DRAFT

Evacuation Planning Technical Advisory

GENERAL PLAN TECHNICAL ADVICE SERIES

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Technical Advisory Information

Agency Information

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Disclaimer

Because communities throughout California are varied and have different needs, the recommendations in this technical advisory are designed for a wide spectrum of uses and applications. This document is meant to be a resource for the public to use at their discretion; it does not alter or direct public agency discretion or decision-making in preparing planning documents. This document should not be construed as legal advice, nor is the Governor's Office of Planning and Research enforcing or attempting to enforce any part of the recommendations contained herein. (Refer to Government Code [GC], § 65035 ["It is not the intent of the Legislature to vest in the Office of Planning and Research any direct operating or regulatory powers over land use, public works, or other state, regional, or local projects or programs."].)

Overview

This document is organized into the following sections:

1) **Introduction**
2) **General Plan Evacuation Requirements**: This section summarizes evacuation planning requirements for the general plan. It also highlights opportunities for plan alignment by describing related planning frameworks that cities and counties may leverage as they update their general plans.
3) **General Plan Evacuation Guidance**: This section outlines key steps in the evacuation planning process to help cities and counties navigate potential challenges associated with identifying residential developments with less than two evacuation routes as well as assessing evacuation routes and locations under a range of emergency scenarios.
4) **Example General Plan Policies and Programs**: This section provides example policies and implementation programs that could be included in general plans to facilitate safe evacuations.
5) **Appendices**: The appendices include potential resources to support evacuation planning and other technical sections that support the main body of the document.

Reader Note — Phrases that are *italicized and are noted in purple text* are defined in the glossary.

1. Introduction

The goal of the Governor's Office of Planning and Research's (OPR) Evacuation Planning Technical Advisory (TA) is to guide cities and counties as they update their general plan safety element in accordance with evacuation requirements outlined in Senate Bill (SB) 99 (2019), Assembly Bill (AB) 747 (2019), and AB 1409 (2021), which were codified in Government Code [GC] Sections 65302, subdivision (g), and 65302.15.

The State of California defines *evacuations* as the "organized, phased and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas and their reception and care in safe areas" (Cal OES, 2017). Evacuations are dynamic processes that require close coordination within and across communities, jurisdictions, and agencies. Successful evacuations depend on a network of interconnected systems that work together to protect people from immediate threats (refer to Figure 1).

Within the general plan, local governments are specifically required to address evacuation routes and locations. As cities and counties delve into this topic, they should coordinate with hazard mitigation, disaster preparedness, emergency response, disaster recovery professionals, access and functional needs organizations, community-based organizations (CBOs), and other non-governmental organizations (NGOs) to align their general plan efforts with broader emergency response activities and utilize the whole community approach for emergency planning.

Figure 1: Network of interconnected systems that contribute to a successful evacuation process.

2. General Plan Evacuation Requirements

Each city and county in California must develop a general plan to guide development within their jurisdiction. These plans serve as blueprints, helping communities reach their long-term vision for the future (see OPR's General Plan Guidelines Chapter 2). Per Government Code Section 65302, local governments must incorporate the following topics, or "elements," into their general plans:

- Land use
- Circulation
- Housing
- Conservation
- Open Space
- Noise
- Safety
- Environmental Justice[1]
- Air Quality[2]

Evacuation planning requirements are tied directly to the general plan safety element. The purpose of a safety element is to protect communities from *"unreasonable" risks* associated with floods, fires, geologic hazards, *climate change impacts*, and more (see OPR's General Plan Guidelines Chapter 4 – Safety Element). Recent legislation builds upon prior safety element provisions by requiring communities to identify residential developments with less than two evacuation routes and assess evacuation routes and locations under a range of emergency scenarios.

General Plan Evacuation Requirements[3]

SB 99 (2019) added Government Code Section 65302, subdivision (g)(5) as follows:

"Upon the next revision of the housing element on or after January 1, 2020, the safety element shall be reviewed and updated as necessary to identify residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes."

AB 747 (2019) added, and AB 1409 (2021) amended Government Code Section 65302.15 as follows:

"(a) Upon the next revision of a local hazard mitigation plan, adopted in accordance with the federal Disaster Mitigation Act of 2000 (Public Law 106-390), on or after January 1, 2022, or, if a local jurisdiction has not adopted a local hazard mitigation plan, beginning on or before January 1, 2022, the safety element adopted pursuant to subdivision (g) of Section 65302 shall be reviewed and updated as necessary to identify evacuation routes and their capacity, safety, and viability and *evacuation locations* under a range of emergency scenarios. A county or city that has adopted a local hazard mitigation plan, emergency operations plan, or other document that fulfills commensurate goals and objectives may use that information in the safety element to comply with this section and, in that event, shall summarize and incorporate into the safety element that other plan or document."

[1] Environmental justice elements are required in cities and counties with one or more disadvantaged communities per Government Code section 65302, subdivision (h).

[2] Air quality elements, while common, are only required in cities or counties within the boundaries of the San Joaquin Valley Air Pollution Control District per Section 65302.1.

[3] To view the most current version of the general plan evacuation requirements, please refer directly to the government code. Legislation and code amendments developed after 2022 may not be reflected in this TA.

OPR advises *cities and counties* to complete the requirements outlined in Government Code Sections 65302, subdivision (g), and 65302.15 simultaneously. However, communities may address these codes separately so long as they meet the timeframes specified in legislation (refer to Figure 2). Moreover, while the safety element is the statutory "home" for evacuation planning requirements, the law does not preclude related policies from being incorporated into other general plan elements. Table 1 highlights potential connections across general plan elements. Please note, regardless of where in a general plan content about evacuation planning is provided, all general plan goals, policies, and programs must meet internal consistency requirements per Government Code Section 65300.5.

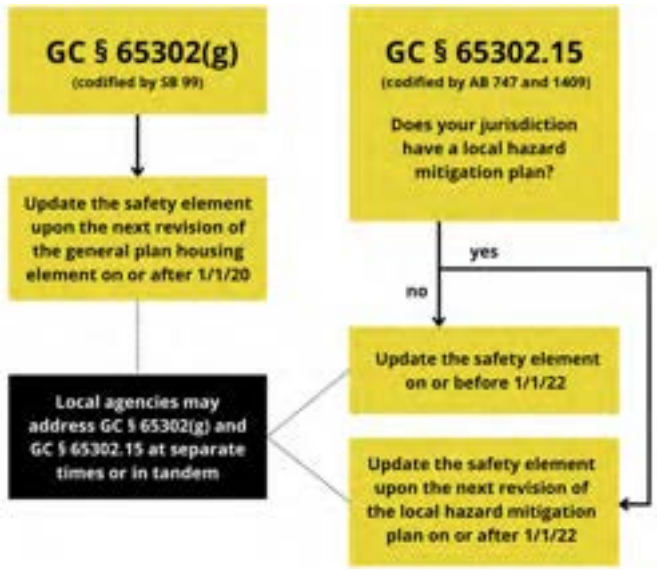

Figure 2: Process for determining when the safety element must be updated to address evacuations.

Table 1: Relationship of Evacuation Planning to the General Plan Elements

General Plan Element	Relationship	Example Connections
Land Use	Related	Planning future land uses that balance safety with other goals.
Circulation	Related	Planning routes and public transit systems that can be utilized and/or adapted during emergency scenarios.
Housing	Related	Addressing adequate ingress and egress for new and existing residential development.
Conservation	Related	Assessing how housing, transportation, and other development impacts the condition of natural resources and vice-versa (e.g., impacts on floodwater accommodation and erosion).
Open Space	Related	Managing parks and open space areas to reduce risks along evacuation routes and/or serve as potential evacuation locations.
Noise	Related	Exempting noise generated by emergency-related activities (e.g., fire truck sirens and emergency construction work) from local noise standards.
Safety	**Required**	Identifying hazard areas and reducing unreasonable risks. Identifying evacuation routes and locations. Identifying residential developments with less than two evacuation routes. Preparing for future climate-related hazards and promoting resilience.
Environmental Justice	Related	Reducing disproportionally high levels of risk in *disadvantaged communities* and protecting climate vulnerable populations.
Air Quality	--	--

2.1 Related Local Planning Efforts

Local governments can address evacuation requirements directly in the general plan and/or incorporate information from *emergency operations plans* (EOPs), *local hazard mitigation plans* (LHMPs), *disaster recovery plans* (DRPs), or other relevant documents by reference. Each of the plans, explained in this section, correspond to different aspects of the emergency management cycle and align with various State and federal frameworks (refer to Figure 3).

Creating *plan alignment*—between general plans, LHMPs, EOPs, DRPs, and other relevant plans—can help communities reduce duplication of efforts and implement more holistic policy solutions. OPR encourages local governments to align evacuation planning efforts so that local policies and programs work toward a shared vision for community resilience. While navigating plan alignment options, local governments should consider the primary purpose, planning horizon, update cycle, and approval processes associated with each relevant plan. Should cities and counties choose to integrate information from these plans into the general plan by reference, they should clearly describe how the referenced plan(s) meet applicable statutory requirements and ensure that such plan(s) are consistent with the safety element and all other elements of the general plan per Government Code Section 65300.5. For more information, refer to General Plan Guidelines Chapter 2.

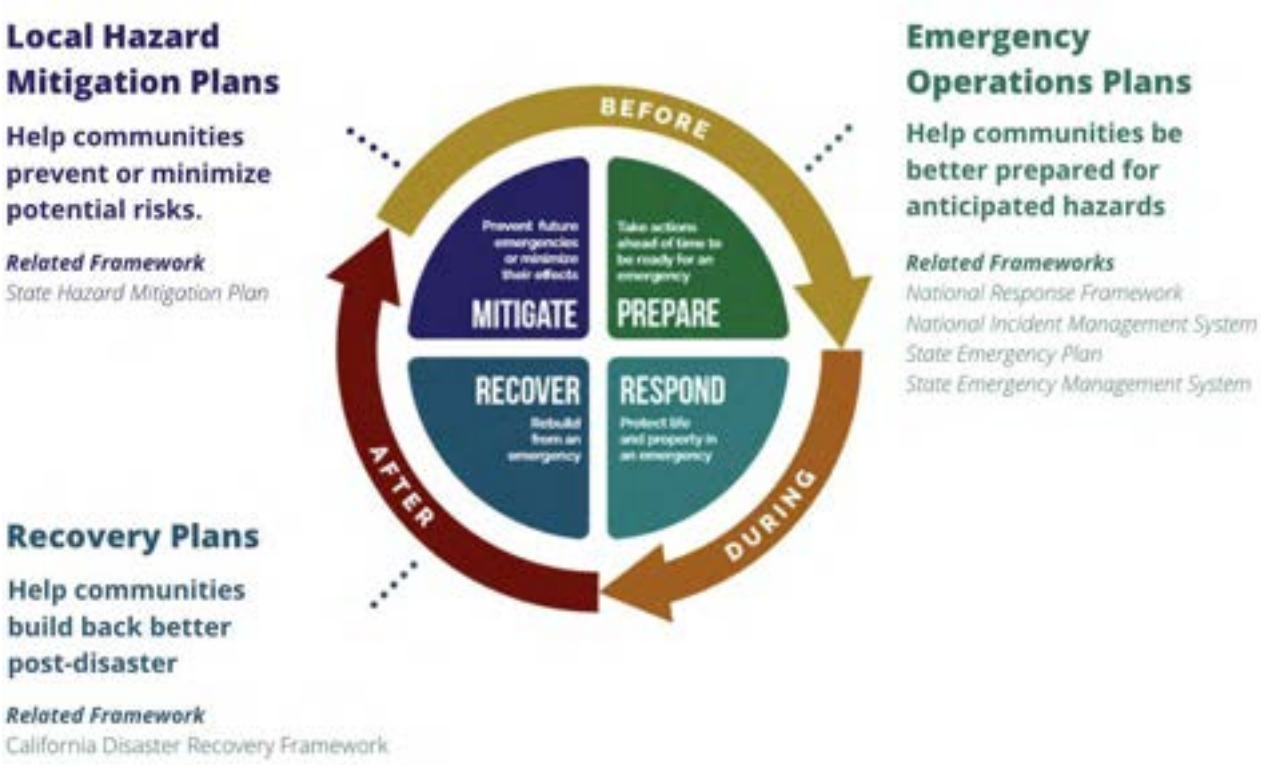

Figure 3: Relationship between planning documents and the emergency management cycle (Source: Circle graphic developed by Fairfax County).

2.1.1 Emergency Operations Plans

EOPs help communities prepare for anticipated hazards by establishing a framework for emergency response. Government Code Section 8610 requires all local governments with an accredited disaster council to develop EOPs to help protect the safety, health, and welfare of their communities during an emergency. These plans should align with the National Incident Management System (NIMS) and State Emergency Management System (SEMS). County-level plans must also align with the Federal Emergency Management Agency (FEMA) Comprehensive Preparedness Guide (CPG) 101 and best practices developed by the State per Government Code Section 8593.9. For more information regarding State and federal frameworks, refer to Appendix D. Regarding evacuations, counties preparing EOPs must:

- Engage *culturally diverse communities* and integrate cultural competence into emergency planning per Government Code Section 8593.3.5;
- Engage representatives from the *access and functional needs* (AFN) population and integrate AFN into emergency planning per Government Code Section 8593.3;
- Integrate evacuation and transportation plans to account for local *community resilience centers* and integrate evacuation plans to account for specified state grant programs relating to community resilience per Government Code Section 8593.3.

Best practices include engaging representatives from CBOs and NGOs to ensure whole community participation and addressing the needs of people, pets, and large animals. Once updates are made to EOPs, counties must submit their plan to California Governor's Office of Emergency Services (Cal OES) for review per Government Code Section 8593.3.2. More information regarding EOP requirements and review may be found on the Cal OES website and in the FEMA CPG 101.

2.1.2 Local Hazard Mitigation Plans

LHMPs are voluntary plans that help communities prevent or minimize risks within their jurisdiction to reduce response and post-disaster costs. The federal government requires local governments to develop and maintain LHMPs to receive FEMA mitigation project assistance. These plans must be revised by local governments, reviewed by the State Mitigation Officer, and approved by FEMA once every five years. FEMA's Local Mitigation Planning Guidance outlines how to develop an LHMP and includes a plan review tool. While there are no specific evacuation requirements within LHMPs, these plans should:

- Describe the type, location, and extent of potential natural hazards;
- Describe the community's vulnerability to hazards;
- Identify buildings, infrastructure, and *critical facilities* within hazard areas; and
- Include a mitigation strategy to reduce and/or avoid long-term vulnerabilities.

