

8. EMERGENCY TRANSPORTATION ELEMENT

Emergency transportation, at the regional level, primarily addresses transport associated with a natural disasters, manmade incidents, or acts of terrorism, such as the need for large-scale evacuation. HCAOG’s role in emergency preparedness is to help prepare the transportation system to efficiently handle great surges of travel before, during, or after a major emergency. HCAOG will support and collaborate on proactive emergency planning and projects. Projects that increase emergency readiness include upgrading and maintaining roadways, airport facilities, harbor facilities, and public transit.

Following Hurricane Katrina and the levee failures that flooded New Orleans, the majority of people who died were over the age of 60, and many had disabilities or were unable to leave owing to lack of transportation.

— National Council on Disability,
2009

EXISTING EMERGENCY MANAGEMENT

National, state, and local agencies are part of a total emergency management hierarchy established to assist all the citizens of the United States during times of crisis. At the national level, the lead agency is the Federal Emergency Management Agency, under the Department of Homeland Security. At the state level, it is the California Office of Emergency Services. At the local level, every county and many cities have a local Office of Emergency Services (OES). The local OES must plan for emergencies within its Operational Area (OA). Each Californian county is its own OA.

The Humboldt County OES is under the Sheriff’s Department; the Sheriff is the Director of Emergency Services for the County. The OES coordinates on-going preparedness in cooperation with local jurisdictions and agencies, including law enforcement, emergency responders, and transportation service providers.

The Humboldt OES prepares the “*Emergency Operations Plan*” for the Humboldt OA. The plan includes:

- “Flood Contingency Plan” (December 2012)
- “Local Assistance Center Plan” (adopted March 2011)
- “Joint Information Center Plan” (adopted July 2014)
- “Dam Failure Contingency Plan” (adopted June 2016)
- “Volcano Ash Contingency Plan” (adopted July 2014)

Collaborating across jurisdictions and across agencies will strengthen the region’s emergency preparedness and readiness. Entities that should be consulted include but are not limited to:

- Governmental jurisdictions (County, Cities, Tribes, State, Federal)
- Transit/paratransit operators, HCAOG, Caltrans, California Highway Patrol, Humboldt County Sheriff–Office of Emergency Services
- Local fire and police departments, emergency/medical first responders, Cal Fire.
- Representatives and stakeholders for people with disabilities, seniors, people with special mobility needs, and transit-dependent populations.

In Fiscal Year 2015-16, HCAOG’s Service Coordination Committee (SCC) comprised largely of public transit operators, coordinated with the Humboldt County OES to build on the framework between transit operators and emergency planners for emergency evacuation planning. Emergency contact lists and fleet inventory lists, including passenger capacity, have been compiled with information from public transit agencies and local schools throughout Humboldt. Contact lists include emergency contact information, radio channels and frequencies, e.g., UHF, VHF, etc. The fleet inventory lists fleet information including fueling station locations, and passenger capacity information including ambulatory and/or wheelchair capacity. This emergency evacuation planning information will facilitate efficient and expedient evacuations in the event of an emergency. Agency information will be updated regularly with RTP cycles.

Caltrans, with support by the FHWA, is developing “Update California Regional Intelligent Transportation Systems (ITS) Plan” for the 16 counties in the North State Super Region, which encompasses Caltrans Districts 1 (Humboldt), 2, and 3. HCAOG is on the steering committee for this plan. The ITS Plan will direct how ITS technology and equipment can be used to help provide for more efficient, safe, and convenient travel in the region. Examples of ITS technological applications include: traveler information websites, satellite positioning technology, emergency vehicle preemption, and variable message signs.

