

# [JURISDICTION] CATASTROPHIC EARTHQUAKE MASS TRANSPORTATION/ EVACUATION PLAN



MASS TRANSPORTATION/  
EVACUATION

[Insert  
Jurisdiction  
Logo]

Workshop Manual

[Date]

*This Workshop Manual provides participants with background information and discussion items to be used during the workshop. This Workshop Manual is intended to be used together with [Jurisdiction] Catastrophic Earthquake Mass Transportation/Evacuation Plan. All workshop participants may view the Workshop Manual.*

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## How to use this template

This document is a template to assist Emergency Management staff in facilitating a Discussion-Based Workshop (Workshop) to familiarize their jurisdiction's agencies with their local government Catastrophic Earthquake Mass Transportation/Evacuation (MTE Plan). To help achieve the objectives involved in a coordinated Emergency Operations Center (EOC) transportation and evacuation response, a Workshop can be used to validate and confirm the various roles and responsibilities defined in the MTE Plan. Notes taken during the Workshop can provide recommendations of updates to the plan and of future planning efforts.

To coordinate a Workshop, a jurisdiction should:

- Identify the stakeholders (agencies with a role or responsibility) in the MTE Plan
- For mass transportation and evacuation, invitations should be considered for representatives from:
  - Law Enforcement
  - Public Works
  - Transit authority
  - Transit agencies (including paratransit agencies)
  - General Services Department
  - Social Services
  - Airports
  - Port operators
  - Railroad operators
- Establish a good date for the Workshop and coordinate stakeholder invitations
- Revise the Workshop Template materials with jurisdiction specific information
- Provide, at minimum, a Workshop facilitator and scribe (for discussion notes)

Upon completion of the Workshop, a jurisdiction should:

- Develop an After Action Report/Workshop Summary Report that captures observations made during the workshop and identifies recommendations for future action and follow up
  - When possible, identify a timeline for addressing each recommendation
- Revise the MTE Plan based upon the Workshop discussions and After Action Report/Summary Workshop Report
- Exercise the plan through a Tabletop Exercise, Functional Exercise or Full-Scale Exercise
- Adopt the MTE Plan per the jurisdiction's protocols

The **blue** font in this Workshop Manual Template represents either instructional language providing guidance to the Manual developer, or blanks for where tailored information should be entered. Words or phrases in black font target information that may be left unmodified; however, any sections, phrases or words in this template can be revised as needed by the jurisdiction.



# Administrative Handling Instructions

1. The title of this document is the *[Jurisdiction] Catastrophic Earthquake Mass Transportation/Evacuation Plan Workshop Manual*.
2. This document should be safeguarded, handled, transmitted, and stored in accordance with appropriate security directives. **Note: This Instruction should be tailored to fit the requirements of the jurisdiction.**
3. For more information on this workshop, please use the following points of contact:

**[Agency Name]**  
[Name of Contact]  
[Title/Position]  
[Street Address]  
[City, CA, Zip Code]  
[XXX-XXX-XXXX]  
[Email Address]

**[Agency Name]**  
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[City, CA, Zip Code]  
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## Acronyms

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Use this section to define any additional acronyms used in the manual. Below is a list of examples.

|                |   |
|----------------|---|
| Cal OES .....  | California Governor's Office of Emergency Services                          |
| E .....        | Event (occurrence of the scenario disaster)                                 |
| EOC .....      | Emergency Operations Center   |
| FEMA .....     | Federal Emergency Management Agency   |
| HAZUS .....    | Hazards U.S. (modeling software used to project damage from a given event)  |
| <b>M</b> ..... | moment magnitude  |
| MM .....       | Modified Mercalli   |
| MTC .....      | Metropolitan Transportation Commission                                      |
| MTE Plan ..... | Mass Transportation/Evacuation Plan   |
| Plan .....     | [Jurisdiction] Catastrophic Earthquake Mass Transportation/ Evacuation Plan |
| RCPGP .....    | Regional Catastrophic Preparedness Grant Program                            |
| UASI .....     | Urban Areas Security Initiative   |
| Workshop ..... | Discussion-Based Workshop   |

# Workshop Agenda – [Enter Date(s) of Workshop]

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Note: The times in the schedule below are included as an example. Start times and the length of discussion for each Module can be adjusted to fit the needs of the jurisdiction

**8:30 a.m. Registration**

**9:00 a.m. Introduction**

- Introductions
- Housekeeping/Logistics
- Workshop Overview

**9:15 a.m. Module 1: Overview of the [Jurisdiction] Catastrophic Earthquake Mass Transportation/Evacuation Plan**

- Plan Overview
- Scenario
- Mass Transportation/Evacuation Assumptions

**9:45 a.m. Module 2: Objective 1 – Roles and Responsibilities**

**11:00a.m. Module 3: Objective 2 – Coordination and Communication**

**12:15 p.m. (Working Lunch)**

Note: Having a “working lunch” is optional.

**12:45p.m. Module 4: Objective 3 – Operations**

**1:45 p.m. Module 5: Review and Findings**

- Reviewed Concepts
- Strengths
- Identified Gaps or Areas for Improvement
- Next Steps

**2:15 p.m. Participant Feedback**

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# Introduction

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## Workshop Purpose

The Bay Area Urban Areas Security Initiative (UASI) has implemented Regional Catastrophic Preparedness Grant Program (RCPGP) funds to develop plans in the following functional areas: Mass Fatality, Debris Removal, Mass Care and Sheltering, Mass Transportation/ Evacuation, Interim Housing, Volunteer Management, Donations Management and Logistics. For each functional area a Regional Plan has been developed, as well as Operational Area plans for the 12 Bay Area region counties and local government plans for two core cities (jurisdictions include Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties and the cities of Oakland and San Jose).

This workshop serves to conduct a systematic review of the [Jurisdiction] Catastrophic Earthquake Mass Transportation/Evacuation Plan (Plan).

The workshop has three purposes:

1. To familiarize workshop participants with critical elements discussed in the Plan
2. To review and/or evaluate critical elements and concepts presented in the Plan
3. To identify gaps and areas for improvement for Plan revisions and future planning efforts

## Workshop Scope

**Note:** the following scope is here as an example and can be edited by the jurisdiction to reduce or expand the scope of the workshop.

The scope of this workshop includes an evaluation of the roles and responsibilities, coordination and communication, and operations described in the Plan. The workshop will be based on a response to the scenario event: a moment magnitude (**M**) 7.9 earthquake on the northern segment of the San Andreas fault. The workshop will not unfold chronologically; rather, it will examine key operational concepts and build from them to satisfy the Workshop Objectives.

## Workshop Objectives

The objectives of this workshop are to accomplish the following through participant inputs and discussion:

1. Evaluate the roles and responsibilities identified in the Plan and verify that the list is accurate and inclusive of all agencies relevant to the Plan.
2. Evaluate the methods described for coordination and communication among local, State, and Federal government agencies.

3. Evaluate that the operations section of the Plan is effective at accurately describing all the critical issues relevant to the Plan.

## Workshop Process and Structure

This workshop will be an interactive, facilitated discussion, organized by modules, and aimed at evaluating key elements of the Plan. The workshop modules will not be presented chronologically to mirror the scenario event; rather, they will support objectives that were formulated to verify accuracy and consistency of the Plan and the operational elements necessary to carry out are mass transportation/evacuation in the Jurisdiction.

[Insert a description of how the workshop will be facilitated. If you plan to use break-out sessions and/or facilitators for different tables, describe that here. Example text follows].