Government Code Section 8685.9 authorizes the State to use California Disaster Assistance Act funds to cover a portion of local shares for federally funded post-disaster projects when approved by the legislature. This funding incentive is only available to a city or county if the LHMP is adopted and properly incorporated by reference into the general plan safety element.

2.1.3 Disaster Recovery Plans

Local governments may develop DRPs in anticipation of and/or in response to disasters (refer to Figure 4). These plans are meant to clarify a community's recovery process and outline long-term strategies and priorities for reinvestment following an emergency or disaster event. Pre-disaster recovery plans set

the stage for recovery by outlining administrative responsibilities, identifying community partners, and creating a shared understanding of potential needs and challenges. Post-disaster recovery plans, meanwhile, help communities assess local damage, identify lessons learned, adjust future development patterns, and recover in a way that fosters resilience. Regarding evacuations, DRPs provide affected areas with a course of action to improve their infrastructure and meet recovery funding objectives. For example, a DRP could:

- Identify evacuation routes and locations as an opportunity to rebuild for resilience;
- Layout evacuation route and location planning mandates and project scopes;
- Identify additional recovery projects and pre-disaster projects that need to be completed;
- Develop an implementation schedule that promotes the efficient use of time and resources; and
- Identify recovery (or other) funding sources that can pay for this work.

DRPs should incorporate objectives from the community's general plan, LHMP, and/or other planning efforts such as capital improvement programs. DRPs may also inform comprehensive plan updates.

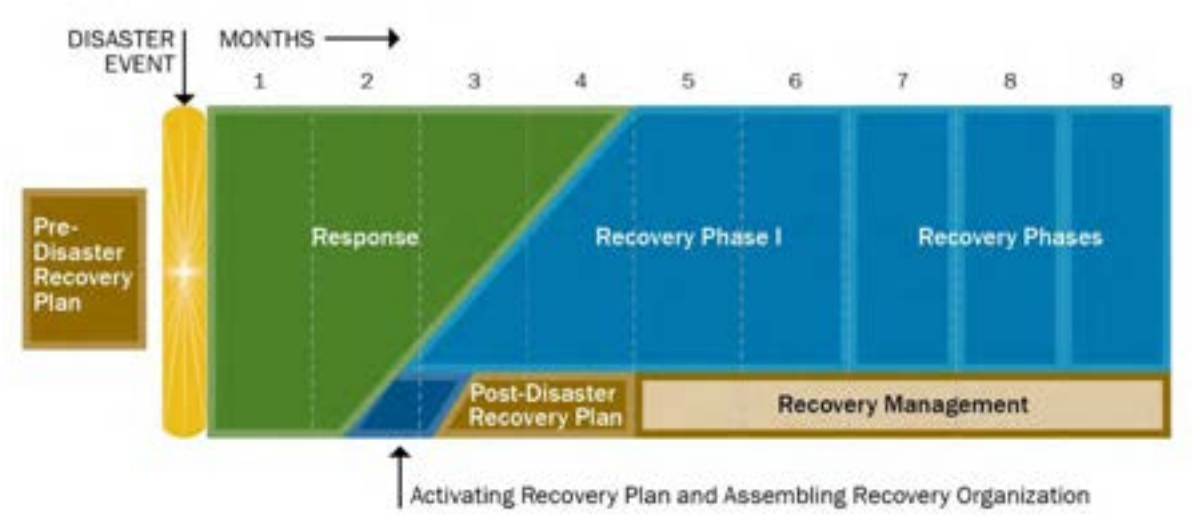

Figure 4: Example timeline of disaster response activities. (Source: FEMA Pre-Disaster Recovery Planning Guide)

Local Example: Disaster Recovery Plan Addresses Evacuations

In 2018, the Camp Fire spread across Butte County into the Town of Paradise. During the event, 86 people lost their lives, including ten evacuees who died in their vehicles while trying to escape. Thousands more found themselves stuck on congested roadways. This situation served as an impetus for the Town of Paradise to reassess their evacuation plans, identify existing vulnerabilities, and increase resilience. During the recovery process, the community identified evacuation routes as a "Tier 1" priority in its Long-Term Community Recovery Plan. Within the plan, the town mapped out long dead-end streets, missing road segments, and other barriers to evacuation. In addition, town staff articulated clear actions, timelines, and resources to address bottlenecks, update infrastructure, improve responder access, and mitigate future fire hazards.

3. General Plan Evacuation Planning Guidance

The following section contains process guidance for addressing evacuation planning requirements within the safety element of the general plan.

3.1 Engage Early and Often

As cities and counties update and implement their general plan safety element, they should engage a diverse array of partners early and often. A variety of inputs can strengthen general plan policies and lead to more successful evacuation outcomes. Per Government Code Section 65351, local governments must provide opportunities for involvement through public hearings or other appropriate means. More information may be found in OPR's General Plan Guidelines Chapter 3.

Integrating Access and Functional Needs into the Evacuation Planning Process

While disasters may impact an entire community, certain groups can be more acutely affected than others. Persons with *access and functional needs* (AFN) often experience extra hurdles which can hamper their ability to evacuate in a timely manner. Local governments should engage representatives from the AFN population early-on in the evacuation planning process to identify those who need additional assistance and understand what services are likely required. When possible, the general plan update should align or build upon AFN engagement efforts that are required for EOPs (refer to section 2.2.1). More information and best practices may be found in Cal OES's publication Integrating Access and Functional Needs Within the Emergency Planning Process.

3.1.1 Local Partners

The general plan update process, or other planning processes associated with EOPs or LHMPs, can bring local partners together before an evacuation to identify potential vulnerabilities and develop long-term policies and programs to protect health and safety. Partners may include, but are not limited to:

- **Hazard and risk experts:** Natural resource managers, public works agencies, California Native American Tribes (tribes), local water/irrigation districts, and other experts may possess helpful insight regarding *hazards* and *risks.*[4] Cities and counties can leverage local expertise to develop emergency scenarios and determine the adequacy of evacuation routes and locations.
- **Emergency managers and responders:** Sheriff's offices, police and fire departments, community and/or tribal emergency response teams, local school districts/county offices of education, and medical centers are often responsible for evacuating civilians and protecting populations from harm. In some cases, nearby military bases may also provide support. Local governments should work closely with emergency personnel to bridge the gap between evacuation planning and operations.
- **Local service providers:** When disasters strike, communities must evacuate and shelter evacuees with a wide range of needs. Local service providers – such as transit agencies,

[4] Please note that "hazard" and "risk" are two separate terms. OPR recommends that planners be sensitive to how these terms are used within planning documents and refrain from using them interchangeably. For more information regarding these terms, please refer to the Glossary.

homeless shelters, public health agencies, schools, prisons, and private entities – can help communities plan for the safe evacuation and sheltering of diverse populations.

- **Community-based organizations:** Social networks play an important role in evacuation response as well as long-term recovery and resilience. Connecting with religious and cultural centers, advocacy organizations, business associations, *disadvantaged communities*, *climate vulnerable communities*, and more can help local governments develop solutions that address safety and build adaptive capacity.
- **Animal care providers**: Engaging animal care providers—such as animal control, humane societies, veterinarians, ranchers, stables, volunteer animal rescue and evacuation groups, and zoos—can help planners meet the unique evacuation needs of households and/or businesses with pets and large animals (e.g., livestock and equine).

Integrating Environmental Justice into the Evacuation Planning Process

Due to prior policies and practices (e.g., redlining and underinvestment), communities across California have differential exposure to environmental hazards and access to the resources necessary to adapt and respond to such hazards. As a result, disadvantaged communities may be disproportionately impacted during emergency scenarios. To increase equity and resilience, local governments should consider aligning their general plan environmental justice element and evacuation requirements.

The purpose of an environmental justice element is to reduce unique or compounded health risks in disadvantaged communities by increasing civic engagement, promoting public facilities, and prioritizing improvements and programs to meet community needs. Local governments must identify and work with disadvantaged communities to develop strategies that improve health and reduce environmental disparities. Improving transportation connectivity, increasing access to services, upgrading public facilities, and other solutions can provide co-benefits during emergency scenarios. OPR recommends that local governments work with disadvantaged communities to identify opportunities to advance both safety and environmental justice goals and policies in their general plans.

3.1.2 Regional Partners

Emergency events often cross boundary lines, affecting neighboring jurisdictions. During their general plan update, local governments should engage the following entities:

- **Regional Planning Agencies:** Metropolitan Planning Organizations (MPOs)**,** regional transportation planning agencies (RTPAs), and councils of government (COGs) provide venues for cities and counties to coordinate on planning topics that are of regional concern. Local agencies can engage with these regional agencies and with emergency planning districts to ensure that activities are aligned across jurisdictions.
- **Highway Patrol and Operations:** Cities and counties should connect with the California Highway Patrol Field Division providing service in their jurisdiction as well as the relevant Caltrans District(s), whose maintenance and traffic operations divisions can help communities utilize the State Highway System for evacuations.
- **Non-Governmental Partners:** To bolster local capacity**,** communities may develop partnerships with private entities in the region and/or connect with volunteer organizations. For instance,

cities and counties can leverage the sharing economy (e.g., Lyft, Uber, and Airbnb) to help transport evacuees and provide temporary housing. In addition, they can coordinate with volunteer response organizations, such as the American Red Cross (ARC), and local Voluntary Organizations Active in Disaster (VOAD).

3.1.3 State and Federal Partners

State and federal agencies can assist local governments with long-term planning by providing data, guidance, and technical assistance. When local governments update their general plan safety element, they must engage the following State agencies:

- **California Governor's Office of Emergency Services (Cal OES):** Per Government Code Section 65302, subdivision (g)(8), Cal OES must be consulted prior to a safety element update. As part of this consultation process, the office can help cities and counties align their general plan safety elements with EOPs, LHMPs, and other plans.
- **Department of Conservation (DOC) – California Geological Survey:** Per Government Code Sections 65302, subdivision (g)(8), and 65302.5, subdivision (a), DOC must be consulted prior to a safety element update and review the updated draft to determine whether all known seismic and geologic hazards are addressed.
- **Central Valley Flood Protection Board (CVFPB):** Per Government Code Section 65302, subdivision (g)(8), CVFPB must be consulted prior to a safety element update. In addition, CVFPB must review draft safety elements for cities or counties within the Sacramento and San Joaquin Drainage District in accordance with GC § 65302.7. CVFPB may recommend changes to the safety element to help communities mitigate flood risk and protect areas subject to flooding.
- **State Board of Forestry and Fire Protection (The Board):** Per Government Code Section 65302.5, subdivision (b), The Board must review all draft safety elements for cities or counties that contain a state fire responsibility area or very high fire hazard severity zone. The Board may recommend changes to the safety element to help communities reduce fire risk and improve evacuations. For more information, please refer to OPR's Fire Hazard Planning Technical Advisory as well as the Board's website for more information regarding their safety element review.

Cities and counties should also connect with State agencies that have evacuation-related duties, the California State Transportation Agency (CalSTA), California Public Utilities Commission (CPUC), California Energy Commission (CEC), California Volunteers, as well as military departments (e.g., the California National Guard) to support evacuation planning. For communities that border Oregon, Nevada, Arizona, or Mexico, OPR also recommends connecting across state lines to plan for evacuation events. In addition, local governments are encouraged to work with FEMA to align their local plans with federal frameworks.

3.1.4 Partnering with California Native American Tribes

Cities and counties must adhere to Government Code Section 65352.3 and the provisions of SB 18 (2004) requiring local governments to consult with tribal governments prior to updating or amending their general plans. In addition, local governments must provide notice to tribes at specified key points in the planning process. (Refer to Government Code §§ 65352, 65352.3, 65092.) Prior to initiating consultation, cities and counties should contact the Native American Heritage Commission (NAHC) for a

list of tribes to consult. For more detailed information, please refer to OPR's Tribal Consultation Guidelines.

Regarding evacuations, tribes' "responsibility to protect and promote their citizens' welfare remains an essential aspect of sovereignty" (CDC, 2017). Many tribes have their own emergency management frameworks embedded into their constitutions, codes, and emergency management plans. To align evacuation planning efforts, local governments should consider partnering with tribes through cross-jurisdictional sharing arrangements. Refer to the Toolkit for Cross-Jurisdictional Sharing Between Tribes and Counties for Emergency Management for more information. This resource contains agreement templates, best practices, and case studies to help foster successful collaborations between tribes and local governments.

3.2 Plan for a Range of Hazards

The safety element of the general plan requires cities and counties to address a variety of hazards including fires, floods, seismic risks, landslides, climate change impacts, and dam failure (See General Plan Guidelines Chapter 4 – Safety Element). As cities and counties address evacuation planning requirements, they should take an all-hazards approach by analyzing applicable climate and non-climate related stressors that could lead to an emergency scenario (see Section 3.4). Additionally, per SB 1000 (2016) as codified in Government Code Section 65302, subdivision (h), jurisdictions may also address environmental justice–related health hazards in a stand-alone element or integrate *environmental justice* into other general plan elements, including the safety element.

When determining which threats are relevant to an area, cities and counties should review historical events as well as projected hazards. Because hazards often span jurisdictional boundaries, it may be beneficial to check which risks neighboring jurisdictions are planning for and align planning and assessment activities accordingly. Please refer to Appendix E for tools and resources that can be used to plan for a range of hazards.

Leveraging the General Plan Climate Vulnerability Assessment to Inform Evacuation Planning

Rising temperatures may exacerbate existing hazards and pose new challenges for evacuation. The climate change vulnerability assessment, required in the safety element per SB 379 (2018) and codified in GC § 65302, can be particularly helpful in identifying evacuation-related risks under a range of future climate scenarios. For the analysis, local governments must assess the impact of climate change on existing and planned development, including structures, roads, utilities, and essential public facilities. They can build upon the analysis by developing policies and programs that mitigate risk along roadways, increase the resilience of evacuation locations, and protect communities that are disproportionately vulnerable to climate impacts. More information may be found in the General Plan Guidelines Chapter 4 - Safety Element, Defining Vulnerable Communities Guidance, and California Adaptation Planning Guide.

3.3 Identify Residential Developments with Limited Evacuation Route Access

SB 99, as codified in Government Code section 65302, subdivision (g), requires local governments to "identify residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes."

Residential developments may be separately identified, based on the hazard, or presented in a comprehensive list and/or map. As cities and counties work toward compliance, they should consider coordinating these requirements with those in Public Resource Code Section 4290.5. After residential developments are identified, local governments can assess evacuation viability within these areas (refer to Section 3.6) and, if necessary, identify physical improvements and/or modify evacuation management procedures to reduce risk. Communities may also use this information to inform future land use decisions, by encouraging new development in locations that have access to at least two evacuation routes and supporting *infill development* in alignment with the State Planning Priorities.

