

Long-Term Disaster Recovery Plan



Prepared for the
City of Oakland
as a Model Plan for
Local Governments in the
San Francisco Bay Area

June 30, 2010



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as a Model Plan for Local Governments in
the San Francisco Bay Area

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Association of Bay Area Governments

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Preface

The purpose of this *Long-Term Disaster Recovery Plan* is to develop a model action plan for the City of Oakland, as well as to identify the components of this type of plan for the cities and counties of the San Francisco Bay Area. We hope that this Plan serves as a catalyst for dialog on public policies and actions needed to improve disaster recovery planning.

This June 2010 Plan only covers eight of the nine issues identified by ABAG as critical to recovery: financing recovery issues, recovery of government facilities and services, long-term housing recovery, long-term recovery of business, long-term recovery of health care, schools and education, utilities and transportation, and land use change. ABAG is in the process of developing a regional Long-Term Disaster Recovery Planning Council that will address the final issue of overall disaster recovery coordination and governance.

Each issue identified has three sections:

- a chapter summary of critical actions;
- a report on the City's status in implementing those actions; and
- an issue paper describing the problem prepared for ABAG's Regional Planning Committee.

Finally, as background, a copy of the survey ABAG prepared on the status of long-term disaster recovery planning by local governments in the San Francisco Bay Area is included.

This Plan is intended to supplement, not replace, reports and plans prepared focusing on short-term recovery issues, including transportation, debris disposal, shelter and transitions to interim housing, and critical infrastructure. The focus of this document is on issues that are likely to be critical following the first 90 days after a disaster. However, some additional actions that might be classified as mitigation and emergency response are included to ensure consideration of the full spectrum of related actions.

This plan should be maintained and updated every three to five years to ensure that the STATUS most accurately reflects the actions that City has taken to plan for long-term recovery. If this document is regularly maintained, it will act as a valuable resource to City staff in various departments about available resources and programs within the City and how that information can be accessed.

For additional information on ABAG's Long-Term Disaster Recovery Initiative or to view an electronic copy of this Plan, see <http://quake.abag.ca.gov/recovery>.

Chapter 1: Financing Disaster Recovery

The Problem Is...

Years after Hurricane Katrina, New Orleans is struggling to recover from facing near bankruptcy. Notably, city staff was laid off because of insufficient revenues when they were needed by the city to aid recovery efforts. Without sufficient staff to process building permits and provide many other services to the public, recovery proceeded very slowly. New Orleans had failed to prepare for the challenges of ensuring basic facilities and services were up and running again with the extremely limited cash flow available after a the disaster.

Recovery after a disaster cannot start without a flow of money. Oakland must be prepared to finance recovery efforts to ensure rapid recovery after a major disaster.

While FEMA reimburses local governments for repairs to government buildings and infrastructure, receiving these funds can take from months to years. Considering the lengthy reimbursement delays, Oakland needs to take a variety of steps **now** to ensure it can pay for costly repairs and other recovery efforts. Federal funding for recovery after Hurricane Katrina took close to two years to receive.

Having processes in place pre-disaster for smooth financial transactions will also be critical since Oakland will have reduced revenues. At a time when more funds are needed, the City's tax base will shrink due to business disruptions, lower property tax revenues, less revenue from real estate transfer taxes, and other fees the City depends on. Lower levels of revenue can continue for years.



An Action Plan for Oakland

The following recommendations for action, if adopted by the City of Oakland, will ensure the City is better prepared to finance recovery efforts. The key is to undertake the necessary steps **before** a major earthquake or other disaster. NOTE: Many have already been undertaken.

Purchasing and Contract Provisions	Department
<p>A-1 – Ensure that the purchasing and contract portion of the Municipal Code remains flexible following a disaster. These types of provisions are a simple way to allow the city manager to quickly address urgent issues through access to funds. This provision is not a “blank check,” but a way to launch recovery processes quickly. As is typical with most cities, the city manager will still be required to justify the purchases to city council at a later date.</p> <p>Considering the high cost of recovery, it is recommended that the City continue to specify “no dollar limit” to allow for maximum flexibility in making emergency purchases.</p>	<p>City Attorney</p>

Repair and Reconstruction Provisions	Department
<p>B-1 – Oakland should adopt a revised repair and reconstruction ordinance to ensure that it receives Public Assistance dollars from FEMA after disasters that will not only repair city-owned buildings to their pre-existing condition, but also will repair them to a standard that reduces the likelihood of future damage in a flexible, cost-effective, manner.</p> <p>To fulfill this objective, the City should adopt the model ordinance developed by California Building Officials (CALBO). While FEMA has requested that any reference to the possibility of these ordinances helping cities qualify for more post-disaster public assistance be removed from the model ordinances, that is still obviously one of the intents. The City must enforce the ordinance “uniformly” before disasters occur to maximize eligibility for Public Assistance. This means that the ordinance must be applied to all damaged buildings, regardless of source of the damage (i.e. quake, flooding, fire, a bus going through the building, etc.) and regardless of whether it is a publicly- or privately-owned building.</p>	<p>Community and Economic Development Agency (CEDA) (Building Services and Permit Center) and City Council</p>
<p>B-2 – Oakland should conduct an inventory of its public facilities that clearly documents the “condition” of its facilities. In addition, Oakland should develop a process for regularly updating this information. Documentation can take the form of photographs or videos and should be updated as necessary. Many claims are denied because FEMA Public Assistance will replace to “pre-existing conditions.” Without documentation, the debates about the pre-existing condition are likely to be protracted without any guarantee that the City will receive the funds requested through the claims. If the City does not receive the full amount, it will have wasted precious time, staff, and resources that could have been used elsewhere. Therefore, documenting the condition of public facilities eliminates the guesswork, making the claims process more expedient and straightforward.</p>	<p>Public Works Agency (Department of Facilities and the Environment)</p>

Claims Reimbursement Process	Department
<p>C-1 – Oakland needs to have a special fund for emergency repairs because FEMA Public Assistance is not the same as insurance for the City will need to pay upfront for repairs and <i>then</i> be reimbursed for those costs. According to ABAG’s Long-term Disaster Recovery Survey (2008), many local governments plan to use their reserve fund for this purpose. Cash flow is a major recovery financing issue if damages are extensive and a robust fund is not set aside. Particularly since local sales and property tax revenue will be significantly lower post-disaster, Oakland must have enough funds to compensate for the lengthy reimbursement process.</p>	<p>Finance and Management Agency (Accounting Division)</p>
<p>C-2 – The City of Oakland should designate the person and agency responsible for oversight and management of the FEMA Public Assistance process, including tracking claims, the status of reimbursements, and interfacing with various state and federal government agencies. Oakland also needs a pre-established list of accounting codes to track disaster-related expenditures.</p> <p>The designated person may be the Finance Manager, the Assistant City Manager, or the City Manager. That person needs to regularly interface with the other City departments, particularly police, fire, building, public works, and risk management. The local Office of Emergency Services or Fire Department is <i>typically</i> NOT the appropriate place for this function.</p> <p>Oakland should encourage the use of the state-wide master mutual aid agreement to promote the exchange of finance, human resource, planning, and public works department staff to gain valuable work experience on disaster-related issues and to assist impacted local governments. This program would be similar to existing programs related to fire, police, and building inspection departments.</p> <p>Oakland should ensure the Finance and Management Agency’s Accounting Division staff periodically receives current FEMA training on mandated accounting procedures.</p>	<p>Finance and Management Agency and City Council</p>
<p>C-3 – The City of Oakland should formulate documentation procedures. FEMA requires meticulous paperwork of all expenditures for which the local government expects reimbursement. Staff of the department responsible for oversight and management of the FEMA process should be trained in those procedures and should develop documentation procedures well before the disaster strikes.</p>	<p>Finance and Management Agency (Accounting Division)</p>
<p>C-4 – The City of Oakland should pre-plan for coordination with special districts. In addition, Oakland needs to consider how other public agencies (i.e. school districts, utility districts, non-profit agencies that provide social services) fit into the local claims/reimbursement management process. The City’s recovery can be significantly hampered by delays in claims, or denials of claims, for other agencies within its jurisdictional boundaries. For example, since the City is responsible for the sewer pipeline system, and the East Bay Municipal Utility District (EBMUD) is responsible for the water pipeline distribution system, and since damage to both sets of pipelines is likely to occur in similar areas, if repairs to both systems are made in a coordinated manner, streets will need to be minimally disrupted.</p>	<p>Finance and Management Agency, Office of Emergency Services and Public Works Agency</p>

Local Hazard Mitigation Plan as Part of Seismic Safety Element	Department
<p>D-1 – Federal law (the Disaster Mitigation Act of 2000 or DMA 2000) requires that local governments have either an annex to the ABAG multi-jurisdictional Local Hazard Mitigation Plan (LHMP) that has been approved by FEMA, or a “stand alone” LHMP for the jurisdiction to be eligible for FEMA mitigation funds after disasters.</p> <p>After a disaster, FEMA Public Assistance costs are typically split 75% federal-25% state-local. The 25% state share is then split 75% state – 25% local. A 2006 state law (Govt. Code Sec. 8685.9) allows the state share to be up to the full 100% with no 25% local match providing two conditions are met:</p> <p>(a) the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan in accordance with federal DMA 2000 as part of the safety element of its General Plan, and</p> <p>(b) the state legislature passes special, disaster-specific legislation waiving the local share (something that the legislature has done for virtually every federal major disaster declaration since 1983).</p> <p>Thus, Oakland could potentially save 25% of 25% - or 6¼% of the cost of Public Assistance. Most Bay Area local governments who adopted an annex to the regional multi-jurisdictional Local Hazard Mitigation Plan noted that they planned to adopt their annex as part of the safety element. It is financially important for all local governments to actually do this as soon as possible.</p>	<p>Community and Economic Development Agency and City Attorney</p>



Financing Disaster Recovery STATUS

City of Oakland Long-Term Disaster Recovery Plan

Purchasing and Contract Provisions	Department
<p>ACTION ITEM A-1 – Ensure that the purchasing and contract portion of the Municipal Code remains flexible following a disaster. These types of provisions are a simple way to allow the city manager to quickly address urgent issues through access to funds. This provision is not a “blank check,” but a way to launch recovery processes quickly. As is typical with most cities, the city manager will still be required to justify the purchases to city council at a later date.</p> <p>Considering the high cost of recovery, it is recommended that the City continue to specify “no dollar limit” to allow for maximum flexibility in making emergency purchases.</p>	City Attorney
<p>STATUS</p> <p>The City should consider minor revision of City of Oakland Municipal Code based on staff recommendation below.</p> <p>Reference: City of Oakland Municipal Code Sec. 2.04.020 – Authority of the City Administrator.</p> <p>Parts G and H currently specify the following:</p> <p><u><i>G. Emergency Supply and Services Procurement.</i></u> In a situation deemed by the City Administrator to be an emergency for the immediate preservation of the public peace, health or safety, the City Administrator may authorize a contract or purchase order exceeding two hundred fifty thousand dollars (\$250,000.00) in any one transaction, without advertising or previous specific action by the City Council, for the purchase of supplies or payment for services, or a combination thereof, to be furnished to the city. All emergency contracts awarded by the City Administrator shall be presented for informational purposes to the City Council within a reasonable time of contract execution.</p> <p><u><i>H. Emergency Professional Services and Consultant Agreements.</i></u> In a situation deemed by the City Administrator to be an emergency for the immediate preservation of the public peace, health or safety, the City Administrator may authorize a contract exceeding one hundred fifty thousand dollars (\$150,000.00) in any one transaction, without previous specific action by the City Council, for the payment for services, or a combination thereof, to be furnished to the city. All emergency contracts awarded by the City Administrator shall be presented for informational purposes to the City Council within a reasonable time of contract execution.</p> <p>Staff would like specific language that authorizes leasing equipment and office space to be included in section G.</p>	

