing (75%). Individuals above the age of 65, on the other hand, are the least concerned about Social Equity and Justice (37%); after COVID-19, they are most concerned about Air Pollution (61%).

Open-Ended Responses

Question: If there are other community issues not listed above that you are concerned about, please provide them here.

Respondents were also able to write in other concerns that were not addressed above. 153 respondents wrote in a concern. The most repeated write-in concern involved homelessness. Selected responses include:

- "Homelessness and the lack of focus our city official have on dealing with the issue."
- "How is the community taking care of the House-less population?
- What are the options for those that do not have homes during the pandemic and unhealthy air conditions due to natural disasters (I.e. fires)"
- "The growing number of homeless in our downtown open spaces and doorways. Downtown is the heart of SLO and central to its vibrancy."
- "Homelessness is impacting the waterways & Spot fires. Hard facts to face but true."
- "providing services from homeless and mentally ill persons in the county"

Concerns that were repeated by multiple respondents include issues of police brutality and police funding. Select responses:

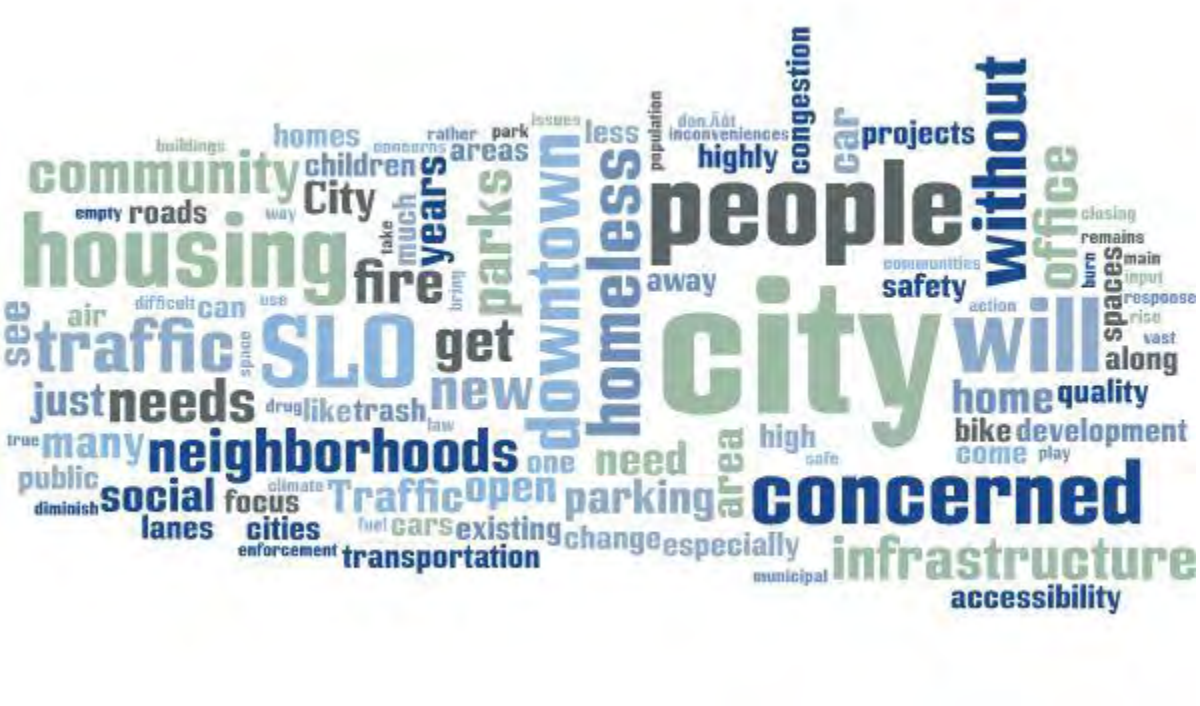
- "Systemic racism and our bloated county Sheriff's budget,"
- "Racism, police brutality, republican takeover using big money for our local candidates which will diminish the focus on environmental and justice concerns,"
- "Addressing and defunding workplaces and laws that uphold systemic racism. Defund the police in order to allocate funds towards issues like the ones listed above."
- "Overfunding on police--defunding is necessary."
- "I live by Santa Rosa Park and the homeless population is very disrespectful of our property. The creek that runs through our backyard is littered with their trash and they are constantly stealing things out of our yard. The police are not helpful with the issue whatsoever. The police are an entirely useless organization and are especially terrible here in SLO."
- "Police Department suppressing free speech rights by tear gassing people, over-charging protest organizer, failure to files charges against individuals who drove cars into pedestrians."

Other concerns that were repeated multiple times include cycling and transportation issues.

Selected responses:

- "Walkability"
- "Stop wasting money on changing roads to accommodate bike lanes. Instead *(sic)* focus on adding busses and repairing our streets. Do not take away our street parking to make a bike lane.
- "Infrastructure and road building"

The graphic (shown below) is a word cloud generated from responses the open-end question. As the Word Cloud illustrates, housing and homelessness were two salient topics for respondents.

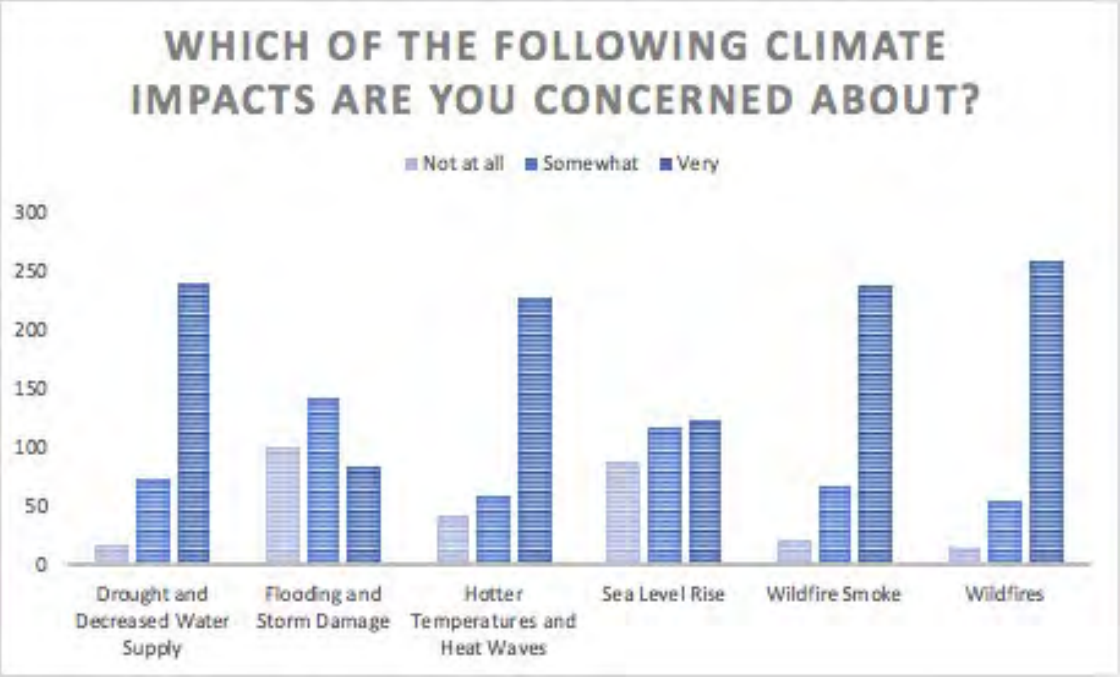


Which of the following climate change impacts are you concerned about?