3.3.1 Alignment with Public Resource Code Section 4290.5

Public Resource Code Section 4290.5 requires the Board of Forestry and Fire Protection to "survey local governments…to identify existing subdivisions, as defined, in either a state responsibility area or a very high fire hazard severity zone, without secondary egress routes, that are at significant fire risk." The Board must then provide recommendations to local governments to improve safety in the identified subdivisions. These activities complement general plan activities (refer to table 2) and work toward the same end goal: safer evacuations. For more information, refer to the Board's Subdivision Review Program and its Development Identification Process.

OPR recommends that communities, particularly those which have wildfire-prone areas, create alignment between Public Resource Code Section 4290.5 and Government Code Section 65302, subdivision (g) where possible. Communities may build upon or adapt the framework developed for the Subdivision Review Program to identify residential developments in additional hazard areas listed in the safety element (refer to Section 3.2). Alignment may enable local governments to identify residential developments with less than two emergency evacuation routes as part of their general plan update that also qualify as subdivisions lacking pursuant to Public Resources Code section 4290.5.

Table 2: Comparison between PRC § 4290.5 and SB 99 as codified in GC § 65302(g).

Aspects	PRC § 4290.5	GC § 65302(g)
Timeframe	Every 5 years	When the safety element is updated*
Housing	Identify subdivisions with more than 30 dwelling units	Identify residential developments
Circulation	Determine if the subdivisions are without secondary egress	Determine if the residential developments have less than two emergency evacuation routes
Hazards	This applies to State Responsibility Areas or Very High Fire Hazard Severity Zones that are at significant fire risk.	This applies to any hazard area identified in the general plan safety element (refer to Section 3.2).
Responsibility	Local governments identify applicable subdivisions. The Board reviews the subdivisions and recommends improvements to increase fire safety.	Local governments conduct the analysis and work with their communities to develop general plan policies and programs.

* Per Government Code Section 65302, subdivision (g)(6), cities and counties shall review and, if necessary, revise the safety element upon each revision of the housing element or local hazard mitigation plan, but not less than once every eight years.

3.4 Identify Applicable Emergency Scenarios

Government Code Section 65302.15 requires cities and counties to identify evacuation routes and locations "under a range of emergency scenarios." Analyzing *emergency scenarios* can help local governments recognize current vulnerabilities and identify opportunities to build resilience. Scenarios should include a range of relevant hazards addressed in the general plan safety element, factor in future climate impacts, and use best available data to predict evacuation movement.

As part of the evacuation analysis, cities and counties should examine scenarios that require significant activation of evacuation routes, resources, and locations. Scenario planning or simulations of moderate to catastrophic events can provide meaningful insight into community preparedness. For catastrophic scenarios, local governments may reference regional catastrophic plans published by Cal OES. In addition, local governments can consider stressing their plans by evaluating worst-case scenarios. This type of analysis may expose additional vulnerabilities and further inform long-range planning strategies. Evacuation events may vary widely based on factors, including but not limited to the following:

- Scale of the emergency or emergencies
- Future hazard scenarios
- Future development scenarios
- Time of the event (e.g., day or night)
- Day of the week (e.g., weekday or weekend)
- Time of year (e.g., holiday season)
- Weather conditions
- Time available to warn populations
- Population behavior and needs
- Implementation of evacuation strategies

Looking at a range of scenarios under current and future conditions can help communities understand potential impacts to populations within the hazard area, identify the ways in which evacuation routes/locations may be utilized, provide insight about the effectiveness of emergency management strategies such as *contraflow*, signal timing, or shelter-in-place (refer to Table 6 for more potential strategies), and inform future land use decisions related to where and how the community should develop. Government Code Section 65302.15 does not specify how many scenarios are appropriate; thus, local governments should consider what is reasonable based on the range of hazards addressed in the safety element along with locally specific issues and context.

Planning for Compounding Disasters and Cascading Effects

Hazards are not always singular, sometimes communities may face *compounding disasters* (e.g., natural hazards during a pandemic) and/or *cascading effects* (e.g., network disruptions following an earthquake). By incorporating such scenarios into their evacuation planning, local governments can position themselves to adapt to complex challenges.

3.4.1 Understand Population Behavior and Needs

When local authorities order an evacuation, individuals are presented with a variety of choices. They must decide whether to evacuate or *shelter-in-place*, whom to evacuate (e.g., neighbors, relatives, animals), when to evacuate (e.g., persons outside of the evacuation zone may leave unprompted, creating an *evacuation shadow*), where, and how to evacuate. Factors such as risk-perception, access to resources, and prior evacuation experiences may influence decision-making. To account for the diversity

of responses, it is important for local governments to factor population behavior into their planning, particularly when developing clearance time estimates (refer to Section 3.6 – Viability Considerations).

As a starting point, emergency managers can review recent literature, examine past emergency events, or make informed assumptions to guide planning activities. For instance, many EOPs operate under the assumption that 10–15 percent of evacuees will take refuge at public shelters (DHS, 2019). Local governments should determine the extent to which such estimates are appropriate and adjust them to fit their community's current and/or projected characteristics. To guide this process, OPR recommends engaging a variety of partners to learn about the community's range of needs (refer to Section 3.1). Because disasters disproportionately impact populations with AFN and climate-vulnerable communities, engagement with these groups is particularly important. Table 3 highlights a variety of questions and indicators that OPR recommends for the safety element update.

Table 3: Indicators to help estimate evacuation behavior and needs.

Question	Impact on Planning	Potential Indicators
How many people are exposed to potential hazards?	The number of people at risk influences the scope of evacuation planning and operations. In addition, prior evacuations may influence future population behavior.	• Hazard exposure • Frequency of hazards and evacuations • Population totals in areas at risk • Average number of people per household • Percentage of population previously evacuated
How many people will likely evacuate and how can evacuation locations meet their needs?	Understanding populations' living situations can help local governments predict evacuation compliance and estimate demand for public shelters and other evacuation locations.	• Number of people experiencing homelessness • Number of people in institutionalized settings • Prevalence of tourists and commuters • Households with legacy commitments • Prevalence of mobile and affordable housing
What are the likely modes of transport?	A wide range of transportation modes can facilitate evacuations. Understanding how people move can help communities improve routes, associated infrastructure, and transportation resources.	• Vehicle ownership • Prevalence of electric vehicles • Prevalence of active transport options • Prevalence of motorhomes and trailers • Prevalence of private transportation services • Public transit/rail/ferry ridership • Vehicle miles travelled (VMT)
What AFN needs are present in hazard areas?	Persons with AFN often experience extra hurdles which can hamper their ability to evacuate.	• Household income and employment • Age distribution • Literacy and languages spoken at home • Prevalence of disabilities and chronic conditions
What pets and large animals are present in hazard areas?	Households with pets and large animals are more likely to delay evacuation or stay in place to defend their property.	• Percent of households with pets • Percent of households with large animals • Pets at risk (e.g., dogs, cats, and birds) • Large animals at risk (e.g., livestock and equine)

3.5 Assess Evacuation Locations

As outlined in AB 1409, and codified in Government Code Section 65302.15, cities and counties must identify *evacuation locations* within their general plan safety element for a range of emergency scenarios. OPR recommends local governments work with their communities to identify the following types of locations:

- ***Temporary Areas of Refuge*:** According to the Department of Homeland Security (DHS),[5] these locations are "used by individuals when a hazard is imminent or occurs with no warning…and are meant to provide temporary and limited protection as an incident occurs" (DHS, 2019). Located within high-risk zones, these areas can be accessed quickly by evacuees. Examples may include tsunami towers, fire bunkers, as well as other structures and/or open spaces that are resilient to hazards.
- ***Evacuation Centers*:** These interim spaces enable evacuees to access basic services and information. Staff at these centers triage the needs of evacuees by helping them transfer to shelters, connect with reunification services, and access additional resources such as vehicle rentals. Evacuation centers may also be referred to as transfer points, information points, or reception centers.
- ***Evacuation Endpoints*:** These locations provide a safe place for evacuees to shelter in the days and/or weeks following an emergency scenario. Endpoints may differ based on evacuee needs. Approximately 10–15 percent of evacuees take refuge at public shelters, but this percentage can vary widely based on local context (DHS, 2019). Animal evacuees may be allowed in certain shelters but are often checked into animal care facilities or other locations that can support household pets and/or large animals (e.g., livestock and equine).

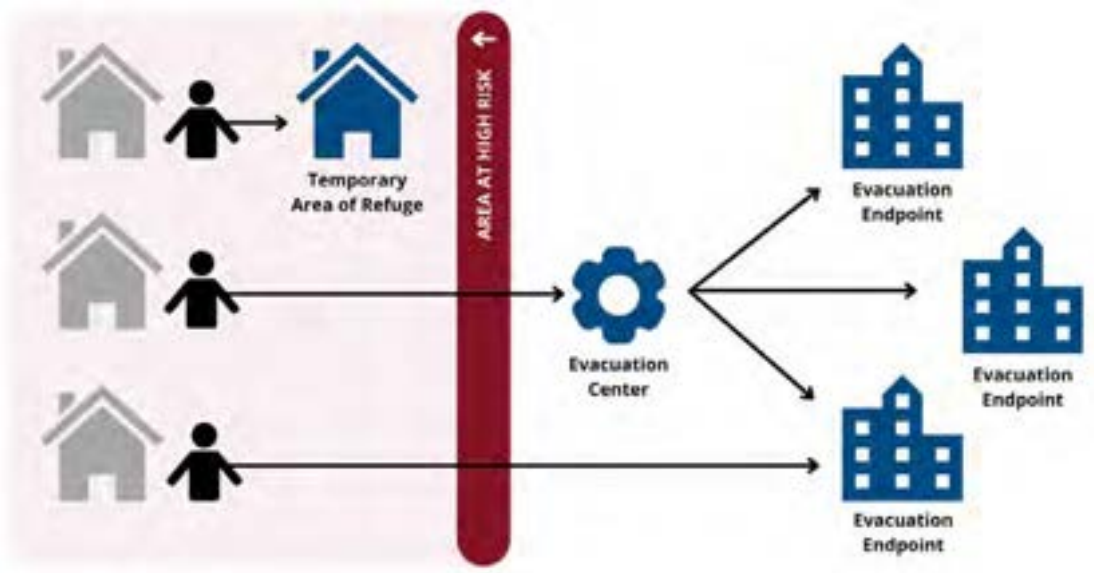

Figure 5: Evacuation location options available to evacuees during an emergency scenario.

[5] DHS guidance refers to temporary areas of refuge as "refuges of last resort". This document uses different terminology in recognition that, for some cases, these locations may be a preferred evacuation option rather than one of last resort.

Local governments and their community partners should inventory a range of potential venues within the jurisdiction and determine their suitability to function as evacuation locations given the expected hazards and potential emergency scenarios that could impact the jurisdiction. Many types of venues may be designated as evacuation locations such as *community resilience centers*, public facilities, parks and open spaces, religious spaces, and commercial centers. To determine whether a venue makes a reasonable evacuation location, cities and counties should consider its location, vulnerability to hazards, capacity, accessibility, and resources. More information regarding these factors is outlined in Table 4. Communities should also identify future land uses and/or developments that have potential to support evacuation operations. Upstream planning can increase resilience, particularly within climate vulnerable and/or *disadvantaged communities* that have limited access to, or capacity within, current evacuation locations.

In addition to assessing evacuation locations within the local jurisdiction, OPR recommends that local governments more broadly identify pass-through communities that "are not evacuating their populations but are located on the evacuation routes" (DHS, 2019). As evacuees move across city, county, state, and/or international lines, population surges may strain available resources and infrastructure along evacuation routes, particularly during urban-to-rural evacuation events (Meit, Kennedy, & Briggs, 2007). To inform regional coordination efforts, cities and counties should estimate the number of evacuees expected to pass-through neighboring jurisdictions and summarize their needs (e.g., fuel, vehicle charging stations, medical attention, shelter). This information can help receiving jurisdictions pre-identify additional evacuation locations/resources that could support the potential influx of evacuees.

Community Resilience Centers: An Opportunity to Support Evacuation Operations

As counties update their emergency operations plans, they must account for *community resilience centers* during their planning process per Government Code Section 8593.3. These spaces "promote social cohesion and everyday resilience (e.g., economic, health, environmental), as well as disaster preparedness, response, and recovery" (Lou et al., 2020). Managed by trusted community partners, resilience center programming can engage community members and increase climate resilience year-round. When an emergency occurs, local and regional resilience center networks may be activated to support evacuees. Equipped with resources such as first-aid supplies and backup power generators, certain centers can readily transform into evacuation centers or endpoints. Depending on their physical structure, some centers may also be suitable as temporary areas of refuge.

Table 4: Considerations for Evacuation Location Planning.

Question	Importance for Planning
Where is the venue located?	Evacuation locations within at-risk areas can protect lives when there is limited time to evacuate. In addition, venues nearby can enable transit services to make multiple trips to and from the evacuation zone, improving fleet capacity.

Question	Importance for Planning
How vulnerable is the location to potential hazards?	Evacuation locations should provide a safe space for populations to assemble during an emergency event. Communities can assess safety by identifying a venue's vulnerability to current hazards as well as projected climate impacts. Some places may be resilient to certain hazards but susceptible others.
How many people and/or types of animals (pets or large animals) can the venue support?	When evacuation locations exceed their maximum capacity, it can cause traffic congestion and complicate evacuation operations. Communities should assess whether potential evacuation locations can accommodate the expected influx of evacuees and their vehicles.
Can the venue accommodate diverse populations?	Local governments should assess whether venues are compliant with the Americans with Disabilities Act or can be modified to become compliant. In addition, venues should be able to safely support evacuees that may have different needs based on their nationality, culture, gender, age, health, education, and ability to access resources.
What resources are readily available at or near the venue?	Evacuation locations must be quickly activated during an emergency. Local governments should coordinate with venue owners/managers to assess what types of resources are readily offered at or near the venue that could support evacuee needs (e.g., parking capacity, fuel, vehicle charging stations, storage facilities, food, sanitation, bio security measures) as well as barriers to becoming operational (e.g., locked gates or doors).

3.6 Assess the Capacity, Safety, and Viability of Evacuation Routes

The capacity, safety, and viability of evacuation routes must be analyzed under a range of applicable emergency scenarios. This section contains guidance to help cities and counties address general plan evacuation route requirements.

