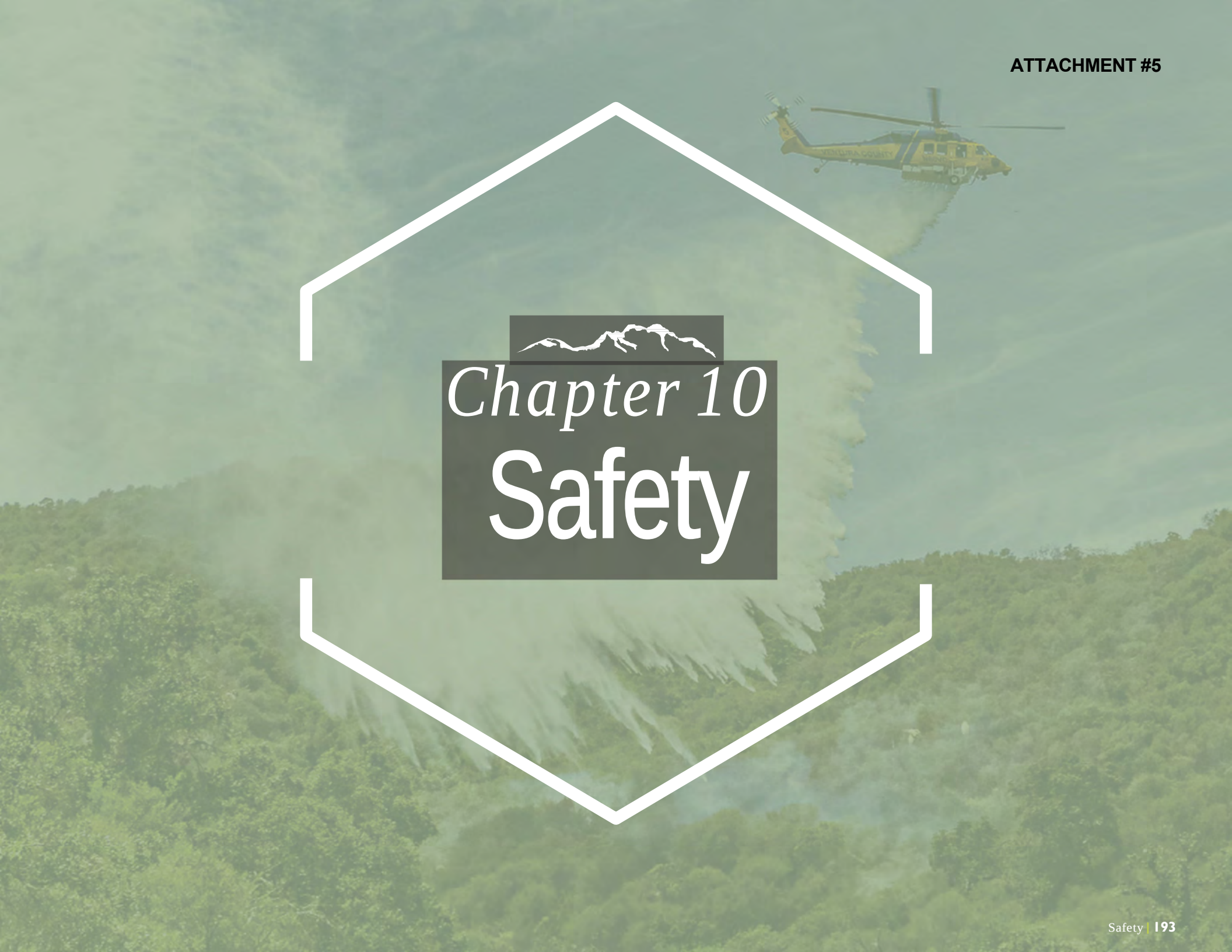

Chapter 10
Safety

Overview of Chapter

The City of Thousand Oaks is committed to protecting the community from natural and human-induced hazards and building resilience to projected climate change risks. This Element describes these hazards and establishes goals and policies to protect people, property, and the natural environment.

The following topics are included in this chapter:

- Statutory Requirements
- Natural Hazards
- Human Induced Hazards
- Key Issues and Opportunities
- Goals and Policies

Statutory Requirements

State law requires that the General Plan include an element that addresses hazards such as fires, floods, droughts, earthquakes, landslides, climate change, and other human-induced hazards (Government Code 65302(g)). This chapter meets the legal requirements for a Safety Element and includes policies intended to reduce the potential short and long-term risk of personal injury and damage to the city. Effects as a result of tsunami or peak water supply requirements do not apply to the city and are not addressed. The Safety Element is internally consistent with other topics, as required by State law, including: 1) Land Use; 2) Housing; 3) Open Space; 4) Conservation; and 5) Environmental Justice. Thousand Oaks has also conducted an Evacuation Assessment.

Background

This section provides an overview of natural hazards, including faulting and seismic activity, landslides, liquefaction, and known geological hazards, flooding, dam failure, wildland and urban wildfires, and climate change. Human-induced hazards include hazardous materials, terrorism, and disease.

In addition to this Safety Element, the Conejo Open Space Conservation Agency (COSCA) Strategic Plan acts as a guiding document for natural and climate hazards' resilience and adaptation. Ventura County and the City have adopted a Multi-Jurisdictional Hazard Mitigation Plan (~~HMP~~MJHMP) that addresses existing and potential natural and human-made hazards in Thousand Oaks. The City Emergency Operations Plan addresses the City's planned response to extraordinary emergency incidents associated with natural disasters, cyberattacks, and national security emergencies. Emergency management context, goals and policies are provided in the Community Facilities and Services Element (Chapter 8).

Solar panels help the City meet its greenhouse gas reduction goals

Natural Hazards

Thousand Oaks is located in the Conejo Valley of eastern Ventura County in an area with distinctive geomorphic features comprised of mountains, artificial lakes, and rolling hills with clearly defined access points to the City. The Valley is about nine miles long and seven miles wide and is situated at an elevation of about 800 feet above sea level. The Conejo Valley is surrounded by Mountclef Ridge and the Simi Hills to the north and east, the Santa Monica Mountains to the south, and Conejo Mountain to the west. The developed portions of Thousand Oaks are located primarily on the Conejo Valley floor and on slopes of less than 25% gradient. The unique features of the Conejo Valley introduce a variety of natural hazards. This section of the Safety Element describes the associated natural risks in Thousand Oaks.

Faulting and Seismic Hazards

Thousand Oaks is in a seismically active region at risk from hazards associated with earthquakes, including fault rupture and seismic shaking. While no active faults have been mapped within the City limits, the Boney Mountain and Sycamore Canyon faults, both of which are inactive, traverse part of the City.[36] The Simi fault, an active fault located approximately one mile north of the City, is anticipated to generate the highest peak ground accelerations for the City. These and other faults in Ventura and Los Angeles Counties can produce large earthquakes that could impact the entire region, including Thousand Oaks, as depicted in Figure 10.1. Earthquake damage depends on a variety of factors including fault properties, proximity to the fault, ground and soil characteristics, among others.

Landslides and Debris Flows

"Landslide" is a general term for the dislodging and fall of a mass of soil or rocks along a sloped surface. Many landslides have resulted from indiscriminate modification of sloping ground or the creation of slopes from cut and fill in geologically unstable areas. Some previous landslides could have been prevented through recognition of potentially unstable soils and/or incorporation of design standards prior to grading and construction.

Landslides, debris flows, rockfalls, and mudslides could all occur in portions of Thousand Oaks. All are manifestations of gravity driven flows of earth materials due to slope instability. Hill slopes naturally tend to fail. Unless engineered properly, development in hillside areas tends to increase the potential for slope failures. Slope modification by grading, changes in the infiltration of surface water, and undercutting slopes can create unstable hill slopes, resulting in landslides or debris flows. Areas at high risk of landslides in Thousand Oaks are shown in Figure 10.2. These areas are generally located around the perimeter of the City in open space areas with steeper slopes.

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36. *Inactive faults are geologic structures that can be identified but cannot cause an earthquake. An active fault is a fault that is likely to have another earthquake sometime in the future. Faults are commonly considered to be active if there has been movement observed or evidence of seismic activity during the last 10,000 years.*

Soil Hazards

Liquefaction occurs when soil below the water table temporarily loses strength during an earthquake and changes to a near-liquid state. Depending on specific soil conditions such as density, uniformity of grain size, and saturation of soil materials, a certain intensity of seismic shaking is required to trigger liquefaction. Liquefaction is typically associated with medium to fine-grained sands in a loose to medium-dense condition.

Liquefaction can cause large movements of the ground and the resettling of soils after a liquefaction event can damage buildings and buried utilities. Liquefaction risk zones are present along Lang Creek, which runs southwestward from Oakbrook Regional Park, crossing State Route 23, and junctions with the Arroyo Conejo. Liquefaction zones also run along Highway 101 into Newbury Park. Another liquefaction zone is present in the northwest corner of the City's Sphere of Influence, along Hill Canyon Road, near where North Fork Arroyo Conejo meets Conejo Creek. High liquefaction risk zones are shown in Figure 10.3.

Expansive soils generally have a high clay content and shrink when dry and swell when wet. Expansive soils can cause considerable damage to building foundations, roads, and other structures. The presence of expansive soils is typically determined by soil testing on the project site level. In Thousand Oaks, potentially expansive soils can be found throughout the City.

Settlement hazards can occur in areas with alluvial deposits. Large-scale settlement problems have generally not been an issue in Thousand Oaks since geological hazard studies and compliance with California Building Code guidelines are required prior to construction. Areas of poorly consolidated sediments are engineered to support the weight of a structure that is to be built on the site. In areas of fill, the fill must be compacted to adequately support the proposed development.

Flood Hazards

Thousand Oaks is part of the Calleguas Creek Watershed. Heavy rainfall in this watershed can result in runoff that inundates the stormwater conveyance system, resulting in flooding. The Thousand Oaks area is subject to periodic inundation from flooding in certain areas, which can result in destruction of property, loss of life, and creation of health and safety hazards. Heavy rains during winter storms have caused several flooding events in Thousand Oaks. Federal Emergency Management Agency (FEMA) 100-year flood risk zones are depicted in Figure 10.4.[37] The 100-year floodplain identifies areas that have a 1% probability (1 in 100) of flooding. The 500-year floodplain identifies areas that have a 0.2% probably (1 in 500) of flooding. The main area of the City that is potentially subject to flooding is in the Newbury Park area of the City, south of Highway 101, between Old Conejo Road and Borchard Road.

