



SAFETY HAZARDS IN NAPA COUNTY

Like many places in California, unincorporated Napa County is subject to a variety of potential safety hazards. Some derive from the natural environment; others result from human activities. The following discussion summarizes the safety and hazard topics relevant to Napa County.

EMERGENCY PREPAREDNESS AND EVACUATION PLANNING

Given current climate change projections, disasters including drought, severe weather, flooding, and other emergencies will likely increase in the coming years, making emergency preparedness even more important. The County has several organizations and plans that focus on how best to protect the public and the built environment in the event of disasters such as fires, earthquakes, flooding, terrorism, hazardous waste accidents, and public health emergencies. These plans, which are listed throughout the text of the full Existing Conditions Report in Appendix A (including in the Resources section), include not just disaster response, but also recovery after the disaster. Overall, the Napa County Emergency Medical Services Division of Health and Human Services oversees the emergency operations plans, called the Concept of Operations Base Plan (CONPLAN). Due to the potential for increased wildfires and flooding in Napa County and the state, and because these types of disasters require coordinated evacuations to save lives, the State of California has enacted two new laws that focus on improvement of evacuation planning. Emergency evacuation—of residents, businesses, and in particular, vulnerable communities—has become an important focus of emergency preparedness. This recently enacted legislation requires that cities and counties update their Safety Elements to identify and evaluate evacuation routes. AB 747 specifically requires that Safety Elements be updated to identify evacuation routes and assess the capacity, safety, and viability of those routes under a range of emergency scenarios. SB 99 similarly requires the agencies to identify residential developments in hazard areas that do not have at least two emergency evacuation routes. This information about emergency evacuation routes is shown in the maps found in Appendix B. These six maps identify areas and communities with only one access route, particularly in residential areas, and distances to evacuation gateways, or destinations for the three different evacuation scenarios described in Appendix B. The evacuation route analysis in this Safety Element is primarily concerned with (and plans for) wildfires as the cause of emergency evacuations. The County assumes that other natural disasters, such as flooding and earthquakes, do not require large-scale, concentrated travel over long distances or constrained time frames; response efforts related to these disasters are coordinated by the Emergency Operations Plan.

CLIMATE CHANGE

“Climate change” is defined as the significant and lasting alteration of global temperatures and weather patterns over a long period of time, caused by natural and human activity. Climate change has the potential to affect natural and human systems such as food production, water availability, public health, economic prosperity, and ecosystem biodiversity, sometimes creating or exacerbating hazards. Climate hazards include flooding, heat events, worsening air quality, wildfires, sea level rise, intensified droughts, and more. Due to its geographic location and environmental conditions, Napa County is expected to experience worsening impacts from air pollution, extreme weather, flooding, sea level rise, and wildfires. More specifically, regional air pollutants of ozone and fine particulate matter (PM_{2.5}) are of greatest concern to the county. Napa County’s valley environment makes the area particularly susceptible to the retention of pollution. Generally, agricultural activity, industrial operations, and truck traffic are the largest contributors to pollution.



- 5) Former marshlands
- 6) Fault zones

- Policy SAF-1.4:** **Perform post-disaster evaluation.** Following disasters, conduct an evaluation of redevelopment, particularly after large fires.
- Policy SAF-1.5:** **Provide for continued high level of service.** Encourage intergovernmental and regional cooperation directed toward providing for a continuing high level of public services and coordination of services during a disaster.
- Policy SAF-1.6:** **Develop intra-county evacuation routes.** The County shall cooperate with other local jurisdictions to develop intra-county evacuation routes to be used in the event of a disaster within Napa County.
- Policy SAF-1.7:** **Plan for self-sufficiency.** Planning and outreach should recognize that Napa County may be cut off from surrounding areas following a natural disaster and may need to be self-sufficient in terms of providing emergency services, information, and support to residents and businesses.
- Policy SAF-1.8:** **Support individual self-reliance.** The County supports and encourages the development of individual self-reliance in the wake of a disaster and supports and encourages individual, family, and community disaster plans. Annually, the County will distribute the Emergency Preparedness Guide to all households and businesses.
- Policy SAF-1.9:** **Assess future emergency service needs.** Prepare an assessment and projection of future emergency service as part of the county's General Plan Land Use Element Update and Master Fire Plan and ensure that future growth projections are coordinated with emergency and fire service capacity and delivery.
- Policy SAF-1.10:** **Increase workforce housing.** Support increasing the supply of workforce housing. Sufficient workforce housing will likely increase the number of Napa County's first responders living locally, allowing them to be immediately available in the event of a disaster or other emergency.
- Policy SAF-1.11:** **Update evacuation routes.** In the next update to the MJHMP, identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios.
- Note to the Reader: Please refer to the Housing Element for policy and programs related to workforce housing development and worker proximity housing programs.*
- Goal SAF-2:** The County will be prepared in the event of a disaster to protect residents and businesses from impacts and further harm, while beginning post-disaster reconstruction of facilities destroyed by hazards or natural disasters as soon as reasonable.
- Policy SAF-2.1:** **Engage the private sector in disaster response and recovery.** The County encourages the involvement of the private sector in disaster response and post-disaster recovery efforts.