Pursuant to the California Complete Streets Act, which was codified in GC § 65302(b), the general plan circulation element must meet specific requirements for "a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways" (for additional information refer to OPR's Complete Streets Technical Advisory). As local governments assess evacuation route capacity, safety, and viability in the safety element, they should create inter-element consistency by assessing the extent to which different transportation modes—such as driving, walking, biking, and transit—may be used to reach key destinations, including *evacuation pick-up points* and locations.

3.6.1 Capacity Considerations

Evacuation route capacity focuses on the ability of transportation infrastructure and resources to support evacuees and responders during emergency scenarios. For this assessment, OPR recommends cities and counties consider roadway capacity, transit and fleet capacity, biking and pedestrian route capacity, fuel availability, as well as the feasibility of implementing evacuation strategies.

Roadway Capacity

California's Road System Map was produced in accordance with the Federal Highway Administration's functional classification system. It highlights known arterial, collector, and local roads across the state. For each emergency scenario, cities and counties should identify areas at risk and the associated

roadways that can be used for ingress and egress. To help with this analysis, OPR recommends local governments divide their planning area into zones[6] in which evacuees—grouped by traffic analysis zones, evacuation zones, census tracts, subdivisions, zip codes, or other characteristics—rely upon a common set of collectors and/or arterials for evacuation. Identified routes should include applicable portions of California's Interregional Road System, which consists of county-identified roads that serve as primary evacuation routes in the event of a disaster.

Within the zones, local governments should assess *roadway capacity* along key segments. Several factors may impact roadway capacity, including but not limited to:

- Road and shoulder widths
- Number of lanes
- Roadway alignment
- Speed Limits
- Weather Conditions
- Bottlenecks[7]
- Availability of other evacuation modes
- Evacuation Strategies (refer to Table 6)

Local jurisdictions can consult the Highway Capacity Manual to develop baseline capacities for identified roadway segments. Values should be adjusted based upon the evacuation conditions listed above. This information can then be used to estimate clearance times and identify viable ingress and egress options (refer to Section 3.6 – Viability Considerations).

California's Active Evacuation Zone Map

California's Active Evacuation Zone Map is updated every 20 minutes to provide timely information that reflects current conditions. Evacuation zones help cities and counties phase evacuee egress and manage traffic demand. Cal OES aggregates evacuation zone information into a state-wide GIS data layer to help the public identify when there is an evacuation warning or advisory, an order to evacuate or shelter-in-place, and clearance to repopulate. Local governments should connect with Cal OES to ensure their evacuation zone data is integrated into this statewide platform.

Biking and Pedestrian Route Capacity

Biking and pedestrian infrastructure can help connect evacuees to nearby pick-up points and/or evacuation locations. When updating the general plan and considering linkages to the circulation element and active transportation plans, local governments should determine which pathways are likely to be used during evacuations and identify any connectivity gaps, particularly in high-hazard areas with limited vehicle ownership. In addition, they should assess the potential for existing and future bicycle and pedestrian infrastructure to enhance evacuation capacity or facilitate emergency operations. For instance, wide roadway shoulders that help communities accommodate pedestrian, bicycle, or equestrian travel in non-emergency times may be adapted to support emergency ingress or egress.

[6] In certain instances, it may be appropriate for the entire jurisdiction to be grouped into a single zone.

[7] Bottlenecks may be caused by lane reductions, intersections, turn lanes, grade changes, bridges, tunnels, gates, roundabouts, and more. Local governments should identify the extent to which these roadway conditions induce congestion. In some instances, bottlenecks may be located outside of the jurisdiction. Regional collaboration and analyses can provide a holistic view of traffic conditions under emergency scenarios and help cities and counties improve evacuation capacity.

Additionally, local governments can coordinate with bike associations and non-profits to provide access to bicycle and/or scooter share options during and after emergency scenarios. More information and policy examples may be found in Section 4.1.

Transit and Fleet Capacity

During emergency events, local authorities should mobilize available fleets and other transportation modes to evacuate transit-dependent populations to appropriate evacuation locations. Creating an inventory of local transportation resources can help communities evaluate their ability to support injured persons, AFN populations, stranded evacuees, as well as animals in need of assistance. For example, local governments can pre-identify:

- Medic ambulances
- *Paratransit services*
- School busses and kneeling busses
- Animal control vehicles
- Livestock trailers and trucks
- Light-rail, subway, or heavy-rail transport
- Ferries or other forms of water transport
- Airplanes or other forms of air transport
- Private transportation services
- Tow trucks and wrecker services

Transit and fleet capacity can be notated by the number of vehicles deployed or the number of evacuees transported over a given time. Factors such as staffing, the location of transportation resources, and the distance between evacuation pick-up points and evacuation locations can influence capacity. Cities and counties should collaborate with transit agencies and other service providers to identify how these, and other factors, affect emergency operations.

Fuel Availability

As evacuees navigate roadways and fleets are deployed, delays may occur due to long queues at gas stations or zero-emission charging stations and impact evacuation capacity. Fuel management can also pose a challenge during the evacuation process. As part of their general plan update, local governments can identify existing fuel stations along evacuation routes and near evacuation locations. This may include gas stations, electric vehicle charging infrastructure, hydrogen fuel stations, and/or other fuel sources.

Because fuel stations rely on power to operate, local governments should determine whether backup power (e.g., battery storage, solar power generators, or traditional internal combustion engine (ICE) generators) is available at the sites. Cities and counties should assess fuel availability for light-, medium- and heavy-duty vehicles (e.g., buses or emergency vehicles) and account for different power requirements (e.g., electric motors and internal combustion engines).

Cities and counties can partner with fuel trade organizations, private sector partners, and neighboring jurisdictions to create redundancies (e.g., create a stockpile of fuel, or establish agreements to secure emergency fuel supplies) and maintain fuel access in the event of power loss. Moreover, local governments can integrate fuel management into their public communications by encouraging vehicle owners to proactively charge their vehicles at home prior to evacuation or keep their tanks close to full, particularly when advanced notices or warnings regarding potentially hazardous conditions, such as red flag warnings, are issued.

Opportunities to Invest in Zero-Emission Vehicles

California has set ambitious targets to increase the number of zero-emission vehicles (ZEVs) on the road and the California Energy Commission projects a significant increase in ZEVs statewide (refer to Figure 6). As cities and counties invest in zero emission vehicle infrastructure, they are encouraged to explore a variety of options that simultaneously accelerate sustainable transportation solutions while improving resilience. Solutions communities may consider expanding the number of fast chargers along evacuation routes and procuring temporary EV charging installations. Local governments should coordinate with station managers and other partners to assess charging network capacity and manage demand.

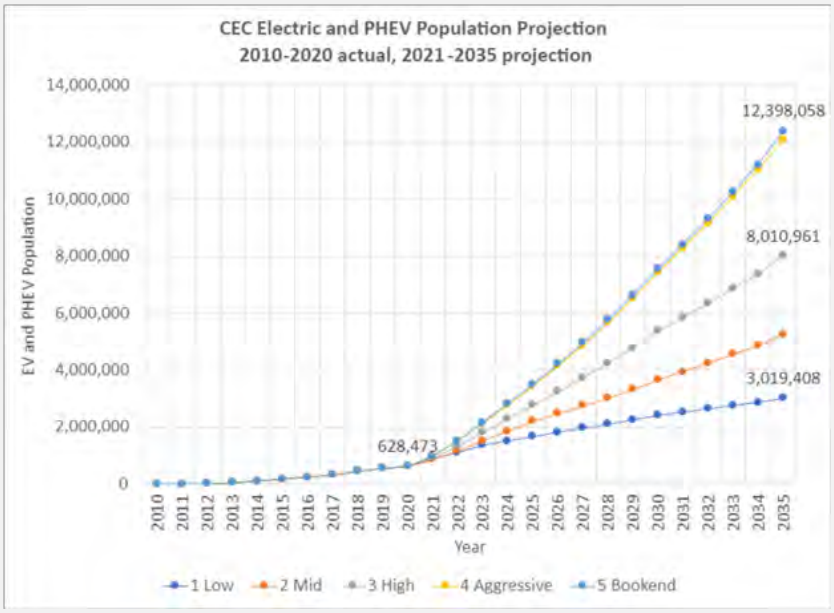

Figure 6: Forecast cases for light-duty ZEV populations in California (source: CEC)

Feasibility of Implementing Evacuation Strategies

Assessing the effectiveness of emergency management strategies in tandem with long-term land use changes (refer to Table 6) can help local governments develop holistic policies and programs that will benefit the community during day-to-day operations as well as during emergency scenarios. Cities and counties should engage their communities to find appropriate solutions that balance safety, health, climate, housing, and other important goals.

As part of the emergency scenario analysis, jurisdictions should assess different combinations of strategies to determine what is most feasible and appropriate for their area. In addition, local governments should assess the secondary impacts of potential evacuation strategies. For instance, adding an additional travel lane to a roadway may result in induced demand and increase congestion, vehicle miles traveled, and greenhouse gas emissions over time. Multi beneficial solutions should be developed whenever possible and, when tradeoffs are present, cities and counties should engage a wide range of experts and community members to compare potential solutions and assess options for mitigating negative impacts.

Table 5: Evacuation Strategies

Evacuation Strategy	Example Actions
Increasing Preparedness	Staging resources for easy access during an emergency scenario Limiting on-street parking during red flag days in residential areas with limited roadway capacity Installing microgrids to increase resilience to power loss Maintaining a backup fuel supply for fleets Creating and maintaining partnerships that may leveraged to increase community preparedness and reliance efforts
Providing Timely Information	Utilizing early warning and notification systems Partnering with trusted organizations/leaders to relay information Communicating to the public when extreme conditions are forecasted and promoting pre-evacuations for populations most in harm's way
Managing Traffic Flow	Adapting roadways to support partial and/or full contraflow Optimizing signal timing to improve traffic flow
Phasing Traffic	Using evacuation zones to identify and prioritize areas to evacuate Facilitating early evacuations for populations that are most at risk Utilizing parking lots to coordinate the release of outbound vehicles Phasing inbound traffic consisting of first responders, emergency response vehicles, and emergency supplies vehicles
Reducing Traffic Congestion	Promoting carpooling and ridesharing options for evacuation Closing inbound lanes to prevent motorists from entering the area while an evacuation is underway Closing outbound on-ramps to reduce traffic originating at intermediate locations along the evacuation route(s) Coordinating in advance with contractors to provide as much roadway clearance as possible along emergency routes that are undergoing construction
Changing the Built and Natural Environment	Increasing *transportation connectivity* Developing multi-use paths that can be accessed for emergencies Planning parks, open spaces, and/or buildings to be used as temporary areas of refuge or other types of evacuation locations Developing resilience centers in climate vulnerable communities Roadway alterations[8]

[8] Roadway alterations, such as road widening, should be approached with caution. Though travel times may be reduced in the near-term, road widenings may lead to unwanted secondary impacts such as induced demand and long-term increases in congestion. This could potentially result in negative health, climate, and safety outcomes.

3.6.2 Safety Considerations

Structural failure, route inundation, falling debris, and limited visibility are potential safety risks associated with a variety of hazards (refer to Figure 6). Cities and counties should use available data, conduct field surveys, and engage their communities to identify these vulnerabilities and other hazard-specific concerns (e.g., heat and smoke impacts from wildfires). On-the-ground insight can also be useful for spotting conditions such as poor route surfaces (e.g., potholes or cracks), environmental risks adjacent to routes (e.g., dense vegetation or unstable soils), adequacy of turnaround points, and other safety concerns.

To support transit-dependent populations, local governments should assess not only roadway safety, but also potential impacts to biking and pedestrian infrastructure as well as public transportation systems. Certain pathways, terminals, and/or services may become inaccessible or unsafe due to hazardous conditions. Cities and counties should estimate the extent to which transit services may be operable during their defined emergency scenarios (refer to Section 3.4) and assess ease of restoration for pathways, terminals, and services that may be negatively affected by emergency event(s). Local governments should integrate this collective information into their route viability assessment and develop policies and programs to avoid or mitigate unreasonable risks. Example policies may be found in Section 4 of this guidance.

Figure 7: Safety risks that may occur along evacuation routes under a range of emergency scenarios.

3.6.3 Viability Considerations

Evacuations are time-sensitive processes in which local authorities' goal is to guide populations out of harm's way before disaster strikes. Evacuation routes should support emergency egress by facilitating the safe and timely movement away from potential threats. To assess *evacuation route viability*, local governments should determine whether current transportation infrastructure and services can reasonably enable populations to leave an area at risk and/or reach temporary areas of refuge under a range of emergency scenarios, within respective time-constraints. This assessment can help cities and counties identify potential vulnerabilities and inform future emergency management strategies, land use decisions, and hazard mitigation efforts.

Many factors influence route viability, including the scenario type, population behavior, evacuation locations, as well as route capacity and safety. For this reason, local governments should incorporate information from the previous sections (refer to Sections 3.4, 3.5, and 3.6) into this assessment. To analyze route viability, cities and counties may utilize a combination of planning approaches, including:

- **Time-based Assessments**: Cities and counties can estimate how long it would take for populations to evacuate under a range of emergency scenarios. As part of this assessment, OPR recommends that local governments develop *evacuation clearance time* estimates. DHS lists clearance times as a "critical consideration" for evacuation planning and defines this metric as "the estimated time to evacuate people from the time an evacuation order is given until the time when the last evacuee can either leave the evacuation zone … or the remaining population must shelter-in-place" (DHS, 2019). This type of analysis can provide the community with a baseline understanding of the time-constraints they may face when evacuating.
- **Distance-based Assessments**: Cities and counties can estimate the distance populations would need to travel to leave the area(s) at risk. This data can be helpful as cities and counties determine the viability of evacuating by foot, bike, or transit. For this type of assessment, OPR recommends that local governments analyze the distribution of operable transit terminals, evacuation pick-up points, and temporary areas of refuge.
- **Population-based Assessments:** Cities and counties can engage specific population groups—such as persons with AFN, persons living in subdivisions with limited egress, or persons who own large animals—to identify additional barriers influencing the viability of evacuation infrastructure and services. Robust engagement can be useful for ground-truthing planning assumptions and understanding community concerns.

A variety of tools may be used to assess route viability. A list is provided in Appendix E. To account for diverse hazards, population dynamics, and multimodal movement, it may be appropriate to use a combination of methods and/or tools. Cities and counties should approach this analysis in a way that is appropriate for their context.

Simulation Tools: Connecting the Housing, Circulation, and Safety Elements

Traffic simulations can provide valuable insight into land use challenges and opportunities. For instance, models can be used to analyze evacuee movement within housing developments that have limited route access (refer to Section 3.3) and determine the impact of circulation patterns on evacuation viability. This information can inform network improvements and emergency management strategies.