37. *A 100-year flood zone is the land that is predicted to flood during a 100-year storm, which has a 1% chance of occurring in any given year.*

City staff address flooding in the City

FIGURE 10.1 Seismic Faults

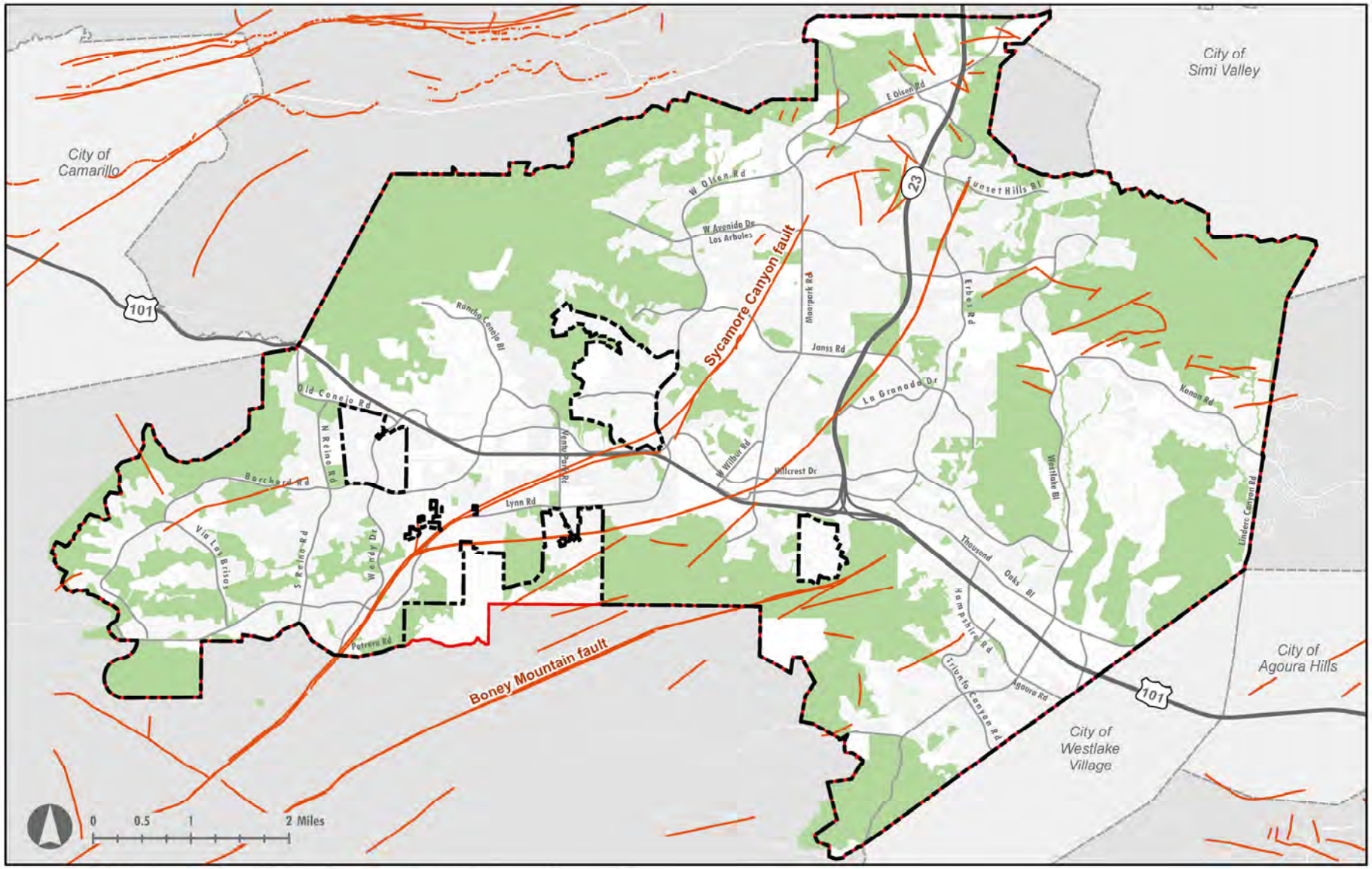


FIGURE 10.2 Landslide Risk Zones

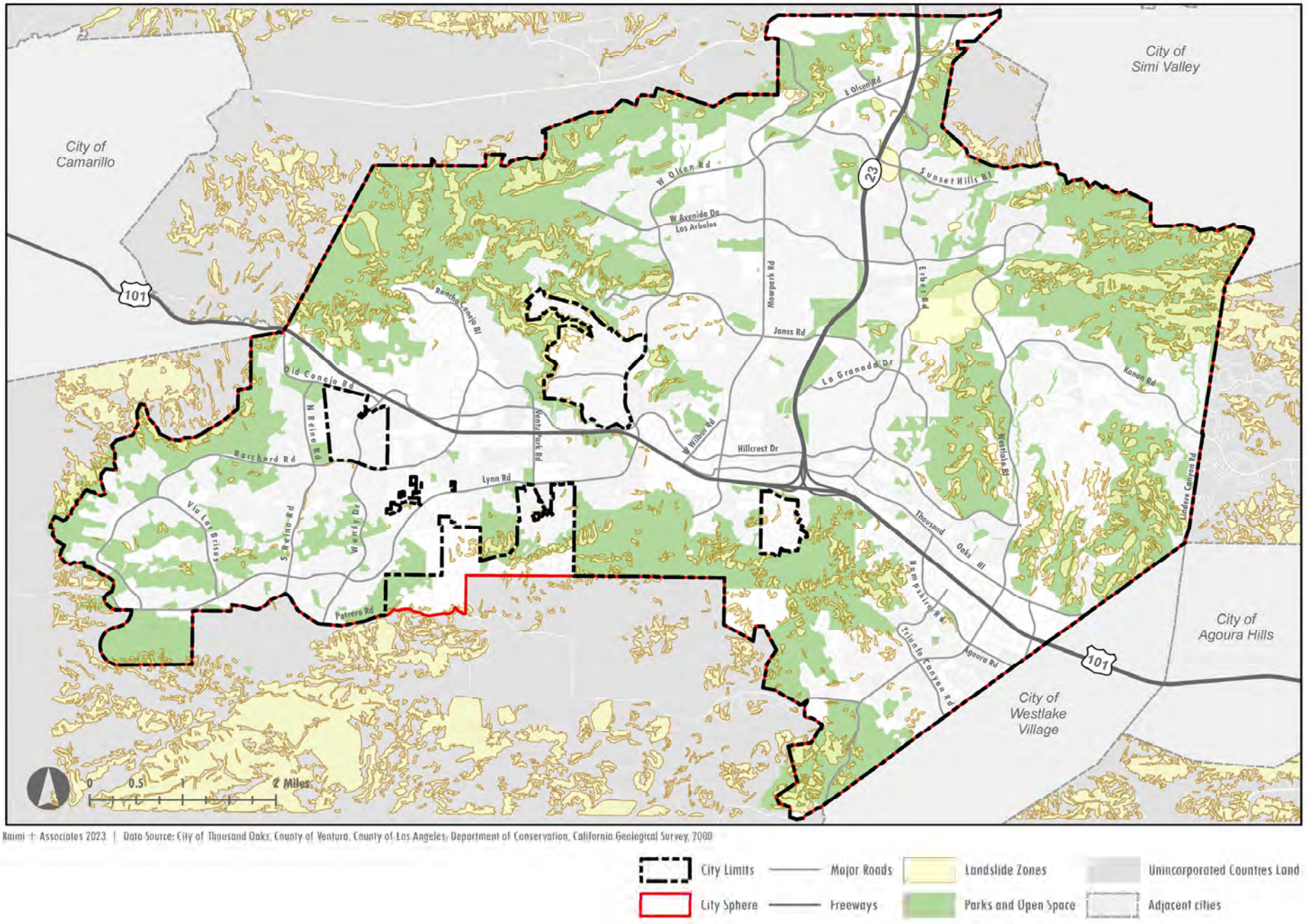
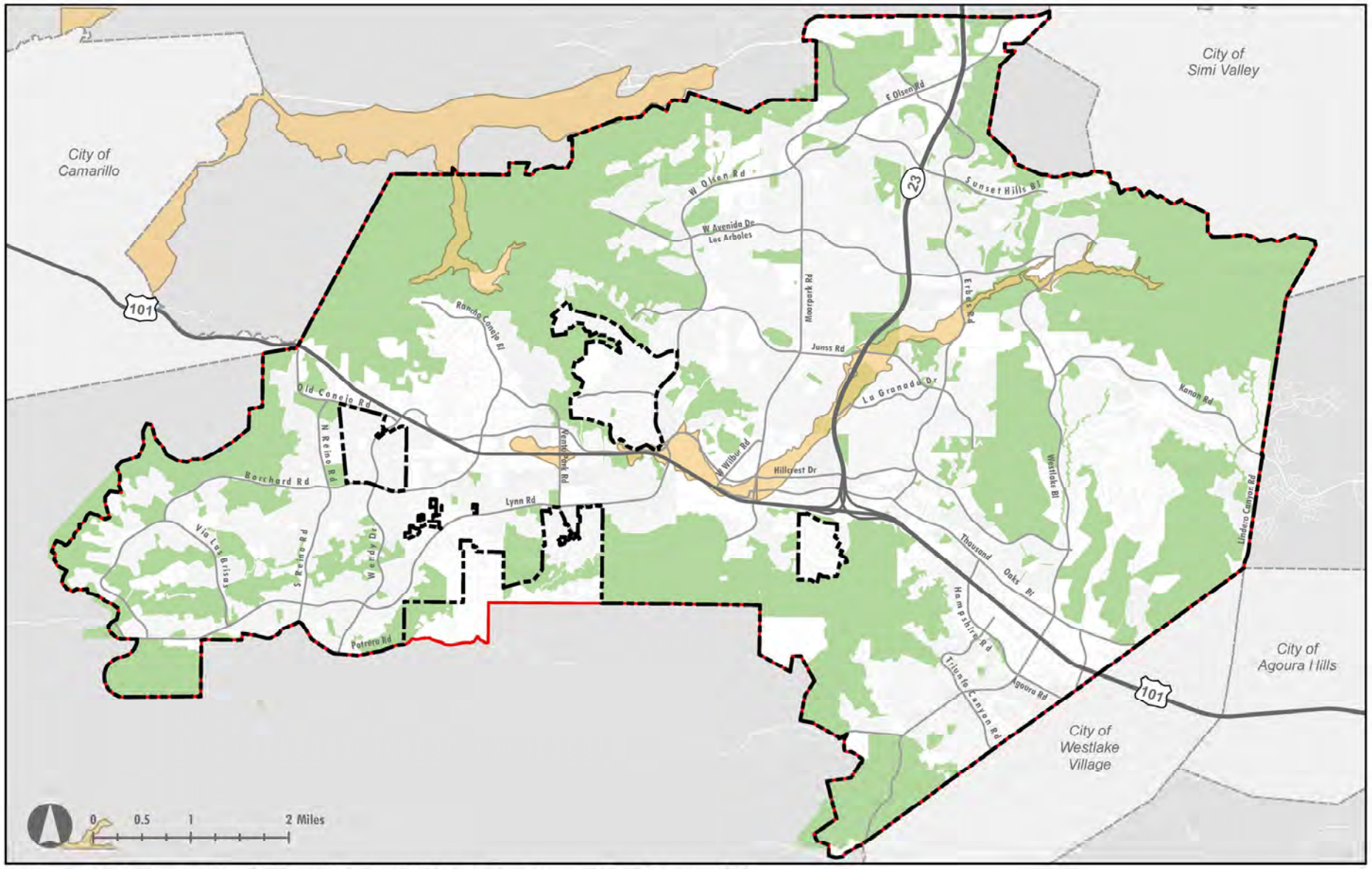
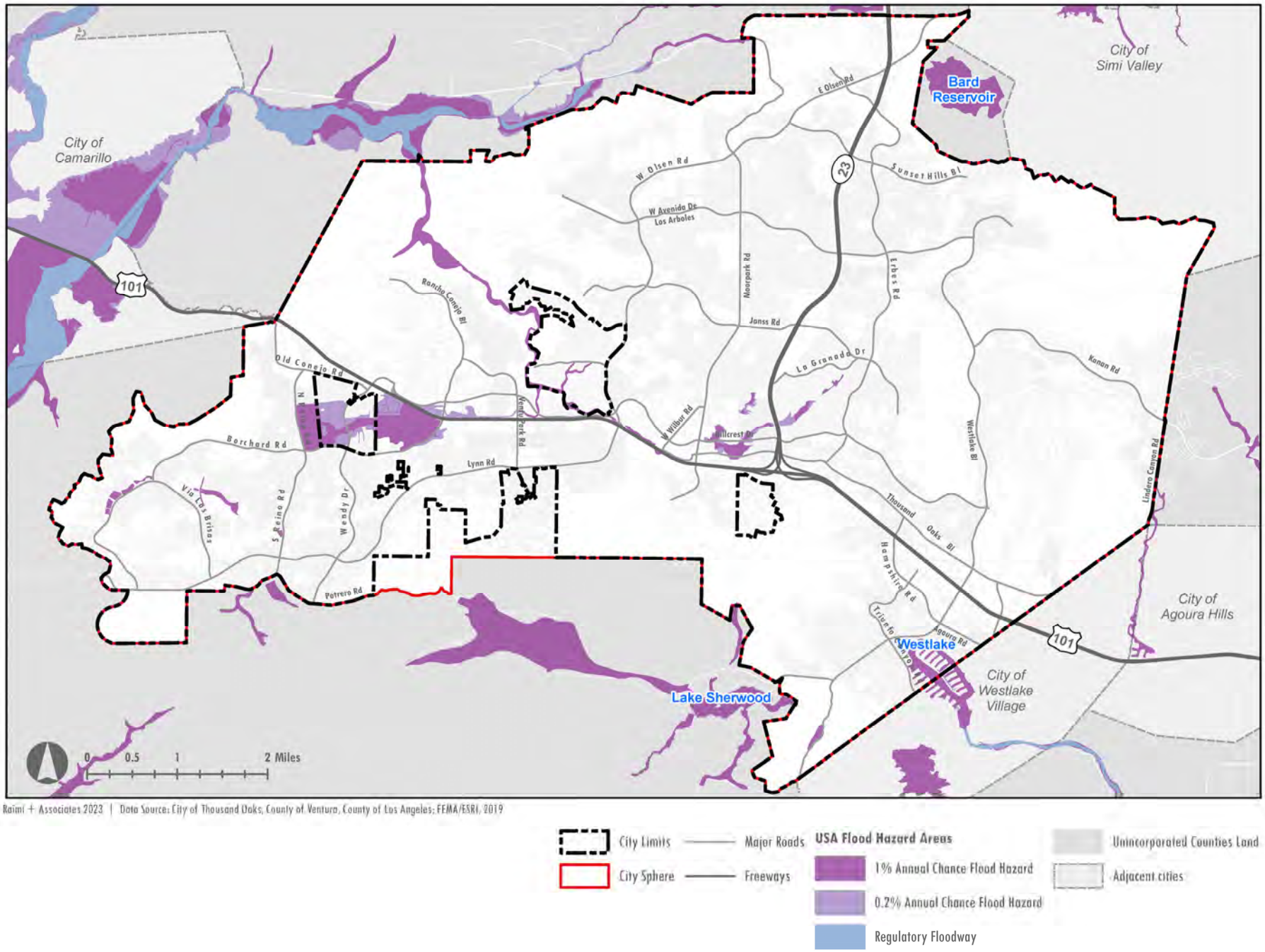