DUE 6/9/2025



Policy SAF-2.7: **Address mental health in emergency planning.** Mental health interventions and programs should be considered in any updates to the county's emergency services planning process. The County should work with the Napa County Department of Health and Human Services Agency to identify persons who may require special assistance or counseling related to emergency situations, including residents and workers. To the extent the County is aware of special needs populations that require special assistance following a disaster, responders should be made aware of these populations and implement programs to reach out to them.

Policy SAF-2.8: **Increase seismic resistance for critical facilities.** Consistent with state and federal requirements, critical facilities should be provided with additional earthquake resistance and damage control to allow such facilities to remain operational after a disaster.

Policy SAF-2.9: **Disseminate emergency planning information.** The County will work with the agricultural sector and other agricultural organizations to disseminate emergency planning information to all populations affected by hazards that particularly affect the agricultural industry, such as drought, severe weather, wildfires, flooding, and disease outbreaks or pandemics.

Policy SAF-2.10: **Update evacuation planning actions.** Using the methodology and conclusions from the Emergency Planning & Evacuation analysis in Appendix B, consider including the following actions in conjunction with established fire standards when formalizing plans for potential or imminent evacuation routes:

**APPENDIX B:
SILVERADO TRAIL
LIKELY
UNAVAILABLE
DEER PARK ROAD
INSUFFICIENT
CAPACITY**

- Increase capacity through the use of contraflow lanes or shoulders.
- Manage traffic control, including through turn restrictions and route or ramp closures, to maximize outflows from evacuation areas.
- Clear fire-induced road closures more quickly.
- Prohibit or restrict street parking on high-hazard days.
- Continually improve communication systems and implement strategies that improve disaster alerts.
- Instigate dynamic route guidance and monitoring.
- Implement phased evacuations.
- Promote reductions in vehicle volumes during evacuations, such as by encouraging households to use only one vehicle to evacuate.
- Closely monitor power issues that could affect traffic signals and slow down evacuations.

Action Item SAF-2.10a: Update municipal code and street codes for fire safety. Update municipal and street codes to utilize minimum standards of fire safety codes and measures for access/evacuation routes.

Action Item SAF-2.10b: Establish mitigation measures for evacuation routes. Establish mitigation measures and improvement plans for inadequate evacuation routes.