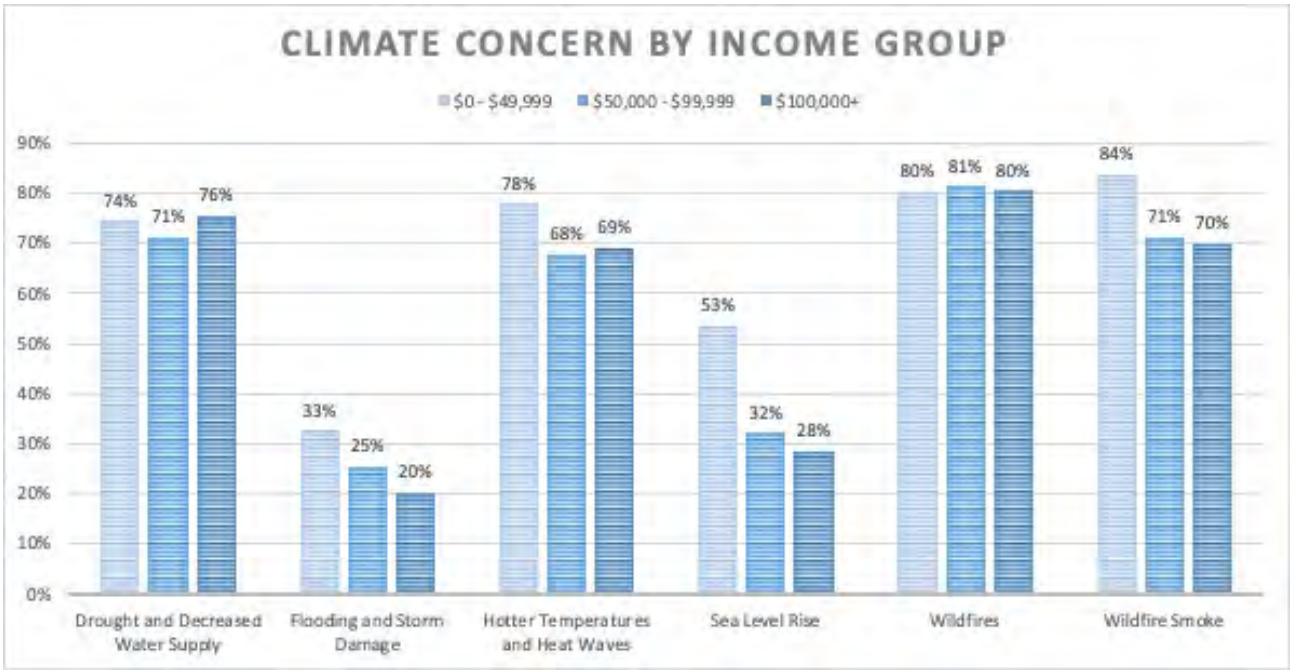
Overall Results

Level of Concern	Not at all	Somewhat	Very
Drought and Decreased Water Supply	16	72	240
Flooding and Storm Damage	100	141	84
Hotter Temperatures and Heat Waves	41	59	227
Sea Level Rise	87	117	122
Wildfire Smoke	20	66	238
Wildfires	15	53	259

Respondents were very concerned about most of these climate impacts. Only Flooding and Storm Damage saw more respondents choosing "Not at all" or "Somewhat". Wildfires and Wildfire Smoke had the most concern, likely related to the volatile 2020 wildfire season in California that brought that state's largest wildfire to date and many days of unhealthy air quality.

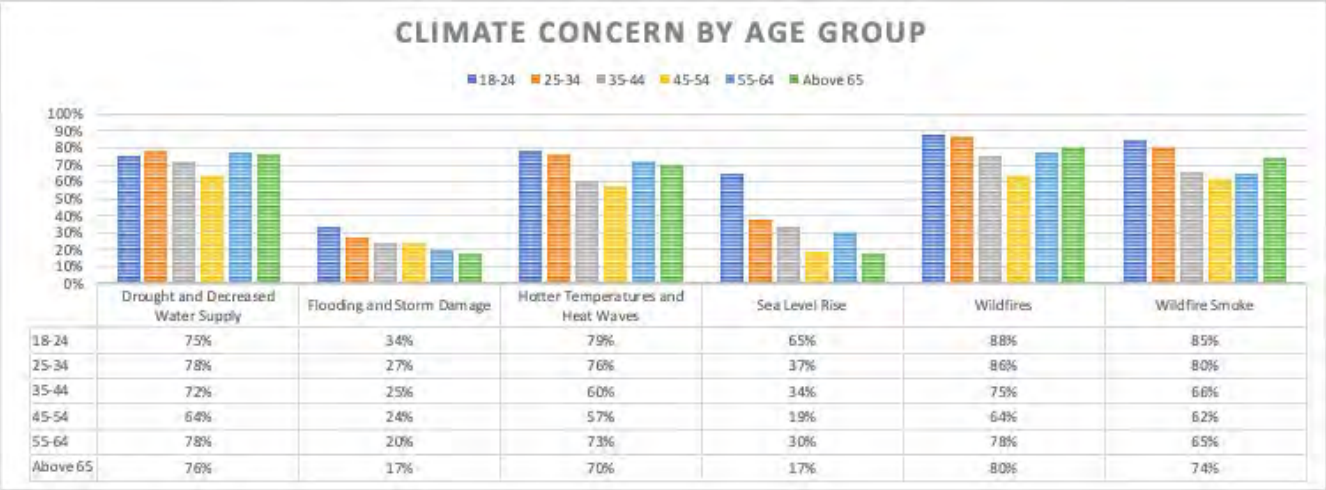


Variation by Income Group



When evaluated by income group, all groups, regardless of income, expressed strong concern about Wildfires (80%, 81%, 80% respectfully); however, it is interesting to note that individuals in the lowest income group are more concerned with Wildfire Smoke than Wildfires as a climate category (80% v. 84%). Individuals within the lowest income group are also most concerned about Hotter Temperatures and Heat Waves (78%) and are significantly more concerned about Sea Level Rise than individuals in other income categories. In comparison, individuals within the highest income group are most concerned about Drought and Decreased Water Supply (76%); their tertiary concern is Wildfire Smoke. Individuals within the middle-income group share similar concerns with some variation in percentage (71% for both).

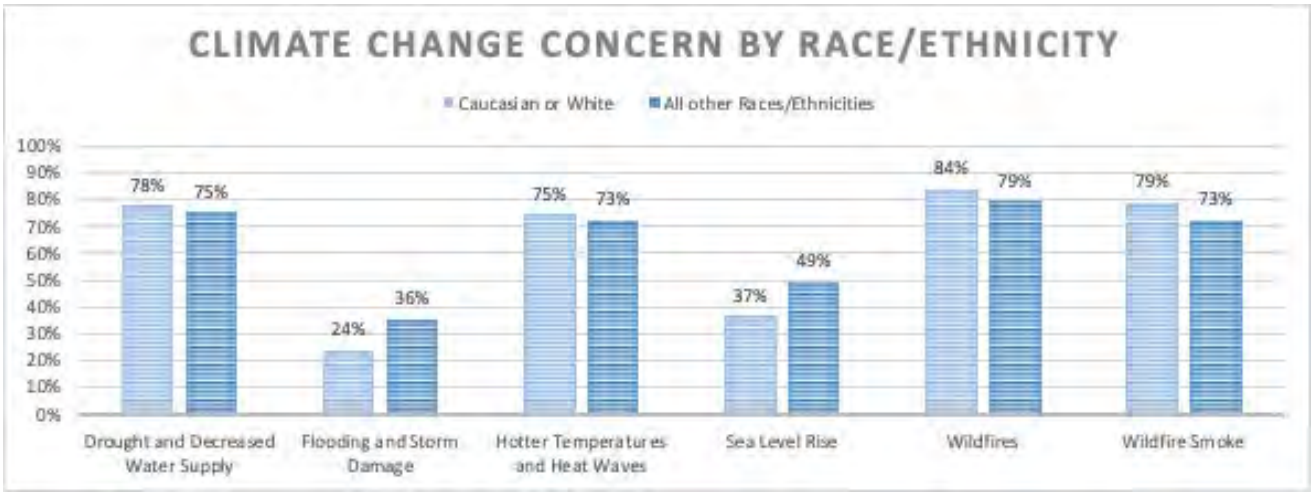
Variation by Age Group



	Drought and Decreased Water Supply	Flooding and Storm Damage	Hotter Temperatures and Heat Waves	Sea Level Rise	Wildfires	Wildfire Smoke
18-24	75%	34%	79%	65%	88%	85%
25-34	78%	27%	76%	37%	86%	80%
35-44	72%	25%	60%	34%	75%	66%
45-54	64%	24%	57%	19%	64%	62%
55-64	78%	20%	73%	30%	78%	65%
Above 65	76%	17%	70%	17%	80%	74%

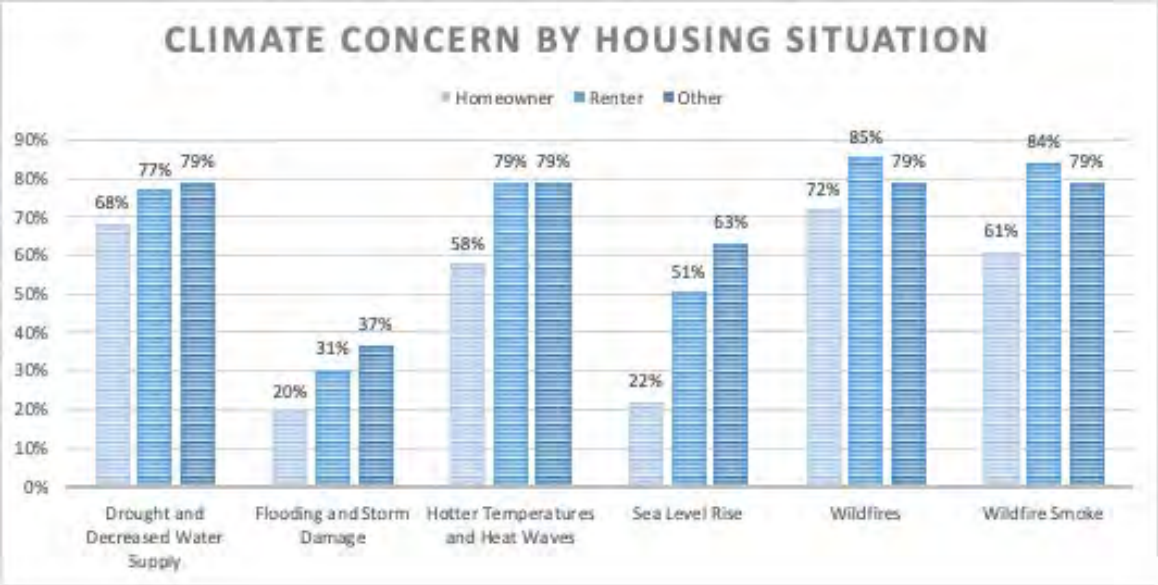
When evaluating climate concern by age, a few patterns emerge. Across the board, individuals are most concerned about Wildfires. Within that category, individuals between the ages of 18 and 24 are most concerned (88%), followed by individuals between the ages of 25 and 34 (86%). There is greater variation when evaluating individual's secondary concerns. Wildfire smoke is the second highest concern for individuals between the ages of 18 – 24 and 25 – 34. For all other age groups, their second highest concern is Drought and Decreased Water Supply. The greatest variance in concern among age groups is with Sea Level Rise. Individuals between the ages of 18 and 24 have the highest level of concern (65%), with individuals above the age of 65 expressing the least amount of concern (17%).