Participants will be grouped according to Emergency Operations Center (EOC) Sections (the section in which they are or would most likely be assigned to) and will engage in a facilitated discussion about critical elements of the plan. After these smaller group discussions, participants will engage in a moderated plenary discussion in which a spokesperson from each group will present a synopsis of the group's observations/discoveries based on the scenario.

OR

The workshop discussion will occur as a plenary session. A facilitator will guide the group in a discussion about critical elements of the plan.

[The structure of the workshop can be changed based on how the facilitation team determines it will be best to achieve the objectives for the workshop. The structure below is one example].

The workshop structure is designed to support a systematic review of the Plan by the participants, who are mass transportation/evacuation experts, as they analyze the Plan and then provide recommended revisions.

- **Module 1:** Overview of the [Jurisdiction] Catastrophic Earthquake Mass Transportation/Evacuation Plan
- **Module 2:** Objective 1 – Roles and Responsibilities
- **Module 3:** Objective 2 – Coordination and Communication
- **Module 4:** Objective 3 - Operations
- **Module 5:** Review and Findings

Participants will be introduced to Objectives and Discussion Points that support those objectives. They will be asked to respond to facilitated questions and provide comments on Plan content when issues arise. The workshop will conclude with a summary of reviewed concepts, strengths, gaps and areas for improvement, and next steps.



## Workshop Guidelines

The following guidelines apply during the workshop: **Note: these guidelines can be modified by the jurisdiction. For example, if a jurisdiction wants to evaluate the assumptions derived from the HAZUS analysis, they can do so.**

- The primary goal of the workshop forum is to ensure that the coordination, resource-requesting, and decision-making processes are accurately described.
- Emphasis for this workshop is on identifying potential inaccuracies or gaps and resolving them using facilitated discussion among stakeholders.
- Issue identification is not as valuable as suggestions and recommended actions that could improve response and preparedness efforts. Developing solutions should be the focus of participants.
- The ability to evaluate the content of the Plan depends on thoughtful input from participants.
- Participants are encouraged to participate based on their knowledge of existing plans and capabilities and insights as well as from their review of the Plan.
- Decisions are not precedent-setting and may not reflect the final position of individual participants' organization on a given issue. The workshop is an opportunity to present and discuss multiple options and possible solutions.
- During the response, cooperation and support from other responders and agencies is assumed.
- The scenario, objectives, and assumptions serve as the basis for discussion.
- The workshop is designed to evaluate elements in the Plan, not to validate the scenario or the Hazards U.S. (HAZUS) software estimates used to develop some of the assumptions.

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# Module 1: Overview of the [Jurisdiction] Mass Transportation/Evacuation Plan

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## Plan Overview

The Plan describes [Jurisdiction] mass transportation/evacuation operations in response to the earthquake. The response is limited to the timeline under which response and recovery operations can be implemented practicably in the Jurisdiction, and for this Plan, extends to 60 days after the event.

This Plan does not address the evacuation of the entire Jurisdiction. Evacuations may involve thousands of people across the Jurisdiction during the response to the earthquake. This Plan addresses evacuation operations only for those who need to use mass transportation resources to evacuate in response to the earthquake. The Plan recognizes that evacuation requirements will vary over time and geographically across the Jurisdiction and that the capability to return evacuees will occur as conditions permit in specific areas.

The purpose of the Plan is to provide a guide for :

- Coordinating the use of mass transportation resources in operations that are needed to support evacuation of populations affected by the earthquake
- Using the same resources to move emergency service workers into the [City or Operational Area](#)

Objectives for the Plan are to:

- Project the catastrophic impacts of the earthquake
- Define planning assumptions
- Identify overarching priorities
- Identify time-based objectives to guide response operations
- Identify the appropriate authority to declare a coordinated evacuation within the [City or Operational Area](#)
- Identify agencies with a role in mass transportation/evacuation operations and define their roles
- Establish a clear system of coordination among agencies and levels of government
- Describe resources required for mass transportation/evacuation operations and mechanisms for integrating outside resources
- Establish a response timeline for mass transportation/evacuation operations, including movement of emergency service workers into the [City or Operational Area](#)

The Plan comprises a primary text and 6 appendices. [Note: In the section below provide a description for how the Plan is structured. The description here is an example and may not represent exactly how your jurisdiction's plan is organized.](#) The appendices are as follows:

- **Appendix A** is a glossary of acronyms, abbreviations, and key terms.
- **Appendix B** contains the maps that are referenced in the Plan.
- **Appendix C** is a critical information collection plan for transportation operations.
- **Appendix D** contains guidance for the dissemination of public information.
- **Appendix E** contains additional relevant information, such as transit agencies in the region.
- **Appendix F** contains the assumptions related to infrastructure damage from a catastrophic earthquake on the Hayward fault.

The sections below provide the specific impacts associated with the scenario event, and the assumptions made about mass transportation/evacuation operations based on the scenario.

## Scenario

The scenario event is an **M** 7.9 earthquake on the northern segment of the San Andreas fault. The basis for the scenario is a Hazards U.S. (HAZUS) analysis<sup>1</sup> performed by the Earthquake Engineering Research Institute, with support from the U.S. Geological Survey and the California Governor’s Office of Emergency Services (Cal OES), beginning in 2005 and modified in 2009 by URS Corporation for the RCPGP.

*Note: the scenario impacts listed below are from the Regional Plan. Your jurisdiction may wish to use the local impacts for your jurisdiction in lieu of these. The most important impact to include here would be the number of people needing evacuation assistance. Keep in mind, that awareness of the impacts of neighboring jurisdictions is useful in understanding the full context of the scenario event.*

Some of the initial impacts, to the region, of the earthquake scenario projected by HAZUS analysis are (the following tables are from the Regional Catastrophic Earthquake Mass Transportation/Evacuation Plan, tables that provide information for just your jurisdiction and the region as a whole can be found in your jurisdiction specific plan should you prefer to use those):

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<sup>1</sup> HAZUS is a loss estimation software program that was developed by the National Institute of Building Sciences (NIBS) for FEMA. The version used for this analysis (HAZUS MR3) was developed by NIBS in 2003.

**Table 1.** Number of households without potable water after the scenario earthquake (MTE Plan Table 2-1).

| County        | Total Households | Households without Potable Water Post-Earthquake |                  |                  |                |
|---------------|------------------|--|------------------|------------------|----------------|
|               |                  | E+24 Hours                                       | E+72 Hours       | E+7 Days         | E+30 Days      |
| Alameda       | 564,200          | 465,000  | 459,800          | 448,200          | 341,800        |
| Contra Costa  | 384,600          | 105,700  | 85,700           | 45,600           | N/A            |
| Marin         | 105,300          | 56,300   | 48,600           | 29,300           | N/A            |
| Monterey      | 130,300          | N/A  | N/A              | N/A              | N/A            |
| Napa          | 50,300           | 3,900  | <100             | 0                | 0              |
| San Benito    | 17,300           | N/A  | N/A              | N/A              | N/A            |
| San Francisco | 358,900          | 340,100  | 336,400          | 326,100          | N/A            |
| San Mateo     | 268,000          | 236,900  | 234,300          | 228,100          | 149,700        |
| Santa Clara   | 624,700          | 516,800  | 512,300          | 502,700          | 423,100        |
| Santa Cruz    | 95,800           | 16,100   | 6,500            | <100             | <100           |
| Solano        | 140,900          | 12,500   | 3,700            | <100             | <100           |
| Sonoma        | 182,900          | 87,800   | 81,900           | 69,100           | <100           |
| <b>Total</b>  | <b>2,923,200</b> | <b>1,841,100</b>                                 | <b>1,769,200</b> | <b>1,649,400</b> | <b>914,900</b> |

Source: HAZUS analysis conducted by URS in 2009. The estimates were adjusted, by county, for population increases since 2000.

