

CITY OF MERCED
Development Services

TO: Disaster Council
FROM: Bill King, Principal Planner
DATE: June 29, 2012
SUBJECT: Local Hazard Mitigation Plan

TOPICS AND ACTIONS REQUIRED:

<u>Topic</u>	<u>Disaster Council Actions</u>
1. Draft "Goal" section of the LHMP	Discussion and Confirmation by vote
2. Draft "Capacity" section of the LHMP	Review, Discussion and General Feedback
3. Initial Results/LHMP Survey	Information. Discuss methods to broaden survey audience.
4. Catalog of Sample Mitigation Actions	Information/Assignment

Now that local hazards have been identified, ranked and profiled, the next step in the hazard mitigation process is to: 1) select plan goals; and 2) understand the community's local capabilities and current mitigation actions. Upon conclusion of these steps, the Disaster Council will be in position to begin the process of selecting suitable mitigation actions for Merced.

Public input on local hazard mitigation planning is also provided, although more input is anticipated. With this report, Staff has also included a catalog of sample mitigation actions, primarily as an assignment in preparation for the September 2012 Disaster Council meeting.

RECOMMENDED GOALS

Plan goals help to guide the direction of future mitigation activities aimed at reducing risk and preventing loss from hazards. They represent a long-term vision for hazard reduction or enhancement of mitigation capabilities. To establish a bulkhead of possible goals for use in the Merced Hazard Mitigation Plan, Staff collected and sorted existing goals from throughout the state, notably from Central Valley communities (Attachment B). To assure that selected goals for Merced's Local Hazard Mitigation Plan (MHMP) were an appropriate fit, Staff compared them against two filters, namely: 1) consistency with other existing community goals; and 2) comparison with the findings of the Plan's Risk Assessment and Capability Assessment.

The Disaster Council is requested to review the draft "Goal" section of the Merced Hazard Mitigation Plan (part of Attachment A) in preparation for a discussion, and concluding with the confirmation of the selected plan goals, including any recommended modifications where appropriate.

Staff recommends confirmation of the following goals for the MHMP, and will seek a Disaster Council vote on July 13, 2012:

- Goal 1:** Provide protection for people's lives from hazards.
- Goal 2:** Minimize or reduce damage to property.
- Goal 3:** Minimize disruption of essential services, facilities and infrastructure.
- Goal 4:** Maintain, enhance, and restore the natural environment's capacity to deal with the impacts of disasters.
- Goal 5:** Promote hazard mitigation as an integrated policy.
- Goal 6:** Increase public awareness.

CAPABILITY SECTION OF PLAN

The "Capability" section of the MHMP describes the existing capacity of the City of Merced, together with mutual aid partners and community members, to respond to hazard events. An understanding of these topics is presented in the MHMP to help identify gaps in service, and corresponding mitigation actions to fill these gaps, where necessary.

The Disaster Council is requested to review the draft plan text concerning this topic, and to offer input to Staff consisting of corrected and additional information about the various topics presented, notably those concerning existing capacity and actions.

PUBLIC SURVEY

Staff prepared and posted a survey to collect public input about hazards in Merced (Attachment C). This information will help Staff and the Disaster Council in making final selection of mitigation actions. To date, 51 individuals have responded to the survey. If you have not taken the survey, staff encourages you to participate in the 5-minute survey, and to forward this opportunity to your family, friends and coworkers that live or work in Merced.

The Disaster Council is requested to review the survey results, and offer suggestions on methods to broaden the survey audience. Use the following link to access the survey:

<http://www.surveymonkey.com/s/LC76XGK>

SAMPLE MITIGATION ACTIONS

Staff created catalogs of sample mitigation actions which lists initiatives that could manipulate local hazards, reduce exposure to hazards, reduce vulnerability to hazards, and increase Merced's capability to respond or be prepared for a hazard. The hazards addressed by the catalogs are those to which the City is most vulnerable based on the risk assessment.

The catalogs are not meant to be exhaustive or site-specific but rather to inspire thought and provide most City Department's with a role in hazard mitigation and a baseline of initiatives backed by a planning process, consistent with the goals of the planning area, and within the capabilities of the City. The sample mitigation actions in the catalogs derived from numerous sources, including: 1) the City's "Community Risk Assessment; and 2) hazard mitigation plans, notably from Central California communities that are posted on Cal EMA's website.

The initiatives included in the catalogs are meant to be new action items, and do not include current mitigation actions, though improvement of a current activity may be listed. Selection of actions were not limited by lack of funds, recognizing that economic characteristics can improve, and external funding sources may become available.

Upon conclusion of the July 13, 2012 meeting, the Disaster Council is requested to review the catalog and provide the following written comments, then returning them to the City of Merced Planning Department by July 31, 2012. Comments should include: 1) a numeric ranking of the ideas in each table (use empty far-left column); 2) comments, where appropriate, of each cataloged action, as appropriate; and 3) describe new actions (use empty cell at bottom of each table). Staff will compile the Disaster Council's rankings, comments and ideas for discussion at the September 2012 meeting.

The completed catalog can be returned via interoffice mail (for staff member); scanned and emailed to kingb@cityofmerced.org; or dropped off or mailed to the Planning Department, 678 W. 18th street, Merced CA. 95340.

Attachment

- A. Draft "Capability" & "Goal" section of the LHMP
- B. Catalog of Potential Goals (Appendix F of MHMP)
- C. Initial Results of the LHMP Public Survey
- D. Catalog of Sample Mitigation Actions

CHAPTER 4: MITIGATION ACTIONS

ATTACHMENT A

“Mitigation Initiatives” of Merced’s Local Hazard Mitigation Plan focuses on what actions can be taken to minimize future loss of life and property caused by hazards studied in Chapter 3. It contains the following sections:

OVERVIEW OF THE “MITIGATION INITIATIVES” CHAPTER


4.1 LOCAL CAPABILITIES ASSESSMENT

4.2 MITIGATION GOALS

4.3 MITIGATION ACTIONS

4.4 NATIONAL FLOOD INSURANCE PROGRAM (NFIP) COMPLIANT MITIGATION ACTIONS

4.5 MITIGATION ACTION PLAN

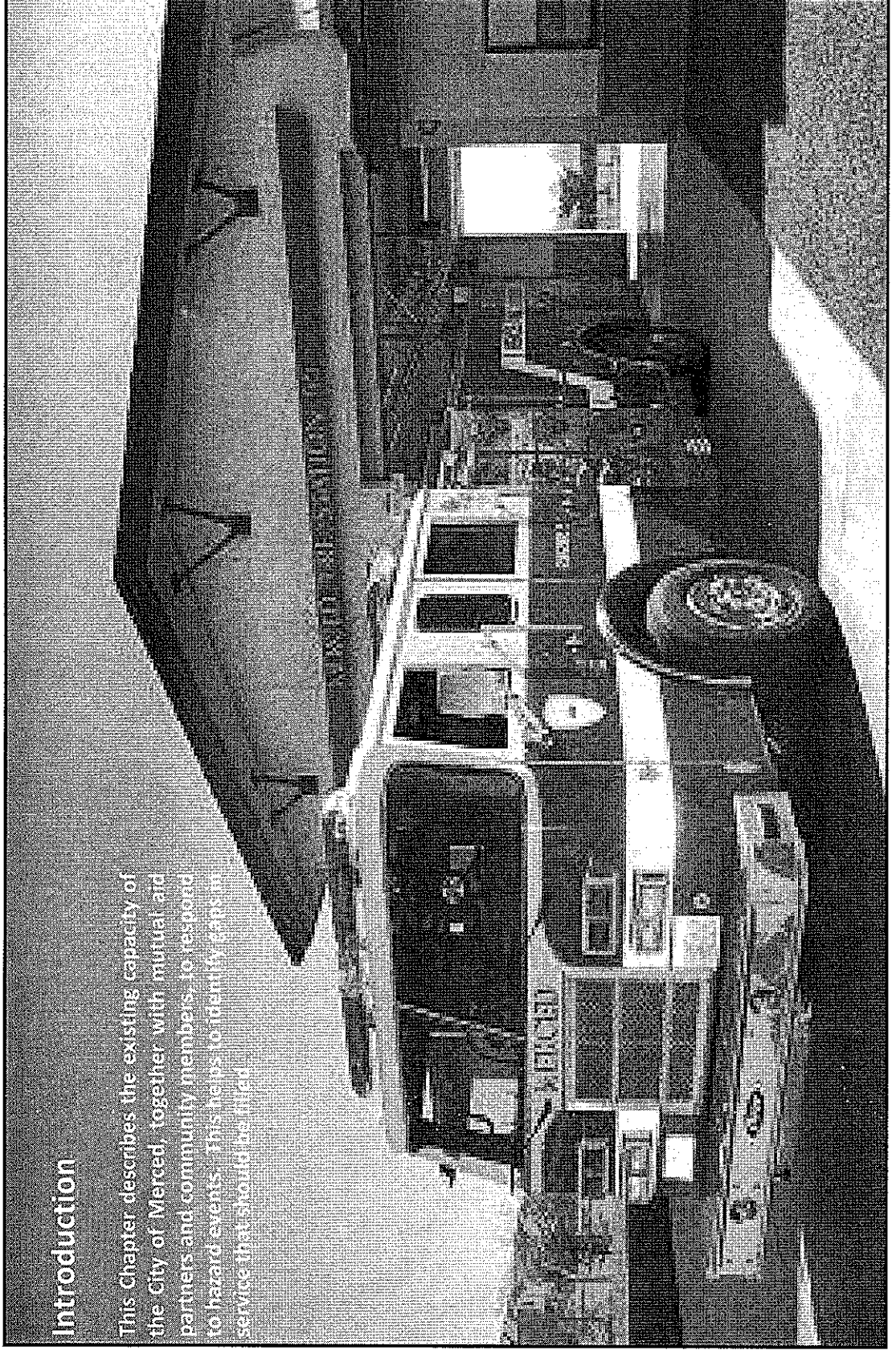
At their public meetings of July 13, 2012, and  the *Technical and Plan Preparation Team* provided the City of Merced *Disaster Council* and attending stakeholders and members of the public an overview of the draft “Mitigation Initiatives” Chapter of the draft Merced Hazard Mitigation Plan (MHMP). Comments were received and the draft was amended to reflect the concerns of the Disaster Council and public.