EMERGENCY PLANNING

In this section we briefly outline three standard components (or phases) of emergency planning:

- Emergency Preparedness Planning
- Emergency Response
- Disaster Recovery

EMERGENCY PREPAREDNESS PLANNING

Proactively preparing for emergencies will lessen a disaster’s impact on the community. Proactive planning actions include assessing potential threats and vulnerabilities, establishing (or reinforcing) authorities and responsibilities for emergency actions, acquiring and maintaining emergency resources, training emergency personnel, and developing and testing emergency procedures. Here we discuss these preparedness strategies:

- Alerts & Warning Messages
- Asset Inventories
- Evacuation Planning
- Registries

ALERTS & WARNING MESSAGES

Warning messages will alert people to an impending risk and can tell people how to take protective action. Intelligent Transportation System (ITS) technologies can help broadcast warnings and keep evacuees informed. Examples of such ITS applications are road weather and information systems (RWIS), changeable message signs (CMS), and satellite positioning technology (e.g., GPS for in-vehicle route guidance). ITS applications serve emergency personnel, such as emergency vehicle preemption (which enables first responders to preempt or extend traffic signals and navigate congested intersections).

Best practices for warning messages:

1. Develop diverse and redundant means for disseminating warning messages, including print and radio media, texting, e-mail, sirens of various kinds, pagers, highway signage, closed captioning, live sign language interpretation, and social networking sites. Ensure that audio, tactile, and written warnings are issued to maximize publicity.
2. Draft warning messages for specific, anticipated events. Include transportation information in warning messages.

ASSET INVENTORIES

For emergency planning, agencies should be aware of local and regional assets, as well as state and federal resources that can be called upon for different emergencies. Transportation assets for emergency response and evacuations potentially include the whole transportation system: roadways and trails, bridges, harbors, airports, public transit, paratransit, and even parking lots. In addition to infrastructure, transportation assets include agencies, trained personnel, vehicle fleets, and communication equipment.

The region should keep current inventories of primary and contingency transportation assets, including emergency response fleets, transit and paratransit vehicles, governmental fleets (e.g. cities, county, tribes, harbor, airport, etc.), and transit centers. Other resources are street maps (printed and GIS), and fuel and power sources (e.g. fueling and charging stations).

The inventory of community assets will tell us what potential shelter capabilities we already have for our region. Such community assets include schools, universities, hospitals, community centers, social service agencies, independent living centers, and other congregate-type facilities, parks, and recreational venues, which can become temporary emergency shelters and staging areas for medical and food supplies.

EVACUATION PLANNING

Evacuation planning is HCAOG’s opportunity and responsibility to create transportation solutions for evacuating people from a hazardous area. In collaborating with multi-agency and multi-jurisdictional planning efforts, HCAOG can help identify transportation resources for evacuation routes and methods of evacuation.

Along with assessing assets, we must assess potential transportation demand in the event of a major evacuation, particularly specialized transportation needs. Demographic data about the local population can be useful, such as:

- Age
- English proficiency, literacy
- Vehicle availability/primary method of transportation
- Regular commute (e.g. routes, peak times)
- Disability status and type

FEMA lists five stages of disaster response:

1. alert and notification;
2. warning;
3. protecting the citizens and property;
4. providing for the public welfare; and
5. restoration.

Transportation planners and emergency responders will want to know who (and how many) will be at risk if we must evacuate the area. People at risk include those who lack independent, reliable means of transportation. People without their own transportation are even more vulnerable if they also lack money and/or have a disability that limits their mobility. Peoples’ mobility can be hindered by cognitive disorders, intellectual disabilities, reduced stamina or being easily fatigued, needing use of a mobility device (e.g., wheelchair, cane, crutches, or walker) or medical device (e.g. oxygen tank), and people with limited or no sight or hearing.

Best Practices for Evacuation Planning:

1. Coordinate support and logistics with federal, state, local, and regional transportation resources and emergency responders.
2. Educate people on evacuation procedures, personal responsibility, and public transportation options for evacuating. Encourage all individuals, employers, and agencies to have evacuation plans.¹
3. Identify the range and number of people who may need transportation in disaster situations. Map those populations in relation to transportation assets, evacuation routes, and reception centers or shelters. (See “Registries” below.)
4. Plan for a complex array of evacuation and transportation needs, including evacuating people with medical or mobility equipment and service animals. Plan and train for point-to-point evacuation procedures for a wide variety of settings: school, work, home, stores, recreational venues, highways, bridges, etc.