E = scenario event

N/A = Not available (HAZUS results are unreliable)

**Table 2.** Number of households without electricity after the scenario earthquake (MTE Plan Table 2-2).

| County        | Total Households | Households without Electricity Post-Earthquake |                |                |               |
|---------------|------------------|--|----------------|----------------|---------------|
|               |                  | E+24 Hours                                     | E+72 Hours     | E+7 Days       | E+30 Days     |
| Alameda       | 564,200          | 23,600   | 13,700         | 5,400          | 1,200         |
| Contra Costa  | 384,600          | 15,400   | 9,300          | 3,700          | 800           |
| Marin         | 105,300          | 3,700  | 2,400          | 1,100          | 200           |
| Monterey      | 130,300          | N/A  | N/A            | N/A            | N/A           |
| Napa          | 50,300           | 2,000  | 1,200          | 500            | 100           |
| San Benito    | 17,300           | N/A  | N/A            | N/A            | N/A           |
| San Francisco | 358,900          | 253,900  | 161,300        | 73,100         | 18,300        |
| San Mateo     | 268,000          | 100,100  | 62,800         | 27,900         | 6,800         |
| Santa Clara   | 624,700          | 57,100   | 34,300         | 14,400         | 3,400         |
| Santa Cruz    | 95,800           | 15,500   | 9,600          | 3,900          | 800           |
| Solano        | 140,900          | 5,600  | 3,200          | 1,400          | 300           |
| Sonoma        | 182,900          | 60,000   | 40,400         | 19,700         | 5,000         |
| <b>Total</b>  | <b>2,923,200</b> | <b>536,900</b>                                 | <b>338,200</b> | <b>151,100</b> | <b>36,900</b> |

Source: HAZUS analysis conducted by URS in 2009. The estimates are adjusted, by county, for population increase since the year 2000. For Contra Costa, Napa, and Solano counties, the power loss is not accurately represented in HAZUS and is an average of losses for Alameda and Marin counties. HAZUS does not provide reliable results for Monterey and San Benito counties, but it can be assumed that there will be some power loss in these counties.

E = scenario event

N/A = Not available (HAZUS results are unreliable)

**Table 3.** Expected functionality of Caltrans Lifeline routes after the earthquake (MTE Plan Table 2-3).

| Route    | Segment                            | Location  | Functionality Immediately after the Scenario Event   |  |
|----------|------------------------------------|---|--|--|
|          |                                    |   | Roadways   | Bridges  |
| SR 24    | Contra Costa County                | From Interstate I-680 in Walnut Creek to SR 13/I-580 in Oakland | <ul style="list-style-type: none"> <li>• High</li> <li>• Caldecott Tunnel: Low</li> </ul>  | <ul style="list-style-type: none"> <li>• Low to high</li> </ul>  |
| SR 24    | Alameda County                     | From I-680 in Walnut Creek to SR 13/I-580 in Oakland            | <ul style="list-style-type: none"> <li>• Low</li> </ul>  | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| I-80     | San Francisco and Alameda counties | From U.S. 101 in San Francisco to I-580 in Oakland              | <ul style="list-style-type: none"> <li>• Low to high (San Francisco side)</li> <li>• Low (Oakland side)</li> </ul>   | <ul style="list-style-type: none"> <li>• San Francisco–Oakland Bay Bridge (Bay Bridge): High</li> <li>• Bay Bridge approaches: Low</li> </ul>        |
| I-80     | Solano County                      | From I-780 in Vallejo to the Nevada state border                | <ul style="list-style-type: none"> <li>• High</li> </ul>   | <ul style="list-style-type: none"> <li>• Low (Vallejo)</li> <li>• Low to high (North of Vallejo to Solano county line)</li> </ul>                    |
| SR 92    | San Mateo County                   | From U.S. 101 to I-280  | <ul style="list-style-type: none"> <li>• High</li> </ul>   | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| U.S. 101 | Monterey County                    | From SR 170 in Los Angeles to I-280 in San Jose                 | <ul style="list-style-type: none"> <li>• High</li> </ul>   | <ul style="list-style-type: none"> <li>• Low (Salinas)</li> <li>• Medium to high (remainder of county)</li> </ul>                                    |
| U.S. 101 | San Jose–San Benito County         | From SR 170 in Los Angeles to I-280                             | <ul style="list-style-type: none"> <li>• High</li> </ul>   | <ul style="list-style-type: none"> <li>• Mainly high</li> </ul>  |
| U.S. 101 | San Jose–Santa Clara County        | From SR 170 in Los Angeles to I-280                             | <ul style="list-style-type: none"> <li>• Medium (south of San Jose to county line)</li> <li>• Low (San Jose)</li> </ul>  | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| U.S. 101 | San Francisco                      | From I-280 to I-80  | <ul style="list-style-type: none"> <li>• Medium</li> </ul>   | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| U.S. 101 | Del Norte County–Marin County      | From the Golden Gate Bridge in Marin County to U.S. 199         | <ul style="list-style-type: none"> <li>• Medium to high (north of Golden Gate Bridge to SR 1)</li> <li>• Low (SR 1 to Novato)</li> <li>• High (Novato to county line)</li> </ul> | <ul style="list-style-type: none"> <li>• Medium to high (north of Golden Gate Bridge to SR 1)</li> <li>• Mainly low (SR 1 to county line)</li> </ul> |
| U.S. 101 | Del Norte County–Sonoma County     | From the Golden Gate Bridge in Marin County to U.S. 199         | <ul style="list-style-type: none"> <li>• Low to medium (southern County Line to Santa Rosa)</li> <li>• High (Santa Rosa to county line–north)</li> </ul>                         | <ul style="list-style-type: none"> <li>• Low (southern County Line to SR 128)</li> <li>• Low to high (SR 128 to county line–north)</li> </ul>        |

**Table 3.** Expected functionality of Caltrans Lifeline routes after the earthquake (MTE Plan Table 2-3).

| Route                              | Segment                              | Location  | Functionality Immediately after the Scenario Event   |  |
|------------------------------------|--------------------------------------|---|--|--|
|                                    |                                      |   | Roadways   | Bridges  |
| SR 12<br>SR 29<br>SR 116<br>SR 121 | Sonoma County                        | From U.S. 101 in Petaluma through Napa to I-80 in Solano County | <ul style="list-style-type: none"> <li>• High</li> </ul>   | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| SR 12<br>SR 29<br>SR 116<br>SR 121 | Solano County–<br>Napa County        | From U.S. 101 in Petaluma through Napa to I-80                  | <ul style="list-style-type: none"> <li>• Low (western County Line to American Canyon)</li> <li>• High (American Canyon to southern County Line and eastern County Line)</li> </ul> | <ul style="list-style-type: none"> <li>• Low to medium</li> </ul>  |
| SR 12<br>SR 29<br>SR 116<br>SR 121 | Sonoma County–<br>Solano County      | From U.S.101 in Petaluma through Napa to I-80                   | <ul style="list-style-type: none"> <li>• High</li> </ul>   | <ul style="list-style-type: none"> <li>• Medium</li> </ul>   |
| I-280                              | San Francisco–<br>Santa Clara County | From U.S. 101 in San Jose to U.S. 101 in San Francisco          | <ul style="list-style-type: none"> <li>• Low</li> </ul>  | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| I-280                              | San Francisco–<br>San Mateo County   | From U.S.101 in San Jose to U.S. 101                            | <ul style="list-style-type: none"> <li>• Medium</li> </ul>   | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| I-280                              | San Francisco                        | From U.S. 101 in San Jose to U.S. 101 in San Francisco          | <ul style="list-style-type: none"> <li>• Medium</li> </ul>   | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| I-238<br>SR 580                    | Alameda County                       | From I-880 in Alameda County east to I-5                        | <ul style="list-style-type: none"> <li>• High</li> </ul>   | <ul style="list-style-type: none"> <li>• Low to high (San Leandro to Castro Valley)</li> <li>• High (Castro Valley to Pleasanton)</li> <li>• Low to high (Pleasanton to Livermore)</li> <li>• Medium to high (Livermore to eastern county line)</li> </ul> |
| I-238<br>I-580                     | Alameda County                       | From I-80 to SR 24  | <ul style="list-style-type: none"> <li>• Low</li> </ul>  | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |
| I-680                              | Benicia–<br>Santa Clara County       | From I-280 in San Jose to I-780                                 | <ul style="list-style-type: none"> <li>• Medium</li> </ul>   | <ul style="list-style-type: none"> <li>• Low</li> </ul>  |