4.1 Local Capabilities Assessment

Introduction

This Chapter describes the existing capacity of the City of Merced, together with mutual aid partners and community members, to respond to hazard events. This helps to identify gaps in service that should be filled.



4.1.1 Local Capabilities Assessment

Overview

Thus far, the planning process has identified the natural hazards posing a threat to the City of Merced and described, in general, the vulnerability of the City to these risks. The next step is to assess what loss prevention mechanisms are already in place. Combining risk assessment with a capability assessment results in the City's "net vulnerability" to disasters, and more accurately focuses the selection of goals and proposed actions of the Merced Hazard Mitigation Plan (MHMP).

This capacity assessment is divided into five sections:

- Emergency Service Providers and Services
- Administrative and Technical Mitigation Capabilities
- Critical Facilities
- Key Legal and Regulatory Capabilities
- Fiscal Mitigation Capabilities

4.1.2 Emergency Service Providers and Services

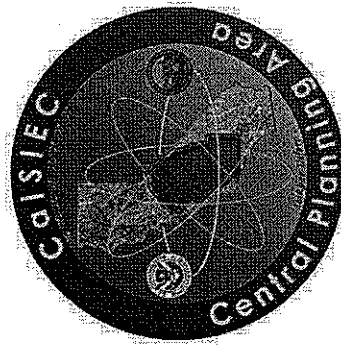
Overview

This section describes the service capacity of the following key emergency service providers for the City of Merced:

- City of Merced Fire Department
- CALFire
- City of Merced Police Department
- Riggs Ambulance Service

Multi-jurisdictional Cooperation

The California Statewide Interoperability Executive Committee (CalSIEC) has chartered the Central Planning Area (CPA) as one of the four authorized regions in California to coordinate interoperability. All Operational Areas in the CPA have entered into a Regional Governance Charter to enhance cooperation in a multi-jurisdictional and multi-disciplinary manner to advance preparedness and response capabilities related to interoperable communications.⁵⁷



City of Merced Fire Department

The City of Merced Fire Department (MFD) was initially established as the Merced Hose Company #1 on November 3, 1873, and has evolved into a state-of-the-art, Insurance Services Organization (ISO) Class 2, fire department. Today, the MFD is a fully-professional organization that provides fire suppression, rescue, and emergency medical services, 24 hours a day, seven days a week, for the urban environment in the City. On a daily basis, the MFD staff's five first-line engine companies at five stations throughout the City.

The City of Merced Fire Department provides fire protection, rescue, and emergency medical services from five fire stations throughout the urban area. Fire Department personnel are typically assigned on a three-platoon work schedule, which



provides the City coverage 24 hours a day, seven days a week. The Department equipment includes first-line engine companies (carry and pump water), ladder companies, reserve engines and ladder trucks, airport emergency vehicles and other miscellaneous support vehicles.³

Merced's fire protection system operates according to a central station concept. Under this concept, a central station can respond to calls from within its own service area or district, and can provide back-up response to other districts as well. From 1990 to 2010, response activity doubled.³

The Department is rated under the auspices of the Insurance Services Office (ISO) which defines protection services on a scale of 1 to 10--1 representing the best level of protection and 10 indicating no protection at all. The Department's 2009 rating is Class 2, which is

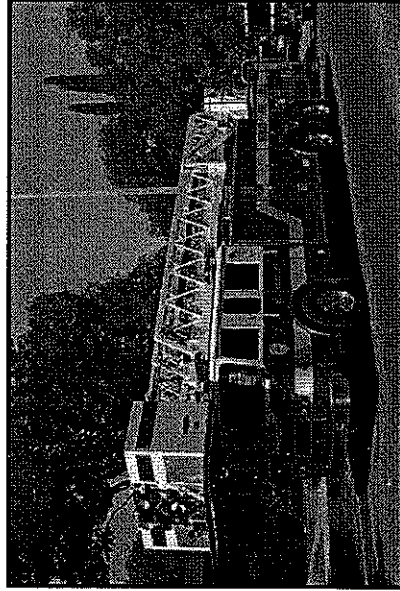
considered to be well above average, despite manning levels below national averages. This rating helps keep the costs of fire insurance premiums low for City businesses.³

The Department consists of one fire chief, one deputy chief, three battalion chiefs, eighteen captains, eighteen engineers, twenty firefighters, and administrative support and fire prevention staff. The MFD is an all-risk, emergency management entity with response disciplines in fire suppression, emergency medical services, hazardous materials, technical rescue, and aircraft rescue firefighting.

RESPONSE TIME

The Department has a goal of maintaining a response time of four to six minutes for the first crew to arrive at a fire or medical emergency within an assigned district. This goal was chosen on the basis of proven factors affecting property damage and, more importantly, life.³

As the City continues to grow in population and area, the fire protection system will have to change if it is to maintain this response time standard. This would require two existing stations to be relocated and five



new facilities with personnel and equipment to be added to the system.³ Fire station No. 56 is currently being planned to serve the Bellevue Ranch development in northern Merced. Moreover, the relocation of fire station No. 54 is planned to enhance response coverage to southeastern Merced by placing the station in the area of Mission and Highway 99.

Merced's current policy is to provide emergency response within 4 to 6 minutes 90 percent of the time and to provide adequate resources to combat fires in the following occupancies within the financial constraints of the City. The current response practice provides for a first-alarm assignment of three pumpers, one ladder truck, and a chief officer for all structure fires.

High-Hazard Occupancies - (schools, hospitals, nursing homes, and other high life hazard or large fire potential occupancies)

Medium-Hazard Occupancies - (apartments, offices, mercantile and industrial occupancies)

Low-Hazard Occupancies - (one-, two-, or three-family dwellings and scattered small businesses)

Rural Operations - (scattered dwellings, outbuildings, vacant lots)

Each of these land use types requires somewhat different fire suppression resources (e.g., emergency medical services, hazardous materials response, and heavy rescue).³

MUTUAL AID

Mutual aid agreements enable different jurisdictions to request aid from another when necessary. Through the California Master Mutual Aid and Merced County Mutual Aid Plans, the City of Merced has entered into agreements with state and local fire departments to provide and receive aid on as needed basis. The City of Merced Fire Department has a mutual aid agreement with the City of Atwater and Merced County Fire Departments.

WILDLAND FIRES

Most wildland fires outside the City limits are responded to by Merced County or CAL-Fire although the City Fire Department is often called upon to provide mutual aid when needed. The City's response to fighting wildland fires is much the same as the response to urban fires. Typically, the Fire Department will dispatch one engine to such fires and evaluate whether there is a need for additional apparatus, especially if there is a threat to nearby structures.

HAZARDOUS MATERIALS AND WASTE

The City's Emergency Plan and the County Hazardous Waste Management Plan both deal with detailed emergency response procedures under various conditions for hazardous materials spills. The Merced City Fire Department and Environmental Health Division work with the County to prevent the uncontrolled release of toxic substances into the environment by conducting inspections of toxic materials facilities, enforcing storage and use requirements, and educating local businesses on proper storage and handling of hazardous materials.

Hazardous Materials require special care in handling because of the hazards they pose to the public's health and safety, and the environment. For this special care the City of Merced has an Emergency Response Team. This team is staffed by City fire and police department personnel. The Merced City Fire Department responds to uncontrolled releases within the City limits, identifies the category of chemicals involved, contains the spill if possible, oversees cleanup activities, and makes sure that the site is safe to be occupied again.

The City also works with the State Department of Health Services to establish cleanup plans and to monitor the cleanup of known hazardous waste sites within the City.

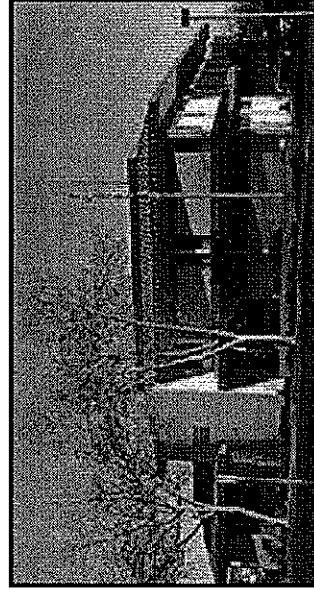
CALFire

CalFIRE is charged with both assessing the threat of fire in California and suppressing fires on state and federal lands while providing mutual aid if needed to communities that do not include public lands. The California Fire Plan formalizes much of the work that has been done to assess the threat of wildfire statewide including California's Wildfire Urban Interface areas. Most wildland fires outside the City limits are responded to by Merced County or the California Department of Forestry and Fire Protection (CDF) although the City Fire Department is often called upon to provide mutual aid when needed.

City of Merced Police Department

Police protection for the entire City is provided by the City of Merced Police Department. The Police Department employs a mixture of sworn officers, non-sworn officer positions, and unpaid volunteers. The service standard used for planning future police facilities is approximately 1.32 sworn officers per 1,000 population.³

Merced is divided into three police districts, each with its own police facility and officers. The primary reason for the three districts is to place police officers closer to the neighborhoods and citizens they serve. The Police Department feels that this "community policing" concept will be successful in combating a growing incidence of crime as the City grows. Citizen councils have been established in each district to meet with area commanders and develop strategies for combating crime in their neighborhoods. Neighborhood Watch programs are located throughout the City and have been highly successful.³



Answering Point (PSAP). They have five crew quarters throughout the county, locations include: 65 W. 14th Street in Merced, 1311 Winton Way in Atwater, 2702 Sharon Lane in Dos Palos, 225 Chestnut Avenue in Los Banos, and 8335 Sycamore in Delhi.