Because simulations can be modified to reflect population growth, as well as new roadways and/or development, these tools may also help assess the effects of proposed land use scenarios. To the extent possible, cities and counties should promote new development in areas that are supported by existing evacuation infrastructure, as less compact development may strain responder capacity and the development of additional roads could result in induced demand and increase GHG emissions over time. Local governments may incorporate information from the general plan housing and circulation elements into their simulations to identify potential consequences of new development on evacuation operations. Changes may be needed to ensure that general plan policies/programs remain consistent.

3.7 Identify Evacuation Routes and Locations

Emergencies are dynamic events that evolve rapidly over a short time frame. For this reason, evacuation routes and locations are commonly determined in the moment by emergency response teams and may shift during an event based on changing conditions. In many cities and counties, emergency managers have ultimate authority over which routes and locations are activated. As such, local governments should not prescribe routes and locations within the general plan. Rather, cities and counties should leverage the general plan to support evacuation planning, outreach, and decision-making activities. Local governments can identify potential routes and locations in either a static or dynamic format based on direction, hazard, and/or condition.

Dynamic Identification Systems

Communities may use dynamic mapping or emergency management tools, such as ArcGIS or Zonehaven, to identify evacuation routes and locations. These tools maintain information in a dynamic format, which allows for routine updates to reflect new shelter locations and lessons learned after emergency events occur. As part of the general plan safety element update, jurisdictions may describe the tools they are using to identify evacuation routes and locations. Links to the platform and example evacuation pre-plans should be incorporated into the general plan to address identification requirements.

Direction-based Identification

Because operations often vary based on where the hazard is originating from, it may be appropriate for local governments to identify evacuation routes and locations based on direction. For example, Sacramento County divided its planning area into several evacuation zones then suggested routes and evacuation locations for each zone based on the direction of travel. Where routes span zonal or jurisdictional boundaries, the county highlighted considerations for interagency coordination. In addition, they listed census tracts within the area, outlined AFN and environmental justice considerations, identified evacuation pick-up points, and provided relevant hazard information. This approach provides a holistic view of evacuation roadways, services, and locations and the information can readily enhance decision making during emergency events.

Hazard-based Identification

As part of the general plan update, local governments can identify hazard zones and the associated routes/ locations that could be activated based on the specific threat. These materials may be leveraged after the safety element is adopted for public outreach, education, and preparedness activities. For example, TsunamiClear and FireClear Maps (refer to Figure 7)—developed through a partnership involving emergency managers, Cal OES, and the California Geological Survey—promote safety by providing the public with transparent and digestible evacuation information. These maps demarcate potential routes and evacuation locations within areas at risk. In addition, they highlight potential road closures.

Figure 8: Example TsunamiClear Map (source: Claudine Jaenichen)

Condition-based Identification

Based on the evacuation analysis outlined in Sections 3.4 through 3.6, local governments can determine which roadways, transit services, and evacuation locations may be suitable for use in an emergency scenario. These may be listed or mapped according to the following conditions:

- *Primary routes/services/locations* are resilient to hazards, have adequate capacity, and facilitate timely evacuation operations.
- *Alternate routes/services/locations* are safe for use but may be less desirable due to capacity, location, or other constraints.
- *Undesirable routes/services/locations* are vulnerable to hazards, have limited capacity, and/or prolong evacuation operations. As a result, they are risky to use during emergency scenarios.
- *Dysfunctional routes/services/locations* are likely to be impassable, inoperable, or unusable during an emergency scenario. They should be avoided during emergencies.

A condition-based identification approach can inform network improvements and development priorities. A similar system has been previously utilized by Amador and Calaveras Counties.

4. Example General Plan Policies and Programs

The evacuation analyses—discussed in Section 3—should directly inform general plan goals, policies, and programs. This section contains example policy language for communities to reference as they update their general plans. Local governments may adopt or modify these policies at their discretion.

4.1 Increase Evacuation Route and Location Capacity

Cities and counties may adopt policies and programs aimed at improving traffic flow, fleet capacity, and fuel availability within/between jurisdictions. In addition, communities can retrofit or develop new evacuation locations to support a greater number of evacuees during emergency events. Local governments should assess how potential solutions will influence everyday activity in addition to emergency operations and develop policies that are co-beneficial.

Example Policies

Examples of policies or implementation programs that increase evacuation capacity.

Improve Traffic Flow

Policy	Require new residential developments to incorporate at least two points of ingress and egress to facilitate traffic flow during evacuation events.
Policy	Develop or upgrade multi-use pathways along collectors and/or arterials so they may be utilized by responders for evacuation ingress.
Policy	Maintain and increase walking and biking access to a variety of evacuation pick-up points and/or evacuation locations, including temporary areas of refuge.
Program	Develop and adopt coordinated emergency notification and evacuation traffic management procedures that may be implemented across jurisdictional boundaries for moderate and catastrophic emergency scenarios.
Program	Conduct tabletop exercises on a routine basis to improve agency coordination and identify how evacuation management strategies, such as phased *evacuation zones* and evacuation notification systems, can be implemented to improve traffic flow during an emergency.

Bolster Fleet Capacity

Policy	Expand affordable and reliable transportation options for older adults and persons with disabilities.
Policy	Develop agreements with school districts, paratransit services, community-based organizations, and private companies to bolster fleet capacity during emergency events.
Program	Support the development of ridesharing and car-sharing programs to reduce greenhouse gas emissions and increase transportation options during emergency events.

Increase Fuel/Electric Vehicle Charging Station Availability

Policy	Streamline the development of electric vehicle charging stations along key collectors and arterials within the jurisdiction to increase charging capacity during evacuation events and reduce greenhouse gas emissions.
Policy	Establish agreements between government entities and businesses owning *direct current fast chargers (DCFCs)*, allowing public use of these chargers during emergencies along evacuation routes.
Policy	Upgrade electric vehicle charging stations to DCFCs along primary evacuation routes and at evacuation locations in partnership with property owners, as applicable.
Program	Partner with fuel trade organizations and/or other entities to distribute backup generators to service stations along primary and alternate evacuation routes.
Program	Partner with neighborhoods and community-based organizations to develop microgrids which are resilient to power disruptions that may occur during emergencies. Develop agreements so these grids may be utilized by emergency managers.
Program	Coordinate the location of DCFC chargers with the National Electric Vehicle Infrastructure Program (NEVI) to provide an opportunity for the state to provide DCFCs that will serve drivers during non-emergency times and provide charging locations during emergencies. Align the routes with select corridors to help with funding these DCFCs.
Program	Establish partnerships to develop web-based app(s) that provide drivers of electric vehicles real-time data on location and status of DCFCs along evacuation routes.

Increase Evacuation Location Capacity

Policy	Ensure that *critical facilities* within hazard areas are built to the highest codes/standards feasible so they can remain operable during emergency events and/or used as temporary areas of refuge.
Policy	Preserve and enhance the resilience of parks or other open spaces so they may serve as protective buffers during natural disasters and/or be utilized as evacuation locations.
Program	Develop and support community resilience centers to bolster capacity within neighborhoods or census tracts that have limited resources. Prioritize the development of hubs in underserved and at-risk areas with limited access to evacuation locations as well as emergency supplies and services.

4.2 Manage Evacuation Route and Location Demand at the time of Emergency

Evacuation routes, services, and locations may become strained if populations evacuate all at once. To reduce congestion and potential gridlock, local governments can develop policies to manage demand.

Example Policies

Examples of specific policies or implementation programs that manage evacuation route and location demand are listed below.

Manage the Number/Distribution of People Within At-risk Areas

Policy	Require venues that host large assemblies of people and are within elevated risk areas to reduce their capacity when high-hazard conditions are present.
Policy	Inventory and categorize parking facilities according to size, location, or other relevant factors to support the gradual release of privately owned vehicles from urban areas during an evacuation event.
Policy	Explore decision-support tools that provide insight into real-time evacuation conditions and can help manage the utilization of roadways and evacuation locations.
Policy	Evaluate impact of charging of electric vehicles to the electric grid at the time of emergencies and during heat waves.
Program	Develop evacuation zones to phase evacuation operations and educate residents about the evacuation routes, locations, and resources within their zone.
Program	Partner with housing services and other entities to provide hotel vouchers to low-income and vulnerable communities that may be used during voluntary or mandatory evacuation events to address income-related barriers to evacuation and promote quicker evacuation response.

Provide Timely Information During Emergency Events

Policy	Identify and procure communication tools that can be leveraged for faster information sharing and develop redundancies should certain communication systems fail.
Policy	Improve information dissemination to hard-to-reach populations, including but not limited to those who lack internet access and/or cell phones.
Policy	Partner with local community organizations to fill communication gaps and serve as credible sources of evacuation, transportation, and shelter information.
Policy	Provide early notification to encourage community preparedness when high hazard conditions are forecasted. Notifications can promote protective actions such as electric vehicle charging and refueling in evacuation zones most at-risk, moving trailers to secure locations, or other preparation activities.
Program	Implement the "Ready, Set, Go" campaign or another public preparedness program to encourage residents to prepare go-bags, identify meeting spots, develop checklists, and take additional actions in advance of an evacuation.

4.3 Reduce Risk and Prepare for Emergency Events

Local governments can decrease the probability of a catastrophic emergency scenario occurring by developing robust adaptation and mitigation policies. Risk reduction activities provide co-benefits to evacuees and emergency responders. Local governments can review the State's Adaptation Planning Guide and General Plan Guidelines – Safety Element Chapter for more guidance. In addition, cities and counties can develop policies to directly increase the safety of evacuation operations. Examples are included within this section. Any adaptation-focused policies or programs should be assessed from varying viewpoints and timescales to prevent maladaptive or unintended consequences. Policies should also reflect local concerns and target areas of the community that are most vulnerable to hazards.

Example Policies

Examples of specific policies or implementation programs that avoid or mitigate risks to evacuees and emergency responders are listed below.

Promote Upstream Resilience Planning

Policy	Locate new essential public facilities (other than areas of refuge) outside of at-risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identify construction or other methods to minimize damage if these facilities are in at-risk areas.
Policy	Avoid significant expansion of new development, critical facilities, and infrastructure in areas subject to extreme threat unless all feasible risk reduction measures have been incorporated into project designs or conditions of approval.
Policy	Incorporate climate change and climate vulnerability into emergency preparedness plans, local hazard mitigation plans, and other local plans to increase preparedness for natural hazards exacerbated by climate change.
Policy	Through land use planning, direct new development to occur within areas already served by existing evacuation routes to reduce the need for new roadway construction and increases to vehicle miles travelled (VMT).
Policy	Through land use planning, support new development within existing developed and infill areas and incorporate risk reduction measures when necessary to avoid unreasonable risk.

Mitigate Hazardous Conditions Along Roadways and at Transit Stations

Policy	Partner with utility companies to underground powerlines along key evacuation routes.
Policy	Align conservation and open space planning with risk management activities to reduce potential conflict between safety and environmental goals.
Program	Develop a local program and leverage the California Vegetation Treatment Program (CalVTP) to reduce wildfire risks along evacuation routes.
Program	Develop a local program to retrofit or replace aging infrastructure, including bridges, tunnels, or culverts, to mitigate the risk of structural failure and inundation along evacuation routes.

Prepare Communities for Emergency Events

Policy	Publicly disclose residential development locations with less than two emergency evacuation routes.
Policy	Ensure completeness and availability of identified emergency supplies and resources to all segments of the population, focusing especially on climate vulnerable and disadvantaged communities. Examples include temporary housing and road clearing services, as well as items such as medical supplies, water main repair parts, generators, pumps, sandbags, and communications equipment.
Policy	Maintain and improve disaster response and recovery capabilities to protect and meet the needs of all members of the community, especially the most vulnerable and disadvantaged.
Policy	Translate disaster preparedness and response messaging into the community's *threshold languages* and make available in multiple formats.
Program	Update existing emergency preparedness and response plans and conduct community-facing exercises to enhance disaster preparedness and build local capacity to better mitigate health and safety impacts. Engage local organizations as well as regional partners in planning activities and training exercises.
Program	Review and update emergency response and evacuation plans and procedures at least every 5 years to reflect changing conditions and community needs.

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Appendices

Appendix A. Acronyms and Abbreviations

The following appendix defines acronyms and abbreviations introduced in the TA.

Table 6: Acronyms and Abbreviations

Acronym /Abbreviation	Meaning
AB	Assembly Bill
ARC	American Red Cross
AFN	Access and Functional Needs
Cal OES	California Office of Emergency Services
Caltrans	California Department of Transportation
CalSTA	California State Transportation Agency
CalVTP	California Vegetation Treatment Program
CARES	California Animal Response Emergency System
CBO	Community-Based Organization
CDFA	California Department of Food and Agriculture
CEC	California Energy Commission
CEQA	California Environmental Quality Act
COG	Council of Government
CPUC	California Public Utilities Commission
CVFPB	Central Valley Flood Protection Board
DCFC	Direct Current Fast Charger
DHS	Department of Homeland Security (Federal)
DOC	California Department of Conservation
DRP	Disaster Recovery Plan
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
GC	Government Code
ICE	Internal Combustion Engine

Acronym /Abbreviation	Meaning
LHMP	Local Hazard Mitigation Plan
MOU	Memorandum of Understanding
MPO	Municipal Planning Organization
NIMS	National Incident Management System
NGO	Non-Governmental Organization
NAHC	Native American Heritage Commission
OPR	Governor's Office of Planning and Research
PRC	Public Resources Code
RTPA	Regional Transportation Planning Agency
SB	Senate Bill
SCCP	Solutions for Congested Corridors Program
SEMS	State Emergency Response System
TA	Technical Advisory
The Board	The Board of Forestry and Fire Protection
Tribes	California Native American Tribes
VOAD	Volunteer Organizations Active in Disaster
ZEV	Zero-Emission Vehicle

Appendix B. Referenced Legislation and Bill Information

The following appendix contains information regarding California legislation highlighted in the TA.