**Table 3.** Expected functionality of Caltrans Lifeline routes after the earthquake (MTE Plan Table 2-3).

| Route | Segment             | Location                                   | Functionality Immediately after the Scenario Event       |  |
|-------|---------------------|--|--|--|
|       |                     |  | Roadways   | Bridges  |
| I-680 | Alameda County      | From I-280 in San Jose to I-780 in Benicia | <ul style="list-style-type: none"> <li>High</li> </ul>   | <ul style="list-style-type: none"> <li>Low to medium</li> </ul>  |
| I-680 | Contra Costa County | From I-280 in San Jose to I-780 in Benicia | <ul style="list-style-type: none"> <li>High</li> </ul>   | <ul style="list-style-type: none"> <li>Low (Walnut Creek and Pleasant Hill)</li> <li>Low to high (rest of county)</li> </ul> |
| I-680 | Solano County       | From I-280 in San Jose to I-780 in Benicia | <ul style="list-style-type: none"> <li>High</li> </ul>   | <ul style="list-style-type: none"> <li>Benicia Bridge: High</li> <li>Benicia Bridge approaches: Low</li> </ul>               |
| I-780 | Solano County       | From I-680 in Benicia to I-80 in Vallejo   | <ul style="list-style-type: none"> <li>Medium</li> </ul> | <ul style="list-style-type: none"> <li>Low to high</li> </ul>  |

Source: URS analysis (2009)

I = interstate

SR = State Route

U.S. = U.S. highway

High = roadway/structure is likely usable

Medium = roadway/structure is likely to have sustained some damage and requires some repair but can be reopened in time to support evacuation efforts

Low = roadway/structure may have sustained major damaged and may be unusable until repaired

**Table 4.** Estimated number of household pet animals (other than livestock) expected to need shelter (MTE Plan Table 2-6).

| Assumption   | Number         |
|--|----------------|
| Number of displaced households   | 404,300        |
| 60% of households have animals   | 242,600        |
| 50% of households with animals have 2 or more animals  | 121,300        |
| <b>Total displaced animals</b>   | <b>363,900</b> |
| Displaced animals needing mass transportation to shelters (estimated 10% of total displaced animals) | 36,390         |

Source: CONPLAN (2008), using updated population figures from U.S. Census



Note: In order to display the range of detail in **Table 5** adequately, pages 13 and 14 are set to print on 11x17-size paper. Please adjust settings accordingly.

**Table 5.** Estimates of evacuees seeking shelter, evacuees needing mass transportation assistance, and type of vehicle in the 12-county Bay Area region from E to E+72 hours (MTE Plan Table 2-5).

| County        | Overall Population <sup>2</sup> | Seeking Shelter                 |                       |                                |                                     | Evacuees Needing Mass Transportation Assistance <sup>1</sup> |                       |                                |                                     |                | Evacuees in Mass Transit <sup>10</sup> | Evacuees in Demand Response Vehicles <sup>11</sup> |
|---------------|---------------------------------|---------------------------------|-----------------------|--------------------------------|-------------------------------------|--|-----------------------|--------------------------------|-------------------------------------|----------------|--|--|
|               |                                 | General Population <sup>3</sup> | Homeless <sup>4</sup> | Visitors/Tourists <sup>5</sup> | Inter-County Commuters <sup>6</sup> | General Population <sup>7</sup>                              | Homeless <sup>7</sup> | Visitors/Tourists <sup>8</sup> | Inter-County Commuters <sup>9</sup> | Total          |  |  |
| Alameda       | 1,556,500                       | 67,300                          | 4,000                 | 24,900                         | 206,700                             | 33,600   | 2,000                 | 12,400                         | 103,300                             | 151,300        | 121,000                                | 30,300   |
| Contra Costa  | 1,060,400                       | 12,800                          | 3,300                 | 17,000                         | 82,300                              | 6,400  | 1,600                 | 8,500                          | 41,100                              | 57,600         | 46,100                                 | 11,500   |
| Marin         | 258,600                         | 4,900                           | 1,400                 | 4,200                          | 44,300                              | 2,400  | 700                   | 2,100                          | 11,000                              | 16,200         | 13,000                                 | 3,200  |
| Monterey      | 431,900                         | 2,300                           | 1,100                 | 15,000                         | 9,200                               | 1,100  | 500                   | 7,500                          | 2,300                               | 11,400         | 9,100                                  | 2,300  |
| Napa          | 137,600                         | 2,400                           | 200                   | 2,300                          | 15,100                              | 1,200  | 100                   | 1,100                          | 3,700                               | 6,100          | 4,900                                  | 1,200  |
| San Benito    | 58,000                          | 300                             | 0                     | 1,000                          | 4,600                               | 100  | 0                     | 500                            | 1,100                               | 1,700          | 1,400                                  | 300  |
| San Francisco | 845,600                         | 64,500                          | 5,100                 | 75,000                         | 273,800                             | 32,200   | 2,500                 | 56,200                         | 205,300                             | 296,200        | 237,000                                | 59,200   |
| San Mateo     | 745,800                         | 26,000                          | 1,400                 | 11,900                         | 144,300                             | 13,000   | 700                   | 5,900                          | 72,100                              | 91,700         | 73,400                                 | 18,300   |
| Santa Clara   | 1,857,600                       | 64,700                          | 5,700                 | 42,500                         | 210,500                             | 32,300   | 2,800                 | 21,200                         | 105,200                             | 161,500        | 129,200                                | 32,300   |
| Santa Cruz    | 268,600                         | 2,900                           | 2,200                 | 7,500                          | 13,700                              | 1,400  | 1,100                 | 3,700                          | 3,400                               | 9,600          | 7,700                                  | 1,900  |
| Solano        | 426,300                         | 2,600                           | 1,600                 | 7,800                          | 16,600                              | 1,300  | 800                   | 3,900                          | 4,100                               | 10,100         | 8,100                                  | 2,000  |
| Sonoma        | 486,600                         | 9,400                           | 1,000                 | 6,900                          | 12,400                              | 4,700  | 500                   | 3,400                          | 3,100                               | 11,700         | 9,400                                  | 2,300  |
| <b>Total</b>  | <b>8,133,500</b>                | <b>260,100</b>                  | <b>27,000</b>         | <b>216,000</b>                 | <b>1,033,500</b>                    | <b>129,700</b>   | <b>13,300</b>         | <b>126,400</b>                 | <b>555,700</b>                      | <b>825,100</b> | <b>660,300</b>                         | <b>164,800</b>                                     |

Source: URS analysis (2009)

<sup>1</sup> Projected numbers for E to E+72 hours include residents seeking shelter because of immediate loss of housing but do not include residents seeking shelter because of secondary effects (e.g., lack of water, power, sewer).