Riggs Ambulance Service staffs ambulances 24 hours a day, seven days a week, which are strategically spaced throughout Merced County. They have a total of 25 type II ambulances and 6 Advanced Life Support (ALS) first response vehicles. Riggs Ambulances Service employees 50 Emergency Medical Technicians (EMT), 43 paramedics, and 13 dispatchers.

RESPONSE TIMES

Riggs Ambulance Service uses fractile response times: from the time of phone pick up in the dispatch center to on scene arrival, the response time must be >90% for each compliance zone based on ProQA prioritization.

TRAINING

Extensive ongoing training for staff members includes: Incident Command System (ICS), Mass Casualty Incidents (MCI), and Hazardous Material Awareness. Riggs Ambulance is also a lead agency in Region 5 for an ambulance strike team for disaster responses and has a disaster response unit on site. All of the operations management and supervisory staff are trained to the ICS 400 level.

Calls for police service will increase due to population growth alone. By 2030, officer responses to incidents could increase from nearly 65,000 in 2009 to over 130,000 annually if current population trends hold true. To cope with this anticipated workload, additional officers, equipment, and facilities will need to be added. Police districts may be revised or added. The Central Station will be relocated in the future to a site in North Merced near Mansionette Drive and Yosemite Avenue.³

EVACUATION ROUTES

Earthquakes, fires, and flooding can all necessitate evacuation. However, it is not possible to know with certainty how many people will actually need to be evacuated in any given situation. Similarly, the rate at which people will evacuate and their specific routes of travel and ultimate destinations are subject to wide variation. Therefore, in the case of an emergency, it is necessary to evaluate each situation on an individual basis and respond accordingly.³

The *Merced City Emergency Plan* addresses various emergency situations and designates the **Police Chief as Evacuation Coordinator** (in the case of a wider emergency, the County Sheriff is designated). At the time of an emergency, the Evacuation Coordinator will evaluate the situation, access various routes (many of which will have been planned out in advance), determine the best routes, alert the public via radio and/or TV of evacuation routes and procedures, and coordinate the evacuation with state and local officials, such as the Highway Patrol, Caltrans, etc.

Riggs Ambulance Service

Ambulance services within the City of Merced are provided by Riggs Ambulance, a private transporter, headquartered in Merced. Riggs Ambulance Services provide advanced and basic life support services as well as transport service. Their headquarters are located at 100 Riggs Avenue. The headquarters facility includes their administration offices, billing office, fleet services, training rooms, and a Public Safety

4.1.3 Administrative and Technical Mitigation Capabilities

Overview

The administrative and technical capability assessment identifies the personnel and community resources available within the City to engage in mitigation planning and carry out mitigation projects. Where feasible, the City may increase its technical resources through collaboration with Merced County staff. The administrative and technical capabilities of the City are listed in Table 4-1.

Table: 4-1: Administrative and Technical Resources for Hazard Mitigation

Personnel Resources	Role/Department
Director of Emergency Services	City Manager
Provide for preparation of plans for the protection of persons and property within the City in the event of an emergency	City Disaster Council
Planner(s) or engineer(s) with knowledge of land development	Planning and Engineering Divisions
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Engineering Division
Planner(s), engineer(s) or emergency response personnel with an understanding of natural or human-made hazards	Planning, Engineering, and Fire Departments
Floodplain Manager	Engineering Division
Personnel skilled in GIS	GIS Coordinator
Purchasing	Finance
Public Information Officer	Mayor's Office
Full-Time Building Official	Development Services


4.1.4 Critical Facilities

Overview

Critical facilities and infrastructure are those that are essential to the health and welfare of the population. Continued operation of these facilities becomes especially important after any hazard event. For the purposes of the Merced Hazard Mitigation Plan, a critical facility is defined as:

A facility that is vital for the City's ability to provide essential services and protect life and property and/or the loss of which would have a severe economic or catastrophic impact.

Critical Facility Categories

A catalog of critical facilities within Merced was created to assess their potential vulnerabilities to each of the hazards addressed by this plan. The risk assessment for each hazard anecdotally discusses critical facilities with regard to specific hazards. This section of the plan identifies these facilities by type and geography. A detailed listing of the facilities with their addresses is not provided in this plan. Figures  XW#9A&B illustrates their general location relative to the City's flood-related boundaries, however. The facilities are sorted into five categories:

CITY HALL AND DEPARTMENTS

- City Civic Center
- County Administrative Offices

PARKS AND COMMUNITY SERVICES

- Educational Facilities
- City Parks
- Non-profit Community Services

PUBLIC SAFETY

- Health Centers
- Fire Stations
- Police Stations

PUBLIC WORKS

- Water Supply
- Corporation Yard
- Wastewater Treatment Facilities
- Power Grid

TRANSPORTATION

- State Highways
- Major Arterial Streets
- Rail Bridges (rail and creek)
- Railroads
- Airports

4.1.5 Key Legal and Regulatory Capabilities

Overview

The City currently supports hazard mitigation through its regulations, plans, and programs. The Merced Municipal Code contains hazard mitigation-related ordinances.

Table 4-2 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities, and indicates those that are in place in the City of Merced. Detailed descriptions of the plans, policies, regulations, and programs follow to provide more information on existing mitigation capabilities.

Financial Resources	Used by City of Merced
PLANS	
General Plan -- Safety Element	X
Capital Improvement Plan	X
Local Emergency Operations Plan	X
Stormwater Management Plan	X
PROGRAMS	
Fire Department ISO Rating	X
Elevation Certificates	X
National Flood Insurance Program (NFIP)	X
Weed Abatement (fire control)	X
POLICIES AND CODES	
Zoning and Subdivision Ordinance	X
Site Plan Review Ordinance	X
Growth Management Ordinance.	
Floodplain Ordinance	X
Building Code	X
Water Conservation -----	

Description of Existing Mitigation Strategies

FLOODING

- City is using FEMA's model flood ordinance.
- City automatically incorporates FEMA flood map updates.
- City has adopted on-site storm water retention policies into the City design standards. These help safeguard local canals and creeks against peak flow increases due to development.
- In the last 6 years, numerous elevation certificates were completed. These help reduce or eliminate flood insurance requirements for structures in a special flood hazard area (SFHA). This also demonstrates enforcement of FEMA flood requirements through Merced Municipal Code.
- Current Wastewater Treatment Plant is installing tertiary treatment and solids handling. It is also raising adjacent berms to comply with updated State flood proofing requirements.
- Three Developer-initiated FEMA LOMR processes have been approved for Bellevue East, Compass Pointe, and Bellevue West. These updated FEMA maps removed large sections of from the floodplain.

FIRE

The City has adopted ordinances to require fire sprinkler systems in all commercial occupancies greater than 5,000 square feet, and uses a codified fire prevention inspection program to minimize the risk of fire to the community.

Planning

In order to mitigate the risk and impact of fire within Merced, the City has adopted the concepts of Community Fire Protection Master Planning (C.F.P.M.P.). As a system with many components, C.F.P.M.P. received a commitment from the City Council since 1982 to provide fire protection planning with a goal of a "fire-safe community." As a system, C.F.P.M.P. states that fire protection planning requires

involvement of all City agencies, individuals, and organizations that have input and support community health, safety, development, and stability.³

Public Education Programs

Merced's current number one cause of residential fires is cooking. Kitchen safety revolves mainly around an individual's safety practices. For this reason, the Fire Department has developed and is conducting several public education programs. These programs stress emphasis on children and senior citizens who have been identified by the National Fire Protection Agency as high-risk groups for fire death and injuries.³

Inspection Programs

The California building codes and the California fire codes work together to regulate building construction and related items such as the care of vacant lots and the storage of flammable liquids. Naturally, the use of built-in protection such as fire resistant materials and automatic sprinklers in all structures beyond that required by the Building and Fire Codes significantly reduces the risk of urban fires and may reduce the City's reliance upon fire suppression crews. Each year the Fire Department engine companies conduct in excess of 4,000 inspections and eliminate approximately 8,000 Fire Code violations which could contribute to the cause and severity of a fire. The inspection program primarily targets the high and medium hazard occupancies. To provide effective fire prevention activities for low hazard land uses, the Fire Department conducts year-round hazard removal programs (primarily weed abatement).³

Weed Control Program

Since the 1960's there have not been any structure or life losses as a result of wildland fires (K. Mitten, personal communication, January 20, 2009; MFD, n.d.). Additionally, the Department is very proactive with fire prevention activities. As an example, the annual weed abatement

HAZARDOUS MATERIALS

program, which began in the late 1980's, has nearly eradicated the incidence of wildland fires within City limits. In order to prevent wildland fires before they start, the City's weed abatement program requires that vegetation on vacant lots be plowed under or mowed down if it is not irrigated agricultural land. Every spring, each property within the City is served with notice to remove weeds, etc. Similarly, the Police, Fire, and Inspection Services Departments collaborate to make sure that abandoned vehicles or buildings (potential fire hazards) are removed.³

EXTREME HEAT

The CDC (2006) stressed that illness from heat exposure is preventable; public awareness about heat illness and the associated risk factors could greatly reduce the number of deaths.

The National Weather Service (NWS) will initiate its Heat Index Program Alert procedures when the high temperature is expected to exceed 105° to 110° (depending on local climate) for at least two consecutive days. Based on this NWS Heat Index Program Alert, the City of Merced can assess when extreme heat is expected. The City offers instructions on what to do in an extreme heat emergency and provides locations for cooling centers where citizens have a chance to get relief from the extreme heat. In a press release on the City of Merced Website, dated 8/30/07, it stated that "....The City of Merced is prepared to open a cooling center whenever needed to give residents an escape from the searing heat. The decision to open the cooling center will be made by 1 p.m. daily based on the heat index, a guide that uses the outside air temperatures and relative humidity...." <http://www.cityofmerced.org/news/displaynews.asp>

Cooling centers provide air conditioning, liquids, and places to rest for the general public during heat waves. Sending out public information on these along with public health tips (drink fluids, find shade, and the like) will also contribute to the public's ability to deal with heat waves. The City (2008) identified that the creation and use of the centers have reduced the number of emergency room visits.