Table 7: California legislation referenced in OPR's Evacuation Planning Technical Advisory

Legislation	Bill Information	Description
GC § 65300.5	--	Develop a general plan that is comprised of integrated and internally consistent policies.
GC § 65302 (b)	AB 1358 (2008)	Plan for multimodal transportation networks in the general plan circulation element.
GC § 65302 (g)	SB 379 (2015)	Address climate adaptation and resiliency strategies in the general plan safety element.
GC § 65302 (g)	SB 99 (2019)	Review and update the general plan safety element to identify residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes.
GC § 65302 (g)	--	Consult the Department of Conservation, Office of Emergency Services, and Central Valley Flood Protection Board (if applicable) before the periodic review of the general plan and before preparing or revising the general plan safety element.
GC § 65302 (h)	SB 1000 (2016)	Develop a general plan environmental justice element if a city or county has a disadvantaged community.
GC § 65302.5 (b)	--	Prior to the adoption of or amendment to the general plan safety element, counties that contain state responsibility areas and local jurisdictions that contain a very high fire hazard severity zone must submit a draft to the State Board of Forestry and Fire Protection.
GC § 65302.15	AB 747 (2019)	Review and update the general plan safety element to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.
GC § 65302.15	AB 1409 (2021)	Review and update the general plan safety element to identify evacuation locations under a range of emergency scenarios.
GC § 65351	--	During the preparation or amendment of the general plan, provide opportunities for the involvement of citizens, California Native American Tribes, public agencies, public utility companies, and civic, education, and other community groups, through public hearings and any other means the planning agency deems appropriate.
GC § 65352.3	SB 18 (2004)	Prior to the adoption of or amendment to the general plan, consult California Native American Tribes that are on the contact list maintained by the Native American Heritage Commission.
GC § 8593.3	AB 2311 (2016) AB 477 (2019)	Counties must integrate access and functional needs into their emergency plans.
GC § 8593.3	AB 2645 (2022)	Counties must integrate their evacuation and transportation plans to account for local community resilience centers.

Legislation	Bill Information	Description
GC § 8593.3.5	SB 160 (2019)	Counties must integrate cultural competence into their emergency plans and provide a forum for community engagement in geographically diverse locations in order to engage with culturally diverse communities within their jurisdiction.
GC § 8585.7 and GC § 8612	AB 1317 (2013)	The Office of Emergency Services may certify the accredited status of local disaster councils and any disaster council that substantially complies with the rules and regulations established by the Office of Emergency Services shall be certified by the office to become an accredited disaster council.
GC § 8610	--	Cities and counties may create disaster councils by ordinance and such councils shall develop plans for meeting any condition constituting a local emergency or state of emergency.
GC § 8685.9	--	The State may use California Disaster Assistance Act funds to cover a portion of local shares for federally funded post-disaster projects when approved by the legislature. This funding incentive is only available to a city or county if the LHMP is adopted and properly incorporated into the general plan safety element.
PRC § 4290.5	AB 2911 (2018)	The State Fire Marshall shall survey local governments to identify existing subdivisions within a state responsibility area or a very high fire hazard severity zone without a secondary egress route that are at significant fire risk.

Appendix C. Glossary

The following appendix contains definitions for key planning terms highlighted in the TA.

A-D | E-H | I-L | M-P | Q-T | U-Z

Table 8: Evacuation Planning TA Glossary

Term	Definition	Source(s)
Access and Functional Needs	Individuals who have: • Developmental, intellectual or physical disabilities • Chronic conditions or injuries • Limited English proficiency or who are non-English speaking Or individuals who are: • Older adults, children, or pregnant • Living in institutional settings • Low-income, homeless, and/or transportation disadvantaged	GC § 8593.3
Accredited Disaster Council	Disaster councils which are accredited in accordance with GC § 8585.7 or 8612.	GC § 8585.7 or 8612 Cal OES Disaster Council Accreditation
Adaptation	Making changes in response to current or future conditions (such as the increased frequency and intensity of climate-related hazards), usually to reduce harm and to take advantage of new opportunities.	State of California Adaptation Clearinghouse Glossary
Cascading Effects	Cascading effects are the dynamics present in disasters, in which the impact of a physical event or the development of an initial technological or human failure generates a sequence of events in human subsystems that result in physical, social, or economic disruption.	A Definition of Cascading Disasters and Cascading Effects: Going Beyond the "Toppling Dominos" Metaphor
Cities and Counties	For the purposes of this guidance, OPR is referring to the cities and counties that must develop general plans per GC § 65302. The term "local governments" is used interchangeably in this guidance to refer to these same city and county areas.	GC § 65302
Climate Change	A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use.	State of California Adaptation Clearinghouse Glossary

Term	Definition	Source(s)
Climate Change Impacts	As part of the safety element update, communities must conduct a "vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts…". Impacts may be identified using information from Cal-Adapt, the California Adaptation Planning Guide, historical records, and other agencies. Examples of climate change impacts include wildfire, heavy precipitation, flooding, extreme heat, drought, rising temperatures, declining snowpack, sea level rise, and ocean acidification. See Step 1.3 of the Adaptation Planning Guide for more examples.	GC § 65302 Cal-Adapt California Adaptation Planning Guide
Climate Vulnerable Communities	Climate vulnerability describes the degree to which natural, built, and human systems are at risk of exposure to climate change impacts. Vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality.	Defining Vulnerable Communities in the Context of Climate Adaptation
Community Resilience Center	A hydration station, cooling center, clean air center, respite center, community evacuation and emergency response center, or similar facility established to mitigate the public health impacts of extreme heat and other emergency situations exacerbated by climate change, such as wildfire, power outages, or flooding, on local populations.	GC § 8593.3
Compounding Disasters	Compounding disasters are when two or more catastrophic events occur simultaneously. This may amplify loss and create complex response and recovery challenges.	Prepare for Compounding Disasters
Contraflow	A method designed to increase the capacity of transportation roads toward a certain direction by reversing the opposite direction of road segments	Contraflow in Transportation Network
Critical Facilities	Critical facilities comprise all public and private facilities deemed by a community to be essential for the delivery of vital services, protection of special populations, and the provision of other services of importance for that community. Examples include hospitals, fire stations, police and emergency services facilities, utility facilities, and communications facilities.	FEMA Design Guide for Improving Critical Facility Safety from Flooding and High Winds

Term	Definition	Source(s)
Culturally Diverse Communities	This term includes but is not limited to, race and ethnicity, including indigenous peoples, communities of color, and immigrant and refugee communities; gender, including women; age, including the elderly and youth; sexual and gender minorities; people with disabilities; occupation and income level including low-income individuals and the unhoused; education level; people with no or limited English language proficiency; as well as geographic location	GC § 8593.3.5
Direct Current Fast Charger	A high-powered EV charging station that can completely recharge a typical EV's battery in about 30 minutes. These fast chargers provide an essential backbone for EV drivers, enabling faster corridor travel and emergency charging.	PG&E Site Information for Electric Vehicle Direct Current Fast Chargers
Disadvantaged Community	An area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.	GC § 65302 (h)(4)(A)
Disaster Recovery Plans	For the purposes of this guidance, disaster recovery plans are plans that are developed in anticipation of and/or in response to disasters. These plans are meant to clarify a community's recovery process and outline long-term strategies and priorities for reinvestment following an emergency or disaster event.	OPR Evacuation Planning TA Definition
Emergency Operations Plan	An ongoing plan for responding to a wide variety of potential hazards. An EOP describes how people and property will be protected; details who is responsible for carrying out specific actions; identifies the personnel, equipment, facilities, supplies, and other resources available; and outlines how all actions will be coordinated.	FEMA Glossary
Emergency Scenario	A hypothetical situation composed of a hazard, an entity impacted by that hazard and associated conditions, including consequences when appropriate.	FEMA Comprehensive Preparedness Guide 101
Environmental Justice	The fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies	GC § 65040.12(e)
Evacuation	The organized, phased and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas and their reception and care in safe areas	2017 State of California Emergency Plan

Term	Definition	Source(s)
Evacuation Centers	For the purposes of this guidance, evacuation centers are interim spaces that enable evacuees to access basic services and information. For instance, evacuation centers may provide food, water, first-aid, restroom facilities as well as fuel and charging stations. Staff at the center triage evacuee needs by helping them transfer to shelters, connect with reunification services, and access additional resources such as vehicle rentals. Evacuation centers may include transfer points, information points, or reception centers.	OPR Evacuation Planning TA Definition
Evacuation Clearance Time	The estimated time to evacuate people from the time an evacuation order is given until the time when the last evacuee can either leave the evacuation zone or the remaining population must shelter-in-place. The calculation is based on various factors such as the type of hazard or threat, level of notice of the incident, population characteristics of the area at the time, and public behavior.	Planning Considerations: Evacuation and Shelter-in-Place
Evacuation Endpoints	For the purposes of this guidance, evacuation endpoints are locations that provide a safe place for evacuees to shelter in the days and/or weeks following an emergency scenario. Endpoints may differ based on evacuee needs. Examples may include hospitals, public shelters, hotels, or second homes.	OPR Evacuation Planning TA Definition
Evacuation Location	For the purposes of this guidance, evacuation location is a general term that refers to all the geographical points that evacuees may go to for safe refuge during an emergency event. Evacuation locations include temporary areas of refuge, evacuation centers, and evacuation endpoints.	OPR Evacuation Planning TA Definition
Evacuation Pick-up Points	Temporary locations exclusively for evacuation embarkation and transportation coordination in a field setting. They may also be referred to as evacuation transportation sites or assembly points. (e.g., bus stops, parks, aircraft landing sites)	Planning Considerations: Evacuation and Shelter-in-Place
Evacuation Route Capacity	For the purposes of this guidance, evacuation route capacity refers to the ability of transportation infrastructure and resources to support evacuees and responders during emergency scenarios.	OPR Evacuation Planning TA Definition
Evacuation Route Safety	For the purposes of this guidance, evacuation route safety refers to the likelihood of evacuees or responders being harmed while using potential evacuation routes. Such routes may include (but are not limited to) roadways, pedestrian facilities, and public transportation services.	OPR Evacuation Planning TA Definition
Evacuation Route Viability	For the purposes of this guidance, evacuation route viability refers to the ability of transportation infrastructure and services to reasonably enable populations to leave an area at-risk and/or reach temporary areas of refuge under a range of emergency scenarios, given the respective time-constraints.	OPR Evacuation Planning TA Definition

Term	Definition	Source(s)
Evacuation Shadow	Household evacuation from areas that are not officially designated as part of an evacuation zone.	Large-Scale Evacuation: The Analysis, Modeling, and Management of Emergency Relocation from Hazardous Areas
Evacuation Zone	A defined area to which residents may be directed to evacuate, depending upon the impacts of the hazard (e.g., tides, storm intensity, path, hazardous material exposure).	Planning Considerations: Evacuation and Shelter-in-Place
Hazard	An event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural losses, damage to the environment, interruption of business, or other types of harm or loss. Please note, there is a difference between hazard and risk. OPR recommends that planners be sensitive to how hazard and risk are used within planning documents and refrain from using these terms interchangeably.	State of California Adaptation Clearinghouse Glossary
Infill Development	This term refers to building within unused and underutilized lands within existing development patterns, typically but not exclusively in urban areas.	Office of Planning and Research Infill Development
Information Point	Located on or near main evacuation routes, interstate highways, and state borders. These facilities are generally state-sponsored and located at state points of entry (e.g., rest areas, tourist centers) and provide self-evacuees: • Information and/or directions to shelter facilities • Access to restroom facilities • A temporary rest during their evacuation • A place to recharge phones or other electronic devices • Limited access to food and water	Planning Considerations: Evacuation and Shelter-in-Place
Level-3 Chargers	Level 3 charging is the fastest type of charging available and can recharge an EV at a rate of 3 to 20 miles of range per minute. Unlike Level 1 and Level 2 charging that uses alternating current (AC), Level 3 charging uses direct current (DC). See also Direct Current Fast Chargers.	What Are the Different Levels of Electric Vehicle Charging?
Local Governments	For the purposes of this guidance, OPR is referring to the cities and counties that must develop general plans per GC § 65302 (refer to “Cities and Counties”).	GC § 65302

Term	Definition	Source(s)
Local Hazard Mitigation Plans	Hazard mitigation plans reduce loss of life and property by minimizing the impact of disasters. LHMPs begin with local governments identifying natural disaster risks and vulnerabilities that are common in their area. After identifying these risks, they develop long-term strategies for protecting people and property from similar events. Mitigation plans are key to breaking the cycle of disaster damage and reconstruction.	FEMA Hazard Mitigation Planning
Paratransit Services	Transit services can be used to transport populations with access and functional needs. Services can consist of a subsidized taxi ride or a small bus that runs on a loosely defined route, stopping to pick up or discharge passengers on request. It also can be a fully demand-responsive form of transportation that offers on-demand, call-up, and/or door-to-door service from virtually any origin to virtually any destination in a service area. Paratransit services are operated by public transit agencies, community groups, or non-governmental organizations (NGOs), as well as for-profit private companies and operators.	Bay Area Paratransit Toolkit
Plan Alignment	The process of leveraging connections, information, and resources to build shared language, data foundations, and processes across multiple planning efforts at any scale. Plan alignment, in essence, is based on collaboration. The resulting products of plan alignment are: • a suite of plans (with different scopes and purposes) that share the same data, similar underlying assumptions, aligned visions, and complementary goals, strategies, and actions, and • a shared understanding, process, and structure for multiple entities in a community or region to continue to collaborate and align efforts over the long term.	State of California Adaptation Clearinghouse Plan Alignment Toolkit
Reception Center	An interim site along an evacuation route that provides mass care and other emergency services to evacuees arriving in a host location via government transportation. A Reception Processing Site may be located within an impact jurisdiction (although outside the impact area) or in a host jurisdiction. These locations provide life-sustaining services, such as food, water, basic medical support, and assignment and transportation to a shelter. Additional services may include disaster and local weather information, reunification, and crisis counseling. Temporary sleeping space may also be provided while evacuee needs are evaluated or if evacuees arrive late at night. Jurisdictions should arrange separate areas for unaccompanied minors, people without identification, and individuals subject to judicial and/or administrative orders restricting their freedom of movement. These sites may also process evacuees returning to the impact jurisdiction.	Planning Considerations: Evacuation and Shelter-in-Place

Term	Definition	Source(s)
Resilience (Climate)	The capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience	State of California Adaptation Clearinghouse Glossary
Resilience (Community)	The ability of communities to withstand, recover, and to learn from past disasters to strengthen future response and recovery efforts. This can include but is not limited to physical and psychological health of the population, social and economic equity and well-being of the community, effective risk communication, integration of organizations (governmental and nongovernmental) in planning, response, and recovery, and social connectedness for resource exchange, cohesion, response, and recovery.	State of California Adaptation Clearinghouse Glossary
Risk	Risk for the purpose of hazard mitigation planning, is the potential for damage or loss created by the interaction of hazards with assets such as buildings, infrastructure, or natural and cultural resources. For natural hazards, risk tends to be calculated based on evaluation of the probability (likelihood) of a hazard event occurring, vulnerability, and the event's potential consequences. This method uses data from the past to establish the probability and, in the case of climate change, includes future projections of probability. Please note, there is a difference between risk and hazard. OPR recommends that planners be sensitive to how hazard and risk are used within planning documents and refrain from using these terms interchangeably.	State of California Adaptation Clearinghouse Glossary
Roadway Capacity	The maximum rate at which vehicles can be expected to traverse a section of roadway during a given time period under prevailing roadway, traffic, and control conditions. The unit rate of measurement is typically notated by the number of vehicles per hour.	Criteria for Development of Evacuation Time Estimate Studies
Secondary Egress	An adequate secondary egress route is a road, navigable by a passenger vehicle weighing 6,000 pounds or less, of equal construction standard to the primary road. The secondary road does not have to be rated to carry the same quantity of traffic (e.g., a two-lane paved road and a one-lane paved road is acceptable). ii. An adequate secondary egress route is not: (A) a road with locked gates or limited access; or (B) a road that directs traffic to the same outlet road as the primary road or results in a circular traffic flow, to the extent practicable.	14 CCR § 1267.01