<sup>2</sup> 2000 U.S. Census; updated to 2009 figures using California Department of Finance data. Includes access and functional needs populations.

<sup>3</sup> URS HAZUS analysis 2009 and county sources, 2007–2009.

<sup>4</sup> Human Services Agency in each county 2007; updated to 2009 figures using California Department of Finance data. Assumption is that 80% of homeless seek shelter.

<sup>5</sup> URS analysis using visitor totals provided by HVS Lodging Services and Monterey County Convention and Visitors Bureau.

<sup>6</sup> 2000 U.S. Census; updated to 2009 figures using California Department of Finance data.

<sup>7</sup> Assumption is that 50% of the residents/homeless seeking shelter need to use mass transportation resources.

<sup>8</sup> Assumption is that 75% of visitors in San Francisco and 50% of visitors in the rest of the counties need mass transportation to evacuate.

<sup>9</sup> Assumption is that 75% of commuters in San Francisco are from other counties, 50% of commuters in Santa Clara are from other counties,

<sup>10</sup> Assumption is that 80% of total evacuees needing transportation use regular mass transportation resources (e.g., standard transit buses) for evacuation. This includes the access and functional needs population that can access a standard transit bus.

<sup>11</sup> It is assumed that 20% of total evacuees needing transportation need demand response vehicles for evacuation. These are access and functional needs evacuees that require specialized transportation equipment.

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The characteristics of the scenario event and its impacts on the region are as follows:

1. The earthquake occurs in January on a weekday at 1400 hours Pacific Standard Time.
2. A foreshock precedes the main shock by 20 to 25 seconds. There is no other warning.
3. The main shock lasts 45 to 60 seconds.
4. The epicenter is just outside the entrance to the San Francisco Bay, west of the Golden Gate Bridge.
5. The earthquake ruptures approximately 300 miles of the northern segment of the San Andreas fault, from the San Juan Bautista area in the south to Cape Mendocino in the north.
6. Shaking is felt in Oregon to the north, Los Angeles to the south, and Nevada to the east.
7. The estimated magnitude is **M 7.9** with Modified Mercalli (MM) intensity of VIII (severe shaking/moderate to heavy damage) to IX (violent shaking/heavy damage) in widespread areas of the most severely affected counties. Pockets in the affected counties experience instrument intensity of MM X (extreme shaking/very heavy damage), particularly areas immediately adjacent to the fault and areas where liquefaction is likely to occur.
8. Ground shaking and damage occur in 19 California counties, from Monterey County in the south to Humboldt County in the north and into the San Joaquin Valley to the east.
9. Damage is catastrophic in the areas that experience shaking intensities of MM IX and X and in the areas with high or very high levels of susceptibility for liquefaction, which are the areas adjacent to the fault in Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties.
10. Counties along the fault outside the Bay Area, such as Mendocino, may sustain damage and require response.
11. Central Valley counties such as Sacramento and San Joaquin may be affected immediately by evacuations and other response actions.
12. The rest of California and the Nation are affected significantly by the need to respond; the deaths, injuries, and relocations of Bay Area residents; economic disruption; and media attention.
13. Threats and hazards resulting from shaking, surface fault rupture, and liquefaction include:
  - Structural and nonstructural damage to buildings, including widespread collapse of buildings
  - Structural and nonstructural damage to infrastructure
  - Widespread fires

- Subsidence and loss of soil-bearing capacity, particularly in areas of liquefaction
  - Displacement along the San Andreas fault
  - Widespread landslides
  - Hazardous materials spills and incidents
  - Dam/levee failure resulting in flooding
  - Civil disorder
14. Threats and hazards resulting from the main shock are aggravated or recur during aftershocks, which continue for months after the main shock.
15. The earthquake does not generate a tsunami or seiche, despite its magnitude.
16. Potable water supply systems suffer major damage because of the following:
- Extensive damage to pipelines from ground deformation
  - Interruption of pumps and treatment due to power outages
  - Damage to treatment facilities, storage facilities, and distribution infrastructure
  - Contamination of potable water systems because of damaged lines

### **Mass Transportation/Evacuation Assumptions**

Note: in this section please enter the assumptions identified in your Jurisdiction's Mass Transportation/Evacuation Plan. The assumptions are used to enhance the scenario description and provide a basis for the discussion.





# Module 2: Objective 1

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## Objective 1: Roles and Responsibilities

Objective 1 is to evaluate the roles and responsibilities identified in the Plan and verify that the list is accurate and inclusive of all agencies relevant to the Plan.

**Discussion Point 1:** Consider the Plan's consistency with the overarching emergency management plans (e.g., Emergency Operations Plan)

### Facilitation Questions:

1. Does the Plan identify all of the proper agencies and entities?
2. Is the Plan consistent with the [City or Operational Area's](#) and agencies' plans?
3. Are there any conflicts between the identified roles and agencies' expectations about their roles?

**Discussion Point 2:** Consider the needs and challenges specific to mass transportation and evacuation operations.

### Facilitation Questions:

1. What are the mass transportation/evacuation-specific issues?
2. Are these issues captured by the agencies' roles defined in the Plan?
3. Does the Plan contain sufficient guidance to direct local coordination of transportation for access and functional needs populations?

**Discussion Point 3:** Ensure effective integration across the multiple levels of government.

### Facilitation Questions:

1. Does the Plan sufficiently address relevant levels of government coordination?
2. Does the Plan sufficiently identify the means for integration, particularly with regard to command/control?
3. Should additional integration issues be addressed?

**Discussion Point 4:** Consider which private/nonprofit entities can be incorporated into mass transportation operations.

**Facilitation Questions:**

1. What additional organizations should be identified in the Plan?
2. What roles and responsibilities should they be assigned?
3. How should coordination with these entities be managed, and by whom?







# Module 3: Objective 2

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## Objective 2: Coordination and Communication

Objective 2 is to evaluate the methods described for coordination and communication among local, State, and Federal government agencies.

**Discussion Point 1:** Address the mechanisms for coordinating with neighboring jurisdictions regarding the movement of people.

### Facilitation Questions:

1. How would coordination between [Cities or Operational Areas](#) to move and receive people across jurisdictional boundaries occur?
2. What role if any does the Metropolitan Transportation Commission (MTC) play in coordinating the movement of people across jurisdictional boundaries?
3. Are there agreements between jurisdictions regarding coordinating the movement of people across jurisdictional boundaries?

**Discussion Point 2:** Address the potential for technological challenges that would need to be addressed to improve coordination.

### Facilitation Questions:

1. Are agencies able to communicate easily and effectively?
2. What challenges have arisen in the past?
3. Are available post- disaster resilient communications adequate?

**Discussion Point 3:** Consider the Critical Information List [Note: the Critical Information List is an appendix to the Plan. The following facilitation questions refer to that appendix.](#)

### Facilitation Questions:

1. Does the list identify all the correct items?
2. Is the information in the list organized in a useful manner?
3. What changes, if any, should be made to the list?





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# Module 4: Objective 3

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## Objective 3: Operations

Objective 3 is to evaluate that the operations section of the Plan is effective at accurately describing all the critical issues relevant to the Plan.