To minimize risk of hazardous incidents affecting critical facilities it is advised that the facility be located at a distance away from hazardous materials facilities and transport zones. Locating the facilities too far from these areas will create conflict with planning a centralized city and locating facilities close to population, and thus the two needs must be weighed based on current situation.

Like critical facilities, structures within a one mile radius of transportation corridors, pipelines, and fixed hazardous materials facilities are at an elevated risk. The role of highways and roads in both being probable sites for a materials transport incident, and providing ways to exit in case of emergency, requires attention when drawing up emergency response plans. Future structures built should be built with equal consideration for the proximity to hazardous materials facilities and transport zones, but needs to be weighed against needs for users of these structures.

There is, of course, a distinction between a specific material and the harm it can cause. Thus, the safety of the public health and the environment depend on proper containers and transport of these materials. For many of these substances, secondary containment becomes imperative should these items spill or their initial containers be breached or sustained damage. Many fixed location sites have some type of secondary containment facility and these are often required by law. For in-transit materials, many efforts are made to keep materials away from sewer and storm drain inlets. Emergency response plans and personnel are familiar with what inlets are near highways and railroads. The City's Emergency Response Center keeps information on all fixed sites as well as how to isolate spills or hazardous release areas along highways and railroads.

To aid in identification of hazardous materials, US Department of Transportation Pipeline and Hazardous Materials Safety Administration uses place cards indicating properties associated with the hazardous material being transported. Examples of material properties indicated

on the place card include: explosives, gases, flammable liquids, flammable solids, oxidizers and organic peroxide, poisons, radioactive, corrosive, and miscellaneous. These place cards allow responders to identify the possible dangers associated with the spill and combined with the amount and location of spill could lead to assessment of the severity of the incident.

Natural and Liquefied Gas Pipelines

- Pipeline Monitoring: PG&E has a complex way of checking their pipelines. They monitor the system twenty-four hours a day. According to PG&E, they use lasers from aircraft and send teams out using hand held leak detectors to check for leaks. PG&E surveys transmission pipelines for leaks at least once per calendar year. They are also patrolled aerially or on the ground on a quarterly basis. They are also planning to put in “smart pigs” that will travel through the pipelines checking for leaks.

Gas transmission pipelines are generally resistant to earthquake damage and are expected to be operational following earthquakes. In locations where there is believed to be a greater risk of pipeline failure from an earthquake, PG&E works to manage the risk of damage to the pipeline or replaces the section of line with a design that is more earthquake resistant. After earthquakes occur, PG&E immediately walks the system by foot and then conducts aerial assessments by helicopter a short time later.

- Agency Coordination: PG&E has annual meetings with first responders and joint exercises to foster open lines of communication and to improve emergency coordination. Generally, PG&E’s emergency coordination plans and procedures with local first responders are intended to establish and maintain strong ties with the appropriate fire and police officials.

Coordination is important not only for potential emergencies that may arise, but also to coordinate assistance for routine matters, such as car-pole accidents, downed electrical wire, house fires requiring the interruption of gas/electric services and any maintenance work involving PG&E’s gas and/or electric facilities. Further, PG&E offers a “Responding to Gas & Electric Emergencies” seminar for local first responders that has been well received by local municipal agencies. Additionally, PG&E’s gas transmission pipeline maintenance personnel often conduct informational meetings regarding safety and invites local first responders within their areas to attend. Finally, PG&E also sends annual communication containing safety information and resources to first responders, as well as local public officials, via the Pipeline Association for Public Awareness (PAPA), of which PG&E is a member.

- Pipeline 2020: Pipeline 2020 is a new PG&E program to guide the utility’s efforts to strengthen the natural gas transmission system and advance industry best practices over the coming decade. It has five major areas of focus: 1) Modernize Critical Pipeline Infrastructure; 2) Expand the Use of Automatic or Remotely Operated Shut-Off Valves; 3) Spur Development of Next-Generation Inspection Technologies; 4) Develop Industry-Leading Best Practices; and, 5) Enhance Public Safety Partnerships.

EARTHQUAKE

The most effective single element in mitigating earthquake losses to buildings is the consistent application of a modern set of design and construction standards, such as those incorporated in modern building codes. The codes are updated regularly to include the most effective design and construction measures that have been found by testing and research or observed in recent earthquakes to reduce building damage and losses. Local government building departments using a modern code, such as the 2010 California Building Code, regulate the vast majority of buildings. Exceptions include acute care hospitals, public

K-12 schools, and state-owned buildings, which are regulated by state agencies in accordance with an even more stringent set of building code provisions that are incorporated in the 2010 California Building Code.

DROUGHT

In 1993, the City adopted a resolution for a program of mandatory prohibitions related to water conservation. The City adopted this ordinance in response to the water shortage emergency associated with the drought of 1987 through 1991. The regulations associated with this ordinance were revised in 2000, but have remained in force due to the overdraft of the Merced sub-basin. Currently, Chapter 15.42 of the City Municipal Code, implemented through Ordinance 1842, comprises the City's water shortage contingency plan. Since the ordinance was a declaration of a water emergency, stages of action are not defined and the water shortage contingency plan is currently active.⁵⁵

Mandatory Water-Wasting Prohibitions

- Washing of sidewalks, driveways, and other outdoor surfaces
- Washing of external building or trailer walls
- Non-recirculating fountains
- Use of water from the City's distribution system for non-domestic purposes when another adequate source of water is available
- Waste of water for reasons not stated without reasonable purpose. The ordinance also includes mandatory conservation measures consisting of prohibitions on non-essential water uses, including replacement of broken plumbing fixtures and sprinklers, limited irrigation hours, and restriction of outdoor irrigation by day of week (based on odd and even street address).

Other Active Measures

- Continue to comply with State mandates for new developments over 300 dwelling units to demonstrate the presence and adequacy of water supply.
- Continue grant funded efforts to construct access ramps at street corners for the disabled.
- Complete the existing City of Merced Water Supply Study and Report
- Continue pursuing existing multijurisdictional efforts to ensure City water supply and water quality.
- Continue City's program to comply with State mandate by installing water meters on all existing services that do not have one.
- Continue to implement siphon manhole usage in storm drainage. These remove oils from water.

DAM FAILURE

The County Evacuation Plan for both dams shows the Merced County Fairgrounds as the evacuee assembly point and addresses what evacuation routes, priorities, and procedures should be followed. The City's ability to supply the potable water requirements during this time will depend on which dam failed and the height of the inundation swell.

INFLUENZA

In recent years, both the City of Merced (2007) and Merced County (2006) have developed and adopted pandemic influenza response plans. Both plans provided a categorical approach to a pandemic outbreak, ranging from a few ill personnel, to widespread illness that could impact the daily operations of the City/County.

4.1.6 Fiscal Mitigation Capabilities

Overview

The fiscal capability assessment lists the specific financial and budgetary tools that are available to the City for hazard mitigation activities. These capabilities, which are listed in Table 4-3 include both local and Federal entitlements. Actual use of these funding sources for future hazard mitigation projects will be based on the direction of the City Manager and/or action of the City of Merced City Council.

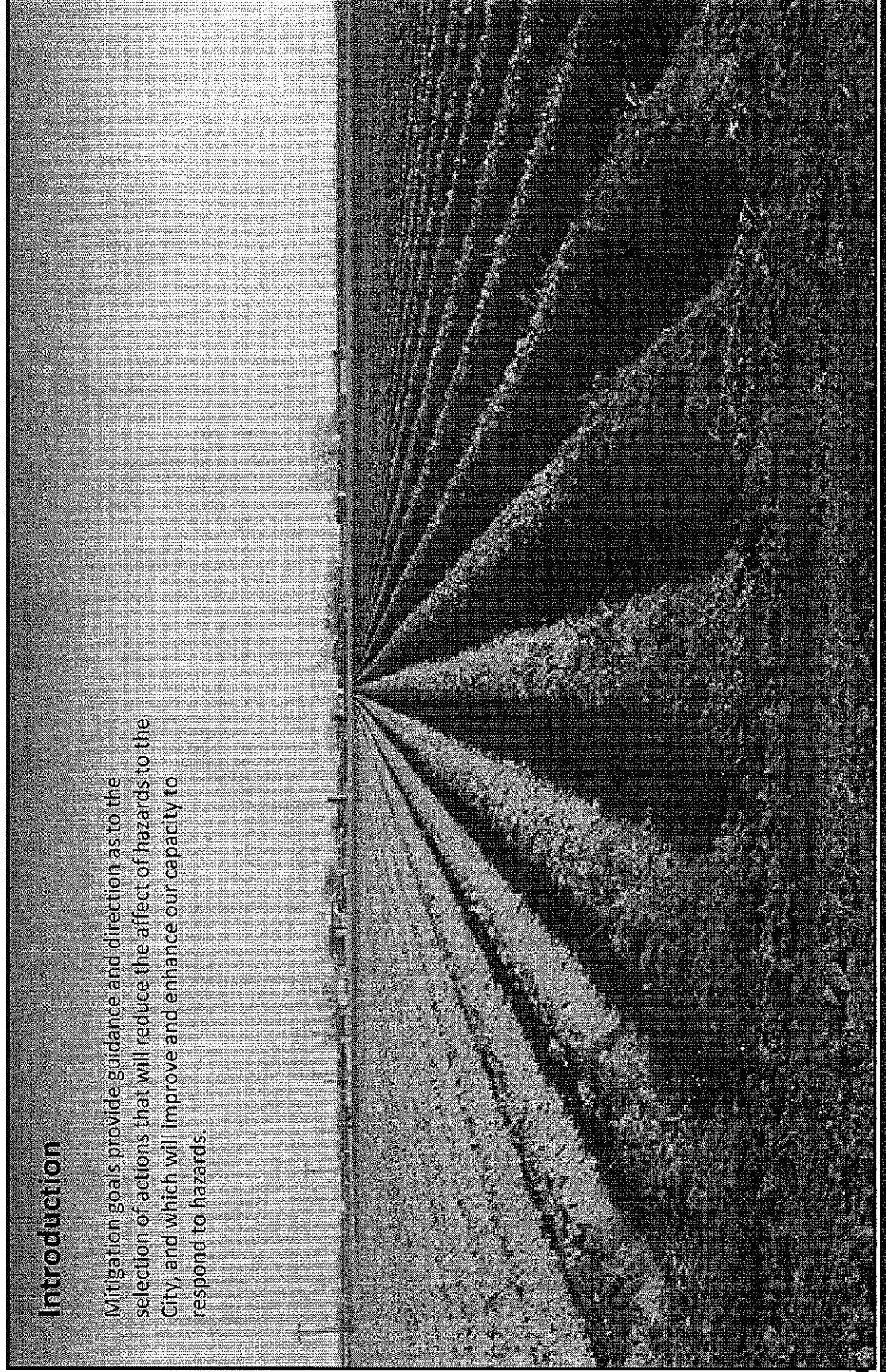
Table 4-3: Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
Community Development Block Grants	Can be used for any Hazard Mitigation Activity
Capital Improvement Project Funding	Can be used for any Improvement-based Hazard Mitigation Activity
Authority to levy taxes for specific purposes	Can be used for any Hazard Mitigation Activity
Impact fees for new development	Improvement-based Hazard Mitigation Activity for water, wastewater, transportation, and FD or PD Stations.
Incur debt through general obligation bonds	Can be used for any Hazard Mitigation Activity
Incur debt through special tax bonds	Can be used for any Hazard Mitigation Activity
Incur debt through private activities	Can be used for any Hazard Mitigation Activity
FEMA Hazard Mitigation Grant Program (HMGP) and Pre Disaster Mitigation (PDM) grants	Can be used for any Hazard Mitigation Activity
Fire Prevention Fees and Fines	Can be used for Hazard Mitigation
Enterprise Funds	Can be used for Hazard Mitigation
General Funds	Can be used for Hazard Mitigation