- Policy SAF-2.11: **Provide evacuation information to residents, businesses, and tourists.** To improve emergency preparedness, inform residents, at-risk populations, businesses, and tourists of evacuation routes, defensible space, and procedures for storing valued items or taking such items with them. Publicize shelter location once locations have been identified and secured.
- Policy SAF-2.12: **Require emergency action planning for residential care and assisted living facilities.** Require all residential care and assisted living facilities to produce an emergency action plan, to ensure that these facilities are well prepared for a disaster and have alternative access plan and evacuation routes to protect vulnerable people during a disaster.
- Policy SAF-2.13: **Require emergency action planning for all critical facilities.** Require all critical facilities to produce an emergency action plan, to ensure that these facilities are well prepared for a disaster and are accessible during emergencies.
- Policy SAF-2.14: **Conduct hardening and redundancy for public safety buildings.** Conduct hardening for security and build redundant (power and other) capability into public safety buildings.
- Policy SAF-2.15: **Modify evacuation orders as appropriate for agricultural protection.** To protect agricultural resources, work with CAL FIRE to modify evacuation orders when advisable to allow farmers to reenter areas to save crops that could be lost during long-term evacuations.
- Policy SAF-2.16: **Limit development to protect life and property from dam failure and wildfires.** Review all new development proposals relative to dam failure inundation maps and areas subject to wildfire to recommend denial of or limits on development if necessary to protect life and property.
- Policy SAF-2.17: **Require dam operators to maintain regularly updated emergency action plans.** To reduce the risks of loss of life and property from dam failure, require all dam operators to maintain and regularly review and update their emergency action plans for all high and significant-hazard potential dams for Napa County.
- Policy SAF-2.18: **Prioritize capital improvements on evacuation routes in need of repair.** Prioritize capital improvements on evacuation or emergency access routes needing repair, maintenance, or replacement, especially in WUI areas.
- Action Item SAF-2.18a: **Conduct assessment of roads.** Bi-annually, conduct and document an assessment of roads typically used as evacuation routes, create a list of potential hazards that could be mitigated, and resolve those issues on a priority basis as determined by the Public Works Director and as funding allows.
- Action Item SAF-2.18b: **Emphasize assessment of evacuation routes in dense rural communities.** With regard to the assessment of evacuation routes, emphasis shall be placed on roads used for evacuation from relatively dense rural communities, such as Berryessa Estates, Berryessa Highlands, and Angwin.
- Policy SAF-2.19: **Install backup generators and/or mobile generators in public facilities.** Install backup power generators or mobile generators for fire stations, pump houses, emergency shelters, and cooling centers.



FLOODING

Goal SAF-6: Protect residents and businesses from hazards caused by flooding.

Policy SAF-6.1: **Evaluate construction in new floodplains.** New construction in floodplains shall be evaluated and placed above the established flood elevation or flood-proofed to minimize the risks of flooding and provide protection to the same level as required under the county's Floodplain Management Ordinance.

Policy SAF-6.2: **Maintain areas subject to flooding in agricultural or open spaces.** The County recognizes that agricultural open space also serves a valuable purpose in promoting safety, and that maintaining areas subject to flooding in agricultural or open space uses minimizes the impacts of flooding on homes and businesses.

Note to the Reader: Please refer to Figure SAF-3 in this Safety Element for a map of areas subject to flooding.

Policy SAF-6.3: **Review potential flood impacts for newly proposed projects in a floodway.** The review of newly proposed projects in a floodway, as mapped on the county's Flood Insurance Rate Maps (FIRM)(Figure SAF-3), shall include an evaluation of the potential flood impacts that may result from the project. This review shall be conducted in accordance with the county's FEMA-approved Floodplain Management Ordinance, incorporated herein by reference, and at minimum include an evaluation of the project's potential to affect flood levels on the Napa River; the County shall seek to mitigate any such effects to ensure that freeboard on the Napa River is maintained in the area of the Napa River-Creek Flood Protection Project.

Policy SAF-6.4: **Review development proposals with reference to dam failure.** Development proposals shall be reviewed with reference to the dam failure inundation maps in order to determine evacuation routes.

Policy SAF-6.5: **Ensure proper maintenance and repairs for dams and levees.** Dam and levee maintenance is considered by the County to be the responsibility of the owner/operator of each dam and/or levee. The County will support other agencies in their efforts to ensure that proper maintenance and repairs are accomplished.

Policy SAF-6.6: **Mitigate flood risk in areas not under protection from Measure A Flood Project.** Mitigate flood risk for flood-prone residential structures in areas not receiving direct protection from the Measure A Flood Project.

Policy SAF-6.7: **Inform property owners in inundation areas about voluntary flood insurance.** Develop a public outreach program that informs property owners within the dam or levee inundation areas about voluntary flood insurance (preferred risk policies), increasing participation in the National Flood Insurance Program.

Policy SAF-6.8: **Adopt a stream channel ordinance.** Draft and adopt a stream channel ordinance that would place responsibility for maintenance on the property owner and give Napa County enforcement power.