Repair and Reconstruction Provisions	Department
<p>ACTION ITEM B-1 – Oakland should adopt a revised repair and reconstruction ordinance to ensure that it receives Public Assistance dollars from FEMA after disasters that will not only repair city-owned buildings to their pre-existing condition, but also will repair them to a standard that reduces the likelihood of future damage in a flexible, cost-effective manner.</p> <p>To fulfill this objective, the City should adopt the model ordinance developed by California Building Officials (CALBO). While FEMA has requested that any reference to the possibility of these ordinances helping cities qualify for more post-disaster public assistance be removed from the model ordinances, that is still obviously one of the intents. The City must enforce the ordinance “uniformly” before disasters occur to maximize eligibility for Public Assistance. This means that the ordinance must be applied to all damaged buildings, regardless of source of the damage (i.e. quake, flooding, fire, a bus going through the building, etc.) and regardless of whether it is a publicly- or privately-owned building.</p>	<p>CEDA (Building Services and Permit Center) and City Council</p>
<p>STATUS</p> <p>The current provisions of the City of Oakland Municipal Code (Chapter 15.24) do NOT qualify.</p> <p>ACTION NEEDED: Review and adopt attached model ordinance recommended by December 2009.</p> <p>For ease in adoption, the ordinance has been modified and is included in this status report. It has been obtained from the following link: http://www.calbo.org/build_dept/emergency/Emergency.aspx</p> <p>The existing Municipal Code Chapter 15.24 deals with public and private structures damaged in earthquakes. In examining what constitutes significant damage, it appears that the Oakland Code is actually more conservative. On the other hand, it specifies that the damage must be from earthquakes (not ANY cause as recommended by CALBO).</p> <p>The current view of the FEMA Office of Inspector General (OIG) is that local ordinances similar to Oakland Municipal Code Section 15.24) violate Federal Regulations. They are described in the preface to the CALBO model ordinance. While public and non-profit facilities may indeed receive initial Public Assistance following future disasters in jurisdictions with ordinances similar to Oakland's, the OIG will likely "de-obligate" the funds upon completion of audits.</p> <p>In reviewing Sec. 15.24, it is important to note that FEMA rules have changed since the 1989 Loma Prieta earthquake. In 1998, FEMA interpreted the Stafford Act, Federal Regulations in 44 CFR 206.226(d) as follows:</p> <p><i>“To the extent a code or standard requires changes to the pre-disaster construction of a facility when it is being repaired or restored, those changes will only be eligible for FEMA funding if the code meets the following five specific criteria:</i></p>	

Repair and Reconstruction Provisions (continued)	Department
<p>(1) Apply to the type of repair or restoration required (standards may be different for new construction and repair work);</p> <p>(2) Be appropriate to the pre-disaster use of the facility;</p> <p>(3) Be found reasonable, in writing and formally adopted and implemented by the state or local government on or before the disaster declaration date or be a legal federal requirement applicable to the type of restoration;</p> <p>(4) Apply uniformly to all similar types of facilities within the jurisdiction of the owner of the facility; and</p> <p>(5) For any standard in effect: at the time of a disaster, it must have been enforced during the time it was in effect.”</p> <p>More recently, FEMA has issued several interpretations of the above regulations paraphrased by CALBO:</p> <p>“1) Repair ordinances must apply ‘uniformly,’ that is to all occupancies regardless of the funding source, the owner, or the regulator. FEMA intends to play one disaster grant applicant off the other if regulations are not entirely applicable or enforced uniformly. FEMA does not consider Appendix Chapter 34 Division III of the 1997 UBC to be eligible since it applies only to “natural” disasters. So FEMA insists that repair ordinances apply to both natural and man-made damage repairs for funding eligibility.</p> <p>2) Repair ordinances must also apply both before and after disasters regardless of whether or not it is a Federally-declared disaster. At this time, FEMA supports the intent of the International Existing Building Code (IEBC), which, if adopted, applies to all repairs regardless of the cause, or whether or not local or federally declarations of disaster or emergency exist.</p> <p>3) The reasonableness clause of FEMA’s regulations has also been the subject of FEMA’s interpretations. FEMA recognizes the IEBC because FEMA has been actively pursuing code change proposals through ICC. If FEMA deems that a local- or state-generated regulation is unreasonable, FEMA reserves the right to initially deny requests for Public Assistance funds on that basis. After recent disasters, some applicants have then been forced to appeal in these cases, creating delays and uncertainty about funding and repairs.”</p> <p>The CALBO model ordinance write-up (http://www.calbo.org/build_dept/emergency/Emergency.aspx) has information from the correspondence between CALBO and FEMA that indicates that FEMA remains concerned about the CALBO model ordinance. However, CALBO (and other professionals involved in the development of the model ordinance) believe that the model ordinance meets the five-point FEMA review criteria.</p> <p>To ensure that the intent of the City of Oakland is clear, it is also recommended that the repair provisions ordinance be passed with a City Council resolution that specifically states, within the reasons for the ordinance, the specific criteria and interpretations noted by FEMA and paraphrased above.</p>	

REPAIR and RECONSTRUCTION MODEL ORDINANCE
(Amending the 2007 California Building Code [based upon the 2006 IBC])

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF OAKLAND, CALIFORNIA, ADDING A NEW CHAPTER _____ TO DIVISION _____ OF THE MUNICIPAL CODE, RELATING TO REPAIR OF DAMAGED STRUCTURES.

The City Council of the City Oakland, California, ordains as follows:

Chapter ____ is added to Division __ of Title __ of the City of Oakland Municipal Code, to read:

Section ____ Adoption and Intent

This chapter establishes regulations as amendments to the building code for the expeditious repair of damaged structures. In the event an amendment to the California Building Standards Code results in differences between these building standards and the California Building Standards Code, the text of these building standards shall govern. In accordance with California Health and Safety Code Section 17958.7, express findings that modifications to the California Building Standards Code are reasonably necessary because of local climatic, geological or topographical conditions are either already on file with the California Building Standards Commission, or will be filed prior to the effective date of the ordinance codified in this Article. In accordance with California Government Code Section 50022.6, at least one true copy of the Uniform Building Code has been on file with the City Clerk since fifteen (15) days prior to enactment of the ordinance codified in this Article. While this Article is in force, a true copy of this Chapter shall be kept for public inspection in the office of the City Clerk. A reasonable supply of this Chapter shall be available in the office of the City Clerk for public purchase.

Section ____ Definitions

For the purposes of this chapter, the following definition applies and is hereby added to Section 3402.1 Definitions of the 2007 California Building Code (CBC):

Substantial Structural Damage. A condition where:

1. In any story, the vertical elements of the lateral-force-resisting system have suffered damage such that the lateral load-carrying capacity of the structure in any direction has been reduced by more than 20 percent from its pre-damaged condition, or
2. The capacity of any vertical gravity load-carrying component, or any group of such components, that supports more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its pre-damaged condition, and the remaining capacity of such affected elements with respect to all dead and live loads is less than 75 percent of that required by the building code for new buildings of similar structure, purpose, and location.

Section ___ Repairs

For the purposes of this chapter, the following repair requirements are hereby added as a new Subsection 3403.5 to Section 3403 Additions, Alterations or Repair in the 2007 California Building Code (CBC):

3403.5.1 Repairs. Repairs of structural elements shall comply with this section.

3403.5.1.1 Seismic evaluation and design. Seismic evaluation and design of an existing building and its components shall be based on the following criteria.

3403.5.1.1.1 Evaluation and design procedures. The seismic evaluation and design shall be based on the procedures specified in the building code, ASCE 31 *Seismic Evaluation of Existing Buildings* (for evaluation only) or ASCE 41 *Seismic Rehabilitation of Existing Buildings*. The procedures contained in Appendix A of the *International Existing Building Code* shall be permitted to be used as specified in Section 3403.5.1.1.3.

3403.5.1.1.2 CBC level seismic forces. When seismic forces are required to meet the building code level, they shall be one of the following:

1. 100 percent of the values in the building code. The R factor used for analysis in accordance with Chapter 16 of the building code shall be the R factor specified for structural systems classified as "Ordinary" unless it can be demonstrated that the structural system satisfies the proportioning and detailing requirements for systems classified as "Intermediate" or "Special".
2. Forces corresponding to BSE-1 and BSE-2 Earthquake Hazard Levels defined in ASCE 41. Where ASCE 41 is used, the corresponding performance levels shall be those shown in Table 3403.5.1.1.2.

**TABLE 3403.5.1.1.2
ASCE 41 and ASCE 31 PERFORMANCE LEVELS**

OCCUPANCY CATEGORY (BASED ON IBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 31 AND WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Collapse Prevention (CP)
II	Life Safety (LS)	Collapse Prevention (CP)
III	Note (a)	Note (a)
IV	Immediate Occupancy (IO)	Life Safety (LS)

Repair and Reconstruction Provisions (continued)	Department
<p>ACTION ITEM B-2 – Oakland should conduct an inventory of its public facilities that clearly documents the “condition” of its facilities. In addition, Oakland should develop a process for regularly updating this information. Documentation can take the form of photographs or videos and should be updated as necessary. Many claims are denied because FEMA Public Assistance will replace to “pre-existing conditions.” Without documentation, the debates about the pre-existing condition are likely to be protracted without any guarantee that the City will receive the funds requested through the claims. If the City does not receive the full amount, it will have wasted precious time, staff, and resources that could have been used elsewhere. Therefore, documenting the condition of public facilities eliminates the guesswork, making the claims process more expedient and straightforward.</p>	<p>Public Works Agency (Department of Facilities and the Environment)</p>
<p>STATUS</p> <p>While the City currently has informal procedures for documenting pre-existing conditions, those procedures are prepared for the purposes of capital improvements budgeting. Thus, they are not collected, compiled, backed up, and retained in a manner that would maximize their utility during the claims reimbursement process.</p> <p>The following checklist is a guideline Oakland can use to improve its inventory of city-owned facilities. If documenting the pre-existing conditions of <i>ALL</i> city-owned facilities is not possible, the City must determine which facilities are most critical for maximum FEMA reimbursements due to expensive finishes and contents, and assume the risk of not documenting the existing condition of the remaining facilities.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Confirm any existing documentation of City’s facilities. <input type="checkbox"/> Using the existing documentation Oakland’s of facilities, supplement or compile a comprehensive list of city-owned facilities. <input type="checkbox"/> Compile a prioritized list of these facilities the City would like to be reimbursed for by FEMA, taking into consideration the importance of the facility’s function during the recovery period, the dollar value of the facility and its contents, and other factors that contribute to the extent to which the City would like to maximize reimbursement for the damage to (and in) a particular facility by FEMA. <input type="checkbox"/> Start the inventory process. Staff will document the pre-determined facilities’ existing conditions using either a camcorder or camera. <input type="checkbox"/> Develop a database that links photo files with building addresses. <input type="checkbox"/> Store the data in at least two locations: preferably at the Office of Emergency Services and one location off-site. The latter should be located far enough away that it is unaffected by the disaster. <input type="checkbox"/> Regularly update the inventory of city-owned facilities to ensure it is current. Every 2-5 years, or upon a significant remodel or changes of use, would be an appropriate time frame. 	