4.2 Mitigation Goals

Introduction

Mitigation goals provide guidance and direction as to the selection of actions that will reduce the affect of hazards to the City, and which will improve and enhance our capacity to respond to hazards.



4.2.1 Process to Develop Plan

Goals

Overview

Deliberate steps were taken to structure goals that would result in appropriate mitigation actions. Selection of the goals were based on guidance from community goals and findings of the Risk Assessment and Capability Assessment, and were confirmed by the Disaster Council in July 2012. This section describes how Plan goals and objectives were developed by the PLT and Disaster Council.

Development of Goals

HAZARD MITIGATION VISION STATEMENT

The first step to create plan goals is to create a vision statement. A vision statement broadly defines the purpose of hazard mitigation planning. The PLT opted to utilize the mission statement of the *2010 Hazard Mitigation Plan for the State of California* as the foundation to create the MHMP's mission statement, which is:

The vision of the MHMP is: To develop a safe and resilient City of Merced by integrating knowledge, laws and programs into an active mitigation program that guides the City to significantly reduce potential casualties and property damage, as well as physical, social, economic, and environmental disruption from disasters.

IDENTIFY POSSIBLE COMMUNITY-RELATED GOALS

To establish a bulkhead of possible goals for use in the Merced Hazard Mitigation Plan, the PLT collected and sorted existing goals from similar communities. To assure that these goals were an appropriate fit with the City of Merced, the PLT examined them against two filters, namely: 1) consistency with community goals; and, 2) comparison with the findings of the Plan's Risk Assessment and Capability Assessment.

COMPATIBILITY WITH COMMUNITY GOALS

The PLT sought to identify greater definition of the vision based on state and local community-related goals, and collected existing goals from various sources; Section 4.3.2 of this Plan identifies four sets of these goals, including those from the:

- 2010 California State Hazard Mitigation Plan;
- Merced Vision 2030 General Plan;
- City of Merced Emergency Operations Plan; and,
- Merced County Hazardous Waste Management Plan.

RISK ASSESSMENT FINDINGS

The PLT also compared the list of possible goals with the Plan's "Risk Assessment" and "Capability" findings.

4.2.2 Plan Goals

Overview

Plan goals help to guide the direction of future activities aimed at reducing risk and preventing loss from hazards. They represent a long-term vision for hazard reduction or enhancement of mitigation capabilities. Within this sub-section are provided:

- a listing of related community goals that served as broad parameters for selecting the LHMP Goals; and,
- a description of Risk Assessment and Capability Findings.

Using these filters, a final list of Hazard Mitigation Plan goals were selected, and are listed at the end of this sub-section.

Bulkhead of Possible Goals

The PLT collected and sorted existing goals from similar communities in order to establish a bulkhead of possible goals for use in the Merced Hazard Mitigation Plan. These are listed in Appendix F.

Existing Community Goals

The PLT conducted a review of existing Plans to assess whether or not the goals listed in these plans conflicted with the draft LHMP goals to reduce the effects of hazards. These plans include:

- 2010 State of California Hazard Mitigation Plan
- Merced Vision 2030 General Plan
- City of Merced Emergency Operations Plan
- Merced County Hazardous Waste Management Plan



STATE OF CALIFORNIA GOALS AND OBJECTIVES



Goal 1: Significantly reduce life loss and injuries.

This goal emphasizes the theme of reducing potential casualties from disasters through long-term physical changes that make places and buildings safer through mitigation investments and actions.

Objective 1: Improve understanding of the locations, potential impacts, and linkages among hazards, vulnerability, and measures needed to protect life safety and health.

Objective 2: Provide updated information about hazards, vulnerabilities, and mitigation processes to state and local agencies.

Objective 3: Ensure that enforcement of relevant state regulations and local ordinances significantly reduces life loss and injuries.

Objective 4: Ensure that structures are modified, as necessary, over time to meet life safety standards.

Objective 5: Ensure that mitigation measures are incorporated into repairs, major alterations, new development, and redevelopment practices, especially in areas subject to substantial hazard risk.

Objective 6: identify and mitigate imminent threats to life safety.

Goal 2: Minimize damage to structures and property, as well as disruption of essential services and human activities.

This goal includes structures as an important aspect of both life safety and property damage and reflects the desired outcome of minimizing disruption of essential services (e.g., police, fire, and medical response) as well as normal human activities after a disaster.

Objective 1: Encourage new development to occur in locations avoiding or minimizing exposure to hazards and enhance design requirements to improve resiliency in future disasters.

Objective 2: Encourage life and property protection measures for all communities and structures located in hazard areas.

Objective 3: Reduce repetitive property losses due to flood, fire, and earthquake by updating land use, design, and construction policies.

Objective 4: Research, develop, and promote adoption of cost-effective building and development laws, regulations, and ordinances exceeding the minimum levels needed for life safety.

Objective 5: Establish and maintain partnerships among all levels of government, private sector, community groups, and institutions of higher learning that improve and implement methods to protect life and property.

Objective 6: Ensure the protection of vital records to minimize post-disaster disruption and facilitate short-term and long-term recovery.

Goal 3: Protect the environment.

Objective 1: Review all hazard mitigation projects for compliance with applicable environmental laws.

Objective 2: Encourage hazard mitigation measures that result in the least adverse effect on the natural environment and that use natural processes.

Objective 3: Ensure that all state and local hazard mitigation planning reflects the goal of protecting the environment.

Objective 4: Implement wildfire mitigation and watershed protection strategies that reduce losses of wildlife, habitat, and water.

Objective 5: Promote the use of sustainable hazard mitigation measures.

Objective 6: Provide guidance to local jurisdictions about California Environmental Quality Act (CEQA) compliance vis-a-vis mitigation planning, particularly the local mitigation strategy.

Goal 4: Promote hazard mitigation as an integrated public policy.

This goal is the same as in the 2007 SHMP. It suggests both governmental and societal attention to the need for mitigation. Corresponding objectives are essentially the same as in the 2007 SHMP, except for minor rewording of Objective 8.

Objective 1: Encourage all cities, counties, special districts, and tribal organizations to develop, adopt, and implement a Local Hazard Mitigation Plan.

Objective 2: Encourage all cities and counties to adopt their Local Hazard Mitigation Plans as part of an updated general plan safety element.

Objective 3: Improve the quality and effectiveness of local hazard mitigation planning through effective training and guidance that strengthens linkages between the Local Hazard Mitigation Plans, general plan safety elements, and SHMP.

Objective 4: Promote general public understanding of the benefits of hazard mitigation in reducing casualty and property losses and ensuring continuity of business, institutional, and government functions.

Objective 5: Continually build operational linkages among hazard mitigation, disaster preparedness, and recovery programs within the public and private sectors.

Objective 6: Use mandatory local general plan, zoning, and subdivision requirements to create disaster-resistant sustainable communities.

Objective 7: Promote continuous regional hazard mitigation coordination among state agencies, cities, counties, special districts, and tribal organizations.

Objective 8: Encourage councils of governments, metropolitan planning organizations, and regional transportation planning agencies to use Regional Blueprint and Strategic Growth Planning processes to promote hazard mitigation and help create disaster-resistant sustainable communities within a regional context.

Objective 9: Create financial and regulatory incentives to motivate stakeholders to mitigate hazards and risk.

Objective 10: Enhance and integrate public education efforts by state and local agencies that have mitigation-directed programs.