SAF-2.16 MAP

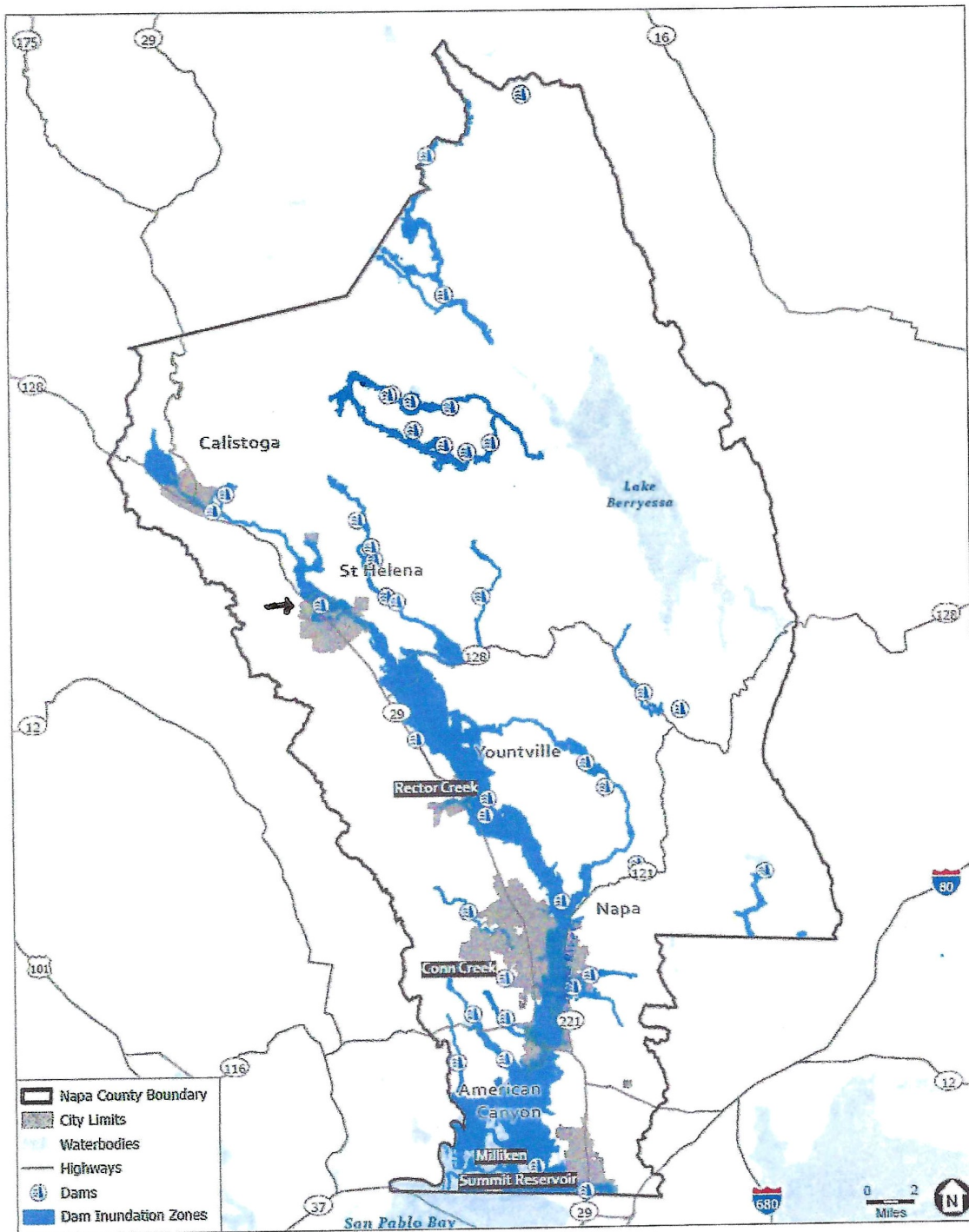


Figure 2.3-1 Napa County Dam Inundation Zones



SEVERE WEATHER

Goal SAF-9: Reduce the impacts caused by severe weather events for residents and the business community.

Policy SAF-9.1: **Provide resources to vulnerable populations.** Organize outreach to vulnerable populations, including establishing and promoting accessible shelters in the community.

Policy SAF-9.2: **Develop information campaign for 72-hour kits.** Develop a public information campaign on the details and benefits of 72-hour kits.

Policy SAF-9.3: **Procure backup generators for public meeting spaces.** Procure backup generators in the event that public meeting spaces such as community centers or town halls will be used as emergency command centers. Perform regular maintenance on generators at water treatment plants.