FIGURE 10.3 Liquefaction Risk Zones



Raimi + Associates 2023 | Data Source: City of Thousand Oaks, County of Ventura, County of Los Angeles, Department of Conservation, California Geological Survey, 2000

FIGURE 10.4 FEMA Flood Hazard Zones



Dam Failure

The Thousand Oaks area has five dams, depicted in Figure 10.5. Lake Sherwood and Lake Eleanor have the potential to result in inundation impact as a result of a dam failure. Failure of the Lake Sherwood Dam could flood the Westlake area of Thousand Oaks, while failure of the Banning Dam at Lake Eleanor could flood the Westlake Boulevard area. Failure of the remaining three dams in the area would not flood any portion of Thousand Oaks.

Wildfires

Wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, ~~and~~ landscape, and vegetation conditions. Thousand Oaks is vulnerable to wildfire, as shown by the devastating effects of the Woolsey Fire in November 2018. The fire, fueled by strong and dry northeasterly Santa Ana winds, damaged and destroyed dozens of properties and temporarily displaced hundreds of residents.

A substantial portion of Thousand Oaks is designated as a Very High Fire Hazard Severity Zone (VHFHSZ) by the California Department of Forestry and Fire Protection, also known as CAL FIRE. This can be partially attributed to the abundance of open space and vegetated hills throughout the City. Developed areas of Thousand Oaks on the Valley floor are generally at lower risk of wildfire. Areas within City limits are designated Local Fire Responsibility Areas, meaning their management is the responsibility of the Ventura County Fire Protection District. The unincorporated Very High Fire Hazard Severity Zones surrounding Thousand Oaks are designated State Responsibility Areas, meaning their management is the responsibility of CAL FIRE. Figure 10.6 shows VHFHSZs in Thousand Oaks, which encompasses a majority of the City. Only the more densely developed core of the City is not within a Very High Fire Hazard Severity Zone. Figure 10.7 shows where the cities critical facilities and infrastructure are located in regards to the Fire Hazard Severity Zones. Most of these facilities are located outside the local responsibility area (LRA), except for fire stations which are located inside and outside the LRA.

Wildfires in or near Thousand Oaks have been documented as far back as 1935. Figure 10.8 shows local fire history from 1935 to 2019. The most recent fires are the Hill and Woolsey Fires. The Hill Fire was reported at 2:03 p.m. on November 8, 2018, and twenty-one minutes later, the Woolsey Fire was reported. The Hill Fire began in the Camarillo area at Hill Canyon, about one mile west of Thousand Oaks, and burned a total of 4,531 acres. The Woolsey Fire started in Woolsey Canyon on the Santa Susana Field Laboratory property in Simi Valley and burned 96,949 acres in Ventura and Los Angeles Counties, destroyed 1,643 structures, killed three people, and caused the evacuation of more than 295,000 people. The Woolsey Fire response was made more complex due to the mass shooting that occurred the day before the fire began, on November 7, 2018 at the Borderline Bar and Grill taking the lives of 13 people.

Climate change is expected to exacerbate wildfire risk by creating hotter and drier landscapes, which are more susceptible to burning. In 2020 alone, California experienced six of the 20 largest fires in modern history and as of ~~the~~ 2021, over three million acres of land have burned. These fires arose during extreme fire weather conditions and record-breaking heat waves across California. The observed frequency of autumn days with extreme fire weather, which are associated with extreme autumn wildfires, has more than doubled in California since the early 1980s.[38] Due to an increase in factors that contribute to wildfires (variability in precipitation, hotter and drier landscapes) and because the City is in a VHFHSZ, it is expected to see an increase in wildfire hazards largely due to climate change. Mitigating these wildfire hazards are a high priority for the City of Thousand Oaks.

Wildfire Prevention Planning

There are several county-wide plans that guide wildfire policies and programs in Thousand Oaks. Ventura County Fire Protection District (VCFPD) Unit Strategic Fire Plan describes Ventura County's fire history, firefighting capabilities, and collaboration throughout different agencies, non-government organizations, and private entities. It also provides a reporting mechanism that tracks the implementation of projects that work to meet VCFPD's goals and objectives.

The Ventura Regional Fire Safe Council is also in the process of
The Ventura Regional Fire Safe Council is in the process of completing a Ventura County Community Wildfire Protection Plan (CWPP) that provides regional context and the county-wide priority actions regarding community engagement and education, structural hardening, defensible space, fuels reduction, evacuation and emergency response. The Ventura County CWPP is expected to be completed by Fall 2023.

The Ventura County Multi-Jurisdictional Local Hazard Mitigation Plan (MJHMP), which covers the City of Thousand Oaks planning area, was developed in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and followed FEMA's Local Hazard Mitigation Plan guidance. The MJHMP incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. The implementation of these mitigation actions, which include both short and long-term strategies, involve planning, policy changes, programs, projects, and other activities.

Urban Fires

Urban fires occur in cities or towns with the potential to rapidly spread to adjoining structures. These fires damage and destroy homes, schools, commercial buildings, and vehicles. Although fires can start from numerous causes, major fires are often the result of other hazards such as storms, drought, transportation accidents, hazardous material spills, criminal activity (arson), or terrorism. The potential secondary effects of an urban fire include utilities' failure and hazardous material spills. Although any developed area of the City can be subject to an urban fire, Thousand Oaks has no areas of unusually high urban fire risk.