Repair and Reconstruction Provisions (continued)	Department
<p>The list of city-owned facilities may include, but are not limited to:</p> <ul style="list-style-type: none"> • City administration buildings • Storm drains, culverts, and channels • Levees & retaining structures • Transportation facilities, including roads, bridges, street lights and stop signs • Airport and port facilities • Sewage treatment plants and sewers • Libraries • Historic or culturally significant structures • Community and recreation centers and facilities • Housing Authority buildings 	

Claims Reimbursement Process	Department
<p>ACTION ITEM C-1 – Oakland needs to have a special fund for emergency repairs because FEMA Public Assistance is not the same as insurance for the City will need to pay upfront for repairs and then be reimbursed for those costs. According to ABAG’s Long-term Disaster Recovery Survey (2008), many local governments plan to use their reserve fund for this purpose. Cash flow is a major recovery financing issue if damages are extensive and a robust fund is not set aside. Particularly since local sales and property tax revenue will be significantly lower post-disaster, Oakland must have enough funds to compensate for the lengthy reimbursement process.</p>	<p>Finance and Management Agency (Accounting Division)</p>
<p>STATUS</p> <p>The City uses the City’s Reserve Fund to pay upfront for emergency repairs related to a disaster, unless otherwise specified in the Disaster Declaration.</p> <p>The time for FEMA reimbursement varies by disaster and by type and complexity of request. After the oil spill in San Francisco Bay in November 7, 2007, the City of Oakland received FEMA reimbursement in approximately 6 weeks. Even in larger disasters, simple reimbursement of emergency response reimbursement typically takes 30-60 days. In the case of New Orleans, however, capital projects requiring Disaster Assistance Requests (DARs), disputes over eligibility are taking years. It is anticipated that larger disasters will take additional time.</p> <p>The City Finance Department staff should monitor the status of this fund to ensure it remains adequate for this purpose.</p>	

Claims Reimbursement Process (continued)	Department
<p>ACTION ITEM C-2 – The City of Oakland should designate the person and agency responsible for oversight and management of the FEMA Public Assistance process, including tracking claims, the status of reimbursements, and interfacing with various state and federal government agencies. Oakland also needs a pre-established list of accounting codes to track disaster-related expenditures.</p> <p>The designated person may be the Finance Manager, the Assistant City Manager, or the City Manager. That person needs to regularly interface with the other City departments, particularly police, fire, building, public works, and risk management. The local Office of Emergency Services or Fire Department is <i>typically</i> NOT the appropriate place for this function.</p> <p>Oakland should encourage the use of the state-wide master mutual aid agreement to promote the exchange of finance, human resource, planning, and public works department staff to gain valuable work experience on disaster-related issues and to assist impacted local governments. This program would be similar to existing programs related to fire, police, and building inspection departments.</p> <p>Oakland should ensure the Finance and Management Agency’s Accounting Division staff periodically receives current FEMA training on mandated accounting procedures.</p>	<p>Finance and Management Agency (Accounting Division) and City Council</p>
<p>STATUS</p> <p>The City has designated, through resolutions 79055 (2/15/05) and 80022 (7/16/06), the Director of the Finance and Management Agency, Controller, Assistant Controller, and, in addition, the Manager of the Office of Emergency Services as authorized representatives for the purpose of receipt, processing and coordination of all inquiries and requirements necessary to obtain available federal financial assistance. The City has a pre-established list of accounting codes to track disaster-related expenditures.</p> <p>The lead person in the Finance Department should regularly interface with the other City departments, particularly police, fire, building, public works, and risk management.</p> <p>The lead person in the Finance Department will be encouraged to gain valuable work experience on disaster-related issues and to assist impacted local governments through mutual aid for disasters in other jurisdictions. One of the ways this can be done is to participate in the California Emergency Managers Mutual Aid (EMMA) Plan. See http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/Emergency%20Managers%20Mutual%20Aid%20Plan/\$file/Emma.pdf. The EMMA Plan allows finance department staff to go to a disaster area to assist the affected jurisdiction. Specifically, page 4 of that Plan notes that:</p> <p><i>“The primary source of volunteers for EMMA positions will be from emergency management personnel, defined as: ‘A state or local government employee responsible for managing, planning, operating, or providing logistical or finance/administrative support to emergency activities or programs.’ “</i></p> <p>There, staff will gain hands-on experience related to the claims reimbursement process, which can then be applied if Oakland experiences a similar disaster.</p> <p>Currently two staff members in the Finance and Management Agency have received FEMA training.</p>	

Claims Reimbursement Process (continued)	Department
<p>ACTION ITEM C-3 – The City of Oakland should formulate documentation procedures. FEMA requires meticulous paperwork of all expenditures for which the local government expects reimbursement. Staff of the department responsible for oversight and management of the FEMA process should be trained in those procedures and should develop documentation procedures well before the disaster strikes.</p>	<p>Finance and Management Agency (Accounting Division)</p>
<p>STATUS</p> <p>The City has current FEMA documentation procedures in place. The City has been designated a disaster area in the past and is familiar with these procedures.</p> <p>FEMA’s documentation requirements for processing reimbursements are not static and, therefore, it is important to confirm the latest requirements to ensure they are current.</p> <p>Department managers and/or the staff member in charge of each department’s finances should receive basic training in disaster documentation procedures.</p> <p>Documentation procedures are currently specified by SEMS and NIMS.</p>	

Claims Reimbursement Process (continued)	Department
<p>ACTION ITEM C-4 – The City of Oakland should pre-plan for coordination with special districts. In addition, Oakland needs to consider how other public agencies and the private sector (i.e. school districts, utility districts, non-profit agencies that provide social services) fit into the local claims/reimbursement management process. The City’s recovery can be significantly hampered by delays in claims, or denials of claims, for other agencies within its jurisdictional boundaries. For example, since the City is responsible for the sewer pipeline system, and the East Bay Municipal Utility District (EBMUD) is responsible for the water pipeline distribution system, and since damage to both sets of pipelines is likely to occur in similar areas, if repairs to both systems are made in a coordinated manner, streets will need to be minimally disrupted.</p>	<p>Finance and Management Agency, Office of Emergency Services and Public Works Agency</p>
<p>STATUS</p> <p>The City is currently the lead agency of the Emergency East Bay Regional Emergency Management & Disaster Preparedness Council. This group is the logical forum for the coordination of this process both before and after disasters. Members of this committee include representatives from BART, AC Transit, EBMUD and PG&E, telecommunications, as well as City Public Works and other city departments.</p> <p>Developing pre-disaster model contracts that address the reimbursement process with special districts will partially eliminate the negotiations around the question of who is liable and responsible for paying for repairs, when the facilities of two or more jurisdictions are affected by a disaster.</p> <p>In particular, Oakland needs to enter into negotiations with private and quasi-public entities that supply the City’s utilities and transportation infrastructure to coordinate disaster recovery for their facilities and systems.</p> <p>The process for coordination with special districts can include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify special district, public agency, or private company <input type="checkbox"/> Evaluate its existing continuity plan <input type="checkbox"/> Negotiate a collaborative plan <input type="checkbox"/> Obtain approval from appropriate authorities <input type="checkbox"/> Enter into an agreement on coordinated action <input type="checkbox"/> Renew and revise as necessary <p>Another possible forum for coordination with special districts is the Emergency Management Board and Disaster Preparedness Council, as specified in Chapter 8.50 of the Oakland Municipal Code.</p>	

Local Hazard Mitigation Plan as Part of Seismic Safety Element	Department
<p>ACTION ITEM D-1 – Federal law (the Disaster Mitigation Act of 2000 or DMA 2000) requires that local governments have either an annex to the ABAG multi-jurisdictional Local Hazard Mitigation Plan (LHMP) that has been approved by FEMA, or a “stand alone” LHMP for the jurisdiction to be eligible for FEMA mitigation funds after disasters.</p> <p>After a disaster, FEMA Public Assistance costs are typically split 75% federal-25% state-local. The 25% state share is then split 75% state – 25% local. A 2007 State law (Govt. Code Sec. 8685.9) allows the state share to be up to the full 100% with no local match providing two conditions are met:</p> <p>(a) the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan in accordance with federal DMA 2000 as part of the safety element of its General Plan, and</p> <p>(b) the state legislature passes special, disaster-specific legislation waiving the local share (something that the legislature has done for virtually every federal major disaster declaration since 1983).</p> <p>Thus, Oakland could potentially save 25% of 25% - or 6¼% of the cost of Public Assistance. Most Bay Area local governments who adopted an annex to the regional multi-jurisdictional Local Hazard Mitigation Plan noted that they planned to adopt their annex as part of the safety element. It is financially important for all local governments, including Oakland, to actually do this as soon as possible.</p>	<p>Community and Economic Development Agency and City Attorney</p>
<p>STATUS</p> <p>The City is in the process of updating its 2005 LHMP annex to the ABAG multi-jurisdictional LHMP.</p> <p>The resolution adopting its 2005 LHMP Plan annex appears to comply with the state law that will make Oakland eligible for waiver of the local match. (The City Attorney’s office may want to review, however.)</p> <p>Excerpt from Oakland LHMP Annex:</p> <p><i>“The resolution adopting this annex to ABAG’s multi-jurisdictional LHMP was on the City Council agenda January 17, 2006. The mitigation strategies identified in this annex have already been integrated into those contained in the City’s Safety Element “Protect Oakland.” This has been possible because of the close collaboration between the City of Oakland and ABAG.”</i></p> <p>The City anticipates again participating in the MJ-LHMP that is currently being updated for final adoption in early 2010.</p>	

Chapter 2: Recovery of Government Facilities and Services

The Problem Is...

Facilities owned by Oakland may be damaged in a disaster. When this occurs, the normal response and recovery actions of the City are hampered. Damage may occur to the structure of buildings, equipment, building contents, and financial records.