¹ “Employers are subject to meeting ADA provisions and must address the needs of people with disabilities in evacuation plans (Loy and Batiste, 2004). ... Such provisions may be limited to designating a temporary location of refuge while waiting for rescue or could include buddy systems for helping people out of buildings.” (NCD 2009)

5. Have transportation guidelines for evacuation response. Partner with first responder agency personnel to develop technical guides. Partner with health services and social service agencies for disabled, seniors, and other populations with special mobility needs.
6. Have MOUs with transportation agencies and paratransit agencies for disaster evacuation.
7. Directly involve people with disabilities and disability organizations, including local paratransit agencies, in evacuation planning and training exercises.
8. Utilize paratransit drivers and dispatchers to alert regular riders of emergencies and evacuation procedures.
9. Assess the appropriateness of promoting a “buddy system,” whereby people without reliable means of private transportation arrange for someone to personally warn them of an approaching disaster. A buddy may also be able to transport and evacuate those at risk, such as people with disabilities, people who do not drive or walk, and those without a car or bike. A buddy system should include contingency plans for absent buddies.

REGISTRIES

Maintaining a self-identified registry system is one way to estimate and plan for transportation demand in the case of a major emergency. Registries identify those most at risk of losing mobility/transportation options during an emergency. Registries should be up-to-date, readily available to first responders, and linked to those involved in transportation and evacuation support.

Emergency responders and other agencies may have concerns about how practical and effective registries are. These concerns should be discussed, and a consensus sought on whether registries are workable or not, locally and regionally.

Best Practices for Emergency Response Registries:

1. Test and maintain a focused registry. Registrants should be able to independently update their data. Registries should include the person’s home location, work or school location, or other location he/she would likely have to vacate. Paratransit rider lists may be a good start for developing a registry.
2. Make accessible and duplicate registries, including back-ups that will be accessible during a power outage. Make back-ups accessible in multiple locations, in the event that some work sites are inaccessible or vacated (e.g. firehouses may be unstaffed if everyone is out on calls).
3. Cross-check registries with transportation asset inventories. Assess potential evacuation needs versus resources.
4. Consider alternatives to registries such as window placards, outdoor lockboxes, individual alarm systems, and other notification options.

EMERGENCY RESPONSE

TRANSPORTATION AND EVACUATION

Local paratransit and transit systems resources are some of the best assets to tap into for emergency evacuation. Transit and paratransit vehicles can serve as emergency vehicles for evacuating people. These vehicles are especially valuable for evacuating people with mobility disabilities. Drivers and dispatchers are already familiar with individuals who most need transportation assistance, and often know their needs and locations. Evacuating people with disabilities includes evacuating caregivers, guardians, service animals, and necessary mobility and medical equipment (e.g., wheelchairs). Paratransit and transit agency dispatchers can also relay updates about emergency road conditions, and can help get out warnings and alerts to regular riders.

Emergency preparedness plans and formal agreements should cover how transit and paratransit resources can be utilized and coordinated with other emergency response efforts. For example, plans should specify when transit vehicles, used for emergency purposes, will have access to fire or flood zones if roads are closed to non-emergency vehicles. Mutual aid agreements (or MOUs) should describe if emergency services personnel will escort transit vehicles through danger areas, or if, for instance, transit drivers must be certified for emergency evacuation transport.

Transportation & Evacuation Best Practices:

1. Formally agree how transit agencies will be reimbursed for excess costs related to emergency services and evacuation.
2. Stock transit/paratransit vehicles with emergency preparedness information.

Recommendations for Building a Resilient Transportation System

IDENTIFY VULNERABILITIES

Identify where and how a system's components could fail or become inefficient. Examples of potential problems are:

- A transportation link breaks, such as a blocked roadway, bridge, or sidewalk.
- A disaster causes extreme traffic congestion on a particular roadway.
- A disaster requires emergency transport of a large number of people, many who cannot drive, have difficulty walking, or have medical problems that limit their mobility.