Term	Definition	Source(s)
Shelter-in-place	The use of a structure to temporarily separate individuals from a hazard or threat. Sheltering in place is the primary protective action in many cases. Often it is safer for individuals to shelter-in-place than to try to evacuate. Sheltering in place is appropriate when conditions necessitate that individuals seek protection in their home, place of employment, or other location when disaster strikes.	Planning Considerations: Evacuation and Shelter-in-Place
Temporary Areas of Refuge	Locations that are used by individuals when a hazard is imminent or occurs with no warning…and are meant to provide temporary and limited protection as an incident occurs. Please note, the Department of Homeland Security refers to temporary areas of refuge as "refuges of last resort". This document uses different terminology in recognition that, in some cases, these locations may be a preferred evacuation option rather than one of last resort.	Planning Considerations: Evacuation and Shelter-in-Place
Transfer Point	If applicable, locations where transportation-assisted evacuees move from their initial evacuation modes of transportation onto other transportation to a reception processing site or a shelter. Depending on drive times and/or distances, relief drivers and/or vehicles may be needed to comply with state and/or Federal safety regulations.	Planning Considerations: Evacuation and Shelter-in-Place
Transportation Connectivity	This term encompasses planning activities that increase access to destinations. Examples include locating commercial centers in accessible areas, reducing the distances to destinations that satisfy daily needs, improving pedestrian and bicycle infrastructure, and managing the transportation system to reduce congestion.	Department of Transportation Connectivity Webpage
Threshold Languages	Languages which are spoken at a high proportional rate within a geographic region of the state and as such may contribute to obstacles of understanding and access for those seeking mental health services.	Medi-Cal Statistical Brief
Unreasonable Risk	This term comes from GC § 65302(g)(1): "A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami seiche….". The statute does not define what constitutes an unreasonable risk nor does OPR expand upon this definition in current guidance. It's up to each city and county to define what "unreasonable" means within their context.	GC § 65302(g)

Appendix D. State and Federal Frameworks

This appendix describes emergency planning frameworks at the State and federal level. It is not intended to be an exhaustive list of all laws or policies that may exist on these topics. Many of these frameworks work in tandem to assist local governments with planning for and executing a coordinated emergency response process.

Federal Frameworks

National Response Framework

The Homeland Security Act of 2002 directed the federal government to create a comprehensive plan to support domestic incident management for a broad range of emergencies requiring federal response. The current National Response Framework (NRF) outlines agency roles, responsibilities, and opportunities for coordination. Information related to evacuation routes can be found in the NRF's Mass Evacuation Incident Annex.

National Incident Management System

In 2003, Homeland Security Presidential Directive–5 established the National Incident Management System (NIMS) to enhance coordination between government agencies, non-governmental organizations (NGOs), and businesses during emergency events. Figure 8 illustrates how these actors can work together to aid those impacted by disasters. NIMS provides a flexible template for emergency operations that can be applied nationwide.

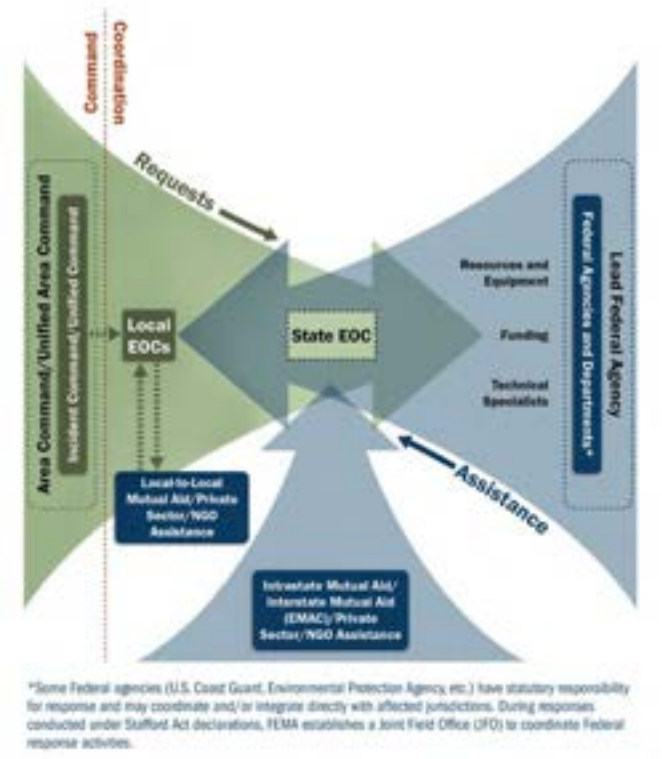

Figure 9: Coordination process between local, state, and federal partners during an emergency event. (Source: National Incident Management System, FEMA 2017)

Continuity of Operations and Government

U.S. Presidential Policy Directive 40 led the establishment of a Continuity of Operations Program so that agencies at all levels of government can better delegate authority, communicate, and perform essential functions during an emergency event. Guidance regarding continuity planning in California may be found on the Cal OES Continuity Planning Webpage.

National Disaster Recovery Framework

The Department of Homeland Security published the National Disaster Recovery Framework to establish "a common platform and forum for how the whole community builds, sustains, and coordinates delivery of recovery capabilities". To complement this framework, FEMA developed a Community Recovery Management Toolkit to help cities and counties bolster their recovery capabilities and meet the needs of their whole community.

State Frameworks

California State Hazard Mitigation Plan

California's State Hazard Mitigation Plan (SHMP) outlines the State's priorities, strategies, and actions to reduce long-term risks posed by natural and human-caused disasters. With regards to evacuation, this plan provides historical context regarding prior mass evacuation events and outlines how hazards, exacerbated by climate change, are likely to impact evacuation events in the future. This plan notes how general plans, capital improvement programs, and other activities can mitigate hazards and improve evacuation operations. Summaries of relevant plans, tools, and opportunities are included in the SHMP.

California's Standardized Emergency Management System

California's Standardized Emergency Management System (SEMS) incorporates NIMS requirements and serves as "*the cornerstone of California's emergency response system"* (Cal OES). Recognizing the integral role that animals play in evacuation behavior, California's Animal Response Emergency System (CARES) is also integrated into SEMS to facilitate the evacuation and sheltering of animals. SEMS helps communities across California more readily respond to incidents, manage disasters, and obtain mutual aid. To be reimbursed for response-related costs through the State's disaster assistance programs, local governments must use SEMS.

State of California Emergency Plan

The State of California Emergency Plan (SEP) helps communities across the State prepare for and manage a range of natural and human-caused disasters by outlining pertinent emergency operations methods, processes, and requirements. With regards to evacuation routes, the 2017 SEP states that evacuation plans "must integrate accessible transportation providers within the planning process and movement of people with mobility impairments and those with transportation disadvantages. Transportation planning considerations should include staging, embarkation points, transportation centers, evacuee locations, and care and shelter." Information regarding State transportation planning coordination may be found in the Emergency Support Function 1 - Transportation Annex.

In addition to transportation considerations, the SEP suggests that local governments develop specific procedures for the evacuation of people located in areas below dams, in accordance with California Government Code Section 8589.5. Recognizing that climate change can exacerbate certain hazards, the SEP also encourages communities to incorporate climate change considerations into their emergency management process.

California Disaster Recovery Framework

California's Disaster Recovery Framework establishes a coordination structure to facilitate recovery assistance for impacted communities. This framework notes how recovery activities are related to disaster mitigation and preparedness and highlights ways that future resiliency can be addressed during the recovery stage of the emergency management cycle.

Appendix E. List of Resources

The following appendix contains guidance, tools, and resources to help local communities update their general plan safety element and promote safe evacuations.

Plan Alignment

- Cal OES Planning & Preparedness: Cal OES publishes a variety of resources that can assist local governments as they plan for emergency events.
- Developing and Maintaining Emergency Operations Plans: FEMA published a comprehensive preparedness guide to support cities and counties with emergency operation plan updates. This guidance incorporates practitioner feedback and identifies lessons learned to advance emergency planning, operations, and response.
- FEMA Local Mitigation Planning Guidance: FEMA published a policy guide to help local planners understand the minimum local hazard mitigation planning requirements. In addition, they published a planning handbook to exemplify various ways to meet, or exceed, federal LHMP requirements. Training opportunities are also available on FEMA's website.
- FEMA Pre-Disaster Recovery Planning Guide for Local Governments: FEMA published a recovery planning guide to help communities establish recovery roles/responsibilities and develop proactive policies to aid the post-disaster recovery process.
- Planning for Post-Disaster Recovery - Next Generation: This guidance document highlights how post-disaster recovery plans can be leveraged to increase the speed of recovery, effectively use resources, and provide more opportunities for community betterment.

Community Engagement

- CalCOG Member Directory: This directory contains contact information for councils of governments from across California.
- Cal OES Planning and Preparedness Branch: Cal OES provides emergency planning and guidance for state agencies, local and tribal governments, tribes, businesses and the private sector, CBOs and NGOs, the federal government, and private citizens.
- Cal OES Regional Operations: Cal OES maintains information regarding regional emergency operations. There are three regional branches in California: coastal, inland, and southern region.
- CDFA Animal Health and Food Safety Services Division: When disasters strike, they impact not only people but also the animals in their care. Many choose to delay evacuation or stay-in-place to protect their pets and large animals (e.g., livestock and equine). Recognizing the integral role animals play in evacuation processes, CDFA published guidance, titled Planning for Animal Health During a Disaster to help governments, volunteer organizations, and industry facilitate the safe movement and care of animals. CDFA's CARES Unit also collaborates with agencies to implement the California Animal Response Emergency System.
- Integrating Access and Functional Needs Within the Emergency Planning Process: While disasters may impact an entire community, certain groups can be more acutely affected than others. Persons with AFN often experience extra hurdles which can hamper their ability to evacuate in a timely manner. This guide help planners better integrate AFN needs into the

emergency planning process to promote more equitable evacuation outcomes. Additional information may also be found in the Cal OES AFN Library.

- Leveraging the Sharing Economy to Expand Shelter and Transportation Resources in California Evacuations: This policy brief highlights how communities can partner with companies - such as Airbnb, Uber, and Lyft – to support emergency evacuation and shelter options.
- List of MPOs and RTPAs in California: The California Department of Transportation maintains a complete list of metropolitan planning organizations and regional transportation planning agencies within the state.
- Toolkit for Cross-Jurisdictional Sharing Between Tribes and Counties for Emergency Management: Many tribes have their own emergency management frameworks which are embedded into their constitutions, codes, and emergency management plans. To align emergency management efforts, this guidance highlights ways local governments can partner with tribes through cross-jurisdictional sharing arrangements.

Hazard Identification

- Cal-Adapt: Cal-Adapt provides data and tools to help communities predict climate change impacts within their community. The tools and data can help communities visualize hazards such as extreme precipitation events and decadal fire probabilities.
- California Dam Breach Inundation Maps: California's Department of Water Resources reviews, approves, and publishes dam inundation maps to support emergency planning. Additional resources may also be found on the Cal OES Dam Safety Planning website.
- California Flood Management Maps: The Department of Water Resources used best available data to develop and publish maps that highlight 100 and 200-year composite floodplains as well as levee flood protection zones.
- California's Fourth Climate Change Assessment: California's climate assessments provide a scientific foundation for understanding vulnerability at a local scale. The statewide, regional, and technical reports offer insight into future hazard scenarios. In addition, the assessment funded and enhanced several tools that may be used to support climate action.
- California Geological Survey: The California Department of Conservation provides maps that highlight landslide and tsunami hazards as well as earthquake hazard zones.
- Central Valley Flood Protection Board (CVFPB) Maps: The CVFPB provides maps that highlight floodways and levees within the valley region.
- Fire and Resource Assessment Program (FRAP) Maps: The California Department of Forestry and Fire Protection provides a map of fire hazard severity zones within local and state responsibility areas, as well as other maps relevant to wildfire planning.
- General Plan Mapping Tool: This GIS tool provides access to data to inform general plan decision-making processes. The tool provides data related to flooding, fire, landslides, liquefaction, and more.
- Sea the Future: This resource helps communities across California compare tools that can be used to visualize the impacts caused by sea-level rise and flooding.

- My Hazards: According the MyHazards website, MyHazards is "a tool for the general public to discover hazards in their area (earthquake, flood, fire, and tsunami) and learn steps to reduce personal risk. Using the MyHazards tool, users may enter an address, city, zip code, or may select a location from a map. The map targets the location and allows users to zoom and scroll to their desired view. The screen then presents information on the risks identified within the search radius and recommended actions."
- My Plan: According to the My Plan website, My Plan "is an internet-mapping tool for California city, county, special district, state, and tribal emergency managers and planners to assemble and assess GIS information on natural hazards, with the ultimate goal of creating hazard maps. [The tool] allows viewing and creating of maps suitable for preparing, updating, and reviewing:
    - Local Hazard Mitigation Plans
    - General Plan Safety Elements
    - Local Coastal Programs (LCP)
    - All hazard mitigation planning efforts"

Residential Development Identification

- Fire Safety Survey Map: This interactive map from CAL FIRE shows subdivisions that have been identified for survey pursuant to PRC § 4290.5, including the results and recommendations from completed surveys.
- Subdivision Review Program: CAL FIRE's subdivision review program helps local governments respond to PRC § 4290.5 by identifying existing subdivisions with more than 30 dwelling units that are without secondary egress and located in areas with significant fire risk.