38. *Goss, Michael et al. 2020. Climate change is increasing the likelihood of extreme autumn wildfire conditions across California. Environmental Research Letters 15.094016*

FIGURE 10.5 ~~DamInundation~~Dam Inundation

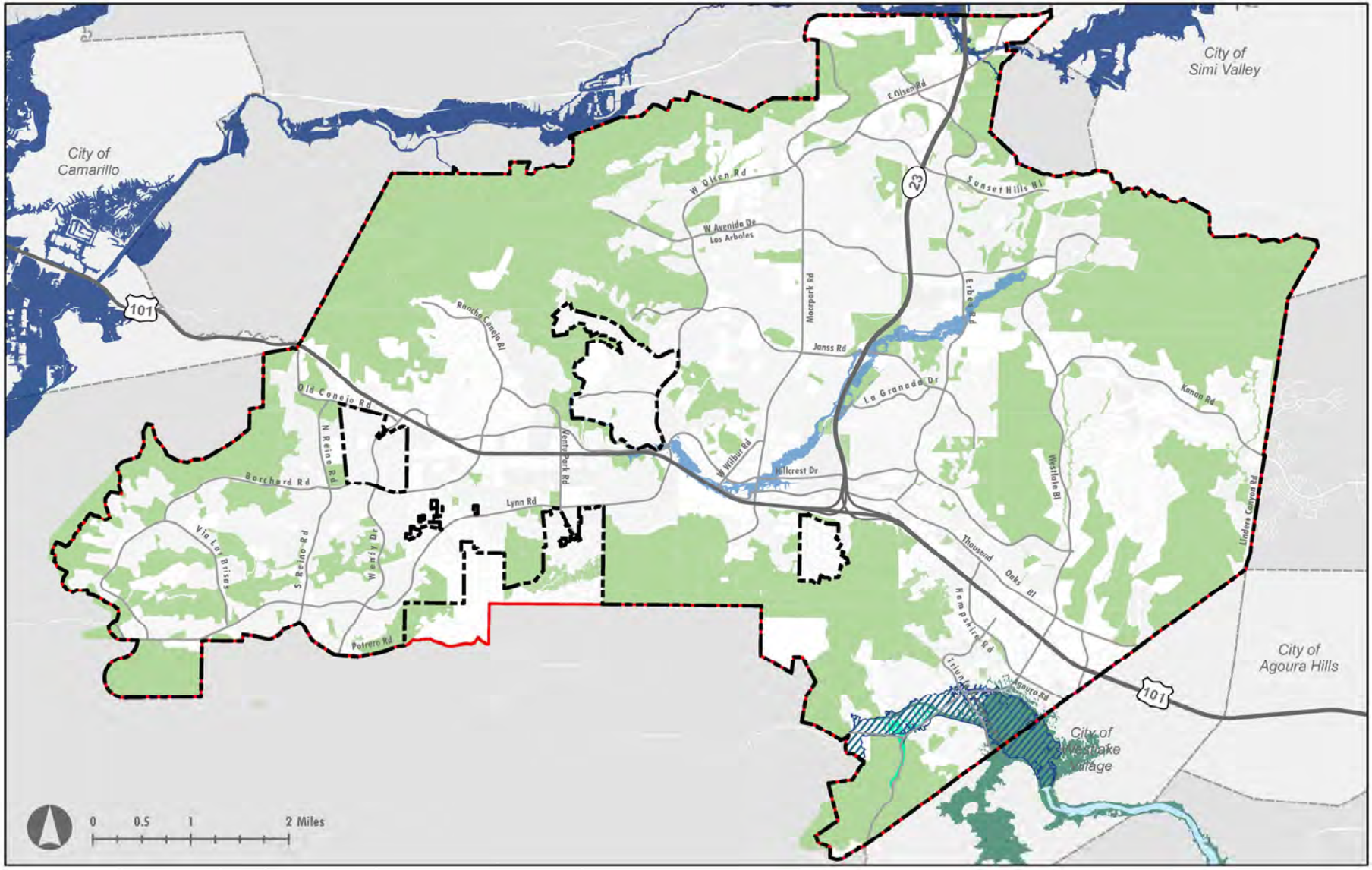
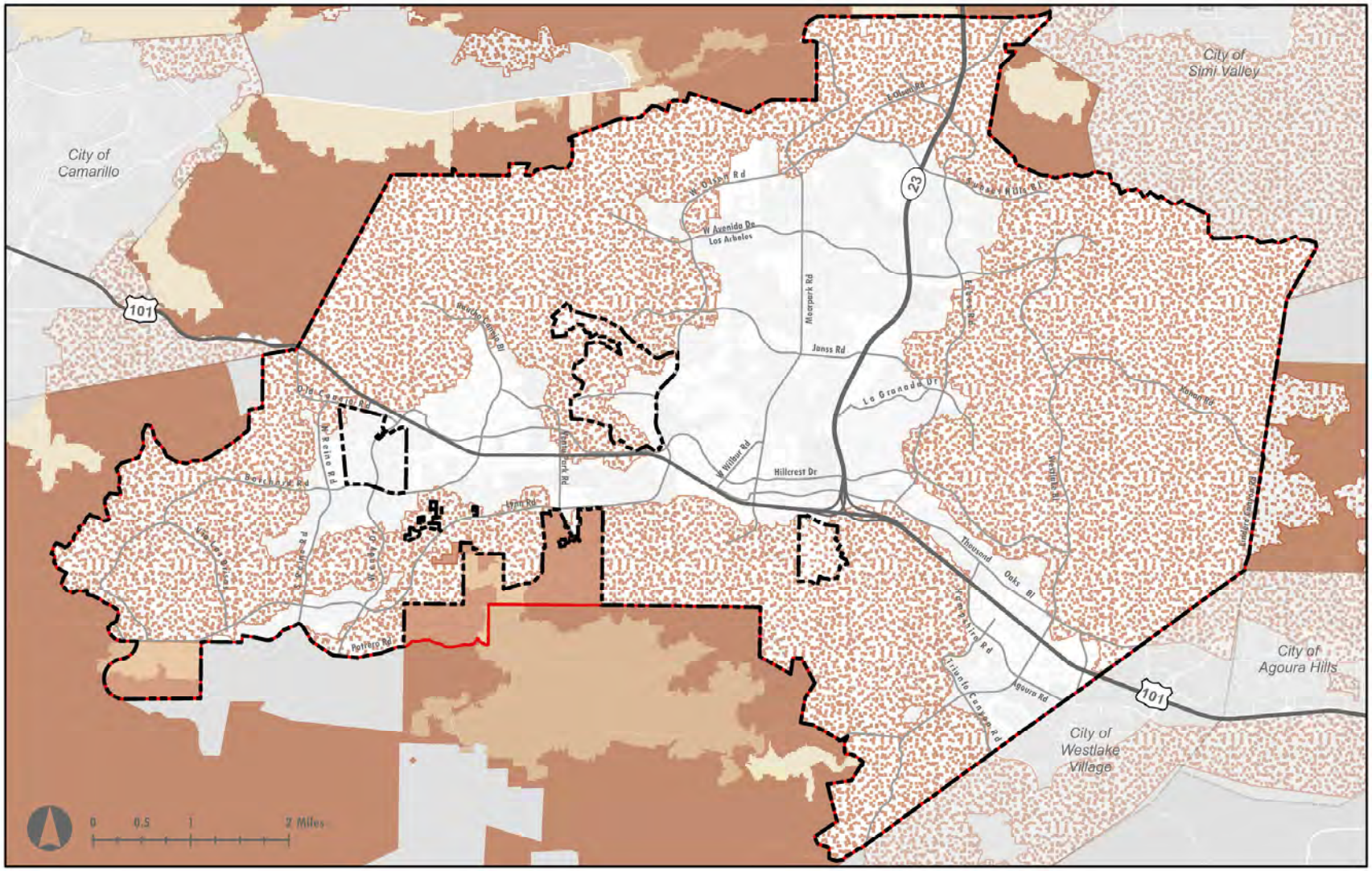


FIGURE 10.6 ~~Very High~~ Fire Hazard Severity Zones



Raimi + Associates 2023 | Data Source: City of Thousand Oaks 2019, County of Ventura, County of Los Angeles; CAL FIRE, 2010