**Discussion Point 1:** Evaluate the pickup points identified in the Plan.

### Facilitation Questions:

1. Are a sufficient number of pre-identified pickup points listed for potential use?
2. Do the identified pickup points have sufficient ease of access to major transportation routes and sufficient space to serve their intended function?

**Discussion Point 2:** Evaluate the transportation routes identified in the Plan.

### Facilitation Questions:

1. Are sufficient routes identified, given the number of evacuees?
2. Are the proper routes identified, given their capacities, locations, and the likelihood of infrastructure damage?

**Discussion Point 3:** Consider the proposed timing of planned tasks and activities.

### Facilitation Questions:

1. Are operational activities identified in the proper order?
2. Are the time frames proposed for significant activities realistic?
3. Should additional activities be added to the Response Timeline?

**Discussion Point 4:** Evaluate the Plan's approach to addressing access and functional needs populations.

### Facilitation Questions:

1. Are there any additional roles/responsibilities and organizations that should be identified at the [City or Operational Area](#) level?
2. Should the Plan address any additional specific access and functional needs groups?
3. Will the Operational Area and local governments be able to coordinate door-to-door service?







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# Module 5: Review and Findings

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## 1: Reviewed Concepts

Review the critical concepts that were evaluated during the workshop discussion.

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## 2: Strengths

Identify any strengths that were discovered during the workshop.

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### 3: Identified Gaps or Areas for Improvement

Review any gaps or areas for improvement in the Plan that were identified during the workshop discussion.

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### 4: Next Steps

Note: following the workshop, the Jurisdiction should consider next steps for inclusion in the manual. Next steps may include: the development of an After Action Report/Workshop Summary Report, an After Action Meeting, additional workshops or working groups, and revisions to the Plan Use this section to detail these next steps.

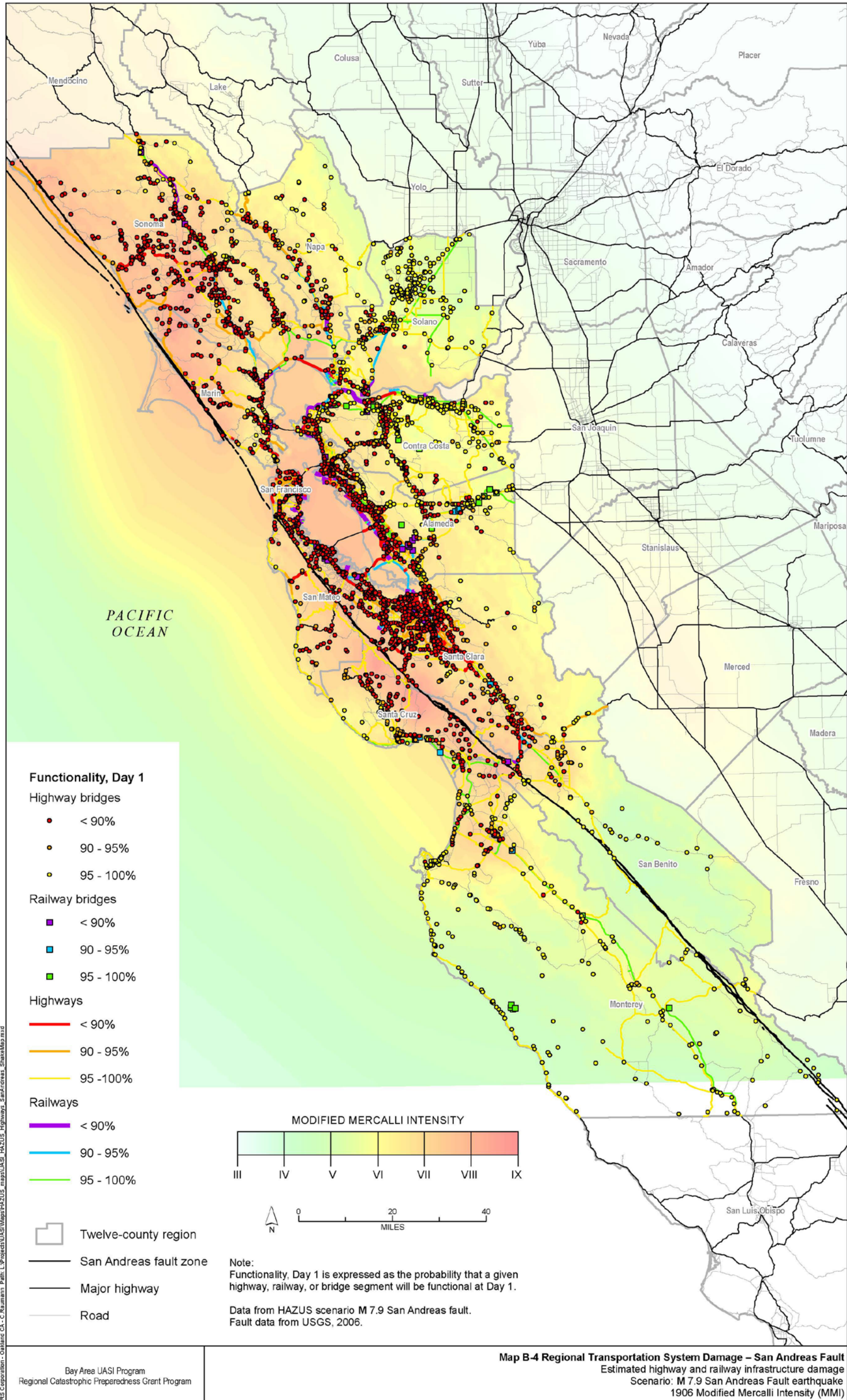
# Appendix A: Maps

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Note: In order to display the details of Map 1 adequately, pages A-1 and the following blank page have been set to print on 11x17-size paper. Please adjust settings accordingly.

**Map 1. Regional transportation system damage – San Andreas Fault**

(from the Regional Catastrophic Earthquake Logistics Response Plan – localized maps can be found in the Regional Plan [Maps B-4a – B-4l] and your Jurisdiction’s Mass Transportation/Evacuation Plan)