When this occurs, the City will find its overworked staff dealing with the recovery of its own facilities and functionality, at the same time they are trying to help the community to recover as a whole.

The damage to city hall from the 1989 Loma Prieta earthquake dislocated staff. During the long recovery period, departments had to relocate multiple times and these temporary office spaces frequently did not have reliable access to phones and computers. Valuable records were lost, slowing down recovery. These issues all affected the Oakland’s ability to provide services after Loma Prieta.

Since Loma Prieta, the City has completed a retrofit to city hall, and has retrofitted, rebuilt, or closed most critical administration facilities, fire

stations, and the downtown police stations. For long-term recovery planning, Oakland will need to examine other facilities such as public health and social services buildings, senior and community centers, and financial records centers, as well as critical port and airport facilities.

In addition, the vulnerability of building contents, particularly files, computers, servers, and other key equipment should be evaluated. These “nonstructural” assets are not typically expensive to secure; yet if they are not secured, they can prevent the facility from being functional and significantly slow down the pace of recovery—even if the building is structurally intact.

In the event staff cannot return to their original office space, the City needs to have a list of alternate locations and a list prioritizing rebuilding of the damaged structures.

Without taking steps to restore functionality to both structures and their contents, City staff will be unable to help Oakland’s residents.



An Action Plan for Oakland

The following recommendations for action, if adopted by the City of Oakland, will ensure the City is better prepared to speed up recovery efforts to government facilities and services. The key is to undertake the necessary steps **before** a major earthquake or other disaster.

Structural Integrity of Key Government Facilities	Department
<p>A-1 – An evaluation of the structural integrity (retrofit solutions) of critical government-owned facilities, as well as their location relative to areas subject to flooding, landslides, and wildfires, are essential key steps to recovery. Once they have been identified and evaluated, critical facilities need to be retrofitted or replaced.</p> <p>Non-emergency response facilities such as public health, social services, senior center, community center, and financial records center buildings also need to be identified, evaluated, and retrofitted or replaced. It is important to keep in mind that even newer buildings may be structurally deficient and, therefore, need additional structural support.</p>	<p>Office of Emergency Services and City Council</p>

Structural Integrity of Key Government Facilities (continued)	Department
<p>A-2 – The vulnerability of building contents also must be addressed. Building contents include: computer equipment, phones, files, and other tools used by staff to conduct daily business. With the increased reliance on computers and the Internet, the City needs to ensure computers and servers are properly braced and that their power sources are functional. These non-structural assets are typically not expensive to secure and, if secured, will allow government services to be up and running more quickly.</p>	<p>Public Works Agency (Department of Facilities and Environment) and City Council</p>
Emergency Relocation of Government Facilities	Department
<p>B-1 – Plans should be made for the emergency relocation of City-owned facilities critical to emergency response, as well as any facilities with known structural deficiencies or in hazardous areas. Such plans need to incorporate the following components:</p> <ol style="list-style-type: none"> 1) Emphasize current communication technology such as cellular phones, email, and other forms of text messages, as well as ways to work with local telephone companies to set up phone systems that either preserve pre-disaster phone numbers, or include call forwarding provisions that allow the public to contact individual departments or staff. 2) Include public education and outreach communication needs. The public, particularly those with special needs and most in need of government services, may become frustrated and alarmed if “normal” contacts are not reachable. 3) Include working with local transit agencies to ensure continued public access to government buildings for those without cars. 4) Include access to back-ups of key records and other documents from alternate locations. <p>Use of mutual aid agreements with other local governments for relocation of facilities should be explored.</p>	<p>Office of Emergency Services and CEDA (Real Estate Division)</p>
Repair or Rebuild Local Government Facilities	Department
<p>C-1 – Oakland needs to have a plan for prioritizing the repair or rebuilding of City-owned facilities. This decision-making process will be based largely on the degree that a facility is considered “critical” and the extent of damage suffered by the facility. The Earthquake Recovery and Reconstruction Guidelines (SCEPP/OES, 1991) report recommends the following priority order:</p> <ol style="list-style-type: none"> 1) Repair facilities that contain or provide critical public services and that can be repaired in minimal time. 2) Initiate the design and rebuilding processes for government facilities that contain or provide critical government services and require extensive and lengthy repairs or total reconstruction. 3) Repair administrative facilities in which little public contact is made, but essential support services are provided. 4) Initiate the design and rebuilding processes for local government facilities that are needed primarily for internal administrative purposes. 	<p>Planning and Zoning, Office of Emergency Services, and City Administrator’s Office</p>

Repair or Rebuild Local Government Facilities (continued)	Department
<p>The recovery process provides an opportunity to evaluate the existing location of facilities that house government services, particularly if those facilities need to be replaced. Therefore, some buildings or facilities might be consolidated to improve economy and efficiency. However, it is important to note that existing FEMA regulations (based on the requirements of the Stafford Act) may put severe limitations on a local government's ability to make these changes and receive federal funding.</p>	
Finance Department Recovery	Department
<p>D-1 – Oakland needs to have plans and back-up procedures to pay employees and vendors if normal finance department operations are disrupted. The following steps will allow the Finance Department to resume its function with minimal disruptions:</p> <ol style="list-style-type: none"> 1) Develop a verified business continuity plan from Wells Fargo Bank and other financial institutions that the Finance Department uses, including arrangements for distributing debit cards for emergency purchases. 2) Create a backup payroll process to pay City employees in the event the regular process is disrupted. 3) Create an inventory of paper checks and a designated alternate location for distributing payroll checks. 4) Establish a hot-site for backing-up financial records on a regular basis, preferably daily. This site should be located far enough geographically that it is not impacted by the disaster. Cities should have mutual aid agreements or use the services of Information Technology companies to back-up their records. <p>The recovery process provides an opportunity to evaluate the existing location of facilities that house government services, particularly if those facilities need to be replaced. Therefore, some buildings or facilities might be consolidated to improve economy and efficiency. However, it is important to note that existing FEMA regulations (based on the requirements of the Stafford Act) may put severe limitations on a local government's ability to make these changes and receive federal funding.</p>	<p>Finance and Management Agency (Treasury – Payroll Division)</p>
Recovery of Information Technology (IT) System and Geographic Information System (GIS)	Department
<p>E-1 – Having reliable backups of the City's electronic files will be critical for the recovery effort. In particular, the IT department's GIS division staff will need to work closely with the permit center and the planning department to coordinate and consolidate information on tagging of structures.</p> <p>The GIS department (Geographical Information Systems) captures, stores, analyzes, and displays geographically referenced information. This information is then utilized by public service agencies as well as the citizens of Oakland in scientific investigations, resource management, and development planning. In addition, applications and intranet web services are developed by this department to facilitate the distribution of information within the city government and to all external citizens.</p>	<p>Information Technology (Geographic Information System Division) and (Building Services and Permit Center)</p>

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Recovery of Government Facilities and Services STATUS

City of Oakland Long-Term Disaster Recovery Plan

Structural Integrity of Key Government Facilities	Department
<p>ACTION ITEM A-1 – An evaluation of the structural integrity (retrofit solutions) of critical government-owned facilities, as well as their location relative to areas subject to flooding, landslides, and wildfires, are essential key steps to recovery. Once they have been identified and evaluated, critical facilities need to be retrofitted or replaced.</p> <p>Non-emergency response facilities such as public health, social services, senior center, community center, and financial records center buildings also need to be identified, evaluated, and retrofitted or replaced. It is important to keep in mind that even newer buildings may be structurally deficient and, therefore, need additional structural support.</p>	<p>Office of Emergency Services and City Council</p>
<p>STATUS</p> <p>This action item is partially complete.</p> <p>Step 1. Oakland should identify, evaluate (for seismic soundness), and then categorize the facilities it owns into three groups:</p> <p>Critical facilities (tier 1)</p> <p>Very important facilities (tier 2)</p> <p>Essential services facilities (tier 3)</p> <p>Step 2. Once all city-owned facilities have been categorized, Oakland should retrofit or replace the facilities in order from tier 1 to tier 3.</p> <p>The City of Oakland collected data on 325 city-owned critical facilities as part of ABAG’s role in developing the Local Hazard Mitigation Plan for the Bay Area. All of the facilities are located within regions of predicted very violent or violent shaking. Almost all (23/25) fire facilities have been retrofitted, rebuilt, or closed; one is currently being rebuilt and one is not considered a critical facility because it only handles support functions. In addition, city hall has been retrofitted, as was the downtown police station. While some work has occurred at port and airport facilities, there are still some significant vulnerabilities. Holding a workshop to discuss and confirm prioritization of critical facilities will help prepare Oakland for disaster recovery planning.</p> <p>An assessment of essential services facilities (such as community centers) still needs to be addressed. See Chapter 1, Item B-2 for the types of facilities to consider.</p>	

Structural Integrity of Key Government Facilities (cont.)	Department
<p>ACTION ITEM A-2 – The vulnerability of building contents also must be addressed. Building contents include: computer equipment, phones, files, and other tools used by staff to conduct daily business. With the increased reliance on computers and the Internet, the City needs to ensure computers and servers are properly braced and that their power sources are functional. These non-structural assets are typically not expensive to secure and, if secured, will allow government services to be up and running more quickly.</p>	<p>Public Works Agency (Department of Facilities and Environment) and City Council</p>
<p>STATUS</p> <p>City Council has not yet considered mitigation strategy GOVT-a-4, “Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical buildings from being functional after major natural disasters.” However, in the Oakland Fire Department, this issue is addressed by floor wardens who monitor anchoring of computers, file cabinets, bookcases, and other large equipment.</p> <p>San Francisco provides training to staff and the public on how to secure building contents. The training consists of a display of the necessary tools and a demonstration of how to brace building contents such as book shelves and computers. Through these training sessions, San Francisco encourages, but does not mandate, staff to secure their office equipment. These training sessions were paid for by the City and County of San Francisco and there are no known external sources of funding.</p>	

Emergency Relocation of Government Facilities	Department
<p>ACTION ITEM B-1 – Plans should be made for the emergency relocation of City-owned facilities critical to emergency response, as well as any facilities with known structural deficiencies or in hazardous areas. Such plans need to incorporate the following components:</p> <ol style="list-style-type: none"> 1) Emphasize current communication technology such as cellular phones, email, and other forms of text messages, as well as ways to work with local telephone companies to set up phone systems that either preserve pre-disaster phone numbers, or include call forwarding provisions that allow the public to contact individual departments or staff. 2) Include public education and outreach communication needs. The public, particularly those with special needs and most in need of government services, may become frustrated and alarmed if “normal” contacts are not reachable. 3) Include working with local transit agencies to ensure continued public access to government buildings for those without cars. 4) Include access to back-ups of key records and other documents from alternate locations. <p>Use of mutual aid agreements with other local governments for relocation of facilities should be explored.</p>	<p>Office of Emergency Services and CEDA (Real Estate Division)</p>
<p>STATUS</p> <p>A partial list of alternative locations is prepared, but should be finalized and made available to city staff and officials. Agreements should be reached with facilities not owned by the city for use after a disaster.</p> <p>Other items still to be addressed or confirmed include: the operability of communication technology such as cellular phone service, effective public outreach, cooperation with transit authorities to ensure public transportation options, and access to key records and documents.</p> <p>This issue should be covered in each department’s Disaster Operations Plan.</p>	