City Limits
City Sphere
Major Roads
Freeways

Local Fire Responsibility Area
Very High

State Responsibility Area
Moderate
High
Very High

Unincorporated County Land
Adjacent Cities

FIGURE 10.7 Public Facilities and Fire Hazard Severity Zones

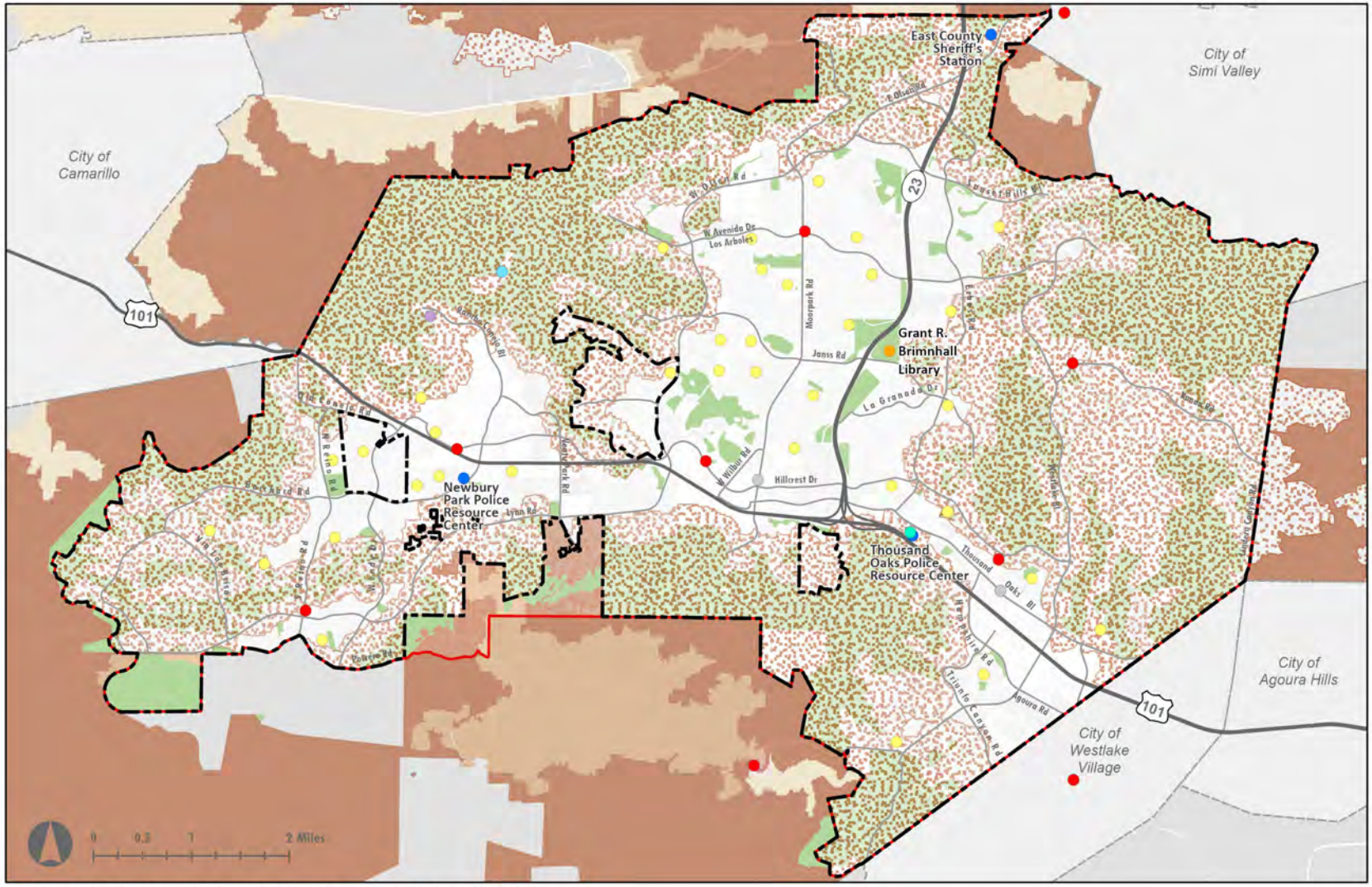
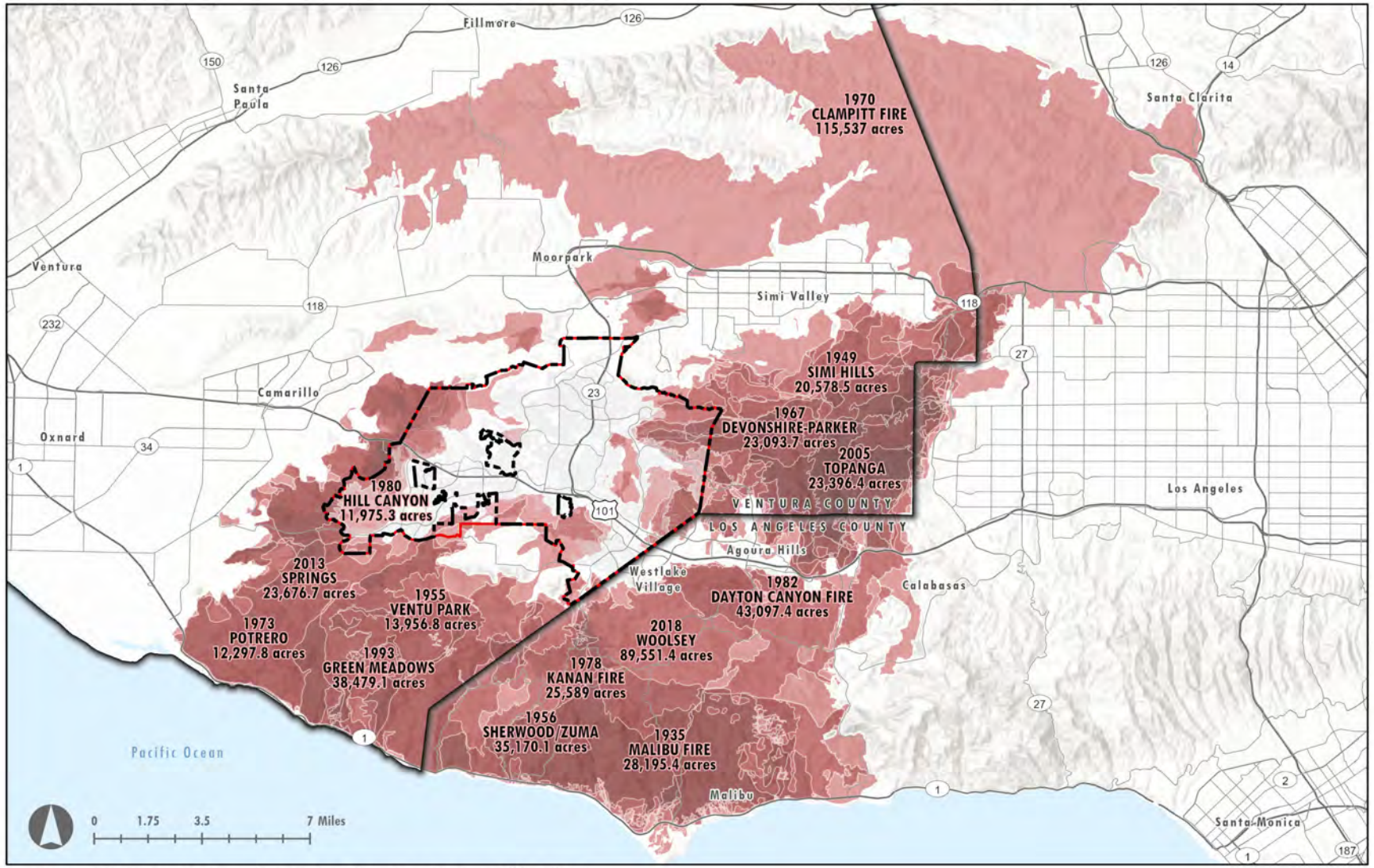


FIGURE 10.8 Wildfire History



Raimi + Associates 2023 | Data Source: City of Thousand Oaks 2019, County of Ventura, County of Los Angeles; CAL FIRE, FRAP, 2022

Emergency Evacuation

As part of the General Plan update process, the City of Thousand Oaks completed an emergency evacuation analysis pursuant to SB 99 (Section 65302) and AB 747 (Section 65302). The SB 99 and AB 2911 map identifies any residential developments in any hazard area that does not have at least two evacuation routes. AB 747 requires scenario modeling to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.

Results of the analysis show that even with Thousand Oaks' broad transportation system, an evacuation event could still result in significant congestion, resulting in delayed evacuation for residents. For example, in the case of a large wildfire, Highway 101 and SR 23 could become unviable prompting emergency traffic management and the use of alternative evacuation routes. ~~The analysis also found that 33 residential developments~~Figure 10.9 shows the neighborhoods and subdivisions throughout the city that have a single entry or exit point~~.~~ (as identified by CAL FIRE and/or the City). The analysis allows the City to identify areas at higher risk of impacts of human welfare and supports new evacuation strategies that improve the transportation system in future evacuation events.
These strategies include implementing traffic management strategies, improving communication among entities involved in the management of response, improving communication between the City and the public, and prioritizing vulnerable populations. The detailed evacuation analysis can be found in Appendix B and the map of single exit/entry neighborhoods can be found in the goals and policies section of this Safety Element.

Climate Change

As seen by the rise in average temperatures, extreme heat days, and sea levels over the past century, climate change is already affecting California. Climate change has wide-reaching consequences that affect California's health and prosperity, such as increased frequency and severity of wildfires, pressure on water supplies, and an increase in populations that will be exposed to intense heat waves.

The City has long been committed to environmental leadership, especially in the face of climate change. This commitment is critical since virtually all people and assets in Thousand Oaks –including infrastructure, buildings, and the natural environment – will be affected in some way. The City participates in climate action and sustainability planning both locally and through regional collaboration and has taken steps to reduce the City's reliance on fossil fuels, a primary source of greenhouse gas (GHG) emissions.

In 2015, the Ventura County Regional Energy Reliance (VCREA) released "Climate on the Move", a regional GHG emissions inventory and climate action plan template for each of the local government member organizations in Ventura County. Since then, the City has developed its own 2010-2020 GHG emissions inventory. According to this inventory, transportation is the largest source of GHG emissions for the City (65% of all emissions) and natural gas is the second largest source (22% of all emissions). The inventory also includes forecasts to 2030 and beyond. The City is using this data to understand its emissions sources and develop pathways to reduce emissions to the working targets established by City Council in 2021 of at least 40% below 2010 levels by 2030 and 80% below 2010 levels by 2050.

Climate change impacts and climate resilience in Thousand Oaks are described in the following sections.

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39. *Model RCP 8.5, Cal-Adapt 2019.*

40. *"Business as usual" refers to a an GHG emissions scenario where there will be no major change in technology, economics, or policies, and consequently the trajectory of GHG emissions would continue to increase at the same rate they have historically.*

Temperature and Extreme Heat

Average maximum temperatures in Thousand Oaks are expected to rise between 4.5°F and 7.2°F by the end of the century, with some variations depending on the emissions model used. Additionally, average minimum temperatures in the City are expected to rise between 4.9°F and 7.9°F by the end of the century. The projected continued warming of average minimum and maximum temperatures as well as more frequent high temperature extremes may have severe impacts on water and energy demand, as well as public health and ecosystem function.[39]

The annual number of heat waves, defined as four or more days over the extreme heat threshold of 94.1°F, is projected to increase from 0.3 to 4.4 by the end of the century, based on the business-as-usual scenario emissions scenario.[40] The annual number of extreme heat days with temperatures greater than 94.1°F is projected to increase from approximately nine days in 2015 to roughly 56 days by the end of the century, resulting in longer heatwaves. From 1961 to 1990, the observed average number of days in the longest heat wave was 2.5. By the end of the century the business-as-usual emissions scenario projects the average number of days in the longest heat wave to be 8.6.

The increase in surface heating may result in changes in seasonal patterns, an increase in heat waves, drought, and potentially increased storm frequency and intensity. Overall quality of life in the City would be impacted during extreme heat events as outdoor activities would be limited and overall comfort reduced. The primary population that is vulnerable to temperature increases and extreme heat in Thousand Oaks is older adults, who do not adjust as well as young people to sudden changes in temperature and are more likely to have medical conditions that can worsen with extreme heat. Older adults living alone are at even higher risk. Children are also at risk to extreme heat impacts, especially those under the age of four, due to their less-developed physiology, immune system, and dependence on others.