Variation by Race/Ethnicity



Climate concerns between different racial and ethnic groups (in this case, Caucasian v. All other Races/Ethnicities) was fairly uniform on a majority of issues (+/- 6%) – Drought and Decreased Water Supply (78% v. 75% respectfully); Hotter Temperatures and Heat Waves (75% v. 73%); Wildfires (84% v. 79%); and Wildfire Smoke (79% v. 73%). The largest divergences occurred for Flooding and Storm Damage (24% v. 36%) and Sea Level Rise (37% v. 49%). Regardless of racial or ethnic identify, all individuals noted the same top concern: Wildfires. Secondary and tertiary concern varied slightly – Wildfire Smoke (79%) and Drought and Decreased Water Supply (78%); vs. Drought and Decreased Water Supply (75%), Hotter Temperatures and Heat Waves (73%), and Wildfire Smoke (73%).

Variation by Housing Situation



Climate concerns among individuals in different housing situations varied slightly. The top concern for Homeowners and Renters is Wildfire (72% v. 85% respectfully). Secondary concern for these two groups deviated; renters are more concerned about Wildfire Smoke (84%); homeowners are more concerned about Drought and Decreased Water Supply (68%). Individuals identifying their housing situation as "Other" had four competing interests at 79% - Drought and Decreased Water Supply, Hotter Temperatures and Heat Waves, Wildfires, and Wildfire Smoke. The greatest divergence on level of concern occurred between Homeowners and Renters on the issue of Sea Level Rise: 51% of renters expressed concern versus only 22% of homeowners.

Open-Ended Responses

Question: If there are other climate change impacts not listed above that you are concerned about, please provide them here.

There were 77 responses to this question. Answers were categorized by topic area. The four most prevalent themes discussed by respondents were:

1) Biodiversity and Health of Inland and Marine Ecosystems

2) impacts to Agriculture & Food Systems

3) Water Supply

4) Social Inequality.

Biodiversity and impacts to wildlife and their habitats were key concerns for respondents. Concerns were raised about both inland and marine ecosystems. Key concerns for marine ecosystems included plastic pollution and ocean acidification. Respondents were also concerned with the impacts of climatic changes on agriculture and how agricultural changes might impact food supply and access. Water supply was also frequently mentioned. Over half of comments related to water discussed over-building and the impacts of new development on water supply. Comments also mentioned modified agricultural practices, water conservation, use of non-potable water and desalinization as potential solutions. Social inequality was another key issue. Comments in this category mentioned social justice, systemic and environmental racism, environmental justice, issues of representation, impacts to low income communities, and wealth inequality.

Subject Area	Issue	Frequency of Mentions
Environmental impacts	Biodiversity and Health of Inland and Marine Ecosystems	22
	Pests and Diseases	4
	Negative Environmental Impact of Development	2
Water	Water Supply	8
Agriculture	Agriculture & Food Systems	11
Human Systems	Social Inequality	7
	Economy	4
	Public Health	3
Energy & Infrastructure	Energy	4
	Transportation	4
Natural Disasters	Extreme Weather	5
	Mudslides/Mudflows	3
	Wildfire or forest management	3
	Temperature	2
Other	Climate Change is not occurring or should not be addressed by City	6

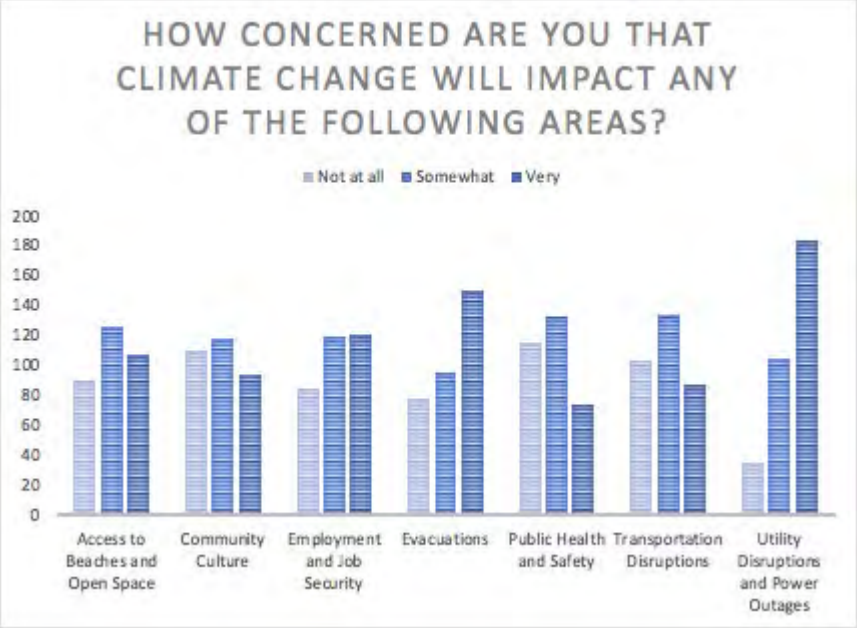
Responses to the open-ended question were also used to generate a Word Cloud (shown below). The Word Cloud illustrates the prevalence of words such as water, agriculture, environment, native, wildfire, food, etc. The frequency of these themes indicates that topics related to environment, water and agriculture are common concerns for respondents.

HOW CONCERNED ARE YOU THAT CLIMATE CHANGE WILL IMPACT ANY OF THE FOLLOWING AREAS?

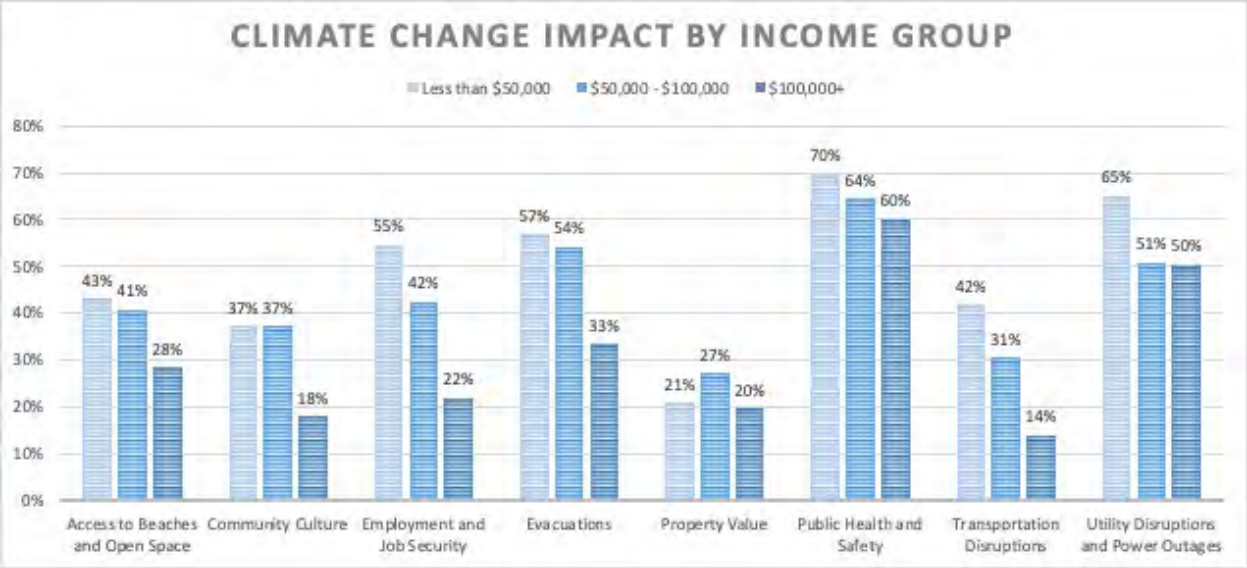
Overall Results

Row Labels	Not at all	Somewhat	Very
Access to Beaches and Open Space	90	126	107
Community Culture	110	118	94
Employment and Job Security	85	119	120
Evacuations	77	95	150
Public Health and Safety	115	133	74
Transportation Disruptions	103	134	87
Utility Disruptions and Power Outages	35	104	184

Respondents chose "Very Concerned" with less frequency for this question than previous questions. There is high concern about Utility Disruptions and Power Outages which aligns with the context of this survey's timing. Summer 2020 brought extreme heatwaves in the state and the California Independent System Operator issued multiple "flex warnings" statewide to conserve energy and blackouts occurred as demand for electricity to combat extreme heat increased. Customers in Northern San Luis Obispo county experienced outages in August 2020. Additionally, Pacific Gas & Electric has also participated in Public Safety Power Shutoffs as a wildfire prevention tool that also created utility disruptions. High concern around Employment and Job Security and Evacuations also fits trends seen in earlier questions and align with later concerns about Wildfires and Wildfire Smoke.