Repair or Rebuild Local Government Facilities	Department
<p>ACTION ITEM C-1 – Oakland needs to have a plan for prioritizing the repair or rebuilding of City-owned facilities. This decision-making process will be based largely on the degree that a facility is considered “critical” and the extent of damage suffered by the facility. The Earthquake Recovery and Reconstruction Guidelines (SCEPP/OES, 1991) report recommends the following priority order:</p> <ol style="list-style-type: none"> 1) Repair facilities that contain or provide critical public services and that can be repaired in minimal time. 2) Initiate the design and rebuilding processes for government facilities that contain or provide critical government services and require extensive and lengthy repairs or total reconstruction. 3) Repair administrative facilities in which little public contact is made, but essential support services are provided. 4) Initiate the design and rebuilding processes for local government facilities that are needed primarily for internal administrative purposes. <p>The recovery process provides an opportunity to evaluate the existing location of facilities that house government services, particularly if those facilities need to be replaced. Therefore, some buildings or facilities might be consolidated to improve economy and efficiency. However, it is important to note that existing FEMA regulations (based on the requirements of the Stafford Act) may put severe limitations on a local government’s ability to make these changes and receive federal funding.</p>	<p>CEDA (Planning and Zoning), Office of Emergency Services, and City Administrator’s Office</p>
<p>STATUS</p> <p>The City of Oakland has not yet considered developing a plan for prioritizing the repair or rebuilding of critical facilities damaged in a disaster. The City should categorize its 324 critical facilities based on the extent to which the public is impacted. A meeting with department heads should be convened to formulate an overall prioritized list of Oakland’s critical facilities, based on each department’s prioritized list of the buildings it uses.</p> <p>The guideline above can be used to help prioritize the order in which Oakland considers rebuilding its facilities.</p>	

Finance Department Recovery	Department
<p>ACTION ITEM D-1 – Oakland needs to have plans and back-up procedures to pay employees and vendors if normal finance department operations are disrupted. The following steps will allow the Finance Department to resume its function with minimal disruptions:</p> <ol style="list-style-type: none"> 1) Develop a verified business continuity plan from Wells Fargo Bank and other financial institutions that the Finance Department uses, including arrangements for distributing debit cards for emergency purchases. 2) Create a backup payroll process to pay City employees in the event the regular process is disrupted. 3) Create an inventory of paper checks and a designated alternate location for distributing payroll checks. 4) Establish a hot-site for backing-up financial records on a regular basis, preferably daily. This site should be located far enough geographically that it is not impacted by the disaster. Cities should have mutual aid agreements or use the services of Information Technology companies to back-up their records. <p>The recovery process provides an opportunity to evaluate the existing location of facilities that house government services, particularly if those facilities need to be replaced. Therefore, some buildings or facilities might be consolidated to improve economy and efficiency. However, it is important to note that existing FEMA regulations (based on the requirements of the Stafford Act) may put severe limitations on a local government’s ability to make these changes and receive federal funding.</p>	<p>Finance and Management Agency (Treasury-Payroll Division)</p>
<p>STATUS</p> <ol style="list-style-type: none"> 1) The City has discussed emergency preparedness with Wells Fargo Bank and the bank has been working with the City to provide alternate contacts in the case of an emergency and to identify service center(s) that would handle the City’s banking operation. The City also has financial relationships with other institutions (i.e. money market funds, Local Agency Investment Fund, trustee banks, etc.) and the City has been supplied with alternate contacts in the case of an emergency for these institutions as well. <p>Listed below are some of the general duties that must be maintained:</p> <ul style="list-style-type: none"> • Ensure that all banking and trustee operations continue as needed. • Open line of communication with Wells Fargo Bank to discuss plan implementation for all banking related operations. • Contact trustee banks (i.e. Wells Fargo, The Bank of New York, and US Bank) to provide updates on debt service obligations. • Contact Wells Fargo Corporate Trust to discuss investment related operations. • Contact money market funds (i.e. AIM Investments, JP Morgan, and LAF) to discuss liquidity issues. <ol style="list-style-type: none"> 2) The City maintains a backup payroll file from the bank the City would use to generate a duplicate transmission of the previous payroll. 3) The Treasury Division has an inventory of manual checks at the City’s Emergency Operation Center in the case of an emergency or disaster. The computers and copy machines are serviced and maintained on a regular basis. 	

Finance Department Recovery (continued)	Department
4) The City's Department of Information Technology routinely backs up files to insure the smooth running of operations in the case of an emergency.	

Recovery of Information Technology (IT) System and Geographic Information System (GIS)	Department
<p>ACTION ITEM E-1 – Having reliable backups of the City’s electronic files will be critical for the recovery effort. In particular, the IT department’s GIS division staff will need to work closely with the permit center and the planning department to coordinate and consolidate information on tagging of structures.</p> <p>The GIS department (Geographical Information Systems) captures, stores, analyzes, and displays geographically referenced information. This information is then utilized by public service agencies as well as the citizens of Oakland in scientific investigations, resource management, and development planning. In addition, applications and intranet web services are developed by this department to facilitate the distribution of information within the city government and to all external citizens.</p>	<p>Information Technology (Geographic Information System Division) and CEDA (Building Services and Permit Center)</p>
<p>STATUS</p> <p>The Office of Emergency Services is currently working with the Information Technology (IT) department on its Disaster Operations Plan.</p> <p>The IT department currently stores backups of its critical data (such as financial records, payroll, GIS data, human resources data, etc.) on computer tapes. The tapes are stored in a “data vault” in Sacramento and are managed by Iron Mountain Inc. The tapes are rotated every week.</p> <p>The GIS department staff needs to work plan to work closely with the permit center and the planning department to coordinate and consolidate information on tagging of structures.</p>	

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Chapter 3: Long-Term Housing Recovery

How Extensive Will Housing Losses Be in Oakland?

In a major earthquake (approximately magnitude 7) on the Hayward fault, ABAG estimates **26,000** housing units in Oakland will become uninhabitable. Most (**14,700**) of these units will be in “soft-story” apartments and condos, which are buildings with open parking or commercial areas on all or part of the first floor. The first floor of these buildings, if built prior to the 1988 code, can tilt or collapse. Some people are likely to be killed and many more injured due to this damage. Gas lines may rupture and start fires that can spread to neighboring buildings.



Damage to Housing in 1989 Loma Prieta Earthquake

An estimated **67,000 people will be displaced**. In the immediate aftermath of such a disaster, the American Red Cross, the City of Oakland, and others will set up mass care and shelters for those unable to find alternate shelter. ABAG estimates a peak demand for **21,500 shelter beds** in Oakland, a number that far exceeds the estimated capacity for fewer than 5,000 beds in ADA-accessible facilities in city-owned facilities and public schools.

Sewer, water, roads, communication, and power systems are disrupted over a large geographical area. Emergency communications and power are expected to be restored within a few days. Widespread utility restoration is likely to take weeks or months, especially water and sewer pipelines.

Historically, because of finance and housing markets, multi-family housing is particularly slow to rebuild, as is low-income housing. Thus, the most vulnerable populations and the most vulnerable housing types are hit hardest – and longest. This population is most likely to need long-term housing solutions.

FEMA provides **Individual Assistance** directly to people who have lost their homes in a disaster – whether or not they owned the homes. Individual Assistance is not intended to – and does not – take the place of earthquake insurance. It does not make people or families “whole” and does not contribute to the long-term recovery of housing.

The percentage of homeowners and renters who have purchased earthquake insurance is only about 1 in 8 – and these policies tend to be held by risk-adverse people who live in newer homes or have retrofitted their homes to be less vulnerable.

Extensive damage will permanently change the architectural character of neighborhoods and reduce the amount of affordable housing.

The housing problem is not easily fixed. The solution involves the complex interaction of local, state, and federal governments, along with non-profit organizations, neighborhood and equity advocates, a variety of for-profit and non-profit housing developers, environmentalists, business groups, and historic preservationists.

The essential first steps in planning for long-term housing recovery are establishing agreements on (1) who is responsible for what actions and (2) when coordination is required. Local governments should also be willing to forfeit some control in favor of a broader recovery strategy that partners government and other interest groups. This effort also requires that people who do not routinely think about disaster planning adopt a new mindset to solve the long-term housing issue.



“Tent City” in Golden Gate Park in 1906

TRANSITIONS FROM SHELTER: The Housing Assistance System

The American Red Cross provides short-term shelter, typically in schools, community centers, and churches. The shelters are intended to be used for a few days to a few weeks.

Longer-term housing is available from FEMA through a system of housing vouchers. At the same time, organizations such as the Red Cross, Mennonite Relief Services, and other church groups and non-profits mobilize to build and repair housing.

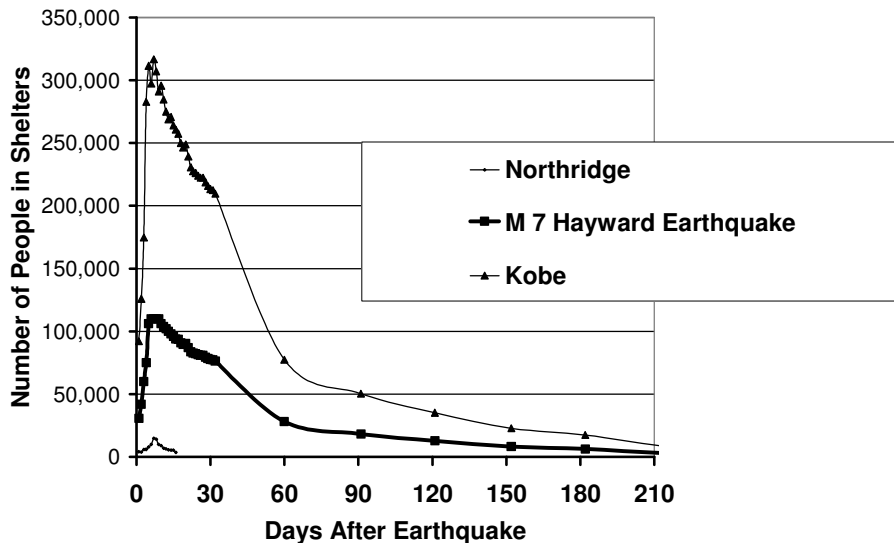
After a fire, most homes are covered by fire insurance. Today, less than 15% of Bay Area homes have earthquake insurance.

Thus, after an earthquake, there will be three huge challenges:

- (1) Immediate sheltering – with the American Red Cross as the lead agency.
- (2) Short-term or interim housing.
- (3) Long-term replacement housing.

No single organization is in charge of long-term housing, the focus of this disaster recovery planning effort.