Emergency Scenario Considerations

- A Provisional Conceptual Model of Human Behavior in Response to Wildland-Urban Interface Fires: This literature review identifies factors that influence evacuation decision-making during wildfire events.
- California Healthy Places Index: This index contains 25 indicators that represent key social determinants of heath. These include income, employment, transportation, housing and healthcare. Information can be organized by census tract, city, county, as well as by MPO.
- Catastrophic Planning: Catastrophic Plans hosted on the Cal OES website — such as the Southern California Catastrophic Earthquake Plan and Northern California Catastrophic Flood Response Plan — include information that may be helpful to cities and counties as they plan for catastrophic or worse case evacuation scenarios.
- Climate Change and Health Vulnerability Indicators: The California Department of Public health maintains data for a set of indicators to help California communities assess exposures, social vulnerability, and adaptive capacity.
- COVID-19 Supplement for Planning Considerations: FEMA summarizes potential impacts COVID-19 may have on emergency operations and outlines key questions for planners to consider.
- Double the Trouble: A Playbook for COVID-19 and Evacuations: The global COVID-19 pandemic presented new challenges for emergency managers. To help communities resolve potential

conflicts and better respond to compounding disasters this playbook highlights case studies and potential strategies that local governments can implement.

Evacuation Location Considerations

- Review of Resilience Hubs and Associated Transportation Needs: This literature review characterizes resilience hubs and identifies how these spaces can support the needs of residents and evacuees. This paper also highlights opportunities for integrating transportation services into resilience hub planning and operations.

Capacity Considerations

- Bay Area Emergency Services Fuel Consumption Calculator: Recognizing the potential vulnerabilities associated with fuel and supply chain interruption, the Bay Area Urban Areas Security Initiative developed an emergency services fuel consumption calculator as part of its Critical Transportation Toolkit. When using the calculator, agencies input their vehicle type(s), expected travel distance, and number of people to move OR vehicles granted. Based on this information, the calculator provides the fuel type and total amount of fuel needed.
- California's Interregional Road System Map: This map highlights county-identified roads that serve as primary evacuation routes in the event of a disaster.
- California's Road System Map: This map was produced in accordance with the Federal Highway Administration's functional classification system. It highlights known arterial, collector, and local roads across the state.
- Highway Capacity Manual: This manual – published and updated by the National Academy of Sciences, Engineering, and Medicine – may be consulted to develop baseline capacities for roadway segments. These estimates should be adjusted to account for prevailing roadway conditions.
- Local Jurisdiction Fuel Planning Toolkit: Washington State's Department of Commerce developed planning guidance and resources to help local governments estimate their fuel consumption in an emergency and develop contingency plans.
- Modeling Electric Vehicle Charging Network Capacity and Performance During Short-notice Evacuations: Researchers developed a model to assess how electric vehicle charging capacity along evacuation operations and outline policy recommendations to increase resilience.

Safety Considerations

- California Adaptation Planning Guide: This planning guide helps local governments identify climate hazards, assess vulnerability, develop strategies, and implement policies to improve resilience. This guidance can help communities meet SB 379 general plan requirements.
- FEMA Hazus Program: FEMA provides nationally standardized data to estimate local risk from earthquakes, tsunamis, flooding, and hurricanes. This data source is managed by FEMA's Natural Hazards Risk Assessment Program.
- Resilience Analysis and Planning Tool (RAPT): FEMA developed a free tool to help communities assess their resilience to hazards. This platform uses GIS to visualize the relationship between people, infrastructure, and hazards.

Viability Considerations

- Evacuation Management Operations Modeling Assessment: The U.S. Federal Government published a transportation modeling inventory to help jurisdictions select between a range of planning and decision support tools for evacuation planning. This report summarizes each tool and highlights case studies where applicable. Please note, this report was published in 2007 so newer models and methods may not be captured.
- FLEET- Fast Local Emergency Evacuation Times: This free evacuation planning tool enables users to estimate the time required for vehicles to clear a local or regional area. The tool was designed for short notice evacuation scenarios and can be adapted to reflect seasonal population adjustments, evacuation compliance, time of day, evacuation zones, and other factors.
- Large Scale Evacuation – The Analysis, Modeling, and Management of Emergency Relocation from Hazardous Areas: This book "offers a step-by-step guide through the key questions needed to model an evacuation and its impacts to the evacuation route system". This text highlights challenges, strategies, and case studies that may be useful to consider when planning for evacuations.
- Traffic Analysis Tools: The Federal Highway Administration highlights existing tools that may be used for traffic analysis. They also published methodology for selecting appropriate tools.
- Traffic Modelling of Potential Emergency Wildfire Evacuation Routes: The Caltrans Division of Research, Innovation, and System Information conducted compiled a list of resources and modelling tools that are being used for evacuation planning in wildfire prone areas.
- USGS Pedestrian Evacuation Analyst Tool: The Pedestrian Evacuation Analyst is an ArcGIS extension that estimates how long it would take for someone to travel on foot out of a hazardous area that was threatened by a sudden event such as a tsunami, flash flood, or volcanic lahar.

Evacuation Route and Location Identification

- Zonehaven: This emergency management tool helps communities plan, train for, and execute evacuations. Local governments can use the tool to pre-plan routes and identify evacuation locations in real-time.
- ArcGIS Solutions: According to its website, ArcGIS for Emergency Management solutions "can be used for situational awareness, operations response, and logistics planning. For example, my Hazard Information enables constituents to [access] information about evacuation routes, potential hazards, and information regarding public safety resources in their community."

Strategies to Promote Effective Evacuations

- Cal OES Family Readiness Guide: This guide helps community members prepare for disasters by providing information about home preparation, sheltering and evacuations, common hazards, emergency supplies, and other resources.
- Caltrans Evacuation Route Design Information Bulletin: This Design Information Bulletin (DIB) guides design procedures and recommendations for developing projects along evacuation

routes. The guidance is primarily for rural communities where access to and from the community is limited and a State highway is to be used as a primary evacuation route.

- Emergency Transportation Operations Publications: The Federal Highway Administration published numerous guides that can inform evacuation planning and policies.
- Federal Highway Administration Guidance: To support evacuation planning and operations, the Federal Highway Administration developed a Principals of Evacuation Planning Course and published a "Routes to Effective Evacuation Planning Primer Series" which consists of the following guidance:
    - Using Highways During Evacuation Operations for Events with Advance Notice
    - Using Highways for No-Notice Evacuations
    - Evacuating Populations with Special Needs
- FEMA Ready Website: This website helps families and businesses prepare for a range of emergencies. Certain emergency preparedness content is also available in a variety of languages.
- Planning Considerations – Evacuation and Shelter-in-Place: The Department of Homeland Security published this report to help communities develop protective actions for a range of disaster scenarios.
- The National Preparedness Training Center: This center provides training to help communities plan for natural hazards. For instance, they offer a FEMA-certified course titled "Evacuation Planning Strategies and Solutions" which explores data, modeling tools, and simulations that can be used to plan for emergency events. This course offers professional credits.
- The Security and Emergency Response Training Center: This center offers courses to increase emergency preparedness and improve response, some of which are offered at no direct cost to agencies.

Appendix F. Funding Opportunities

The following appendix lists funding programs that can help local communities update their general plan safety element and promote safe evacuations.

Table 9: Funding Opportunities

Name	Funding	Description
Active Transportation Program	State and Federal Funding	This program provides funding to develop and improve active transportation infrastructure. One of the program goals is to increase safety and mobility for non-motorized users. This program could be leveraged to support multi-modal evacuations and trail improvements that could assist with timely evacuations.
California Fire Prevention Grants Program	State Funding	This grant program, managed by CALFIRE, "provides funding for fire prevention projects and activities in and near fire threatened communities that focus on increasing the protection of people, structures, and communities". This program funds evacuation plan and general plan safety element updates. In addition, this grant can support vegetation modification adjacent to roads to improve public safety for egress of evacuating residents and ingress of responding emergency personnel.
California Vegetation Management Program	State Funding	This cost-sharing program can reduce wildfire and flooding risk by treating vegetation within the State Responsibility Area, including along roadways.
Community Resilience Centers Program	State Funding	California's Strategic Growth Council supports community efforts to build new facilities or retrofit existing facilities along with programs that will serve as centers to help vulnerable residents withstand the impacts of extreme heat, wildfires, power outages, flooding, and other emergency situations brought about by climate change.
Fairground and Community Resilience Centers Program	State Funding	The California Department of Food and Agriculture is funding improvements to fairgrounds and other community centers to enhance emergency preparedness and respond to climate change.
FEMA Emergency Management Performance Grant Program (EMGP)	Federal Funding	Funds from this program may be used "to foster whole community preparedness for disasters and emergencies". This grant may be used to update EOPs and/or develop sheltering and evacuation plans. Construction and renovation projects are also allowable costs under this program but must be approved by FEMA on a case-by-case basis.
National Electric Vehicle Infrastructure Program (NEVI)	Federal Funding	The CEC will be managing a $384 million funding solicitation to build out a network of DCFCs along California's Alternative Fuel Corridor.

Name	Funding	Description
Prepare California	State Funding	This State program is "focused on building community resilience amongst vulnerable individuals living in the areas of the state most susceptible to natural disaster" (Cal OES). Funding may be used for evacuation planning, local capacity building, risk reduction projects, public education, and more.
Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Program	Federal Funding	This competitive federal grant program provides funding to increase the resilience of local and regional transportation systems. Funds may be used for planning activities and projects that improve evacuation routes and increase infrastructure resilience.
Regional Early Action Planning Grants 2.0 (REAP 2.0)	State Funding	This grant program advances the implementation of adopted regional plans by funding planning and implementation activities that accelerate infill housing and reductions in per capita vehicle miles travelled (VMT). Increasing connectivity to transit corridors, commercial centers, and other destinations may produce co-benefits during evacuation events. As such, this program may be leveraged for strategic planning activities and improvements within the local jurisdiction.
Solutions for Congested Corridors Program (SCCP)	State Funding	This competitive program provides funding to RTPAs, county transportation commissions, and Caltrans for projects that reduce congestion by implementing a balanced set of transportation, environmental, and community access improvements.
State of Good Repair (SGR) Program	State Funding	This program can be leveraged to upgrade or repair aging transportation infrastructure and modernize or acquire new transit vehicles. Transportation planning agencies and county transportation commissions are eligible for this program.
Sustainable Transportation Planning Grants	State Funding	Climate Adaptation Planning Grants, a subset of this grant, supports local and regional identification of transportation-related climate vulnerabilities through the development of climate adaptation plans, and project-level adaptation planning to identify adaptation projects and strategies for transportation infrastructure.

Appendix G. Evacuation Planning Checklist

Below is a checklist that cities and counties may follow when updating their general plan safety element:

Identify Opportunities for Plan Alignment

- ☐ Consider alignment with emergency operations plans.
- ☐ Consider alignment with local hazard mitigation plans.
- ☐ Consider alignment with disaster recovery plans.
- ☐ Consider alignment with other relevant plans.

Engage Early and Often

- ☐ **Required:** Provide opportunities for public involvement per GC § 65351.
- ☐ Identify and engage local partners.
- ☐ Identify and engage regional partners.
- ☐ Identify and engage State, Federal, and/or international partners.
  - **Required**: Consult the Department of Conservation, Office of Emergency Services, and Central Valley Flood Protection Board (if applicable) before the periodic review of the general plan and before preparing or revising the general plan safety element per GC § 65302 (g).
  - **Required**: Prior to the adoption of or amendment to the general plan safety element, counties that contain state responsibility areas and local jurisdictions that contain a very high fire hazard severity zone must submit a draft to the State Board of Forestry and Fire Protection per GC § 65302.5 (b).
- ☐ Identify and engage California Native American Tribes.
  - **Required**: Prior to the adoption of or amendment to the general plan, consult California Native American Tribes that are on the contact list maintained by the Native American Heritage Commission GC § 65352.3.

Plan for a Range of Hazards

- ☐ Review and update (as necessary) hazard areas identified in the general plan safety element.
- ☐ Review health hazards identified in the environmental justice element (if applicable).
- ☐ Leverage the general plan's climate change vulnerability assessment.
- ☐ Review historical events and projected hazards.
- ☐ Align planning and assessment activities with neighboring jurisdictions.

Identify Residential Developments

- ☐ **Required:** Identify residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes per GC § 65302 (g).
- ☐ Consider alignment with PRC § 4290.5 which requires the Board of Forestry and Fire Protection to "survey local governments…to identify existing subdivisions, as defined, in either a state responsibility area or a very high fire hazard severity zone, without secondary egress routes, that are at significant fire risk."

Identify Emergency Scenarios

- ☐ Examine scenarios that require the significant activation of evacuation routes and locations.
- ☐ Consider stressing local plans by examining worst-case scenarios.
- ☐ Consider examining scenarios under current and future conditions.
- ☐ Consider examining scenarios in which there are compounding hazards or cascading effects.
- ☐ Factor population behavior and needs into scenario planning.

Assess Evacuation Locations

- ☐ Identify temporary areas of refuge, evacuation centers, and evacuation endpoints.
- ☐ Consider venues' location, vulnerability to hazards, capacity, accessibility, and resources.
- ☐ Consider how future land uses and/or developments could support evacuation operations.
- ☐ To support regional coordination, consider estimating the number of evacuees expected to pass-through neighboring jurisdictions and summarize their needs.

Assess the Capacity, Safety, and Viability of Evacuation Routes

Capacity Considerations

- ☐ Assess the capacity of key roadway segments that may be used during evacuation.
- ☐ Assess the potential for bicycle and pedestrian infrastructure to enhance capacity.
- ☐ Inventory local transportation resources to gauge transit and fleet capacity.
- ☐ Assess the power requirements and fuel availability for a variety of evacuation modes.

Safety Considerations

- ☐ Assess the potential for structural failure, inundation, falling debris, and limited visibility to impact evacuation routes during identified emergency scenarios.
- ☐ Identify additional safety risks posed by environmental or infrastructure conditions.
- ☐ Assess potential impacts to biking and pedestrian infrastructure as well as public transit.

Viability Considerations

- ☐ Determine whether current transportation infrastructure and services can reasonably enable populations to leave an area at risk and/or reach temporary areas of refuge under a range of emergency scenarios, within respective time-constraints.
- ☐ Consider time-based viability assessments.
- ☐ Consider distance-based viability assessments.
- ☐ Consider population-based viability assessments.
- ☐ Consider using simulation tools to assess viability in developments with less than two routes.
- ☐ Consider using simulation tools to assess viability under future land use scenarios.

Identify Evacuation Routes and Locations

- ☐ **Required:** Identify evacuation routes and their capacity, safety, and viability and evacuation locations under a range of emergency scenarios per GC § 6302.15.
- ☐ Consider how to format the information (e.g., static and/or dynamic identification systems).
- ☐ Consider identifying routes and locations based on the direction of travel.
- ☐ Consider identifying routes and locations based on the hazard(s).
- ☐ Consider identifying routes and locations based on the condition of the infrastructure.