WILDFIRE

Goal SAF-10: Effectively manage forests and watersheds to protect homes and businesses from fire and wildfire and minimize potential losses of life and property.

Policy SAF-10.1: **Collaborate with other agencies for implementation of wildfire and hazard plans.** The County shall work with other agencies and organizations to implement the Community Wildfire Protection Plan (2021) and Multi-Jurisdictional Hazard Mitigation Plan (2020).

Policy SAF-10.2: **Maintain consistency with California codes.** Maintain consistency with California Code of Regulations Title 14 Natural Resources Division 1.5 Department of Forestry Chapter 7 - Fire Protection.

TITLE 14

Action Item SAF-10.2a: **Update municipal code per state fire protection code.** Review and update the Napa County Municipal Code as necessary to bring the code into compliance with California Code of Regulations Title 14 Natural Resources Division 1.5 Department of Forestry Chapter 7 - Fire Protection.

Policy SAF-10.3: **Coordinate with fire agencies to plan for fire prevention and suppression needs.** The County shall coordinate with CAL FIRE and fire agencies in neighboring counties to plan for future fire prevention and suppression needs, including identifying future water supply for fire suppression needs.

Policy SAF-10.4: **Minimize hazards in very high fire hazard severity zones.** Avoid or minimize new residential development in the very high fire hazard severity zone (VHFHSZ). If new development occurs within the VHFHSZs, the County will ensure the most current state and local fire regulations and codes are applied, such as the State Fire Safe Regulations, Fire Codes, Defensible Space, and the most current State Home Hardening recommendations.

**CURRENT
(4/2024) TITLE 14
COMPLIANCE
REQUIRED**

Action Item SAF-10.4a: **Create standards for development in high fire hazard severity areas.** Develop site criteria and construction standards for development in high



fire hazard severity zones and adopt standards to restrict urbanizing these areas as defined in Policy AG/LU-27 unless adequate fire services are provided.

Action Item SAF-10.4b: Implement the Community Wildfire Protection Plan. Continue to implement the Board of Supervisors–approved Napa County Community Wildfire Protection Plan (CWPP) and ensure that the CWPP is supported and maintained through regular updates. Enable and fund the Napa Communities Firewise Foundation and other community organizations to continue to implement the CWPP through information and education programs, community outreach, and fuel modification.

Note to the Reader: Please refer to the Agricultural Preservation and Land Use Element for policy related to the reconstruction of uses destroyed by fire or natural disaster.

Policy SAF-10.5: Support prescribed fuel management programs. The County supports the use of prescribed fuel management programs, including prescribed burns and brush clearing, for managing fire hazardous areas; to reduce wildfire hazard, improve watershed capabilities, promote wildlife habitat diversification, and improve grazing.

Note to the Reader: Please also refer to Policy CON-11 for related policy statements on this topic.

Policy SAF-10.6: Meet or exceed fire safety standards for Napa County buildings and roads. The County should set a good example and meet or exceed fire safety standards and defensible space requirements for all Napa County buildings and roads.

Policy SAF-10.7: Support new technology in fire suppression and prevention. The County supports the development and use of new technology in the suppression and prevention of fires.

Action Item SAF-10.7a: Develop improved methods of fire planning and firefighting. The County will work with CAL FIRE to develop improved methods of fire planning and firefighting for use in Napa County.

Policy SAF-10.8: Ensure new development complies with fire safety standards. All new development shall prepare a fire protection plan that complies with established fire safety standards. Ingress and egress will be constructed utilizing the most current State Fire Safe Regulations, Fire Code, Napa County Road and Street Standards, and/or County Code that meet these minimum requirements. Fire protection plans shall be referred to the appropriate fire agency and other public agencies for comment as to:

**CURRENT
(4/2024) TITLE 14
COMPLIANCE
REQUIRED**

1. Risk analysis
2. Location of expected water supply
3. Adequacy of water supply for new development (i.e., maintenance and long-term integrity)
4. Adequacy of fire flow (gallons per minute) to extinguish a fire at the proposed development
5. Fire response capabilities including site design for fire department access in and around structures
6. Ability for a safe and efficient fire department response