A Modeled Hayward Scenario for Shelter Demand in the Bay Area Compared to the 1994 Northridge Earthquake and the 1995 Kobe Earthquake¹



The experiences of local governments following the Northridge and Loma Prieta earthquakes were remarkably similar, as shown in the table below based on research by ABAG.

Estimated Recovery Times for Housing in Past California Earthquakes¹

Building Type	Recovery Time (For 90% Repair or Rebuilding of Units)	
	Loma Prieta	Northridge
Single-Family Mobile Homes	0.1 years (minimum; no actual data)	0.7 years
Single-Family Homes (Red-Tagged)	2.4 years (if assume all missing dates are due to poor data) – to over 10 years if assume they are not	3.4 years (if assume all missing dates are due to poor data) – to over 6 years if assume they are not
Multifamily (Yellow-Tagged)	Less than 0.1 years (data from San Francisco only; data not available for Oakland and tagging not used elsewhere)	4.0 years (if assume all missing dates are due to poor data) – to over 6 years if assume they are not
Multifamily (Red-Tagged)	Over 10 years (only 80% of units rebuilt after over 10 years)	3.8 years (if assume all missing dates are due to poor data) – to over 6 years if assume they are not

¹ Source: *Preventing the Nightmare: Post-Earthquake Housing Issue Papers* (ABAG, 2000).

SOME DEFINITIONS –

Interim Housing

Given the number of homes lost, communities need to plan for location of interim housing – that is, short-term housing that would be in place for **one month to a few years** – preferably on sites close to the damaged housing.

Interim housing will be needed because those organizations donating temporary shelter space need to reclaim that space for their original uses (as schools, community centers, and churches) that serve the community.

Replacement Housing

While interim housing is being installed, long-term replacement housing needs to be planned for and built. Traditionally, communities strain as conflicting views of the area’s future emerge in the pressure-cooker of environmental, economic, and equity views. At the same time, local neighborhoods want to rebuild as soon as possible in exactly the same way as they were before the disaster without realizing that the region has changed.



An Action Plan for Oakland

The following recommendations for action, if adopted by the City of Oakland, will reduce the demand for shelter, increase the capacity for sheltering, and speed up the transition from shelters to permanent housing. These actions are based on earlier recommendations², as well as visits to the areas impacted by Hurricane Katrina. The slow recovery of housing following Hurricane Katrina has again made clear that a coordinated effort by the City of Oakland is essential.

Actions to Strengthen Existing Housing	Department
<p>A-1 – Continue to provide incentives for the strengthening of existing single-family homes, particularly the cripple walls of older homes (that is, the outside wall of the crawl space located below the floor people walk on and the perimeter foundation).</p>	<p>Community and Economic Development Agency</p>
<p>A-2 – Establish a new program to mandate strengthening and/or provide incentives for the strengthening of existing multifamily housing, particularly those with soft stories (that is, where the first floor is open to allow for parking or retail). Once all of the highest risk soft-story buildings are retrofitted, the estimated peak shelter demand can be reduced to 11,700 beds.</p>	<p>Community and Economic Development Agency and City Council</p>
<p>A-3 – Work with PG&E to develop a program for installing gas shut-off devices on the upstream (PG&E side) of the gas meters before the lines are attached to or enter multifamily buildings that are potential soft-story structures.</p>	<p>Office of Emergency Services</p>
<p>A-4 – Encourage owners of historic residential buildings to hire engineers experienced with these types of buildings to inspect them prior to any decision to demolish them.</p>	<p>Planning Department and Landmarks Preservation Advisory Board</p>

Actions to Strengthen Existing Housing (continued)	Department
<p>A-5 – Encourage businesses to offer employees low-interest loans to retrofit their homes, just as many offer computer purchase incentive plans. By taking initiative, businesses will increase the likelihood that their employees will stay in the area to help with the business’ recovery efforts. Without adequate housing, they may decide to relocate altogether.</p>	Office of Emergency Services
Actions to Keep People in Their Homes	Department
<p>B-1 – Work with the Structural Engineers Association of Northern California, CalEMA, and others to develop criteria for the “tagging” of housing as red (uninhabitable), yellow (limited entry), or green (usable) that keeps more people in their homes when the structure has minor cracking and utilities are not fully functional. Typically, owners and tenants of a yellow-tagged multifamily building treat that building as if it were red-tagged; tenants leave and owners may barricade entry due to liability concerns. The tagging system should be tied to Oakland’s existing permit tracking database.</p>	Community and Economic Development Agency <i>with involvement of engineering community</i>
<p>B-2 – Work with the media and others such as the Red Cross to develop messages to encourage people to stay in their homes if damage is “cosmetic.” Use traditional and “new media” outlets to disseminate information. Once people make the decision to leave their homes, it is often difficult to persuade them to return.</p>	City Manager’s Office (PIO Team) and Office of Emergency Services
Actions to Provide a Variety of Interim and Long-Term Shelter Choices	Department
<p>C-1 – Identify and maintain a list of potential locations and sources of local temporary housing useable for an extended period of time after the emergency shelters have closed, possibly including motels, hotels, government-owned housing, and parks.</p>	Office of Emergency Services
<p>C-2 – Work with business and neighborhood organizations to encourage pre-planning for sharing of housing following a disaster. Shelters will only be available for 30 days after a disaster, after which they will need to be vacated to restore their original function as a school, church, etc. Therefore, finding interim housing (typically in use 3 to 6 months) while permanent housing is being repaired is a challenge. If businesses and neighborhood organizations pre-arrange to have sharing of housing among their employees or members, the availability of interim housing will increase and generate less of this demand on the City.</p>	Office of Emergency Services
Actions to Streamline Permitting and Rebuilding Processes	Department
<p>D-1 – Set up expedited procedures for reviewing plans, granting permits, and scheduling inspections to promote self-help and contractor-assisted repairs. The building, planning, and housing department staff will need to process huge numbers of permits in a short period of time, many submitted for approval by those unfamiliar with the process. Pre-planning for procedures to integrate and streamline the process will be incredibly helpful. This type of streamlined permit process was used effectively by the City of Oakland following the East Bay Hills Firestorm.</p>	CEDA (Building Services and Permit Center)

Actions to Streamline Permitting and Rebuilding Processes (continued)	Department
<p>D-2 – Ensure that the City of Oakland General Plan (particularly, the Safety, Housing, and Land Use elements) are up-to-date and consistent with local zoning to avoid post-disaster decision making in a crisis environment. Pre-planning may also improve the likelihood that decisions do not unintentionally increase changes for gentrification, displacing the pre-disaster populations.</p>	<p>CEDA (Planning & Zoning)</p>
Actions to Encourage Affordable Repair and Rebuilding of Housing	Department
<p>E-1 – Monitor the rents and prices landlords and contractors charge to help encourage and ensure that rates remain within acceptable ranges.</p>	<p>CEDA (Housing & Community Development) and City Attorney</p>
<p>E-2 – Pre-plan for controls on prices and rents and take early legal action against violators if prices and rents do not remain in normal and acceptable ranges.</p>	<p>CEDA (Housing & Community Development) and City Attorney</p>
Actions to Promote at the State and Federal Levels	Department
<p>F-1 – The Stafford Act (the federal law providing FEMA with rules on rendering assistance to local governments and individuals following disasters) contributes to delays in housing recovery. For example, FEMA can pay for interim housing, but not for minor repairs to permanent housing. The City should work with its congressional representatives to ensure that these rules are modified for greater flexibility both in creating interim and in restoring permanent housing capability.</p>	<p>City Council and Office of Emergency Services</p>
<p>F-2 – The City should continue to work with the state and federal legislative representatives and others to obtain funds for incentives for the seismic retrofits of homes and soft-story apartments.</p>	<p>City Council and Office of Emergency Services</p>

1 Source: *Preventing the Nightmare: Post-Earthquake Housing Issue Papers* (ABAG, 2000).

2 The problem of recovery of the Bay Area’s housing stock following a major disaster has been considered before. In 1991, the Bay Area Earthquake Preparedness Project of State OES prepared *Earthquake Recovery and Reconstruction – Planning Guidelines for Local Governments*. About ten years later, the newly named OES Earthquake Program developed a short report, *Post-Earthquake Housing Recovery: Issues for Local Government and the Community*. Both the housing sections of the 1991 document and the entire 2000 paper are available at <http://quake.abag.ca.gov/recovery>.

PHOTO CREDITS – U.S. Geological Survey (USGS)–page 1 (left); U.C. San Francisco History Library–page 1 (right), USGS–pg. 3.

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Long-Term Housing Recovery

City of Oakland Long-Term Disaster Recovery Plan

Actions to Strengthen Existing Housing	Department
<p>ACTION ITEM A-1 – Continue to provide incentives for the strengthening of existing single-family homes, particularly the cripple walls of older homes (that is, the outside wall of the crawl space located below the floor people walk on and the perimeter foundation).</p>	<p>Community & Economic Development Agency</p>
<p>STATUS</p> <p>Recognizing that the City of Oakland could lose as much as one-third of its housing in a major Bay Area earthquake, Oakland has taken several proactive steps to reduce loss of life and property.</p> <p>In 2007, the Council launched the New Homeowner Seismic Strengthening Incentive Program, offering new owners of older homes reimbursement of up to \$5,000 or 0.5% of the purchase price of the home if they retrofitted their home according to the City’s standards and within the designated time frames. To date, 325 homeowners have taken advantage of the program, which also offers a flat retrofit permit fee of only \$250. However, this program is currently suspended due to lack of funds.</p> <p>At the same time, the Council launched a program to offer a flat building permit fee of \$250 for retrofits, regardless of the purchase date of the home. This program continues and remains popular.</p> <p>In 2008, these programs were expanded to low income homeowners in the City’s redevelopment areas, with up to a \$5,000 grant and no-interest loans. This program is currently funded.</p> <p>The City has also co-sponsored several bills in Sacramento to develop standards for seismically retrofitting cripple wall homes and for using federal economic stimulus funds for soft story retrofitting.</p>	

Actions to Strengthen Existing Housing	Department
<p>ACTION ITEM A-2 – Establish a new program to mandate strengthening and/or provide incentives for the strengthening of existing multifamily housing, particularly those with soft stories (that is, where the first floor is open to allow for parking or retail). Once all of the highest risk soft-story buildings are retrofitted, the estimated peak shelter demand can be reduced to 11,700 beds.</p>	<p>Community & Economic Development Agency and City Council</p>
<p>STATUS</p> <p>In May 2009, the Association of Bay Area Governments (ABAG) completed a preliminary survey of multifamily soft story units in Oakland and identified close to 1500 potentially at risk buildings. A proposed ordinance will launch the first of a three-step process to identify, report, and eventually retrofit at risk multifamily soft story structures, which represent the bulk of the potential loss of housing in a major earthquake.</p> <p>Funding for these programs is always an issue, and the City is working closely with ABAG and its state representatives to find funds that can be used as incentives to motivate property owners to proactively retrofit their buildings.</p> <p>In June of 2009, the City Council will consider implementing a mandatory seismic screening program for multifamily soft-story buildings with five or more units.</p> <p>The City plans to explore funding sources to seismically strengthen Public Assisted Housing. Most of these are 6 to 7 unit buildings.</p> <p>City Council is considering a draft of a soft story ordinance that includes the use of the historic building code for applicable structures.</p> <p>One of the remaining issues is the vulnerability of publically-assisted housing and public housing.</p>	
<p>ACTION ITEM A-3 – Work with PG&E to develop a program for installing gas shut-off devices on the upstream (PG&E side) of the gas meters before the lines are attached to or enter multifamily buildings that are potential soft-story structures.</p>	<p>Office of Emergency Services</p>
<p>STATUS</p> <p>City of Oakland staff has met with PG&E. No decision on what to do has been made by PG&E.</p>	