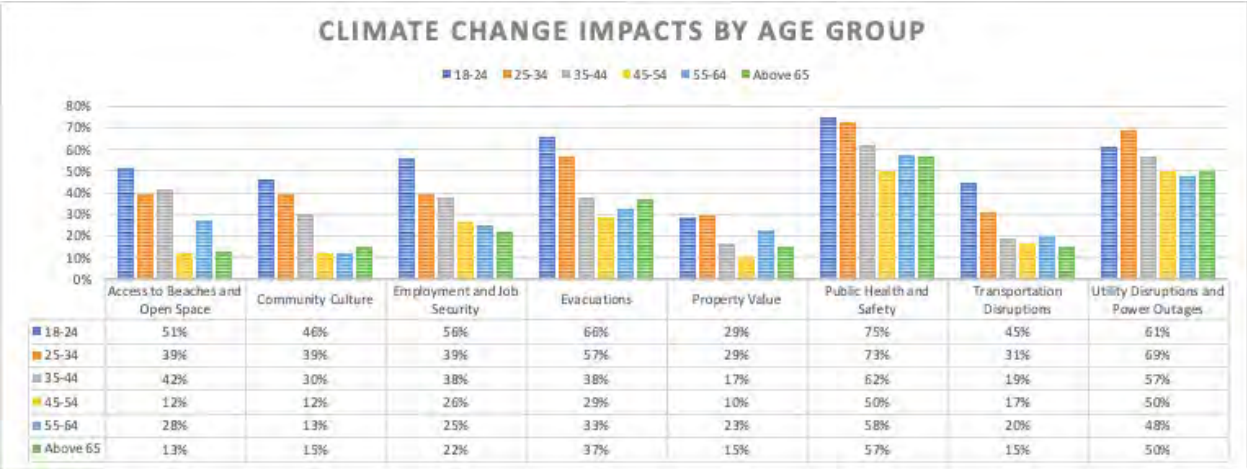


Variation by Income Group



As noted on the graph above, regardless of income, all individuals expressed the highest level of concern for Public Health and Safety (70%, 64%, 60% respectfully). Secondary concern varied slightly. After Public Health and Safety, individuals with household incomes of less than $50,000 or more than $100,000 were most concerned with Utility Disruptions and Power Outages. In comparison, individuals in the middle-income group ($50,000 - $100,000) had a secondary concern of Evacuations. The greatest divergence in level of concern occurred between individuals with a household income of less than $50,000 and more than $100,000 on the issue of Transportation Disruptions. Individuals within the lower income group had the highest level of concern among the three groups for this category - 42%. On the other end of the spectrum, the opposite was true: individuals within the highest income group had the lowest amount of concern – 14%.

Variation by Age Group



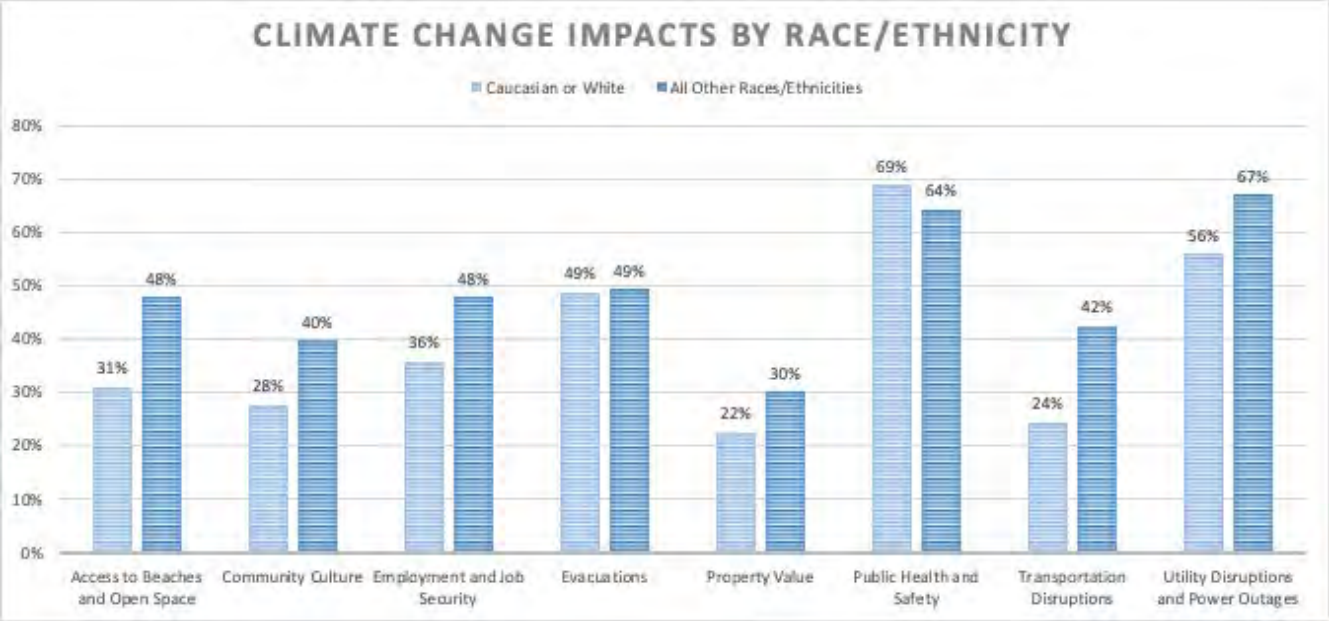
	Access to Beaches and Open Space	Community Culture	Employment and Job Security	Evacuations	Property Value	Public Health and Safety	Transportation Disruptions	Utility Disruptions and Power Outages
18-24	51%	46%	56%	66%	29%	75%	45%	61%
25-34	39%	39%	39%	57%	29%	73%	31%	69%
35-44	42%	30%	38%	38%	17%	62%	19%	57%
45-54	12%	12%	26%	29%	10%	50%	17%	50%
55-64	28%	13%	25%	33%	23%	58%	20%	48%
Above 65	13%	15%	22%	37%	15%	57%	15%	50%

When viewing concern for climate change impacts by age, a few patterns emerge. Across the board, individuals are most concerned about climate's potential impact on Public Health and Safety. Within that category, individuals between the ages of 18 and 24 are most concerned (75%), followed by individuals between the ages of 25 and 34 (73%). Utility Disruptions and Power Outages are also a common concern among the age groups, with at least 50% of individuals in five age groups (all except individuals between the ages of 55 and 64) expressing concern.

Omitting Public Health and Safety, individuals between the ages of 18 and 24 are most concerned about climate's potential impact on Evacuations (66%); and Utility Disruptions and Power Outages (61%). Individuals between the

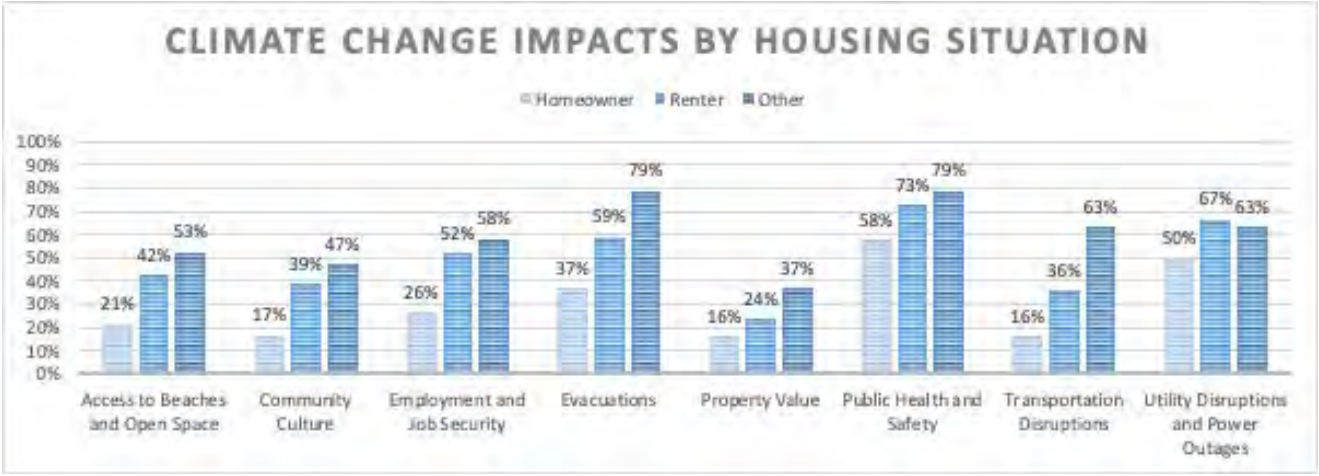
ages of 25 and 34 are also concerned about the same two categories with some variation in level of concern (57% and 69% respectfully). Individuals between the ages of 35 and 44 share a similar level of concern for Utility Disruptions and Power Outages (57%); they are also concerned about Access to Beaches and Open Space (42%). Individuals between the ages of 45 and 54 are concerned about Utility Disruptions and Power Outages (50%), followed by Evacuations (29%). Individuals between the ages of 55 and 64 are also concerned about Utility Disruptions and Power Outages (48%), in addition to Evacuations (33%). Finally, individuals above the age of 65 are concerned about Utility Disruptions and Power Outages (50%) and Evacuations (37%).