MERCED VISION 2030 GENERAL PLAN

The General Plan is a statement of the community’s vision of its long-term or ultimate physical form. The heart of the General Plan is the set of integrated and internally consistent “Goals,” “Policies,” and “Implementing Actions” in each chapter. Goals are long range; they state finished conditions--the community’s vision of what should be done and where.³ The Goals of the *Merced Vision 2030 General Plan* are as follows:

Urban Expansion

- A Compact Urban Form
- Preservation of Agriculturally Significant Areas
- Efficient Urban Expansion

Land Use

Residential & Neighborhood Development

- Housing Opportunities in Balance with Jobs Created in the Merced Urban Area
- A Wide Range of Residential Densities and Housing Types in the City
- Preservation and Enhancement of Existing Neighborhoods
- Quality Residential Environments
- Mixed-use, Transit, and Pedestrian-Friendly Residential Environments
- Ensure Adequate Housing is Available to All Segments of the Population

Economic Development

- Increased Employment Opportunities for the Citizens of Merced
- A Diverse and Balanced Economy
- Preservation and Expansion of the City's Economic Base
- High Quality Industrial Areas
- More High-Quality Research & Development Parks
- Ready Access to Commercial Services Throughout the City
- A Distinguished Downtown

Urban Growth and Design

- Living Environments which Encourage People to Use a Variety of Transportation Modes
- A Compact Urban Village Design for New Growth Areas
- Self-sustaining, Mixed-Use, Pedestrian-Friendly Villages
- Transit-Oriented Development Adjacent to the High Speed Rail Station

Transportation and Circulation

Streets and Roads

- An Integrated Road System that is Safe and Efficient for Motorized Uses
- A Circulation System that is Convenient and Flexible
- A Circulation System that Minimizes Adverse Impacts upon the Community
- A Comprehensive System of "Complete Streets" Which Addresses All Modes of Transportation

Bicycles, Pedestrians, and Public Transit

- An Efficient and Comprehensive Public Transit System
- A Comprehensive System of Safe and Convenient Bicycle Routes (Within the Community and Throughout the Urban Area)
- A Comprehensive System of Safe and Convenient Pedestrian ways
- A Comprehensive System of "Complete Streets" Addressing All Modes of Transportation
- Air and Rail Systems that Provide Safe and Convenient Service to the Community

Public Services and Facilities

- Maintenance and Improvement of Merced's Existing Infrastructure
- New Development Which Includes a Full Complement of Infrastructure and Public Facilities
- Efficient and Cost-Effective Public Service Delivery
- Maximum Crime and Fire Protection Services
- An Adequate Water Source, Distribution, and Treatment Infrastructure System in Merced
- An Adequate Wastewater Collection, Treatment, and Disposal System in Merced
- An Adequate Storm Drainage Collection and Disposal System in Merced
- Solid Waste Management Services That Accommodate the Local Population Without Causing Significant Damage to Environmental Resources
- Adequate School Facilities for All Students in the Merced Urban Area
- Excellent Cooperative Relationships between the City, the School Districts, and the Development Community

- Support for Cultural and Community Services that Improve and Maintain the Quality of Life for the Residents of Merced
- Development of Infrastructure and Service to Allow All Merced Residents to Utilize New Technologies to Communicate with the Region, the Nation, and the World

Urban Design

- An Integrated Urban Form
- Transit-Ready Community Design
- Pedestrian- and Bicycle-Compatible Neighborhoods
- A Unique Community Image
- Attractive Neighborhoods and Districts
- Attractive and Memorable Public Streets

Open Space, Conservation, and Recreation

- Maintenance of Merced's Biological Resources
- A High-Quality, Expanding Urban Forest
- Preservation of Scenic Corridors and Resources
- Improvement and Enhancement of Water Quality
- Protection of Regional Agricultural Resources
- High-Quality Recreational Open Space
- Adequate Public Recreation Facilities
- Comprehensive Urban Trail and Bike Path System
- A Safe Environment For Merced's Citizens
- Conservation of Water Resources
- Preservation and Protection of Soil Resources

Sustainable Development

- Clean Air With Minimal Toxic Substances and Odor
- Clean Air with Minimal Particulate Content
- Effective and Efficient Transportation Infrastructure
- Coordinated and Cooperative Inter-Governmental Air Quality Programs
- Reduction in the Generation of Greenhouse Gases (GHG) from New Development
- A Diverse and Rich Historic and Cultural Resource Environment
- A Long-Term Community Historic Preservation/Improvement Program
- Sustainable Energy Resource Use in the City of Merced
- Healthy Lives for Community Residents
- A Healthy Environment for All Residents

Housing

- Increase the Stock of Affordable Housing
- Encourage a Mix of Housing Throughout the City to Meet the Needs of Different Income Groups
- Conservation and Rehabilitation of the Existing Housing Stock
- Increase Homeownership Opportunities
- Coordinate Innovative Housing Efforts

Noise

- To Protect City residents from the Harmful and Annoying Effects of Exposure to Excessive Noise

- To Protect the Economic Base of the City by Preventing Incompatible Land Uses from Encroaching upon Existing or Planned Noise-Producing Uses
- To Encourage the Application of State of the Art Land Use Planning Methodologies in Areas of Potential Noise Conflicts

Safety

The main purpose of the Safety Element is to provide policies and implementing actions aimed at reducing injuries, death, property damage, and the economic and social dislocation resulting from natural hazards. The Safety Element is based on an analysis of geologic and other hazards relevant to Merced and on ways of protecting the community from any unreasonable risk associated with such hazards.³



- General Disaster Preparedness
- Reasonable Safety for City Residents from the Hazards of Earthquake and Other Geologic Activity
- A City Free From Other Than Street Flooding
- Fire and Hazardous Material Safety for the Residents of the City and For Those Working in Fire Suppression
- A Safe Airport Environment Both Above and On the Ground
- Reduced Criminal Activity and an Increased Feeling of Safety and Security in the Community
- Hazardous Materials Safety for City Residents

CITY OF MERCED EMERGENCY OPERATIONS PLAN (EOP) GOALS

The purpose of the Emergency Operations Plan (EOP) is to provide emergency planning, organization, and response. The Plan deals with emergency management through the Incident Command System (ICS)/National Incident Management System (NIMS), law enforcement,

traffic control, fire, medical, rescue and radiological material, shelter and support, and resources. The plan is designed to prepare the community for responding to an emergency situation in a highly organized and efficient way so that chaotic situations are avoided.³

During the response phase, the agencies that are charged with responsibilities in the EOP are directed to focus on the following five goals:

- Mitigate Hazards
- Meet Basic Human Needs
- Address Needs of People with Access and Functional Needs
- Restore Essential Services
- Support Community and Economic Recovery

MERCED COUNTY HAZARDOUS WASTE MANAGEMENT PLAN GOALS

In 1986, the California legislature passed legislation requiring each county to develop a hazardous waste management plan and requiring all cities to either adopt the County plan by reference in their general plans or adopt their own plan. The 1989 Merced County Hazardous Waste Management Plan addresses waste reduction and onsite treatment, the siting of off-site hazardous waste facilities, public and industry education, transportation of hazardous wastes, cleanup of contaminated sites, and emergency response procedures. The plan also recommends a series of goals, policies, and implementation actions to deal with hazardous waste throughout the County.³

The goal statement of this plan is to: *Protect the health and welfare of the public, environment, and economy of Merced County through a comprehensive countywide program to ensure the safe and efficient management of hazard wastes.* The plan includes eight objectives covering the following topics:

- waste management technologies
- waste management facilities
- small quantity generator / household hazardous waste
- public education
- hazardous waste inventory
- local regulation of hazardous waste management
- clean up previous disposal sites
- emergency incident response

Note Hazard Characteristics

- Earthquakes in Merced are generally low magnitude and very infrequent, but central Merced structures are highly vulnerable to such an event.
- Extreme heat events occur yearly, but generally last only a few days; hotter and longer-term events could negatively affect sensitive populations.
- Though the City experiences generally low-impact flood events, larger historical events could negatively affect the City, cutting off local and regional lifelines and services.

Critical Assets in Hazard Areas

- Some existing and many future arterial roads cross floodways.

Risk Assessment/Capability Findings

Hazard Mitigation Goals that were found to be consistent with the community's existing goals (as listed on previous pages), were retained; those that were not removed from the list of possible goals. The remaining list of possible goals was assessed by the Disaster Council for their applicability to the Plan's "Risk Assessment" and "Capability" findings. These findings are listed below, and were presented and discussed at the May 11, 2012, Disaster Council Meeting.

Risk Assessment Findings:

Hazard Causal Factors

- Floods result from heavy rains in upper watershed located in Sierra Nevada Foothills.
- Urban-interface wildfires are prone to occur at urban development sites near grasslands, especially with dry fuels and windy conditions.

Characteristics of Assets that Contribute to Vulnerability

- After the 1989 Loma Prieta earthquake, the City conducted an evaluation of the downtown buildings. A 1999 follow-up study concluded that 30% of the downtown buildings assessed required major remodeling, rehabilitation, seismic upgrades, or demolition.

Where is the area to experience the most losses?

- Flood Damage occurs repeatedly near Highway 140 and Thornton Road, at the confluence of Bear Creek and Black Rascal Creek.

Capability Findings:

Hazard Mitigation Plan Goals



At their July 13, 2012, Disaster Council meeting, the Disaster Council reviewed and confirmed the PLT's draft work and selection of the MHMP's vision and goal statements.

Goals are stated without regard to implementation, that is, implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that the goals are not dependent on the means of achievement. Goal statements form the basis for actions that will be used as means to achieve the goals.

Listed below are the goals of the Merced Hazard Mitigation Plan to reduce or avoid long-term vulnerabilities and effects of the profiled hazards addressed in this plan's risk assessment.

Goal 1: Provide protection for people's lives from hazards.

Goal 2: Minimize or reduce damage to property.

Goal 3: Minimize disruption of essential services, facilities, and infrastructure.

Goal 4: Maintain, enhance, and restore the natural environment's capacity to deal with the impacts of disasters.

Goal 5: Promote hazard mitigation as an integrated policy.

Goal 6 Increase public awareness.