Actions to Strengthen Existing Housing	Department
<p>ACTION ITEM A-4 – Encourage owners of historic residential buildings to hire engineers experienced with these types of buildings to inspect them prior to any decision to demolish them.</p>	<p>Planning Department and Landmarks Preservation Advisory Board</p>
<p>STATUS</p> <p>The Planning Department (Zoning Update Committee) and Landmarks Preservation Board are in the process of more strictly defining the conditions under which an historic building can be demolished, in alignment with Policy 2.4 of the Historic Preservation Element of the General Plan.</p> <p>Currently the S-7 and S-20 Historic District zones and the Historic Preservation Element incorporate Criteria for Demolition and the existing Landmark and Preservation District regulations delay demolition or removal for up to 240 days. General Plan HPE Policy 2.4 recommends more restrictive required findings.</p> <p>Demolition prohibition rather than delay is essential if the preservation of Historic Properties is to be assured. HPE Policy 2.4 prohibits demolition unless certain findings can be made. The findings are intended to weigh the value of preserving Landmark and Preservation District properties against other concerns which may require their demolition or removal. HPE Policy 2.4 recognizes that demolition or removal of Landmark and Preservation District properties is permitted when there is an immediate hazard to public safety and that the demolition or removal is necessary to abate the hazard.</p> <p>The Board may recommend these Policy 2.4 findings as stated or modify them. Staff recommends that Board also review the Criteria for Demolition Findings in the S-20 and S-7 zones.</p>	
<p>ACTION ITEM A-5 – Encourage businesses to offer employees low-interest loans to retrofit their homes, just as many offer computer purchase incentive plans. By taking initiative, businesses will increase the likelihood that their employees will stay in the area to help with the business' recovery efforts. Without adequate housing, they may decide to relocate altogether.</p>	<p>Office of Emergency Services</p>
<p>STATUS</p> <p>The City should work with Chambers of Commerce and other organizations to advocate establishment of seismic strengthening programs for employees.</p>	

Actions to Keep People in Their Homes	Department
<p>ACTION ITEM B-1 – Work with the Structural Engineers Association of Northern California (SEAONC), California Building Officials (CALBO), the California Emergency Management Agency (CalEMA), and others to develop criteria for the “tagging” of housing as red (uninhabitable), yellow (limited entry), or green (usable) that keeps more people in their homes when the structure has minor cracking and utilities are not fully functional. Typically, owners and tenants of a yellow-tagged multifamily building treat that building as if it were red-tagged; tenants leave and owners may barricade entry due to liability concerns.</p> <p>The tagging system should be tied to Oakland’s existing permit tracking database.</p>	<p>Community and Economic Development Agency <i>with involvement of engineering community</i></p>
<p>STATUS</p> <p>Oakland plans to use engineers, building inspectors, and architects trained through CalEMA’s Safety Assessment Program (SAP) to supplement City building inspectors to conduct inspections using the tagging system. Typically, two rounds of inspections are done. The first is cursory to verify whether minimum life safety requirements are met, while the second is more thorough. The former is typically done within one week of a disaster, while the latter has a much longer timeline.</p> <p>The City’s staff should continue to receive training on how to coordinate this mutual aid and perform the tagging evaluation. The tagging results will need to be tied to Oakland’s permit tracking system, as well as to its Geographic Information System.</p> <p>In addition, Oakland should work with ABAG, CALBO, SEAONC, and other groups to see if the SAP program can be redefined so that, under some circumstances, a lack of utilities or other non-life-safety issues should result in yellow-, not red-tagging of the structures to keep more people in their homes.</p>	

Actions to Keep People in Their Homes (continued)	Department
<p>ACTION ITEM B-2 – Work with the media and others such as the Red Cross to develop messages to encourage people to stay in their homes if damage is “cosmetic.” Use traditional and “new media” outlets to disseminate information. Once people make the decision to leave their homes, it is often difficult to persuade them to return.</p>	<p>City Manager’s Office (PIO Team) and Office of Emergency Services</p>
<p>STATUS</p> <p>The Oakland Public Information Office (PIO) team manual currently has 6 pre-scripted messages that specifically address earthquakes. These messages deal with topics such as the availability of shelters and warnings of aftershocks. The manual should include a pre-scripted message on the circumstances under which people should remain at home.</p> <p>Oakland should also pre-plan for an aggressive post-disaster public education campaign. One focus of this campaign should be to explain when residents can safely live in their homes. Information on what types of damage are cosmetic, as well as information on the tagging system should be made available at all shelters. Informing residents and buildings owners on when they can return home will alleviate the burden on shelters.</p> <p>The PIO should fully utilize “new media” outlets such as Twitter, Facebook, and other forms of instant messaging.</p> <p>Oakland may need to plan to work with suppliers to assist in making tarps and other protections available for structures that are damaged and repairable to prevent weather damage.</p>	

Actions to Provide a Variety of Interim and Long-Term Shelter Choices	Department
<p>ACTION ITEM C-1 – Identify and maintain a list of potential locations and sources of local temporary housing useable for an extended period of time after the emergency shelters have closed, possibly including motels, hotels, government-owned housing, and parks.</p>	<p>Office of Emergency Services</p>
<p>STATUS</p> <p>The current program has identified 5,000 ADA-compliant shelter beds, while the need is estimated at 25,000.</p> <p>The City should create a plan for providing social services to address mental health issues such as Post-Traumatic Stress Disorder at shelters. This can be done through adoption of an ordinance.</p> <p>Based on a charrette of the San Antonio/Fruitvale neighborhoods conducted in 1997, interim housing alternatives may also include tents, sheds, and other portable shelters. These options allow residents to stay on their property while housing is being repaired. Research has shown that mental and physical health issues, as well as crime, are reduced if residents can remain in their pre-disaster neighborhoods and if shelters are small. As an alternative, shelters could be designed for specific populations, such as families with young children and seniors.</p> <p>As a final alternative, the City should explore agreements with institutions in the area that may be able to shelter large numbers of residents for more than a minimal period. Possibilities include: Oracle Arena, local colleges, military bases, and the USS Hornet.</p>	
<p>ACTION ITEM C-2 – Work with business and neighborhood organizations to encourage pre-planning for sharing of housing following a disaster. Shelters will only be available for 30 days after a disaster, after which they will need to be vacated to restore their original function as a school, church, etc. Therefore, finding interim housing (typically in use 3 to 6 months) while permanent housing is being repaired is a challenge. If businesses and neighborhood organizations pre-arrange to have sharing of housing among their employees or members, the availability of interim housing will increase and generate less of this demand on the City.</p>	<p>Office of Emergency Services</p>
<p>STATUS</p> <p>The Office of Emergency Services and ABAG will work to prepare a PowerPoint presentation on how businesses and neighborhood organizations can alleviate interim housing challenges.</p>	

Actions to Streamline Permitting and Rebuilding Processes	Department
<p>ACTION ITEM D-1 – Set up expedited procedures for reviewing plans, granting permits, and scheduling inspections to promote self-help and contractor-assisted repairs. The building, planning, and housing department staff will need to process huge numbers of permits in a short period of time, many submitted for approval by those unfamiliar with the process. Pre-planning for procedures to integrate and streamline the process will be incredibly helpful. This type of streamlined permit process was used effectively by the City of Oakland following the East Bay Hills Firestorm.</p>	<p>Community & Economic Development Agency (Building Services and Permit Center)</p>
<p>STATUS</p> <p>After the Loma Prieta earthquake and the Oakland-Berkeley Hills firestorm, the City established a one stop center. The City Administrator’s office leased a large office space and hired a consulting firm to help oversee staffing and operations. This one stop center provided many services for disaster victims such as: expedited permit processing, mental health services, architectural support and others. A new position, Process Coordinator, was created to oversee a consolidated review process for each permit application. FEMA and other agency staff also were on site. This one stop center closed after several years. These past experiences with an expedited permit process have prepared Oakland to put this process in place.</p> <p>Currently, the City’s Building Services has an Express Station that provides limited issuance of permits. This expedited permit processing exists mainly for trade, roofing, and simple termite repair permits.</p>	

Actions to Streamline Permitting and Rebuilding Processes (continued)	Department
<p>ACTION ITEM D-2 – Ensure that the City of Oakland General Plan (particularly, the Safety, Housing, and Land Use elements) are up-to-date and consistent with local zoning to avoid post-disaster decision making in a crisis environment. Pre-planning may also improve the likelihood that decisions do not unintentionally increase changes for gentrification, displacing the pre-disaster populations.</p>	<p>CEDA (Planning and Zoning)</p>
<p>STATUS</p> <p>Oakland adopted a new General Plan Land Use and Transportation Element in 1998. Adoption of the Plan established a new vision for Oakland, but also created inconsistencies between the General Plan and the Zoning Code. Although piecemeal changes to the Zoning Code have been made over time, it has not been comprehensively amended since 1965. Oakland is currently updating its Zoning Code to be consistent with its General Plan, with the Zoning Update Committee taking the lead.</p> <p>The City has already completed updating the open space and industrial zones, as well as the transitional zones on the edges of the city’s industrial areas, in which a mix of housing and businesses are allowed. Zoning for the downtown area (or Central Business District) was initiated in late 2007 and was considered by the Planning Commission in April 2009. There are three components to the remaining work to complete the Citywide Zoning Update:</p> <ul style="list-style-type: none"> •Residential zoning. Different zoning regulations will be developed for areas with different types of housing such as single-family flatland neighborhoods, hillside residential neighborhoods, and multi-family areas. •Commercial zoning. Different zoning regulations will be developed for different types of commercial uses located along or near the City’s major thoroughfares. These uses range from small stores to large shopping centers and may include offices, hotels, services, auto dealers, restaurants, and may other kinds of commercial activities. •Institutional zoning. Zoning will be developed for areas that primarily have public or quasi-public uses such as large educational and cultural facilities, health services and medical facilities. <p>The focus of the update is on uses and development standards (e.g. height, setback, gross bulk/building envelope). Other standards that cover both residential and commercial/corridor zones (such as parking, landscaping, buffering, and design guidelines) will be addressed after the base residential and commercial zones are updated.</p>	