Variation in Race/Ethnicity



Regardless of racial or ethnic identify, individuals expressed similar levels of concern for two potential climate change impacts: Public Health and Safety (69% v. 64%, respectfully) and Utility Disruptions and Power Outages (56% v. 67% respectfully). Tertiary concerns were also the same – Evacuations (49% for both). The greatest divergence between groups occurred for Transportation Disruptions; only 24% of White or Caucasian respondents expressed concern compared with 42% of respondents of respondents identifying as all other races and ethnicities.

Variation by Housing Situation



When viewed through a housing situation lens, a few patterns emerge. Despite the variability, all respondents regardless of housing situation are concerned about Public Health and Safety, with individuals in the "Other" category reporting the highest level of concern at 79%. This same group expresses the same level of concern for Evacuations. Both renters and homeowners also list Utility Disruptions and Power Outages as a secondary concern (50% and 67% respectfully). This is a tertiary concern for individuals in "Other" alongside Transportation Disruptions. In terms of priority, homeowners and renters share a similar view on their concern for Evacuations (37% v. 59% respectfully). Of all the questions so far, this answer elicited the highest level of variability in level of concern; the smallest variation among levels of concern is for Utility Disruptions and Power Outages at 4%.

Open-Ended Responses

Question: If there are other areas impacted by climate change not listed above that you are concerned about, please provide them here

Respondents were also able to write in other concerns that were not addressed above. 54 respondents wrote in a concern.

6 of the respondents brought up concerns over how marginalized communities would feel climate impacts first. Selected responses:

- "I am concerned about how climate change will impact low income communities and communities of color first."
- "Health effects upon the poor and elderly, especially during the summer."
- "We need a community plan to support frail elders and people with chronic illness who are reliant on electricity, and cannot be without power. Example: people w/ lung disease, who use oxygen, electric beds, breathing assist machines. The rolling blackouts that are happening in CA (due to fire and maxing out of the power grid) are devastating for this portion of our community. We need an organized, local government plan to identify and support these folks."

8 Respondents brought up concerns about biodiversity, natural resources, and wildlife. Selected responses:

- "Access to food and use of agricultural resources, impacts to marine life and fisheries (including for food)"
- "Again, that we are not considering the impact on local wildlife" or preparing to create safe zones for animals (inland & marine)
- "Natural resource conservation is being impacted by the lack of regional consensus about conservation and habitat restoration goals as the climate changes. SLO has an opportunity to build on leadership and successes from within City government to emphasize natural resource conservation measures in a changing climate."
- "Loss of biodiversity, climate refugees, natural resources"

8 Respondents brought up concerns about agriculture and/or local food access:

- "Weather patterns, heat waves, and quality of air and water affecting the ability to grow food."
- "crop yield and tourism"

Remaining responses ranged from denying the city's role in responding to climate change, concerns over utilities or utility shut offs, concerns over evacuations, from where evacuees can go to how to handle refugees coming to the SLO region. A few respondents brought up concern for "hope" in the future.

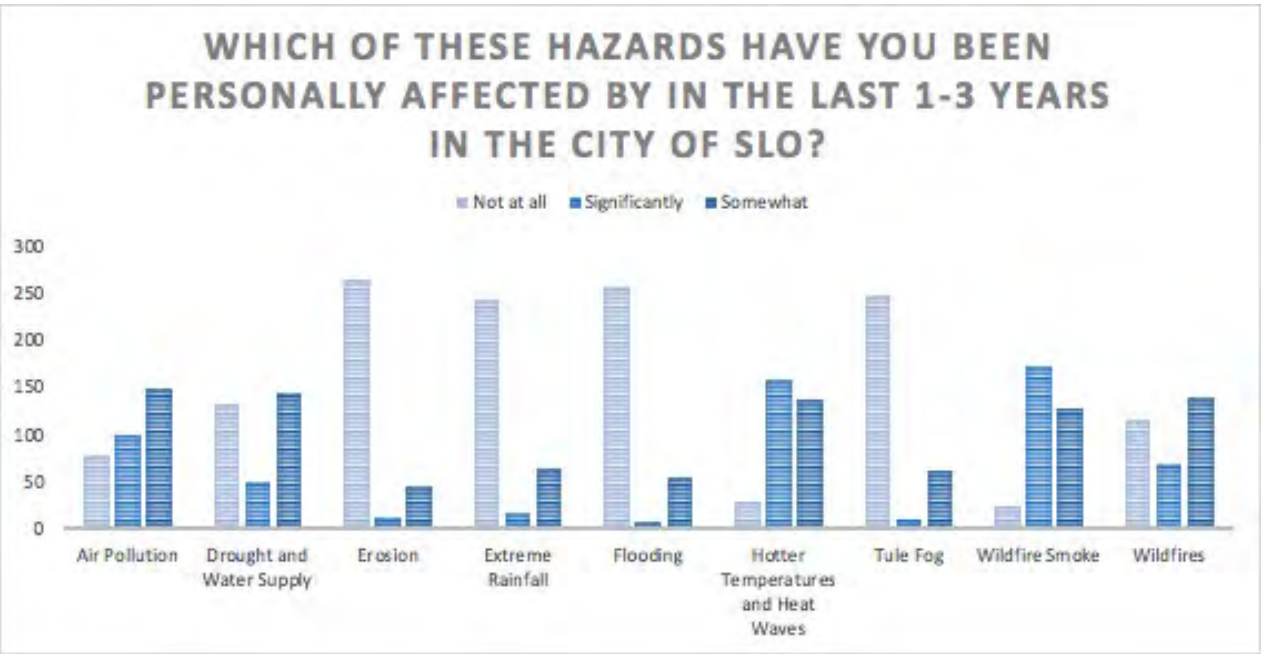
Open-ended responses were used to generate a Word Cloud (shown below). The words shown were frequently used by respondents.

WHICH OF THESE HAZARDS HAVE YOU BEEN PERSONALLY AFFECTED BY IN THE LAST 1-3 YEARS IN THE CITY OF SLO?

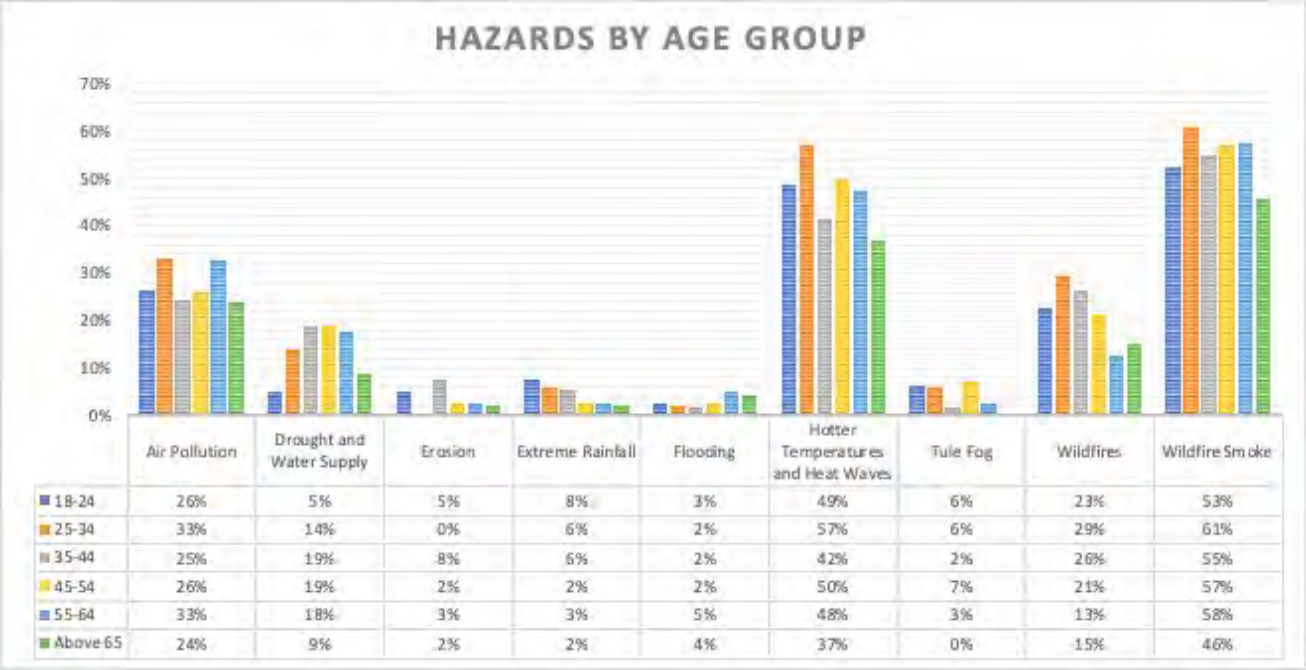
Overall Results

Impact in Last 1-3 Years	Not at all	Significantly	Somewhat
Air Pollution	79	100	148
Drought and Water Supply	133	50	144
Erosion	265	13	45
Extreme Rainfall	244	17	64
Flooding	257	9	54
Hotter Temperatures and Heat Waves	30	158	138
Tule Fog	247	11	62
Wildfire Smoke	24	173	127
Wildfires	117	68	140

This question has more respondents reporting they have not been personally affected by about half of these impacts in the last 1-3 years. The most significantly reported impacts were of Wildfire Smoke, Hotter Temperatures and Heat Waves, and Air Pollution which matches the trends in other questions and references the context of events in 2020 (i.e. wildfire and extreme events). Even when wildfires do not occur in the city boundaries, impacts of wildfire smoke and air pollution affect many residents somewhat or significantly which explains why "Wildfire" has less significant direct impact for respondents than "Air Pollution" and "Wildfire Smoke.'