- Policy SAF-10.19: **Require fire-resilient retrofitting for care facilities.** Require care facilities (adult care, childcare) to retrofit with fire-resistant materials when upgrading, and require facilities to maintain defensible space around their structures.
- Policy SAF-10.20: **Complete vegetation management projects.** Complete vegetation management projects as prescribed in the Community Wildfire Protection Plan.
- Policy SAF-10.21: **Construct fuel breaks and roadside treatment projects.** Construct shaded fuel breaks and complete roadside treatment projects as prescribed in the Community Wildfire Protection Plan.
- Policy SAF-10.22: **Require proper addressing and signage.** All streets and homes shall have proper addressing and signage in compliance with Napa County Fire Department to assist in wildfire emergencies.
- Policy SAF-10.23: **Move utility lines underground.** Work with utility providers to move aboveground lines underground.
- Policy SAF-10.24: **Improve egress in WUI areas.** Construct or improve egress for wildfire emergencies in WUI areas.
- Policy SAF-10.25: **Coordinate implementation of farmworker wildfire education.** Coordinate with the Napa County Farm Bureau to train farmworkers and increase their situational awareness in the event of a wildfire.
- Policy SAF-10.26: **Locate public facilities outside of high fire hazard severity zones.** With the exception of fire stations, where location is based on a variety of factors, all essential public facilities shall be located outside of high fire hazard severity zones, where feasible.
- Policy SAF-10.27: **Implement fire safety and evacuation recommendations.** The County shall implement recommendations to improve fire safety and evacuation within existing subdivisions with only one point of egress, pursuant to recommendations provided by the Board of Forestry and Fire Protection resulting from AB 2911.

**CURRENT
(4/2024) TITLE 14
COMPLIANCE
REQUIRED**

Action Item SAF-10.27a: Reduce non-conforming development and improve community safety. Reduce existing non-conforming development in the State Responsibility Area (SRA) and Very High Fire Hazard Severity Zones (VHFHSZ) by working with public and private landowners and agencies to bring properties and roads into compliance with minimum fire safety standards, including, but not limited to, meeting minimum road width standards, establishing secondary egress, and meeting vegetation requirements. Additionally, improve community safety in the SRA and VHFHSZ zones by installing reflective signage for addresses and evacuation routes, limiting street parking along narrow sections of roads during red flag warnings or high fire danger conditions, and conducting community-wide evacuation drills.



APPENDIX B
**NAPA COUNTY SAFETY ELEMENT
AB 747 EMERGENCY EVACUATION
ASSESSMENT**

Draft Memorandum

Date: April 6, 2022

To: Hillary Gitelman, Mary Laux, and Jillian Feyk-Miney, Environmental Science Associates
Trevor Hawkes, County of Napa

From: Ian Barnes, Terence Zhao, and Grace Chen, Fehr & Peers

Subject: County of Napa AB 747 Emergency Evacuation Assessment

WC21-3826

Fehr & Peers has completed a general, programmatic assessment of emergency evacuation routes for the County of Napa. This assessment is consistent with Assembly Bill 747 (AB 747) and Senate Bill 99 (SB 99) requirements.

This document is intended to provide an assessment of roadway capacity under the described scenarios and should not be considered an evacuation plan. Please note that emergency evacuation can occur due to any number of events. Additionally, wildfire movement in particular is unpredictable as is individual behavior related to evacuation events. As such, this assessment is intended to provide the County with a broad "planning level" assessment of the capacity of the transportation system during an evacuation scenario; it does not provide guarantees as to the adequacy of the system nor can it guarantee that the findings are applicable to any or all situations.

Moreover, as emergency evacuation assessment is an emerging field, there is no established standard methodology. We have adopted existing methodologies in transportation planning that, in our knowledge and experience, we believe are the most appropriate. Nevertheless, such methodologies are necessarily also limited by the budgetary and time constraints in our scope of work, and by the current state of our knowledge.

The County should take care in planning and implementing any potential evacuation scenario and that this assessment should help the County better prepare for those events. We would be happy to conduct additional analyses in further detail, analyzing different scenarios, and employing other methodologies if desired. However, in no way can Fehr & Peers guarantee the efficacy of

Evacuation Routes and Gateways

Roadways with Capacity Constraints

As part of our conversations, Fehr & Peers and County staff also identified the following roadways to be unsuitable for general evacuation planning purposes:

- Berryessa-Knoxville Road / Morgan Valley Road
- Dry Creek Road / Trinity Road
- Oakville Grade
- Spring Mountain Road / Saint Helena Road
- Duhig Road / Ramal Road

These roadways were not considered as potential gateway links or routes for general evacuation in the AB 747 analysis.