Appendix F Catalog of Potential Hazard Mitigation Plan Goals

2010 State HMP Goal 1: Significantly reduce life loss and injuries.

- Prevent Future Hazard Related Losses of Life
- Protect Life
- Prevent Loss of Life and Injuries
- Provide Protection for People's Lives from Hazards (selected goal for MHMP)***
- Protect Lives and Reduce Injury

2010 State HMP Goal 2A: Minimize damage to structures and property, as well as disruption of essential services and human activities.

- Prevent Future Hazard Related Losses of Property:
- Minimize or reduce damage to property (selected goal for MHMP)***
- Reduce Property Damage
- Protect Property
- Prevent Future Hazard Related Losses of Property:
- Improve Emergency Management Capability
- Strengthen Emergency Operations
- Maintain Essential Services, Facilities and Infrastructure
- Improve Communities Capabilities to Mitigate Hazards and Reduce Exposure to Hazard Related Losses
- Provide Protection for Critical facilities, Utilities and Services from Hazard Impacts
- Protect the Continuity of Local Government to Ensure no Significant Disruption of Services during or due to a Disaster.
- Minimize disruption of essential services, facilities and infrastructure (selected goal for MHMP)***
- Improve Community Emergency Management Preparedness, Collaboration and Outreach
- Strengthen Emergency Operations by Increasing Collaboration and Coordination among Public Agencies, Non-Profit Organization, Business, and Industry.
- Create a Disaster Resistant Community

2010 State HMP Goal 3: Protect the environment.

Preserve Natural Systems

Preserve and Protect Natural Systems

Maintain, enhance, and restore the natural environment's capacity to deal with the impacts of disasters (selected goal for MHMP)

Preserve, rehabilitate, and enhance natural systems to serve hazard mitigation functions.

2010 State HMP Goal 4: Promote hazard mitigation as an integrated public policy.

Encourage Partnerships and Implementation

Incorporate Hazard Mitigation Initiatives into Operation

Promote hazard mitigation as an integrated policy (selected goal for MHMP)

Integrate mitigation activities into existing and new community plans and policies.

No State Goal.

Increase Public Awareness (selected goal for MHMP)

Enhance Public Awareness

Educate the Public

Enhance Participation in LHMP Process

Improve Community and Agency Awareness about Hazards and Associated Vulnerabilities that Threaten the Community

Educate community members

No State Goal.

Maintain/provide for FEMA Eligibility and Work to Position City for Grant Funding

Develop and Implement Mitigation Strategies that optimizes public funds win an efficient and cost-effective way.

1. Natural Hazard Community Awareness Survey

Which of the following natural hazard events have you or has anyone in your household experienced in the past 25 years within the City of Merced?

Answer Options	Response Percent	Response Count
Drought	51.0%	26
Earthquake	45.1%	23
Extreme Heat	52.9%	27
Flood	39.2%	20
Fog	76.5%	39
Epidemic/Pandemic (flu, avian flu, H1N1, West Nile)	5.9%	3
Freeze	41.2%	21
Wildfire	0.0%	0
Tornadoes	0.0%	0
Severe Weather (wind lightning, winter storm, etc.)	37.3%	19
None	5.9%	3
Other (please specify)		0
<i>answered question</i>		51
<i>skipped question</i>		0

2. Natural Hazard Community Awareness Survey

How concerned are you about the following natural hazards in the City of Merced?

Answer Options	Not Concerned	Somewhat Concerned	Concerned	Very Concerned	Extremely Concerned	Response Count
Drought	5	18	15	8	5	51
Earthquake	10	19	14	5	3	51
Extreme Heat	10	9	18	10	4	51
Flood	11	13	19	5	4	51
Structure Fire	13	15	10	6	5	49
Train Derailment	12	12	15	8	3	50
Freeze	16	15	13	4	2	50
Wildfire	25	12	10	1	0	48
Severe Weather (wind, lightning, winter storm, etc.)	10	20	16	1	2	49
Epidemic/Pandemic (flu, avian flu, H1N1, West Nile)	9	17	14	6	2	48
	<i>answered question</i>					51
	<i>skipped question</i>					0

3. Natural Hazard Community Awareness Survey

How concerned are you about the following man-made hazards in the City of Merced?

Answer Options	Not Concerned	Somewhat Concerned	Concerned	Very Concerned	Extremely Concerned	Response Count
Energy Shortage	5	10	17	11	8	51
Act of Terrorism	15	19	10	5	2	51
Gasoline Explosion	14	15	14	7	1	51
Hazardous Materials Release	10	8	18	10	5	51
Other Human-Caused Hazard (civil unrest; data or telecommunications; explosion; infrastructure/utility failure/jail event; urban fire; technological failure; transportation incident including train and airplane; unexploded munitions; arson/commercial fire and others)	8	13	14	10	6	51
					<i>answered question</i>	51
					<i>skipped question</i>	0

4. Natural Hazard Community Awareness Survey

How prepared is your household for a natural or man-made hazard event?

Answer Options	Response Percent	Response Count
Not at all prepared	23.5%	12
Somewhat prepared	43.1%	22
Adequately prepared	25.5%	13
Well prepared	7.8%	4
Very well prepared	0.0%	0
	<i>answered question</i>	51
	<i>skipped question</i>	0

5. Natural Hazard Community Awareness Survey

Which of the following have provided you with useful information to help you be prepared?

Answer Options	Response Percent	Response Count	
Emergency preparedness information from a government source (e.g. federal, state, or local emergency management)	51.0%	26	
Personal experience with one or more natural hazards	49.0%	25	
Locally-provided news or other media information	41.2%	21	
Schools and other academic institutions	17.6%	9	
Attended meetings about disaster preparedness	9.8%	5	
Community Emergency Response Training (CERT)	7.8%	4	
Other (please specify)		11	
	<i>answered question</i>	51	
	<i>skipped question</i>	0	
Number	Response Date	Other (please specify)	Categories
1	Mar 14, 2012 9:08 PM	Retired Military - DP Training	
2	Feb 23, 2012 11:59 PM	Television Programs on how to be prepared for emergency situations	
3	Jan 28, 2012 1:58 AM	None.	
4	Dec 3, 2011 10:58	American Red Cross	

6. Natural Hazard Community Awareness Survey

Which of the following steps has your household taken to prepare for a natural hazard event?

Answer Options	Response Percent	Response Count
Received first aid/CPR training	66.7%	34
Made a fire escape plan	51.0%	26
Designated a meeting place	41.2%	21
Identified utility shutoffs	64.7%	33
Community Emergency Response Training (CERT)	7.8%	4
Prepared a disaster supply kit	23.5%	12
Installed smoke detectors on each level of the house	88.2%	45
Stored food and water	47.1%	24
Stored flashlights and batteries	72.5%	37
Stored a battery-powered radio	41.2%	21
Stored a fire extinguisher	62.7%	32
Stored medical supplies (first aid kit, medications)	62.7%	32
Other (please specify)		3
	<i>answered question</i>	51
	<i>skipped question</i>	0
Number	Response Date	Categories
1	Nov 3, 2011 4:22 PM working on a disaster supply kit	

2	Oct 27, 2011 7:07 PM	none					
3	Sep 8, 2011 8:48 PM	I have a 72 hour kit and working of one year of Food and Water storage					

7. Natural Hazard Community Awareness Survey			
Is your property located in a FEMA designated flood plain?			
Answer Options	Response Percent	Response Count	
Yes	21.6%	11	
No	49.0%	25	
Not sure	29.4%	15	
	<i>answered question</i>	51	
	<i>skipped question</i>	0	

8. Natural Hazard Community Awareness Survey			
Do you have flood insurance?			
Answer Options	Response Percent	Response Count	
Yes	15.7%	8	
No	70.6%	36	
Not sure	13.7%	7	
	<i>answered question</i>	51	
	<i>skipped question</i>	0	

9. Natural Hazard Community Awareness Survey

Do you have earthquake insurance?

Answer Options	Response Percent	Response Count
Yes	13.7%	7
No	72.5%	37
Not sure	13.7%	7
	<i>answered question</i>	51
	<i>skipped question</i>	0

10. Natural Hazard Community Awareness Survey

Have you ever had problems securing homeowners or renters insurance in the City of Merced due to risks from hazards?

Answer Options	Response Percent	Response Count
Yes	0.0%	0
No	100.0%	51
If yes, what hazard caused the difficulty?		0
	<i>answered question</i>	51
	<i>skipped question</i>	0

11. Natural Hazard Community Awareness Survey

Which one of the following incentives would most likely motivate you to make hazard mitigation improvements on your home?

Answer Options	Response Percent	Response Count	
I would make improvements without incentives	31.4%	16	
Financial incentives would not motivate me	5.9%	3	
An insurance premium discount	62.7%	32	
Building permit fee waiver/reduction	39.2%	20	
Mortgage discount (for portion of retrofit cost)	37.3%	19	
Property tax break (portion of retrofit cost)	52.9%	27	
Low interest rate loan to cover improvements	39.2%	20	
Grant funding (for portion of retrofit cost)	33.3%	17	
Other (please specify)		1	
	<i>answered question</i>	51	
	<i>skipped question</i>	0	
Number	Response Date	Other (please specify)	Categories
1	Nov 5, 2011 3:24 AM	however I rent	

12. Natural Hazard Community Awareness Survey

In the next 24 months what is the maximum you might be willing to spend - in addition to any incentives - to make hazard mitigation improvements on your home?

Answer Options	Response Percent	Response Count
\$10,000 or more	2.0%	1
\$7,500 to \$9,999	0.0%	0
\$5,000 to \$7,499	2.0%	1
\$2,500 to \$4,999	9.8%	5
\$1,000 to \$2,499	7.8%	4
\$500 to \$999	11.8%	6
\$100 to \$499	13.7%	7
Less than \$100	7.8%	4
Nothing	2.0%	1
I don't know	31.4%	16
Not applicable	11.8%	6
<i>answered question</i>		51
<i>skipped question</i>		0

13. Natural Hazard Community Awareness Survey

Please indicate how you feel about the following statement: It is the responsibility of the individual to seek education and programs that will reduce exposure to the risks associated with natural and man-made hazards.