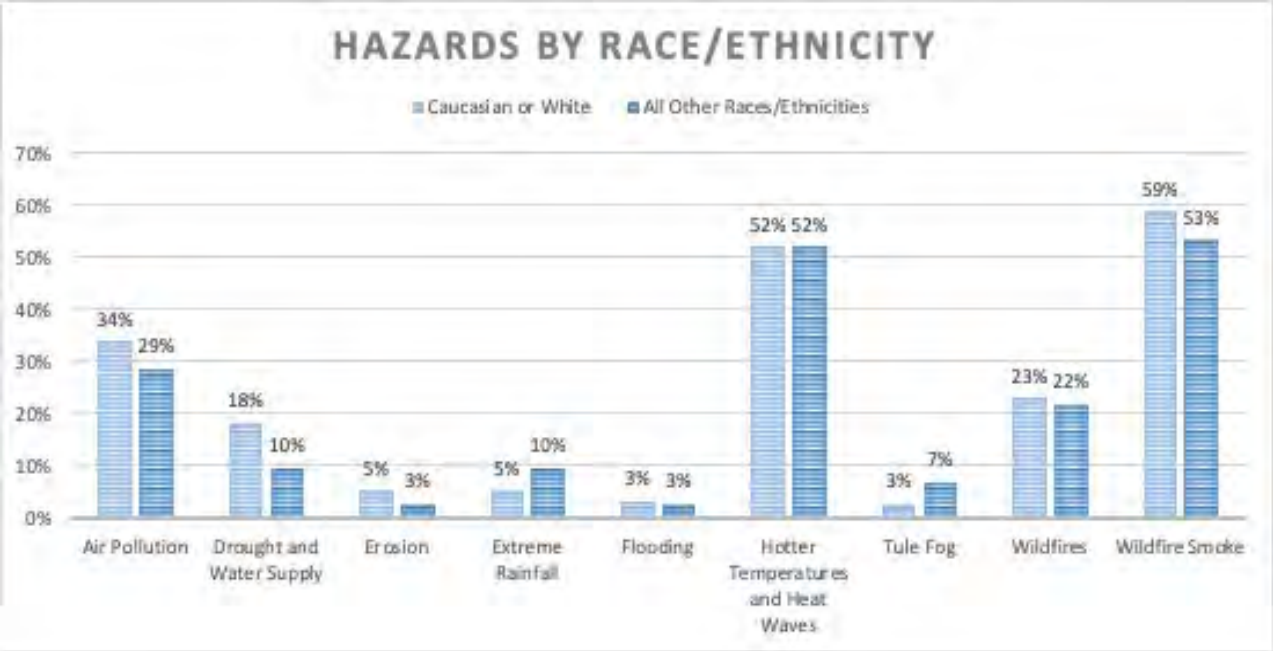
Variation by Age Group



	Air Pollution	Drought and Water Supply	Erosion	Extreme Rainfall	Flooding	Hotter Temperatures and Heat Waves	Tule Fog	Wildfires	Wildfire Smoke
18-24	26%	5%	5%	8%	3%	49%	6%	23%	53%
25-34	33%	14%	0%	6%	2%	57%	6%	29%	61%
35-44	25%	19%	8%	6%	2%	42%	2%	26%	55%
45-54	26%	19%	2%	2%	2%	50%	7%	21%	57%
55-64	33%	18%	3%	3%	5%	48%	3%	13%	58%
Above 65	24%	9%	2%	2%	4%	37%	0%	15%	46%

In terms of Hazards, all age groups have been quite impacted by Wildfire Smoke and Hotter Temperatures and Heat Waves. Within these two categories, individuals between the ages of 25 and 34 were most impacted (61% and 57%, respectfully). Individuals above the age of 65 indicate the lowest level of impact for these two categories (46% and 37%, respectfully). Other impactful hazards include Wildfires - with individuals between the ages of 25 and 34 reporting the highest level of impact at 29%, followed by individuals between that ages of 35 and 44 at 26% - and Air Pollution – with individuals between 25-34 and 55-64 each expressing the highest impact – at 33%. Erosion, Extreme Rainfall, Flooding, and Tule Fog were very rarely listed as a high impact for individuals across the age groups.

Variation by Race/Ethnicity

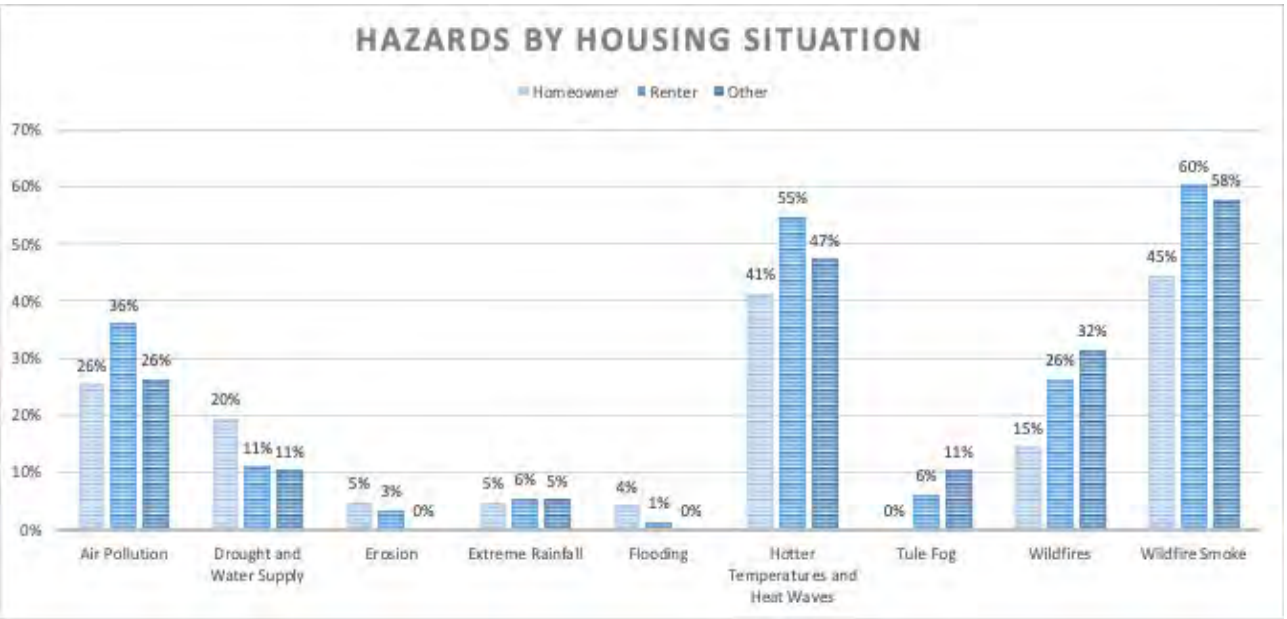


In terms of racial and/or ethnic identity, all groups expressed a high level of impact for Wildfire Smoke (59% and 53% respectfully) and for Hotter Temperatures and Heat Waves (52% for both). A tertiary concern was Air Pollution (34% and 29%). Similar to the other analyses for this question, respondents did not express high levels of impact for Erosion, Flooding, Extreme Rainfall or Tule Fog. The greatest divergence between groups occurred for Drought and Water Supply; Caucasian or White respondents reported a higher level of impact – at 18% - than individuals of other races/ethnicities – at 10%.

Variation by Income Group

From an income perspective, individuals within the lower income bracket were most impacted by Hotter Temperatures and Heat Waves (58%), followed by Wildfire Smoke (53%). Individuals in the other two categories expressed a similar level of impact for Hotter Temperatures and Heat Waves (46% and 44% respectfully), with a higher level of impact for Wildfire Smoke (63% and 50%). In fact, individuals in the middle-income group express the highest level of impact for Wildfire Smoke. Other shared impacts include Air Pollution (35%, 27%, and 29% respectfully) and Wildfires (24%, 25% and 17%).

Variation by Housing Situation



Homeowners, renters, and individuals indicating "Other" report being most impacted by Wildfire Smoke (45%, 60%, and 58%, respectfully), followed by Hotter Temperatures and Heat Waves (41%, 55%, and 47%, respectfully). Aside from these two categories, renter and homeowners report being more impacted by Air Pollution than Wildfires (26% v. 36%; 15% v. 26%); individuals indicating "Other" report the opposite (26% v. 32%).