IDENTIFY WAYS TO INCREASE RESILIENCE AND SECURITY

Examples of strategies that can increase resilience are:

- Increase transportation system diversity. Maintain opportunities for people to walk, cycle, rideshare, carshare and travel by transit.
- Increase network redundancy and connectivity (e.g., the number of roads and transit routes in an area).
- Increase facility design and construction standards to withstand extreme conditions.
- Improve the ability to communicate with transportation system users, including people with special needs, even under unusual conditions.
- Establish ways to prioritize transportation system resources (road space, fuel, vehicle capacity) so it is available first to higher-value transportation activities.

Source: Victoria Transport Policy Institute, British Columbia, Canada

3. Develop and implement driver certification programs.
4. Plan for allowing quick deployment of buses, vans, and trains;
5. Develop and maintain a system to prioritize evacuations
6. Prioritize evacuating people at highest risk based on factors such as geographic proximity to the hazard, individual need and mobility.
7. Coordinate fuel, emergency repair, and other support services.

SEARCH AND RESCUE

Transportation resources can aid in search and rescue efforts after a major disaster. Transit and paratransit vehicles can help transport the seriously injured to medical facilities. Buses and vans can also transport search and rescue teams into the affected areas. Fleet vehicles can assist in animal (pet) search and rescue as well.

DISASTER RECOVERY

Few communities develop pre-disaster recovery plans (the City of Los Angeles is a notable exception) (NCD, 2009). The recovery phase includes work to restore public services and safety, clean up damaged areas, and get people back to their homes, schools, and workplaces as quickly as possible.

One of the first tasks for recovery is to assess damage to major infrastructure. Agencies in each affected jurisdiction must examine the impact on the transportation system and other public facilities. The post-disaster inventory of transportation assets will allow responders to prioritize needs, assign resources, and appeal for outside aid.

During initial recovery, roads first must be cleared so emergency vehicles (fire, police, ambulance, transit) and utility crews have access with as few interruptions as possible. Secondly, routes must be cleared to allow people to return to their neighborhoods as soon as possible. Transportation resources can aid in clean up, such as removing debris or transporting work crews to sites.

During the recovery phase, if proper transportation infrastructure does not come back quickly, it can cause many ongoing issues... After housing, the second most important service severely impacted in the storm's aftermath is public transportation.

— National Council on Disability, 2008

Disaster Recovery Phase Best Practices:

1. Develop debris management plans that outline how interior and exterior debris will be removed for pickup and hauled away.
2. Use neighborhood centers for charging batteries and use refrigerators to store medications.
3. Locate temporary housing at sites near public transportation.

4. Ensure transportation from congregate care facilities (shelters, temporary housing, and disaster relief centers) to essential facilities for day-to-day needs (e.g., grocery stores, pharmacies, health care centers). And/or bring mobile teams from social and health care services to temporary shelters.

GOALS, OBJECTIVES, & POLICIES

GOAL: Humboldt County has a transportation system that will successfully serve its population in the event of a major disaster, hazard, or emergency, thereby mitigating the potential medical, financial, and emotional traumas to the community.

OBJECTIVES: To strive for this goal, HCAOG shall support policies that help achieve the RTP's main objectives/planning priorities (in alphabetical order):²

- ❖ Balanced Mode Share/Complete Streets
- ❖ Economic Vitality
- ❖ Efficient & Viable Transportation System (includes Preserving Assets)
- ❖ Environmental Stewardship & Climate Protection
- ❖ Equitable & Sustainable Use of Resources
- ❖ Safety

OBJECTIVE: BALANCED MODE SHARES/COMPLETE STREETS

Specific Emergency Transportation objective:

- ◆ *Pursue Complete Streets objectives to give people more transportation options in emergency situations.*

OBJECTIVE: ECONOMIC VITALITY

Specific Emergency Transportation objective:

- ◆ *Increase emergency transportation preparedness to help minimize the direct costs and indirect economic losses caused by major disasters, hazards, or emergencies.*

OBJECTIVE: EFFICIENT & VIABLE TRANSPORTATION SYSTEM

Specific Emergency Transportation objectives:

- ◆ *Improve asset and vulnerability analyses of the regional transportation system, including infrastructure, equipment, and trained personnel.*
- ◆ *Attain regionally coordinated, multi-modal planning for emergency preparedness, evacuation, search and rescue, and recovery.*

² The objectives are described in more detail in Chapter 1, Introduction.