Answer Options	Response Percent	Response Count
Strongly disagree	11.8%	6
Somewhat disagree	21.6%	11
Neither agree or disagree	5.9%	3
Somewhat agree	17.6%	9
Strongly agree	43.1%	22
<i>answered question</i>		51
<i>skipped question</i>		0

14. Natural Hazard Community Awareness Survey

How willing would you be to volunteer during a disaster event?

Answer Options	Response Percent	Response Count
Very willing	58.8%	30
Somewhat willing	29.4%	15
Am not interested	11.8%	6
	<i>answered question</i>	51
	<i>skipped question</i>	0

15. Natural Hazard Community Awareness Survey

How many days would your household's typical supply of food and water last?

Answer Options	Response Percent	Response Count
0-1	3.9%	2
2-3	17.6%	9
4-5	39.2%	20
6-10	29.4%	15
11-15	9.8%	5
	<i>answered question</i>	51
	<i>skipped question</i>	0

16. Natural Hazard Community Awareness Survey			
How prepared are you to get along without electricity and natural gas for one to five days?			
Answer Options	Response Percent	Response Count	
Not at all prepared	25.5%	13	
Somewhat prepared	54.9%	28	
Very prepared	19.6%	10	
	<i>answered question</i>		51
	<i>skipped question</i>		0

17. Natural Hazard Community Awareness Survey			
Are you capable of helping others evacuate from your neighborhood if needed?			
Answer Options	Response Percent	Response Count	
Yes	76.5%	39	
No	23.5%	12	
	<i>answered question</i>		51
	<i>skipped question</i>		0

18. Natural Hazard Community Awareness Survey			
Would you like to be contacted by the City of Merced Fire Department about emergency preparedness volunteer opportunities?			
Answer Options	Response Percent	Response Count	
Yes	21.6%	11	
No	78.4%	40	
	<i>answered question</i>		51
	<i>skipped question</i>		0

19. Natural Hazard Community Awareness Survey

Please indicate your age range.

Answer Options	Response Percent	Response Count
Under 18	3.9%	2
18 to 24	2.0%	1
25 to 34	11.8%	6
35 to 49	37.3%	19
50 to 65	35.3%	18
66 to 75	7.8%	4
Over 75	2.0%	1
	<i>answered question</i>	51
	<i>skipped question</i>	0

20. Natural Hazard Community Awareness Survey

How long have you lived in the City of Merced?

Answer Options	Response Percent	Response Count
Less than a year	2.0%	1
1-2 years	0.0%	0
3-5 years	7.8%	4
6-10 years	13.7%	7
11-15 years	13.7%	7
More than 20 years	49.0%	25
I don't live in the City of Merced	13.7%	7
	<i>answered question</i>	51
	<i>skipped question</i>	0

21. Natural Hazard Community Awareness Survey

Do you have regular access to the internet?

Answer Options	Response Percent	Response Count
Yes	100.0%	51
No	0.0%	0
<i>answered question</i>		51
<i>skipped question</i>		0

22. Natural Hazard Community Awareness Survey									
Are there any other issues regarding the reduction of risk or loss associated with hazards or disasters in the community that are important to you?									
Answer Options		Response Count							
		13							
	<i>answered question</i>	13							
	<i>skipped question</i>	38							
Number	Response Date	Response Text	Categories						
1	Mar 13, 2012 9:15 PM	no							
2	Nov 28, 2011 10:00 PM	no govt regulations should apply to only govt or public property not private property. also there is enough police and fire personnel responders. our town has too many above ground wires and wires underground not sufficiently marked.							
3	Nov 5, 2011 3:24 AM	Learning about any man-made hazards							
4	Nov 3, 2011 11:23 PM	People with the correct information are beter able to help themselves. Keep getting the word out on what steps are needed to protect the people of Merced. Use billboards to get the word out it works (keep it short and simple with few words).							
5	Nov 2, 2011 9:15 PM	not that I can think of at the moment							
6	Oct 31, 2011 10:16 PM	Telephone and cable lines that hang over housing on the west side is extremely dangerous. Is are the city's plans for laying above ground wiring underground?							
7	Oct 19, 2011 3:57 PM	THE CITY SHOULD HAVE A NUMBER OF STREETS, MARKED AS EMERGENCY EVACUATION ROUTES							
8	Oct 2, 2011 6:48 PM	Yes, the helicopters going to Mercy fly right over my house, from the south. Can't they approach from the north so they fly in over fields?							
9	Sep 16, 2011 11:31 PM	Do we have solar powered generators like							

		Concentrated Solar mirrors? evac options for leaving the city if necessary. Locations on city emergency shealters								
10	Sep 8, 2011 8:48 PM									
11	Sep 7, 2011 3:33 AM	What kind of plan does the city have for an influx of refugees from the coastal areas. A couple of hundred folks showed up in Los Banos fleeing the supposed tsunami a few months back and noone had a clue as to what to do with them. could easily happen here.								
12	Aug 27, 2011 11:46 AM	Illegal roadside dumpigs.								
13	Jul 22, 2011 4:41 PM	n/a								

23. Natural Hazard Community Awareness Survey		
Prevention: Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.		
Answer Options	Response Percent	Response Count
Not important	4.2%	2
Somewhat important	4.2%	2
Important	25.0%	12
Very important	33.3%	16
Extremely important	33.3%	16
	<i>answered question</i>	48
	<i>skipped question</i>	3

24. Natural Hazard Community Awareness Survey

Property Protections: Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.

Answer Options	Response Percent	Response Count
Not important	8.3%	4
Somewhat important	16.7%	8
Important	29.2%	14
Very important	29.2%	14
Extremely important	16.7%	8
<i>answered question</i>		48
<i>skipped question</i>		3

25. Natural Hazard Community Awareness Survey

Natural Resource Protection: Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.

Answer Options	Response Percent	Response Count
Not important	4.2%	2
Somewhat important	20.8%	10
Important	27.1%	13
Very important	29.2%	14
Extremely important	18.8%	9
<i>answered question</i>		48
<i>skipped question</i>		3

26. Natural Hazard Community Awareness Survey

Emergency Services: Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.

Answer Options	Response Percent	Response Count
Not important	0.0%	0
Somewhat important	0.0%	0
Important	18.8%	9
Very important	39.6%	19
Extremely important	41.7%	20
<i>answered question</i>		48
<i>skipped question</i>		3

27. Natural Hazard Community Awareness Survey

Public Education and Awareness: Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.

Answer Options	Response Percent	Response Count
Not important	2.1%	1
Somewhat important	6.3%	3
Important	18.8%	9
Very important	43.8%	21
Extremely important	29.2%	14
<i>answered question</i>		48
<i>skipped question</i>		3

Hazard Type: Extreme Temperature

No.	Action	NFIP	New Bldg/Intra	Existing Bldg/Intra	Prevention	Property Protection	Public Education	Resource Protection	Structural
	Maintain, establish, and enhance heating and cooling centers to serve the current and future population.		X	X					X
	Prepare an "Excessive Heat Response Plan," including such items as: 1) identification of vulnerable populations; and, 2) conducting pre-season public information campaigns.				X		X		
	Evaluate and improve heat advisory and warning methodology.						X		
	Work with PG&E and MID to require that electricity and water are not shut off for nonpayment during heat events.		X	X	X		X		
	Identify vulnerable residents in Merced and community groups working with vulnerable populations (e.g. hospitals, schools, Meals on Wheels) and ensure heat emergency outreach & education programs work with them						X		
	Assess transportation options for residents (especially vulnerable populations) to reach cooling zones and improve access and awareness where possible, or provide rebates or incentives at cooling centers.						X		X
	Comments:								

Hazard Type: Fog

No.	Action	NFP	New Bldg/Infra	Existing Bldg/Infra	Prevention	Property Protection	Public Education	Resource Protection	Structural
	<p>Continue to work with weather forecasting and public safety agencies to provide warning and protective information to schools, residents, travelers, and visitors about the severe valley fog conditions.</p> <p>Install Automated Fog Warning System.</p> <p>Comments:</p>						X		X

Hazard Type: Storm-Related Hazard

No.	Action	NFP	New Bldg/Infra	Existing Bldg/Infra	Prevention	Property Protection	Public Education	Resource Protection	Structural
	Conduct a detailed vulnerability assessment in the future in order to accurately identify the extent of damages to vulnerable buildings, infrastructure, and critical facilities.			✘					✘
	Pursue program of conversion of overhead utilities to underground service that serve critical facilities or other sensitive sites to reduce exposure to hazards.								
	Comments:								

Hazard Type: Flooding (page 1)

No.	Action	NFIP	New Bldg/Intra	Existing Bldg/Intra	Prevention	Property Protection	Public Education	Resource Protection	Structural
	Prepare an Update to the City's Storm-water Drainage Master Plan.	X			X				
	Require a master drainage plan as part of the approval process for all specific plans and large development projects. The plan's intent is to ensure that the overall rate of runoff from a project does not exceed predevelopment levels.	X			X				
	List Specific Flood Control Projects Needed:	X			X				
	Acquire, relocate, elevate, and/or flood-proof critical facilities located within the 100-year floodplain.	X		X	X				
	Reinforce City ramps, bridges, and roads from flooding through protection activities which may include elevating the road and installing culverts beneath the road or building a bridge across the area that experiences regular flooding.	X			X				
	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	X							
	Provide storm-water drainage improvements to reduce frequent flooding, such as storm-water drains, basins, trunk lines, auxiliary pipes, and interconnections.	X			X				

Hazard Type: Flooding. (page 2)

No.	Action	NFP	New Bldg/Intra	Existing Bldg/Intra	Prevention	Property Protection	Public Education	Resource Protection	Structural
	Update the EOP to address emergency evacuation routes relative to flood and dam failure hazards.	X			X		X		
	Review public warning procedures and methods to improve the citywide flood surveillance and early warning system.	X			X				
	Comments:								