Open-Ended Responses

Question: If there are other hazards that you have been personally affected by in the past 1-3 years in the City that are not listed above, please provide them here.

There were 37 responses to this question. Of those responses, 10 discussed climate related hazards. The remaining 27 discussed other community issues not directly applicable to climate change. Related responses discussed the following:

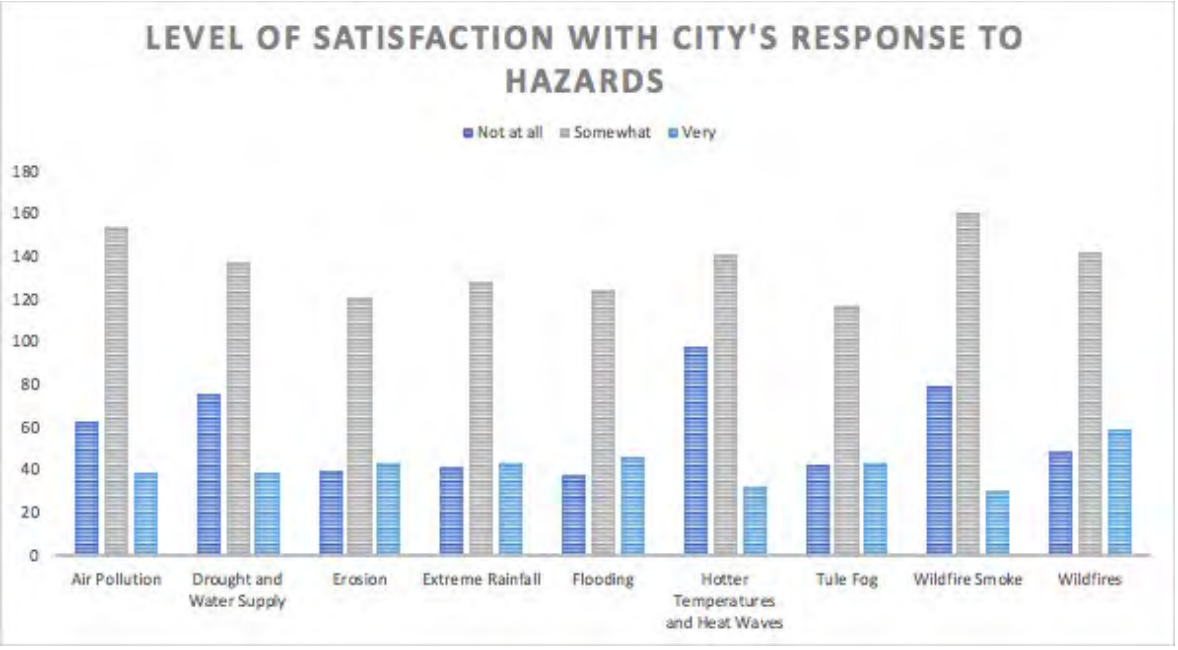
- Mortality of trees that were weakened by drought. Tree caused damage to the home and increased cost of air conditioning due to loss of canopy.
- Extreme 116 degree heat
- Nearby wildfires and the impacts of smoke on an asthmatic
- Experience with Lyme Disease
- Landslide from extreme rainfall
- Air pollution that lead to the development of asthma
- Dust
- Power outages
- Invasive species
- Loss of biodiversity affecting people psychologically and economically.

Responses to question 11 were used to generate a Word Cloud (see below).

FOR EACH HAZARD THAT YOU WERE AFFECTED BY, PLEASE RANK YOUR LEVEL OF SATISFACTION WITH THE CITY'S RESPONSE.

Overall Results

Satisfaction of City Response to Impact Area	Not at all	Somewhat	Very
Air Pollution	63	154	39
Drought and Water Supply	76	137	39
Erosion	40	121	43
Extreme Rainfall	41	128	43
Flooding	38	124	46
Hotter Temperatures and Heat Waves	98	141	32
Tule Fog	42	117	43
Wildfire Smoke	79	160	30
Wildfires	49	142	59



Open-Ended Responses

Question: Do you have any comments to share regarding how you were affected by past hazards and/or city response efforts? Please describe specific hazard, location, and response

Write-in answers to this question demonstrate that respondents are either not clear on how much the city can do in responding to climate impacts, don't believe the city can respond to impacts that they few as "natural" or at the state/federal scale or they do not know how the city responded and wish for more publicity about city response efforts. Because of these frequently cited opinions, multiple respondents indicated they used "Not at all satisfied" to indicate "not applicable" or they skipped responding at all. For these reasons, write-in responses are a more useful analysis than the absolute numbers. 83 respondents wrote in a short answer.

Select responses that express doubt or confusion about the city's ability to respond:

- "Several of the above items are caused by nature and the city can't do anything about them so they should not even have been included."
- "I cannot see how the city could do anything about fires, floods, fog and rain. The city can and should focus on eliminating trash and waste in our local parks and waterways. That will have a huge impact on its citizens' outlook on our government taking care of the city."
- "Let's act now to reduce the burnable debris around out (*sic*) homes and stream beds."
- "I don't think the city can do anything to control or improve these items except for provide infrastructure that allows emergency responders to quickly and safely access the entire population. In that regard the city has actively made response times and access to core populations worse by converting roadways to bicycle paths and failing to add lanes to major thoroughfares. I think the city really needs to reassess its willingness to sacrifice human lives in the name of environmentalist ideals. When someone has a stroke every minute of delay in transport to the hospital costs that person brain function and treatment options. Additionally these alternative modes of transportation have no ability to help facilitate business growth or commerce, and as such provide no return on the funds the city invests in them."
- "I really don't see how the City can "respond" to some of these. Air pollution from what? If wildfires, not much the City can do apart from abatement and building codes already in place. Auto pollution is minimal. And City Hall cannot dictate the weather."

- "I'm not aware of the City's response to any of the above listed items except to say the more growth, housing, etc. that occurs the more air pollution and lack of water supply will be factors in everyday life. As well as infrastructure that cannot support the housing growth all around the city."
- "I used "Not at all satisfied" to indicate more of "not applicable" Air pollution is being worked upon by the City, and awareness of the need for conservation of water was an ad campaign and a hotline, both appreciated. The effects of the others I cannot see the City's responsibility to. In my case only."
- "I only rated a few factors because many of these issues are not truly under local influence/control. The City has done a good job addressing our flood control system. More needs to be done about wildfire prevention but a significant challenge is the amount of overgrown vegetation on private property or land just outside the City's footprint."
- "In general, I feel the city hasn't really acknowledged it's general resident experiences with climate change. Too much focus on bike lanes and ignoring the less glamorous/ youth-focused, and middle/upper class side of being impacted by climate change."
- "I'm not sure how to respond to some of these questions where I do not have a direct experience, and as a result don't have a level of satisfaction to report. I believe the City leadership's push for climate action, sustainable transportation, affordable housing, and protection of open space are all in the right direction."
- "You should have had a "not applicable" column. There is little the City can do about hot temperatures or wildfire smoke drifting into the area. Drought and water supply is something the City can control. Constantly raising water rates while allowing hundreds of new homes it NOT the way to respond."
- "What is the city doing for any of these? If they are doing something, they sure aren't doing a good job publicizing what they are doing."

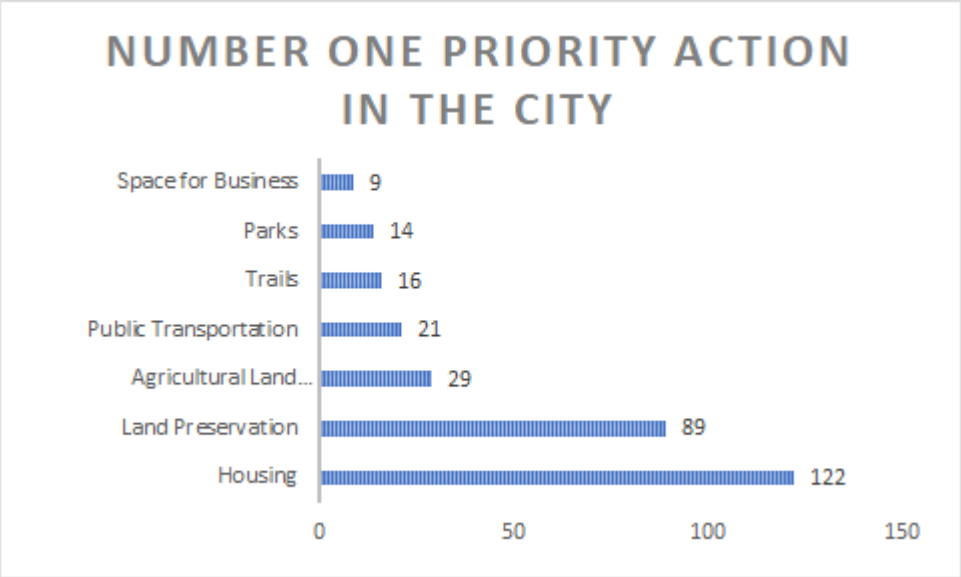
Select responses that offer more concrete feedback:

- "Storm drain clearance especially on the north end of the city near Loomis Street is sometimes lacking and more frequent patrols by city personnel to this area would be appreciated."
- "Appreciate the notifications we get through Twitter and other platforms."
- "Address fire prevention like the Native Americans and how we used to. Prevent forest fires."
- "City could do more to reduce water use - encourage lawn reduction, including on City properties."
- "The city has used a wide brush to paint very high fire hazard and should be more specific/precise in classifying fire hazard. A city perimeter approach would be more effective and appropriate. Over-classifying can have dire effects on residents ability to obtain fire insurance. Just like keeping areas in flood zones that have been mitigated is a problem."
- "The potential for water shortage is ignored when the city approved extensive new housing. Otherwise these developments would have been disapproved. The city says one thing but does another with respect to this topic."
- "While the firefighters have indeed been heroes in this scenario, the city need to undertake extreme conservation measures, plant more trees to increase air quality, install solar throughout the town, enforce xeriscaping and the like. I do appreciate the city/county air report."
- "Stonewalling on the Lake Dredging project is unacceptable."
- "Keep beaches open for locals during heat waves."
- 'I actually was not aware of the City's response at all to any of these issues."
- "Last winter when highway 5 was closed due to snow. The freeways and highways were blocked for HOURS and HOURS because we only have one or two routes to use in Southern California and the Central Coast."