Policy Emergency-1 HCAOG will support and collaborate in reviewing and updating emergency plans to address transportation resources available in all phases of disasters: prevention, preparedness, response, recovery, and mitigation.

OBJECTIVE: ENVIRONMENTAL STEWARDSHIP

Policy Emergency-2 HCAOG will lead, facilitate, and support efforts to incorporate climate change and adaptation into emergency transportation and evacuation planning.

OBJECTIVE: EQUITABLE & SUSTAINABLE USE OF RESOURCES

Policy Emergency-3 HCAOG will facilitate and encourage involving people with disabilities and disability organizations in emergency planning, including assessments, exercises, training, debriefing, and post-action reports. *(Also supports objective: Safety)*

OBJECTIVE: SAFETY

Specific Emergency Transportation objectives:

- ◆ *Improve the emergency and security preparedness of transportation facilities.*
- ◆ *Keep transportation systems, agencies, and personnel ready and equipped to seamlessly execute emergency response transportation operations.*

Policy Emergency-4 HCAOG supports region-wide, multi-agency planning, training, and equipment acquisition for emergency preparedness. HCAOG and the public transit operators should work with the County Office of Emergency Services to develop a collaborative, effective role in disaster preparedness and response. *(Also supports objective: Efficient & Viable Transportation System)*

Policy Emergency-5 HCAOG will help disseminate emergency preparedness information and educational materials.

ACTION PLAN: PROPOSED PROJECTS

To work towards achieving our objectives for emergency transportation, HCAOG staff and committees will begin to establish contacts for collaborating and participating with other stakeholders. HCAOG does not intend to “recreate the wheel” where emergency plans already exist. We intend to work from emergency plans and strategies already established, and help develop, augment, or improve transportation-related procedures.

HCAOG proposes the following projects for the short-term (1-10 years) planning horizon of the RTP.

Table *Emergency-1* Regional Emergency Transportation Projects

Project 1	Interagency Emergency Transportation Planning Project
	<ul style="list-style-type: none"> <li data-bbox="479 289 1421 716">• Foremost through the SCC, HCAOG will explore opportunities to create a formal framework between transit operators and emergency planners. The framework may identify, establish, and standardize information-sharing between transit agencies and emergency operations centers (EOCs). Projects could also address improving communications and leadership between the agencies and training within transit agencies. Transportation Guidelines for Evacuation Response (for public transit operators) - Develop guidelines for local public transit operators' participation in emergency evacuation situations at the regional level. Coordinate with first responder agency personnel to develop public transit operator technical guidelines for use in emergency evacuations. Coordinate with first-responder agency personnel and health services and social service agencies for disabled seniors, and other populations with special mobility needs. <li data-bbox="479 737 1421 898">• Determine if a registry of populations with mobility limitations would be worthwhile as a resource for local transit and public health/social service providers. If so, identify the geographic range and number of people who may need transportation in disaster situations. Map the populations in relation to transportation assets, evacuation routes, and reception centers or shelters.

FUNDING

Most transit operators are not currently in a position to fund emergency planning exercises and programs from their operating budgets. Money for emergency planning, exercise planning, and training must come from grants and other governmental sources. Potential federal and state resources include training classes (offered by the California OES, U.S. DOT, U.S. FTA) on incident management systems and terrorism awareness. Also, the U.S. Department of Homeland Security and the California Office of Homeland Security provide several grant programs.

PERFORMANCE MEASURES

Table *Emergency-2*, below, lists performance measures for an emergency transportation system. The table groups performance measures by “goal,” which correspond to the RTP’s six main objectives/planning priorities.