Extreme heat can be highly dangerous to persons with chronic health conditions, because very high temperatures can exacerbate diabetes, cardiovascular conditions, respiratory ailments, and other diseases. Some of these populations have weakened immune systems which can make them more likely to contract illnesses and increase overall vulnerability to other human health hazards. In addition, outdoor workers are vulnerable to extreme heat.

Thousand Oaks does not have a high number of households in poverty. Nevertheless, the City's low-income households are at higher-than-average risk because of limited financial resources for home improvements and energy costs for air conditioning usage to better cope with extreme heat.

Climate Action Plan

The State of California Scoping Plan includes guidance for local jurisdictions to reduce GHG emissions through local planning and permitting. The State recommends that local governments evaluate and adopt robust and quantitative locally appropriate GHG reduction goals that align with the statewide targets for 2030 and 2050. The guidance states that it is appropriate for local jurisdictions to derive evidence-based per capita goals based on local emissions sectors and population projections. Local GHG reduction strategies to achieve the statewide targets can be implemented through standalone documents such as the Climate and Environmental Action Plan (CEAP). This includes GHG emissions reduction targets, and policies and actions to achieve these targets. The CEAP can serve to provide GHG targets and performance metrics for future projects.

Precipitation

Projections show little change in total annual precipitation in California, with no clear or consistent trend during the next century. Cal-Adapt precipitation models show evidence for precipitation intensification over shorter durations of time with the annual number of dry days increasing. While there is likelihood of increased drought severity, there is also the possibility of occasional wet years. Because precipitation projections remain variable, some years will be less drought prone than others due to more frequent and possibly stronger storms.

Both increased temperatures and altered precipitation patterns can lead to altered seasons and intense rainstorms in Thousand Oaks. Intense rainstorms could result in increased flooding, which could affect property as well as human safety. Increases in intense precipitation could result in slope failures in the landslide prone areas shown in Figure 10.2.

Drought

Climate change will increase the probability that low precipitation years will coincide with above-average temperature years. This increases the likelihood of drought due to decreased supply of moisture and increased evaporation. This has implications for water demand. Warmer temperatures and changes in precipitation patterns, as well as more frequent and extreme drought conditions, are anticipated to result in increased water needs to support irrigation.

Even though the State may not have a reduction in overall water, the City depends on imported water from the State Water Project (SWP) from northern California, and extended drought scenario is predicted for this area. Areas that supply water to the State Water Project are expected to see a 22% reduction of their water supply, which could reduce the amount of potable water available for delivery to the City.[41] In 2022, allocation of water to this region from the SWP was severely curtailed, forcing the City to declare a Level 4 (40- 50%) water shortage. This resulted in a number of drought measures in the City including a one-day-a-week watering limit and a ban on the watering of non-functional turf at commercial properties.

Human-Induced Hazards

Human-induced hazards originate from technological or industrial accidents, dangerous procedures, infrastructure failures, or certain human activities that may cause the loss of life or injury, property damage, social and economic disruption, or environmental degradation. Human-induced hazards can also result from the alteration of natural processes in the Earth's systems caused by human activities that may accelerate to aggravate the damage potential.

Hazardous Materials

A wide variety of products, chemical and purified chemical compounds, and elements considered hazardous, or toxic are used in households, commercial businesses, and industrial operations and processes. These include home and pool related chlorine products, chemical fertilizers, herbicides and pesticides, stored fuels and waste oil, chemical solvents and lubricants, and a variety of medical materials. The improper use and/or management of hazardous materials can pose a threat to the community and the environment. Thousand Oaks is one of the only cities in the region to have its own dedicated Household Hazardous Waste (HHW) facility to collect and process waste from residents. Beginning in 2023, the City began a home collection program to collect HHW at residents' homes.

Thousand Oaks does not contain a high concentration of hazardous material sites such as leaking underground storage tank (LUST) sites, contaminated groundwater sites under the jurisdiction of the State Water Resources Control Board (SWRCB) Site Cleanup Program, and hazardous waste sites under the Department of Toxic Substances Control (DTSC) Site Cleanup Program.

41. *State Water Project Delivery Capability Report (DCR) 2019 (DWR 2020)*

Terrorism

Terrorism is defined in the Code of Federal Regulations as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives".[42] Most Americans see terrorism as an assault on the most basic human right to life and security that cannot be justified based on any political or social objective.

Public safety services such as police, fire, and emergency management and response are discussed in the Community Facilities and Services Element of the General Plan and in the City Emergency Operations Plan.

Disease

Infectious disease emergencies are circumstances caused by biological agents, including organisms such as bacteria, viruses, or toxins with the potential for significant illnesses or death in the population.

As evidenced by the COVID-19 pandemic, unforeseen infectious diseases can be disastrous for communities, especially vulnerable groups such as older adults, and those with compromised immune systems. The City worked diligently during the pandemic to minimize risks to community members and address local economic effects of the pandemic. Between 2020 and 2021 the City created numerous public relief funds for residents and businesses. Additionally, the City disseminated information regularly, including where to buy groceries (at onset of the pandemic), testing information, business support, homeowner support and more. Through collaborations with Ventura County Public Health (VCPH), the City has worked to prevent and minimize effects of and spread of disease, while responding to emergency incidents and assisting in recovery. Policies set forth in this Element regarding infectious disease can help expedite recovery and prepare the community for future related risks.

Drought affects overall water usage in the City

42. *28 C.F.R. Section 0.85*

Key Issues & Opportunities

This section identifies the key issues and opportunities facing the City, relative to safety topics. This concise list was developed in combination of the public engagement phase and existing data to address issues facing the city now, and in the future, and the opportunities for positive change. The topics inform the overall direction identified in the goals, policies, and actions listed below.

Seismic Hazards

Although no active faults traverse Thousand Oaks, the City is subject to potentially severe ground shaking in the event of seismic activity on any of several active faults in the region. Continued enforcement of applicable state and local codes will minimize the potential for loss of life and property during an earthquake.

Landslides/Debris Flow Safety Issues

Steeply sloped areas of the City continue to be landslide prone, which can be exacerbated by wildfires that denude vegetation and reduce slope stability. Continued enforcement of applicable code requirements, in combination with limiting development density on steep slopes and efforts to minimize and address wildfires, will minimize the potential for landslide-related property damage and loss of life.

Soil Hazards.

Limited areas of Thousand Oaks are subject to liquefaction and soil expansion, which can result in property damage. Continued enforcement of state and local code requirements on new development will minimize the potential for severe damage.

Wildfires can cause damage to life and property in the City

Flooding

Limited areas of the City are within 100-year flood zones, but the potential frequency and severity of floods may increase over time due to climate change. Continued enforcement of federal and local restrictions on development in flood-prone areas will minimize the potential for flood-related damage. However, ongoing tracking of flood patterns in coordination with FEMA will be needed to identify changes in flood potential.

Urban and Wildland Fires

Thousand Oaks is vulnerable to wildland fires, which present a substantial and potentially growing risk to the community. Continued enforcement of state and local fire codes will address fire risks, but ongoing enforcement and, as necessary, update of fire codes will be needed to minimize the effects of wildland fires. Ensuring the adequacy of emergency evacuation procedures and routes will also be a high priority over the time horizon of the General Plan.

Climate Resilience

The City is subject to a variety of potentially adverse effects related to climate change, including increased heat exposure and increased potential for flooding, drought, and wildland fire. Various new state requirements specifically address these types of risks. Reducing the potential for such changes to occur and/or to affect residents and community services and improving the ability to respond effectively to a range of climate-related events will be a high priority for the community.

Hazardous Materials

Although hazardous material exposure is not a major issue in Thousand Oaks, the potential for exposure exists due to the presence of contaminated sites, hazardous material transport, and emissions from freeways and other major roadways. Key approaches to addressing these issues include cleaning up contaminated sites and limiting exposure of sensitive land uses to potential hazardous material spills and emissions of toxic air contaminants.[43]

Terrorism

Thousand Oaks, like many communities, has facilities that are potentially targets for terrorism. Such acts can occur in a range of spaces where people congregate. Continuing to identify and avoid terrorism threats will remain a priority for local law enforcement.

Disease

Like many communities, Thousand Oaks is not immune to the spread of disease. The COVID-19 pandemic illustrated that no community is immune to the effects of infectious diseases. The City will continue to work with federal, state, and local authorities to track and, as necessary, prevent the spread of infectious diseases to the degree feasible.

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43. *Toxic air contaminants are addressed in the Conservation, Cultural, and Historic Resources Element.*

Fire crews fight a fire in the Thousand Oaks hills

Goals and Policies

This section includes goals and policies for the Safety Element. Policies regarding emergency facilities and response are in the Community Facilities and Services Element.

Faulting and Seismic Hazards

Goal S-1: ~~Minimize~~Mitigate the risk of loss of life, injury, damage to property, and economic and social dislocation resulting from fault rupture and seismically induced ground shaking.

1.1 Geologic and engineering investigations.
Require site-specific geologic and engineering investigations as specified in the California Building Code (as adopted by the State of California with local amendments) and Municipal Code for proposed new developments.

1.2 Earthquake resistant design.
Enforce the latest California Building Code (CBC) provisions relating to earthquake resistant design.

1.3 Strong motion instrumental program fund.
~~Allocate~~Continue to allocate a percentage of building permit fees (as specified in the Public Resources Code) to a trust fund (Strong Motion Instrumentation Program Fund) which is remitted to the State of California.

1.4 Setback distances.
Provide setbacks, as determined to be necessary, for any proposed development located on or near an active or potentially active fault. Appropriate setback distances will be determined through engineering geologic investigation.

1.5 Notice of geologic hazards.
Require all developers and/or subdividers of a parcel or parcels in an area of a known fault hazard to record a Notice of Geologic Hazards with the County Recorder describing the hazards on the parcel and the level of prior geologic investigation conducted.

1.6 Faulting/seismic hazards.
Require hazard mitigation, project redesign, elimination of building sites, and the delineation of building envelopes, building setbacks and foundation requirements, as deemed necessary, to minimize faulting/seismic hazards for new development and redevelopment.

1.7 Seismic retrofitting.
Investigate options for seismic retrofitting of older buildings that do not meet current seismic standards.

Landslides and Debris Flows

Goal S-2: ~~Minimize~~Mitigate loss, injury, damage, and economic and social dislocations resulting from soil landslide, debris flow, soil expansion, and settlement.

2.1 Setbacks from debris flow.
Require all development to provide setbacks from potentially unstable areas, including potential debris flow channels, as identified in engineering and geologic studies.