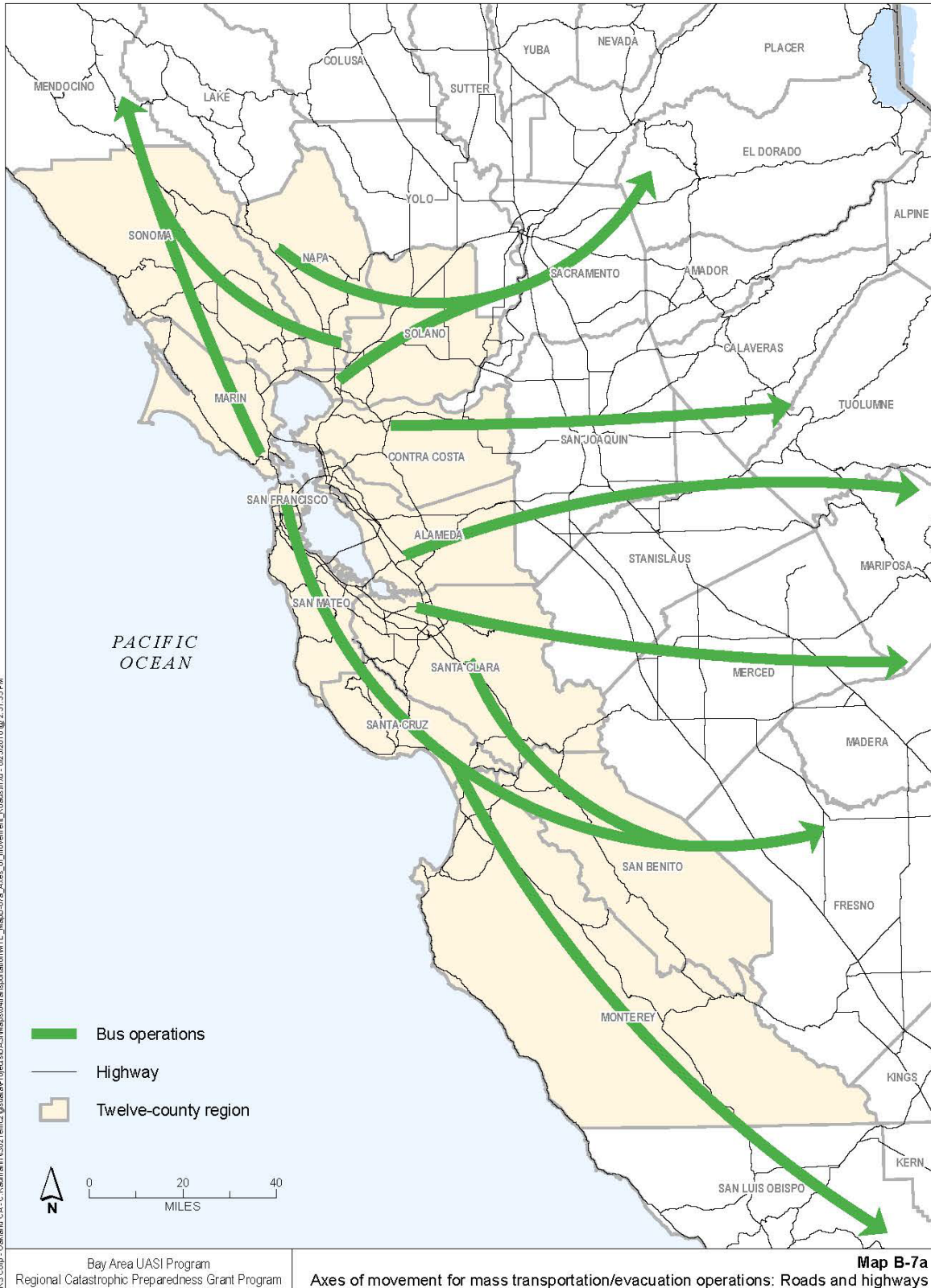


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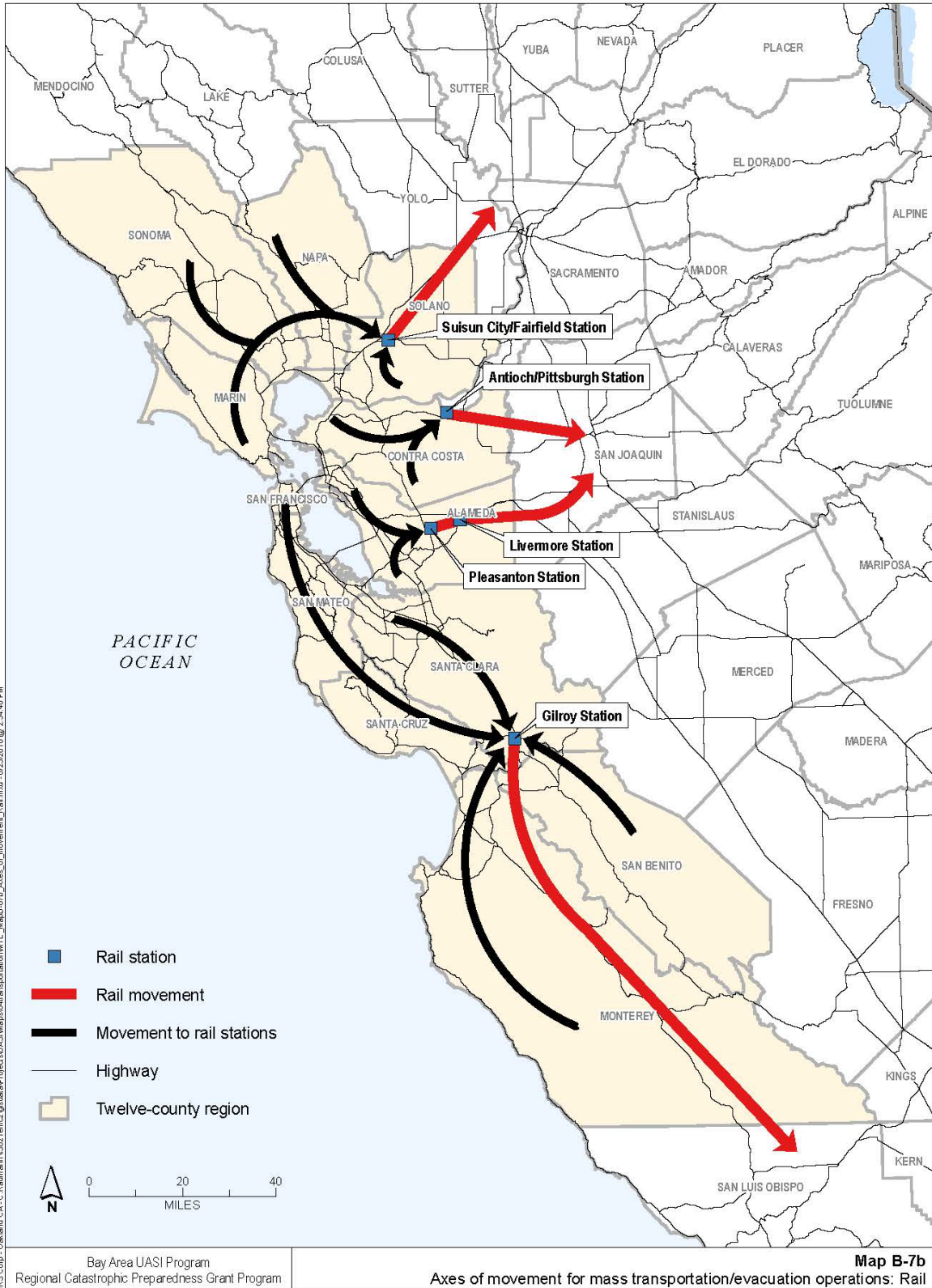


### Map 2. Axes of movement for mass transportation/evacuation operations: Roads and highways

(from the Regional Catastrophic Earthquake Mass Transportation/Evacuation Plan)



**Map 3. Axes of movement for mass transportation/evacuation operations: Rail**  
 (from the Regional Catastrophic Earthquake Mass Transportation/Evacuation Plan)