Table *Emergency-2. Performance Measures for Emergency Transportation*

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
Balanced Mode Shares	<i>Access to transit, paratransit</i>	Has the level of transit or paratransit service increased?	<ul style="list-style-type: none"> • Total transit/paratransit trips. • Percentage of population within ¼ mile of a transit stop. • Major destinations not accessible by transit/paratransit. 	Local transit operators' data.
Efficient & Viable Transportation System	<i>Coordination in emergency planning</i>	Has HCAOG participated in more emergency planning and/or collaborated on more emergency plans? Are inventories current for emergency transportation assets?	<ul style="list-style-type: none"> • Plans developed/updated with HCAOG input. • Rate at which plans and inventories are updated. 	Emergency plans, agreements (MOU, MOA), protocols, and asset inventories.
Environmental Stewardship	<i>Climate change adaption and mitigation</i>	Do emergency plans include or coordinate with efforts to adapt to and mitigate climate change impacts?	<ul style="list-style-type: none"> • Measures 	Emergency plans, agreements, protocols, and asset inventories. Climate change plans.
Equitable & Sustainable Use of Resources	<i>Participation from most vulnerable populations</i>	Have members of the most vulnerable populations (disabled, elderly, people without private means of transport) participated in emergency planning efforts?	<ul style="list-style-type: none"> • Number of people from vulnerable populations who actively participated in emergency drills and/or other emergency planning efforts. 	Emergency plans, agreements (MOU, MOA), protocols, and asset inventories.
Safety	<i>Emergency evacuation</i>	Are emergency evacuation resources adequate? Do emergency responders know emergency protocols for major disasters, hazards and emergencies? Are redundancies in place in case primary communication systems or response resources are disrupted?	<ul style="list-style-type: none"> • Number of safety improvement projects implemented. • Public-assisted emergency evacuations per 1,000 residents. • Average rate of response and/or miles of transport for publicly assisted emergency evacuees. • Number of emergency evacuations unfulfilled or denied. 	Reports on emergency tests/drills. Post-emergency data.

REFERENCES

CITATIONS

Litman, Todd 2006 *Lessons from Katrina and Rita: What major disasters can teach transportation planners.* Victoria Transport Policy Institute. British Columbia, Canada. (April 13, 2006) (www.vtpi.org/katrina.pdf, accessed December 2012.)

NARC 2009 (National Association of Regional Councils, U.S. Department of Transportation-Federal Highway Administration) *Streamlining Cross-Linking Transportation and Evacuation Planning: A Resource Guide for MPOs and Regional Councils.* (September 2009) (http://narc.org/uploads/transportationandevacuationresourceguide_final.pdf, accessed December 2012.)

NCD 2008 (National Council on Disability) *National Council on Disability Quarterly Meeting, New Orleans.* (January 2008)

NCD 2009 *Effective Emergency Management: Making Improvement for Communities and People with Disabilities.* (August 2009)

SACOG 2008 (Sacramento Association of Governments) Rural-Urban Connections Strategy Wiki, *Transportation Working Paper,* "Section 4-Transportation Safety and Security in Rural Areas, circa 2008." (www.sacog.org/rucs/wiki/index.php/Emergency_Response, accessed January 2013.)

Victoria Transport Policy Institute 2012 (British Columbia, Canada) *TDM Encyclopedia.* (www.vtpi.org/tdm/tdm88.htm (accessed December 2012).)

RESOURCES

Federal Emergency Management Agency–U.S. Department of Homeland Security 1996 *Guide for All Hazard Emergency Operations Planning, State and Local Guide 101.* (September 1996) (www.fema.gov/pdf/plan/slg101.pdf)

Federal Emergency Management Agency–U.S. Department of Homeland Security 2007 Robert T. Stafford Disaster Relief and Emergency Assistance Act," FEMA 592. (June 2007) (www.fema.gov/robert-t-stafford-disaster-relief-and-emergency-assistance-act-public-law-93-288-amended)

Humboldt County Sheriff's Department, Office of Emergency Services 2002 *County of Humboldt Emergency Operations Plan–Humboldt Operational Area.* (June 2002)

National Consortium on the Coordination of Human Services Transportation 2006 *Transportation and Emergency Preparedness Checklist.* (2006) (http://web1.ctaa.org/webmodules/webarticles/articlefiles/Emergency_Checklist.pdf)