2.2 Drainage plans.
Require new projects to prepare drainage plans designed to direct runoff away from unstable areas.

2.3 Surface runoff in unstable areas.
Discourage introduction of surface runoff, including nuisance water into the ground, where the area is unstable.

2.4 Road reconstruction.
Where washouts or landslides have occurred on public or private roads, require road reconstruction to meet the conditions of geologic and engineering reports.

2.5 Building in flowline.
Discourage development in the flowline or discharge areas of hillside swales or channels.

2.6 Notice of geologic hazards.
In areas of known slope instability or debris flow hazards, require developers and/or subdividers of a parcel or parcels to record a Notice of Geologic Hazards with the County Recorder describing the potential hazards on the parcel and the level of prior geologic investigation conducted.

Soil Hazards

Goal S-3: ~~Minimize~~Mitigate loss, injury, damage, and economic and social dislocation resulting from soil hazards.

3.1 Liquefaction.
Require developers to submit studies that evaluate liquefaction potential for proposed developments in areas susceptible to liquefaction as illustrated by Figure 10.3.

3.2 Liquefaction hazard risk.
Require project alterations and/or mitigation as necessary to remediate liquefaction hazard risk.

3.3 Notice of geologic hazards.
Require developers and/or subdividers of a parcel or parcels in areas susceptible to liquefaction or of known highly expansive soils hazard to record a Notice of Geologic Hazards with the County Recorder describing the potential hazards on the parcel and the level of prior geologic investigation conducted unless the condition has been mitigated.

3.4 Soils reports.
Require the preparation of a soils report, prepared by a registered civil engineer, for developments where soils have been identified that are subject to expansion, or where there is inadequate soils information.

3.5 Hazard mitigation for soil hazards.
Require hazard mitigation, as necessary, to mitigate hazards associated with soils that may be subject to expansion, or settlement.

Flood Hazards

Goal S-4: ~~Minimize~~Mitigate loss of life, injury, property damage, and economic and social dislocations resulting from inundation by dam failure or floods.

4.1 New development in flood zones.
Require new development in flood zones and dam inundation areas to minimize flood potential and ensure that development siting and design features will not increase flood inundation potential offsite. Regulate filing, grading, dredging, and other development that may increase flood damage.

4.2 New essential facilities in flood zone.
Prohibit the siting and construction of new essential public facilities within flood hazard zones, when feasible. If an essential facility must be located within a flood hazard zone, incorporate flood mitigation to the greatest extent practicable.

4.3 Critical and lifeline facilities.
Maintain the structural and operational integrity of critical and lifeline facilities during and after flooding events.

4.4 Master Plan of Drainage compliance.
Comply with provisions of the Master Plan of Drainage for new development.

4.5 Drainage deficiencies.
Implement drainage improvements to address deficiencies identified in the Master Plan of Drainage, and periodically update the City's Master Plan of Drainage to incorporate new data and conditions.

4.6 Notice of flood hazards.
Require the developers and/or subdividers of a parcel or parcels in an area of known flood hazards to record a Notice of Geologic Hazards with the County Recorder describing the hazards on the parcel or parcels and the extent of prior hydrologic or geologic investigation conducted.

4.7 Floodplain improvements.
Partner with the Ventura County Watershed Protection District to complete drainage improvements to enable parcels to be removed from the 100-year floodplain.

4.8 Flood control.
Protect and maintain natural hydrological and ecological functions by implementing flood control improvements that use natural materials when possible. If the use of natural materials is not feasible, select the most environmentally preferred option and limit concrete channelization to the extent possible.

4.9 Agency coordination.
Coordinate flood control planning with the Ventura County Public Works Department and Federal Emergency Management Agency.

Wildfires

Goal S-5: Provide necessary prevention services to reduce loss and damage due to wildfire.

5.1 Cooperation of VCFPD.
Continue to support the Ventura County Fire Protection District (VCFPD) and property owners living in the wildland urban interface by supporting inter-jurisdictional fire protection agreements.

5.2 Road widths and clearances.
Ensure that new development has appropriate road widths and clearances in accordance with:

- Standards specified in the City of Thousand Oaks Road Standards and construction specifications in effect at the time of construction.
- Any other standard and specific conditions required by State and County Fire Codes and VCFPD in the permit application.

5.3 ~~Defensive~~Defensible spaces.
Establish ~~defensive~~defensible spaces in the ~~urban/~~wildland urban interface (WUI) interface to protect against wildfire. ~~Defensive~~Defensible spaces shall:

- Establish and maintain a ~~100-foot~~ defensible perimeter or other measures in compliance with state and local codes around each habitable structure along the ~~urban-wildland~~WUI interface.
- Provide for the removal of annual fuels within the ~~defensive~~defensible perimeter.
- Provide any fire suppression resource from any agency the opportunity to successfully protect structures and other valuable properties during a wildfire threat.
- Create an ember resistant zone ~~within 5 feet of structures~~ by using extra fuel reduction measures ~~within 5 and 10 feet of the structure~~, pursuant to AB 3074 ~~(Public Resource Code 4291).~~
- Protect watershed areas from exposure to structure fires in the

~~urban/wildland~~WUI interface areas.

- Require fuel modification zones for new development within the VHFHSZ.

5.4 Public facilities and utilities in high fire zones.
Discourage the location of new public facilities and above-ground utilities in Very High Fire Hazard Severity Zones. When unavoidable, special precautions should be taken to minimize potential fire impacts to public facilities.

5.5 Science-based fuel management.
Work with VCFPD, COSCA, and other agencies, as appropriate, to implement science-based fuel management programs and post fire recovery plans that conserve wildlife habitat while protecting public safety.

5.6 Fire Safe Development standards.
Continue to ~~incorporate~~update and require fire safe design into development standards ~~such as~~for new development in SRAs or VHFHSZs that meet or exceed the statewide minimums in the SRA Fire Safe Regulations. Fire safe development codes shall include initial site design standards, landscape design standards, on-going maintenance standards, and mitigation measures into individual developments to reduce the potential damage and destruction due to fire.

5.7 Fire Hazard Severity Zone map.
Work with the ~~Cal Fire~~CAL FIRE and VCFPD to update the ~~Very High~~ Fire Hazard Severity Zone map as new data is available.

5.8 Wildfire resilience.
Continue to meet all current standards and best practices for wildfire planning in accordance with local regulations and State guidance.

5.9 Public outreach and education.
Educate residents on fire hazard reduction strategies to employ on their properties and nearby evacuation routes. Prioritize outreach to the most vulnerable populations such as older adults and individuals with chronic health conditions.

5.10 ~~Development~~Fire protection for new development.
Require that all new development have adequate fire protection and that development can be served with VCFD's response time goal.

~~5.10~~5.11 Develop fire safety compliance.
Ensure that all new development in SRAs or VHFHSZs complies with fire safety requirements ~~for construction in~~, including the ~~Very High Fire Hazard Severity Zones~~most current version of the California Building Codes, California Fire Code, and Fire Safe Regulations for fuel modification around homes and subdivisions.

~~5.11~~5.12 Fire management best practices.
Require that developments located in wildland urban interface areas incorporate measures to reduce the threat of wildfires, accounting for any increased risk related to climate change. Clearly delineate fuel modification areas on grading plans.

~~5.12~~5.13 Local Hazard Mitigation Plan.
Follow all guidelines in the ~~Local Hazard Mitigation Plan~~MJHMP and other applicable County, State, and Federal fire mitigation policies.

~~5.13~~5.14 Ingress and egress points.
Whenever feasible, require the construction of multiple ingress and egress points for new development projects in ~~high fire hazard severity zones.~~Fire Hazard Severity Zones. For example, each neighborhood/subdivisions should have at least two emergency evacuation ingress and egress points. See Figure 10.~~7~~9.

~~5.14~~5.15 ~~Fuel~~ Long-term fuel reduction.
Implement the Ventura County Multi-Jurisdictional Hazard Mitigation Plan, the VCFPD Unit Strategic Fire Plan, and the Ventura County Community Wildfire Protection Plan by requiring long term maintenance of fuel reduction projects; including but not limited to, a roadside fuel reduction plan, defensible space clearances (including fuel beaks) around structures, subdivision, and other development in the VHFHSZ.

5.16 Fire clearance.

Continue to establish and maintain community ~~fire~~fuel breaks and fuel modification/reduction zones, including public and private road clearance. Provide a plan detailing long-term maintenance including implementation methods and funding source.

~~5.15~~5.17 Local ordinance updates.

Continue to update both Fire & City ordinances to require development standards for the VHFHSZ to meet or exceed title 14, CCR, division 1.5, chapter 7, subchapter 2, articles 1-5 (commencing with section 1270) (SRA Fire Safe Regulations) and title 14, CCR, division 1.5, chapter 7, subchapter 3, article 3 (commencing with section 1299.01) (Fire Hazard Reduction Around Buildings and Structures Regulations~~).~~) for SRAs and/or VHFHSZs.

~~5.16~~5.18 Rebuild post fire re-development.

In the event of a large fire, the City will evaluate re-development within the impacted fire zone to conform to contemporary fire safe standards and require all development to meet or exceed City and State standards.

5.19 Siting new development.

Prioritize all new residential development to be built outside the VHFHSZ.

~~5.17~~5.20 Fire Protection Plans.

Require Fire Protection Plans for all new development in VHFHSZs.

5.21 Existing non-conforming development.

Minimize risks to existing development by identifying existing non-conforming development not meeting current fire safe standards, in terms of road standards and vegetative hazard; and requiring all development to meet or exceed CCR, division 1.5, chapter 7, subchapter 2, articles 1-5 requirements (SRA Fire Safe Regulations).

5.22 Evacuation and emergency vehicle access.

Maintain evacuation and emergency roadways and improve them as necessary and appropriate to ensure ongoing serviceability.

5.23 Street signage.

Require that all homes have visible street addressing and signage

5.24 Evaluate water supply.

Continuously evaluate the City's capacity to adequately suppress wildfire, taking into account water supply availability, maintenance and long-term integrity of water supplies, and location of anticipated water supply, as part of the City's Water Master Plan.

5.25 Additional water supply.

Investigate the use of additional water sources, such as local groundwater and reclaimed water resources, to reduce reliance on imported water from the State Water Project.

5.26 Water storage and availability.

Coordinate with Calleguas Municipal Water District to support the provision of adequate water availability throughout the City and provision of adequate water storage to meet future peak fire demand during times of peak domestic demands.