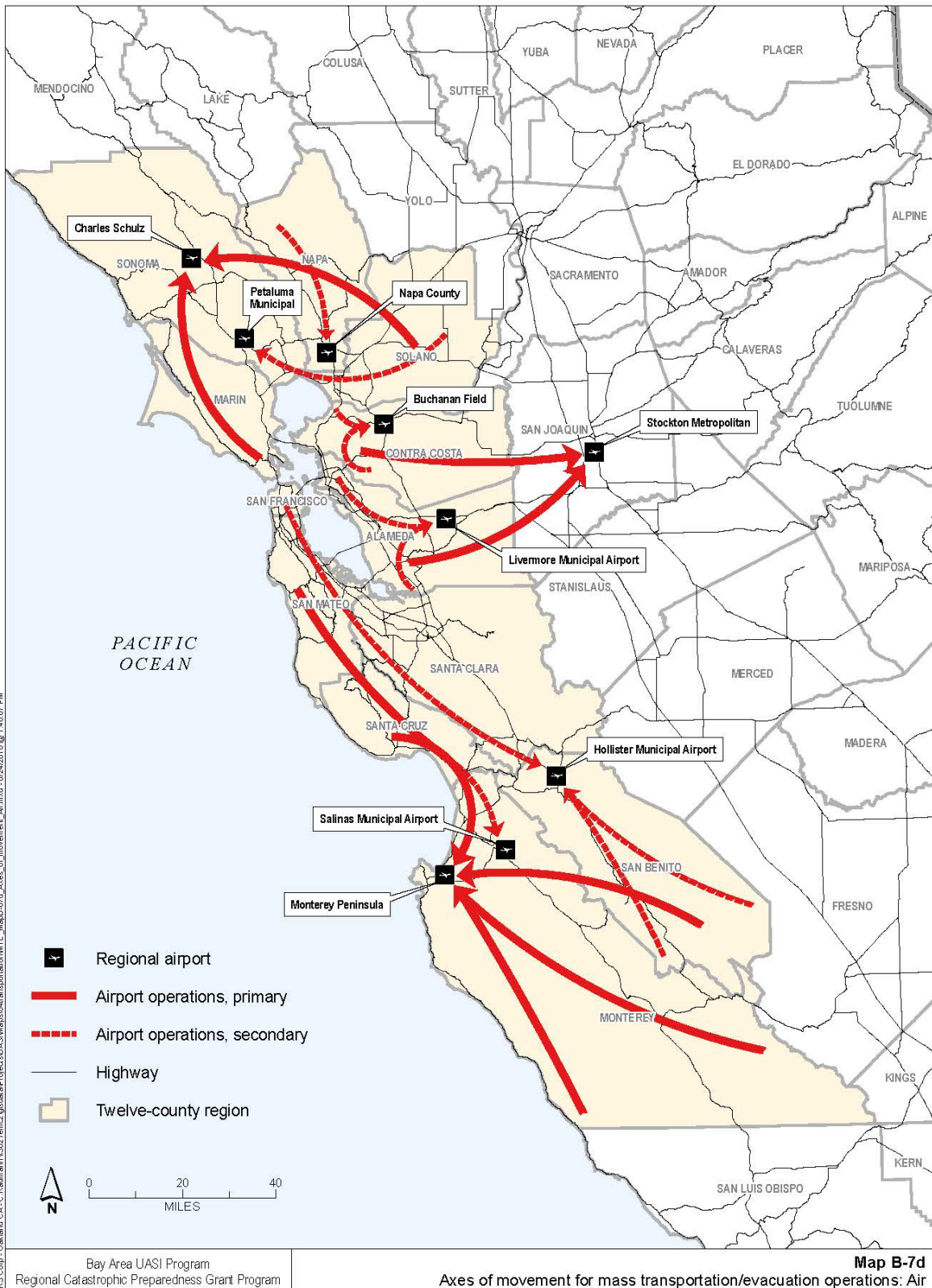


**Map 4. Axes of movement for mass transportation/evacuation operations: Ferry**  
(from the Regional Catastrophic Earthquake Mass Transportation/Evacuation Plan)



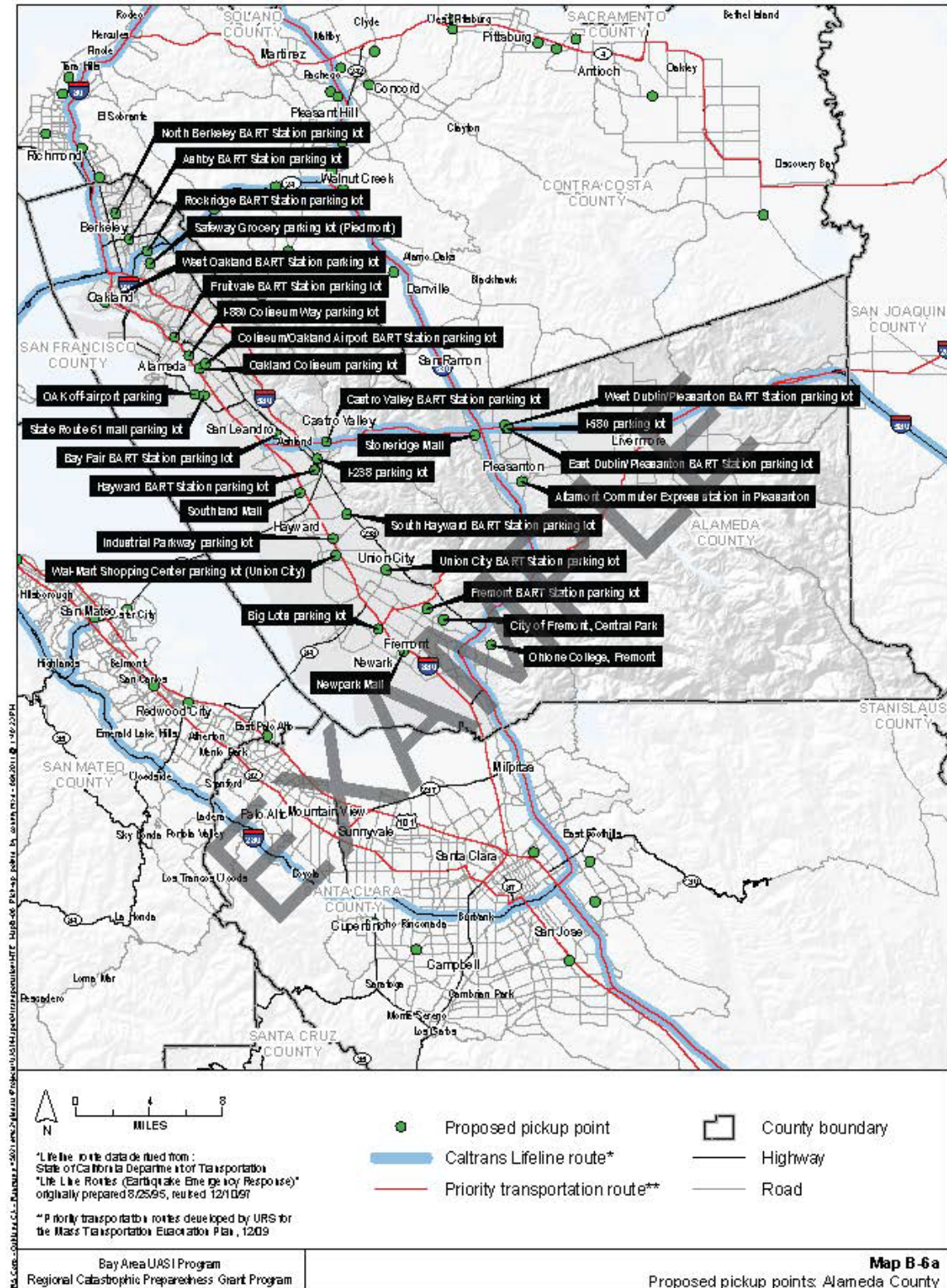


**Map 5. Axes of movement for mass transportation/evacuation operations: Ferry**  
 (from the Regional Catastrophic Earthquake Mass Transportation/Evacuation Plan)



**Map 6. Proposed pickup points – Example Map**

(Jurisdiction-specific maps can be found in the Regional Catastrophic Earthquake Response Plan [Maps B-6a – B-6l] and your Jurisdiction’s Mass Transportation/Evacuation Plan)



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