Moreover, this analysis assumes that in scenarios 2 and 3, where residents from northern parts of the County must evacuate south to either Yountville or the City of Napa, State Route 29 will be the only available north-south route on the valley floor. Silverado Trail is situated close to the foothills and lies in a historic fire zone. In a historic fire scenario as represented in scenario 2 and 3, it is likely to be closed and unavailable for evacuation use due to fire conditions. Should Silverado Trail remain open during an evacuation event, it can supplement State Route 29 to provide additional north-south capacity.

Evacuation Routes and Gateways

A critical factor in the success of an evacuation is how long it takes all evacuees to clear an area under threat. Conceptually, the time it takes to evacuate a given area is fundamentally constrained by key capacity constraints along the roadway system, otherwise known as "bottlenecks". Note that multiple bottlenecks may be present over the course of an evacuation route, and the high-level programmatic analysis in this assessment only considers a limited number of regional bottlenecks, which are selected after the segments noted above were excluded.

Routes to their respective evacuation destinations were identified for each of the eight evacuation zones being analyzed. For each zone, a roadway link from the Solano Napa Activity-Based Model (SNABM) that represents the bottleneck segment on its evacuation route was identified as its "evacuation gateway." For example, in scenario 1, Deer Park Road between Angwin and State Route 29 is considered the evacuation gateway for Angwin, as it is the sole egress for all evacuees from Angwin heading to Saint Helena. The list of evacuation gateways and their capacities are shown in **Table 3**.

SILVERADO TRAIL:

Likely unavailable for evacuations

The roadway capacities presented in **Table 3** and used by this analysis are based on those found in the Solano Napa Activity-Based Model (SNABM), with some modifications made to account for perceived discrepancies with current real-world conditions under normal operating conditions. This assessment conservatively assumes that roadway capacities during evacuation events will be as they are in normal conditions, and not be increased by measures such as the implementation of contraflow lanes.

Table 3: Total Outbound Capacity of Evacuation Gateway Links

Roadway Name	Outbound Lanes	Total Outbound Capacity (vehicles per hour)
1. Deer Park Road (between Angwin and State Route 29 at Saint Helena)	1	900
2. State Route 29 (between Saint Helena and Yountville)	1	1,600
3. State Route 29 (between Yountville and Salvador)	2	2,800
4. Snell Valley Road/Butts Canyon Road/Pope Valley Road (between Berryessa Estates and Howell Mountain Road)	1	900
5. Howell Mountain Road (between Snell Valley Road and Angwin)	1	900
6. Berryessa Knoxville Road (between Spanish Flat and State Route 128)	1	900
7. State Route 128 (between Berryessa Knoxville Road and State Route 121)	1	900
8. State Route 121 (between Berryessa Highlands and Wooden Valley Road)	1	1,600
9. State Route 128 (between Calistoga and Napa County Line)	1	1,600
10. State Route 128 (between Napa County Line and Geyserville)	1	1,050
11. State Route 121 (between Vichy Avenue and Silverado Trail)	1	1,000

Source: Sonoma-Napa Activity-Based Model 2040, American Community Survey 2015-19

SILVERADO TRAIL:
Not included in the Outbound Capacity Evacuation Gateway Link List, deemed "likely unavailable" on page 7.

DEER PARK ROAD:
Only 900 vehicles / hour outbound capacity for all of Angwin.

Table 4 presents the evacuation gateway links and the zones each gateway is associated with for each scenario – note that evacuation gateways can be associated with multiple zones that must use it to evacuate; similarly, depending on the evacuation scenario, an evacuation zone can be associated with multiple evacuation gateways if the evacuation route from that zone passes through multiple gateways to reach its evacuation destination. The table also shows the combined number of households and vehicle demand for all zones associated with each evacuation gateway.

Each evacuation gateway has a fixed capacity (usually noted in vehicles per hour), and dividing the gateway capacity into the total evacuation vehicle demand yields the time it takes for all