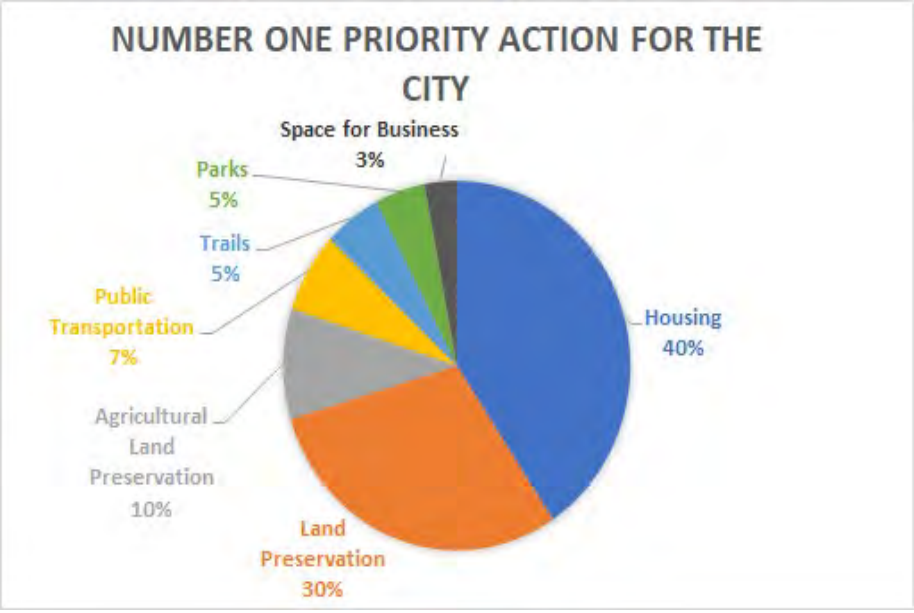
- "What is the city doing to capture and utilize the very little rain we get each year? How much of it are we losing to runoff in our ocean? What is the city doing to implement a carbon free grid by 2030? How can we take wisdom and advice from our local indigenous people to better understand working with the environment?"
- "My property is located within a flood zone. Mitigations, such as creek debris clearance, have been successful (so far!). Though many residential neighborhoods back up to steep, somewhat denuded hills, there have not been any significant mudflows (so far!). There is an inadequate supply of N95 masks which are necessary when doing errands during periods of hazardous air quality."
- "Allowing 75 foot buildings downtown adds to the heat zone of the downtown corridor"
- "I'm glad a notice has been put out about the air pollution hazards. We need strong messaging from our leadership to help us through challenges."
- "heat mitigation in low income housing is not being taken seriously."
- "I do not think, in a town where the majority do not have AC, we (the city) are ready for extreme heat."
- "It wasn't apparent to me that the homeless had options to shelter in a cool/clear air space"
- "Hotter temperatures, but the city does not have shade structures in many areas."
- "Flooding. If we and our neighbors didn't go out and clean the storm drains when it rains hard, multiple yards would be underwater."
- "Wildfires: Reverse 911 works really well but most of my friends didn't know about it so trying to get the word out better. The Reverse 911 message also needs to be more clear including identifying the threat."

Responses to this question were used to generate a word cloud (see below).

HOW WOULD YOU PRIORITIZE THE FOLLOWING ACTIONS IN THE CITY OF SLO?



Respondents were asked to prioritize actions in the City of San Luis Obispo. Housing was most frequently listed as a number one priority; housing was chosen as the top priority 122 times or by 40% of respondents. Land Preservation, another priority topic, was selected as the number one priority 89 times or by 30% of respondents. Selected as the number one priority less frequently were Agricultural Land Preservation (selected 29 times or by 10% or respondents), Public Transportation (21 times or 7%), Trails (16 times or 5%), Parks (14 times or 5%), and Space for Business (9 times or 3%).



WHAT CLIMATE CHANGE ADAPTATION AND COMMUNITY RESILIENCE TOPICS ARE YOU INTERESTED IN LEARNING MORE ABOUT?

There were 104 responses to this question. The most common topical areas mentioned by respondents were transportation, energy, and the environment. Water, wildfire, housing and social issues were also prevalent topics, in addition to agriculture, temperature changes, development, and emergency management. Issues related to climate change mitigation, waste and pollution and the economy were also mentioned. Multiple comments indicated interest in any topic related to climate adaptation and resilience. There were also several comments that the City should not be pursuing this topic. The table below summarized the approximate number of mentions for each topical area and topics suggested by respondents.

Topical Area	Topics	Mentions
Transportation	▶ Electric vehicles and charging ▶ Public transportation ▶ EV charging for apartment renters ▶ Active Transportation/bikeability/walkability ▶ Reducing emissions from transportation ▶ Traffic reduction ▶ Walkable neighborhoods with access to services ▶ Pro Con approach to transportation decisions	19
Energy	▶ Solar, wind and renewable energy sources ▶ Solar for residential & existing homes ▶ Require rooftop solar ▶ Microgrids, batteries, & energy reliability ▶ Affordable energy ▶ Alternate technology such as trash to energy ▶ Preventing early close of Diablo Canyon ▶ Eradication of gas burning engines	15
Environmental Protection	▶ Open Space/land preservation ▶ Wildlife conservation ▶ Air pollution ▶ Urban forestry and trees to for urban cooling and societal benefits ▶ Ecosystem-based adaptation ▶ Saving beaches ▶ Natural landscaping	15
Water	▶ Water conservation ▶ "Integrated water resource management (intersections of flood management, water supply, watershed/habitat/GW protection, and water quality protection)." ▶ Drought and water supply ▶ Increasing infiltration ▶ Community outreach on water conservation	11
Wildfire	▶ City wildfire mitigation efforts ▶ Fire prevention & planning ▶ Outreach to property owners at the wildland urban interface ▶ Native land management practices and knowledge	10

Topical Area	Topics	Mentions
	▶ Fire safe building ▶ Wildfire smoke ▶ Prescribed burns ▶ Fire response	
Housing	▶ Balancing housing needs with land preservation ▶ Affordable housing ▶ Tiny homes ▶ Housing for Cal Poly students ▶ Repurposing existing developed land for housing ▶ Off-grid housing ▶ How climate change will impact housing prices	9
Social Issues	▶ How can the City encourage residents to contribute more? ▶ Homelessness ▶ Mass migration into City ▶ How can the City avoid an increase in the wealth gap and unequal burden of climate change on marginalized communities? ▶ Social equity and justice ▶ Community outreach regarding personal actions such as water conservation, wildfire mitigation, carbon footprint reduction, etc. ▶ How can the government better understand community wants and needs? ▶ Covid-19	9
Agriculture	▶ Community gardens ▶ Healthy food access ▶ Local food ▶ Soil health ▶ Regenerative agriculture and permaculture	7
Temperature Changes	▶ Extreme heat leading to AC installation and impacts on grid ▶ AC for schools and senior centers ▶ Alternatives to AC	7
Development	▶ How can we accommodate growth in a less dense format? ▶ Environmentally friendly development/ how can growth contribute to resilience? ▶ Encouraging businesses and government to be environmentally conscious ▶ Analysis of environmentally damaging industries and promoting more sustainable industrial practices ▶ Resilient construction materials and landscaping	5
Emergency Management	▶ Faster warning systems for natural disasters ▶ Planning for compound hazards ▶ Pandemic and epidemic planning ▶ Disaster preparedness and planning ▶ Neighborhood resilience ▶ Resilience	5
Climate Change Action	▶ City efforts to plan for and combat climate change	4

Topical Area	Topics	Mentions
	▶ Transitioning to a fossil fuel free society	
Waste & Pollution	▶ Waste in parks and open spaces ▶ Recycling and composting programs ▶ Compost use in community gardens ▶ Noise and light pollution	3
Economy	▶ Job security ▶ Diversifying employment from tourism	2

Responses to this were also used to generate a Word Cloud. As the Word Cloud highlights, water, transportation, energy, housing and land were among the frequently used words.