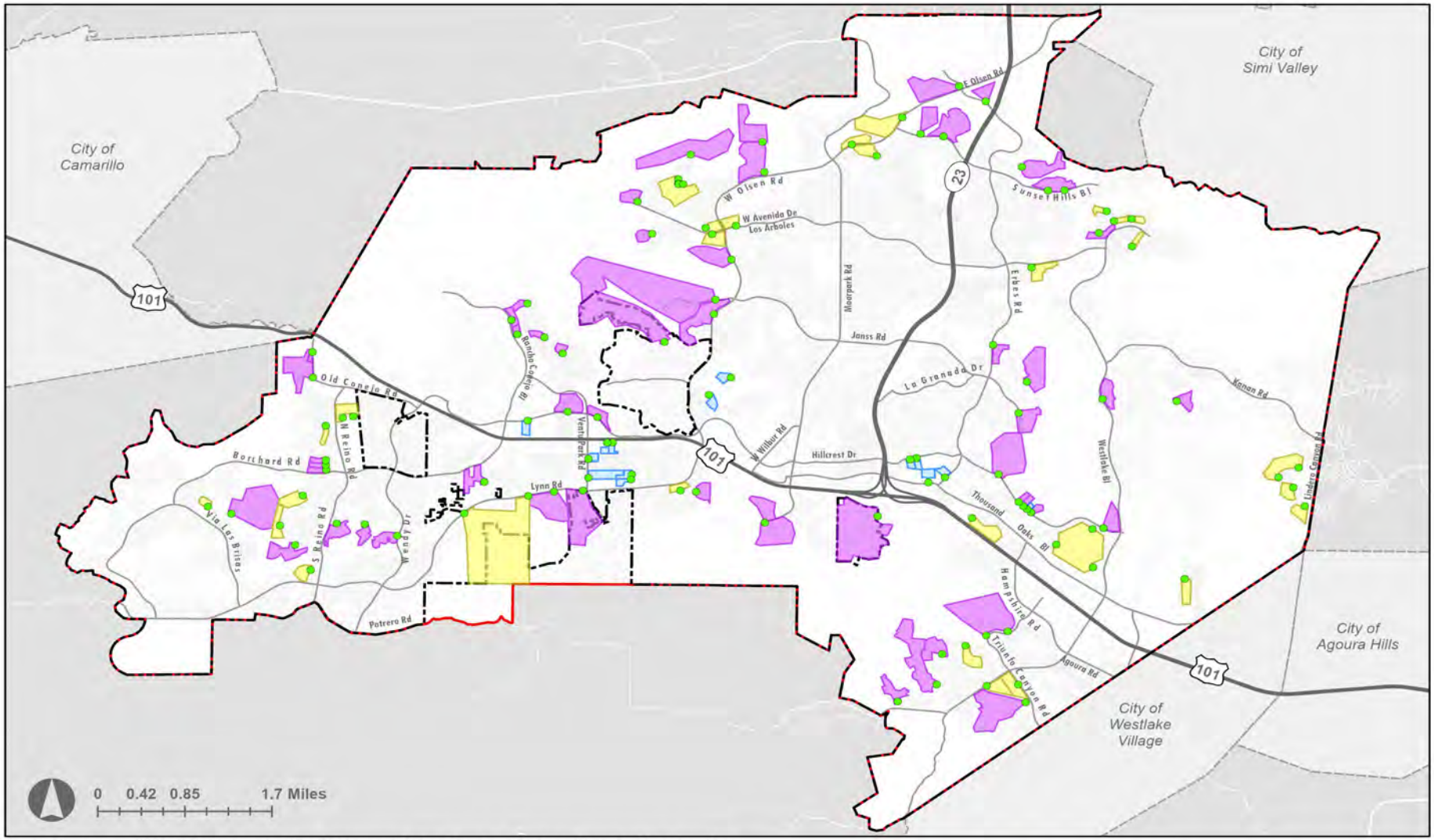
5.27 Evacuation operations planning.

~~Continue~~Continue to assess and update the City's Emergency Operations plan to improve evacuation operations and planning for the community, with a focus on areas with inadequate access/evacuation routes~~.~~, identified in Figure 10.9. This includes developing minimum standards for evacuation of residential areas in VHFHSZs.

5.28 Emergency service needs.

Continue to assess and update the City's Emergency Operations plan to assess current emergency service and projected emergency service needs, goals, and standards for emergency services training for City staff and volunteers.

FIGURE 10.9 Neighborhoods/Subdivisions with One Entry/Exit



Raimi + Associates 2023 | Data Source: City of Thousand Oaks, County of Ventura, County of Los Angeles

Assembly Bill 2911- Board of Forestry and Fire Protection Identified Subdivisions

- City Limits
- City Sphere
- Exit/Entry Location
- Identified Subdivisions - Report Forthcoming
- Identified Subdivisions - Reviewed by Board
- Identified Subdivisions - Newly Identified and Unsubmitted

Climate Resilience

Goal S-6: Reduce community vulnerability to climate-related threats and increase community resilience.

6.1 Reduce urban heat island effect.
Reduce urban heat island effect by continuing to invest in the City's urban forest and tree plantings, and support the use of heat reflective paint, cool surface treatment, and cool paving in buildings, facilities, infrastructure and streets, parking lots and other pavement if feasible.

6.2 Microgrids for municipal facilities.
Develop battery energy storage and microgrids at critical municipal facilities to maintain operations with clean energy during power outages.

6.3 Community-serving microgrids.
Support and encourage the development of community-serving microgrids, on-site battery energy storage, and resilience centers particularly in new development projects. Incorporate installation of such in residential use and other zoning designations.

6.4 Climate impacts.
Consider climate change impacts including increased storm severity, drought and extreme heat in planning decisions, including those involving public infrastructure, urban forest, sidewalks, streets, utilities, facilities, and private development.

6.5 Adaptation strategies.
Implement climate adaptation strategies at a local and regional level in which coordination and pooling of resources (e.g., emergency/evacuation centers for people and animals, transit agency mutual emergency support) is planned.

6.6 Regional coordination.
Ensure the community's engagement strategy for climate adaptation planning includes surrounding jurisdictions to identify coordination opportunities.

6.7 Heat response.
Update emergency/disaster response measures to account for increased heat days.

6.8 Heat education.
Provide education on heat-related illness and mitigation measures, particularly targeted to seniors and other vulnerable populations.

6.9 Air conditioning alternatives.
Encourage alternatives to air conditioning such as ceiling fans, air exchangers, increased insulation and low-solar-gain exterior materials to reduce need for air conditioning and concomitant high electricity demands during high heat events to increase the reliability of the electrical grid.

Climate Change Mitigation

Goal S-7: A sustainable community with reduced energy demand and greenhouse gas emissions.

7.1 Climate and Environmental Action Plan.
Prepare and update the City's Climate and Environmental Action Plan every ten years or more frequently.

7.2 Community emissions.
Reduce community GHG emissions by at least the SB 32 target of 40% by 2030 and 80% by 2050 relative to 2010.

7.3 Municipal emissions.
Reduce GHG emissions from Municipal operations by at least 40% by 2030 and 80% by 2050 relative to 2010.

7.4 Electrification of new and existing buildings.
Encourage electrification of newly constructed buildings.

7.5 Transition to clean energy.
Reduce non-building-related energy emissions through conservation, efficiency measures, and use of renewable energy in street lighting, water and wastewater conveyance and treatment, and municipal operations.

7.6 Clean energy vehicles.
Increase electric/alternative fuel use through charging and other appropriate fueling infrastructure expansion.

7.7 Clean energy technology.
Support deployment of emerging and future clean energy technologies such as hydrogen fuel cell and electric vehicles, battery energy and other clean energy, storage means, carbon capture technologies, smart technologies with inter-device and grid communications, such as vehicle-to-grid and IoT ("Internet of Things") for demand reduction, and other technologies, as feasible.

7.8 Renewable energy sources.
Encourage renewable energy supply for all buildings and infrastructure by 2045.

7.9 Community forest.
Expand and maintain the community forest to sequester carbon dioxide from the atmosphere.

Hazardous Materials

Goal S-8: Protect the community and environment from the effects of hazardous materials released into the air, land, or water.

8.1 Risks from hazardous materials.
Regulate the locations of businesses that utilize large quantities of hazardous materials, to prevent exposure of people or the environment from excessive hazardous material risks.

8.2 Cleanup of sites.
Coordinate with the Ventura County Environmental Health Department and the Regional Water Quality Control Board to cleanup sites that have been contaminated by hazardous materials releases, especially those that have contaminated groundwater.

8.3 Household hazardous waste disposal.
Continue to operate a local household hazardous waste (HHW) collection facility that is convenient and open for weekly drop off by the public and expand the HHW home collection program throughout the City.

8.4 Household hazardous waste education.
Support the education of the public about the importance of complying with household hazardous waste programs through City, waste hauler, and HHW facility operator communications.

8.5 Agency coordination for hazardous materials transportation.
Continue to follow guidelines set in the Hazard Mitigation Plan regarding regional plans for transportation corridors for hazardous materials.

Terrorism

Goal S-9: Protect life and property from the potential effects of terrorism.

9.1 Terrorist vulnerability.
As part of the development review process, conduct vulnerability assessments of terrorist-sensitive facilities and, where practical, implement measures to protect these facilities against terrorist acts. Terrorist-sensitive facilities include places that are at-risk for terrorism, including, but not limited to, government offices, schools, and religious facilities.

9.2 Special events.
Ensure that providers of major special events in City-owned facilities and public spaces implement security plans to address potential terrorism concerns.

9.3 Cross-jurisdictional information sharing.
Ensure that terrorist-related information is shared with Federal, State, and local law enforcement agencies and the Ventura County Joint Regional Intelligence Center (JRIC) via the Terrorism Liaison Officer to identify and minimize terrorism risk.

Disease

Goal S-10: Limit loss of life and economic disruption due to pandemics.

10.1 Disease spread. 
During a pandemic or similar infections disease event, coordinate with the Ventura County Department of Public Health to implement measures that minimize the spread of disease including but not limited to: providing testing and contact tracing resources and promoting public safety protocols, maintaining up-to-date health services on the City's website, connecting residents with up-to-date County infectious disease information, and partnering with local non-governmental organizations and community groups to provide economic support services.

10.2 Expert guidance. 
During an infectious transmission event, implement the guidance of County, State, and federal health officials to protect human health.

10.3 Website resources. 
Maintain up-to-date public health service information on the City's website and the County website for all emergencies.