Actions to Encourage Affordable Repair and Rebuilding of Housing	Department
<p>ACTION ITEM E-1 – Monitor the rents and prices landlords and contractors charge to help encourage and ensure that rates remain within acceptable ranges.</p>	<p>CEDA (Housing & Community Development) and City Attorney</p>
<p>STATUS The City Attorney is working on regulation for issues related to red-tagged buildings. Appropriate protections exist in a City Ordinance. The City, however, should work on developing a handout to be ready for printing in the event of a disaster that references the pertinent sections of the regulations and code.</p>	
<p>ACTION ITEM E-2 – Pre-plan for controls on prices and rents and take early legal action against violators if prices and rents do not remain in normal and acceptable ranges.</p>	<p>CEDA (Housing & Community Development) and City Attorney</p>
<p>STATUS The City plans to monitor rates charged by landlords and contractors, likely through the rent ordinance. Recommend City provides legal resources so tenants and homeowners know their rights. Handouts with information should be available at shelters.</p>	

Actions to Promote at the State and Federal Level	Department
<p>ACTION ITEM F-1 – The Stafford Act (the federal law providing FEMA with rules on rendering assistance to local governments and individuals following disasters) contributes to delays in housing recovery. For example, FEMA can pay for interim housing, but not for minor repairs to permanent housing. The City should work with its congressional representatives to ensure that these rules are modified for greater flexibility both in creating interim and in restoring permanent housing capability.</p>	<p>City Council and Office of Emergency Services</p>
<p>STATUS</p> <p>The head of Oakland’s Office of Emergency Services, Renee Domingo, has been active in promoting changes to the Stafford Act. In particular, she is advocating for more flexible funding for housing alternatives. FEMA Public Assistance should to be used to improve existing housing, rather than to purchase trailers.</p> <p>The City is working with ABAG towards financing retrofits of vulnerable buildings, to be repaid over 20 years on the owner’s property tax.</p>	
<p>ACTION ITEM F-2 – The City should continue to work with the state and federal legislative representatives and others to obtain funds for incentives for the seismic retrofits of homes and soft-story apartments.</p>	<p>City Council and Office of Emergency Services</p>
<p>STATUS</p> <p>Oakland staff and staff of City Council Members are actively seeking funds for the retrofits of these buildings. In particular, the City is currently working to support State legislation that would specify that funds from the Obama stimulus package be used for this effort.</p>	

Chapter 4: Long-Term Recovery of Business

The Problem Is...

Disasters change the very fabric of a community. This problem is clearly shown by visiting downtown Santa Cruz, Watsonville, or Hollister during the years following the 1989 Loma Prieta earthquake, or more recently New Orleans and the southern Mississippi area following Hurricanes Katrina and Rita. Commercial retail and service business recovery can even lag behind housing recovery.

In the event of a major earthquake impacting Oakland, businesses will be heavily impacted. Impacts can either be direct, such as damage to the buildings where companies are located, or indirect, such as disruption to the flow of customers and supplies that the businesses need to operate profitably. Employees may be unavailable to work.

Thus, true business continuity is a function not of a single business, but of its immediate community and the region as a whole.

As stressed in Chapter 2 on long-term housing recovery, a major earthquake can be 30 seconds of “instantaneous” redevelopment. The odds are that Oakland will experience at least one earthquake much more destructive than the 1989 Loma Prieta earthquake in the next 30 years.



Pacific Garden Mall in downtown Santa Cruz following 1989 Loma Prieta earthquake

Recovery Needs Vary by Business Type...

Businesses need a collaborative relationship with the City of Oakland to speed their own post-disaster recovery, as well as to contribute to the City’s economic recovery. The needs of major regional employers and local-serving businesses, while similar, are not identical. Thus, the recommendations on City actions are separated into these two business types.

It is critical that the major **basic employers** in Oakland are able to recover. These employers include: state and federal government, the United States Postal Service, the Port of Oakland and carriers associated with the port, regional transportation and utility authorities, Kaiser Permanente, Clorox, and Dreyer’s Grand Ice Cream. Recovery of major employers in neighboring cities, such as the University of California Berkeley and the Lawrence Berkeley National Laboratory are also key to the economic recovery of Oakland. These major basic employers have done much to ensure that their buildings are structurally sound and to plan for business continuity. Their disaster recovery needs including housing for their employees and a functional transportation and utility network.



Hancock Bank repair following Hurricane Katrina, Pass Christian, Mississippi

Local serving businesses, located in neighborhood shopping centers, are less able to recover on their own. Examples include grocery stores, restaurants, community schools, retail stores, hair salons, and dentists. These businesses serve customers who work for the basic employers or are the employees of other local serving businesses. Their survival is dependent on many factors, including (1) the functionality of their own building, as well as others in their business district, (2) the speed of recovery of the large basic employers, (3) the continued availability of customers who can continue to live in the area they serve; and (4) transportation and utilities that are quickly restored. In some cases, the business can successfully relocate without losing customers. In many cases, they close.

Because of the contribution of these businesses to Oakland’s tax base, the City will lose tax revenue when it is most urgently needed.

Long-Term Recovery Needs of Major Basic Employers...

General Needs of All Employers

There are a variety of major businesses that provide basic employment in Oakland. This variety makes the region more resilient in the case of economic downturns affecting a single industry sector. Many of the issues facing these employers are similar after disasters.

In general, these employers all need housing for their employees, a functional transportation system (including roads, ports, airports, and rail), and utilities. Because Oakland is at a major hub of the transportation system and has excellent port and airport facilities, it has attracted many employers both to the city itself and the surrounding East Bay.

Basic industry employers, in general, have more resources at their disposal prior to a disaster to plan for their own internal business recovery. Many also have offices, employees, or data facilities outside the region which they are able to draw on during an emergency. Thus, emergency managers and planners have traditionally assumed that chain stores, banks, and manufacturing centers would be the first to recover in a disaster-impacted area. This has not occurred in New Orleans and southern Mississippi. If the headquarters of basic businesses do not have ties to the Bay Area, they may decide from a purely financial standpoint, to abandon the region.

Economics, not good intentions, often drives decisions.



Hancock Bank repair in Mississippi following Hurricane Katrina was based in part on regional commitment and customers in southern Mississippi.

Banks and other financial institutions have a pivotal role in regional disaster recovery. Because their data and records are backed up in multiple locations, they will be able to reopen quickly following a disaster. In fact, many have invested in portable ATMs. They need Oakland to allow these portable ATM trailers to park where they might not otherwise be allowed so that their customers can have access to cash and financial records.

Yet precisely because of these back-up systems, regional or headquarters offices of these institutions do not need to remain in Oakland. The offices, together with their employees, can be moved outside the region or outside the state if recovery of housing, transportation networks, and utilities is delayed.

Technology employers are in competition with tech centers in Seattle, Houston, Virginia, India, and Taiwan. These employers are here, in part, because they love our region. But after weeks with long commutes or no water, they may leave. This industry has a full turnover in its technology every two years and depends on its creativity to remain at the forefront of the information revolution. To the extent that long-term delays in recovery impact that creativity, the employers may leave. While Oakland has fewer technology employees than Silicon Valley, it has residents that work in these businesses, as well as at the headquarters of Ask.com. Pixar is located next door in Emeryville.

Traditional **chemical employers** have been leaving the region during the last twenty years. Those that remain include Clorox's headquarters. In general, disasters lead to an acceleration of existing trends. Oakland will need to target these employers and examine their needs so the exodus does not accelerate.

On the other hand, the East Bay is becoming an incubator for small bio-tech and other **research** facilities. For example, Children's Hospital and Research Center is in Oakland and Chiron is in Emeryville. The East Bay is also the home of the University of California Berkeley and Lawrence Berkeley Lab. These employers depend on the educated talent pool of the region. To the extent that their employees are stressed, they, too, are impacted.

Oakland needs to develop strong relationships with major employers in its area before disaster strikes.

Long-Term Recovery Needs of Local-Serving Businesses...

Local serving businesses are less able to recover on their own than large basic employers. Typical examples of these local businesses are grocery stores, restaurants, community schools, retail stores, hair salons, and dentists. These businesses serve customers who work for the basic employers or are the employees of other local serving businesses.

Local-serving businesses recover more quickly if they are in buildings that are undamaged and remain functional after a disaster. However, **they also need to be located in areas where other businesses are in functional buildings.**

However, statistically, these businesses are more likely to be in older vulnerable buildings than the basic employers. In some cases, if their building is destroyed, they can move somewhere else in the area without losing customers. In other cases, they close.



Pacific Garden Mall, Santa Cruz, current view

These businesses also need customers. In both southern Mississippi and New Orleans, the local serving businesses have been slower to recover than the housing, for these businesses need people to live in an area to be served. Finally, if the transportation and utility systems are not repaired in a timely manner, they cannot continue to operate in the affected neighborhood.

As Oakland recovers, its finances will likely be decimated by the reduction in property taxes and business taxes brought about by the property damage to businesses and housing. At the same time, it is unrealistic to expect to lay off police and fire personnel – the local emergency staff that were heroes during the immediate aftermath of the disaster. Yet the employees that are needed most to launch long-term recovery are the community development, planning, and building department staff, not police and fire personnel.



An Action Plan for Oakland

The following recommendations for action, if adopted by the City of Oakland, will speed recovery of businesses in Oakland and the East Bay, as well as lead to more rapid economic recovery for the city overall. The slow recovery of housing following Hurricane Katrina has again made clear that a coordinated effort by the City of Oakland is essential. The ideas for action listed below emphasize the role of these **non-emergency** response staff in long-term recovery both before and after a disaster.

Actions to Strengthen Commercial Buildings	Department
<p>A-1 – Mandate retrofit of any unreinforced masonry buildings in seismically vulnerable commercial areas. In less vulnerable areas, work to provide incentives for strengthening of those buildings.</p>	<p>CEDA (Building Services and Permit Center)</p>
<p>A-2 – Identify key historic structures in business districts that are integral to the fabric of those neighborhoods. Work with the owners to have the buildings participate in a process where local engineers familiar with historic structures can design cost-effective retrofitting solutions, as well as conduct any post-quake inspections of the buildings so that they are not demolished unless necessary. (See http://quake.abag.ca.gov/business/BORP.html.)</p>	<p>CEDA (Planning and Zoning) and (Landmarks Preservation Advisory Board)</p>

Actions to Pre-Plan for Business District Recovery	Department
<p>B-1 – Pre-identify those local businesses or business districts key to recovery. For example, the sooner grocery stores are back in business, the less likely people will leave their homes due to lack of supplies, and the faster hardware stores are back in business, the quicker people will be able to repair minor damage to their homes.</p>	<p>CEDA (Economic Development) and Office of Emergency Services</p>
<p>B-2 – Continue conversations between City of Oakland staff and the large employers and smaller local-serving businesses in the City. Opening lines of communication and sharing of disaster recovery planning is essential in this process. Discuss a plan for involving the business community after a disaster in the decision-making process and in providing communication to key City staff on business needs.</p>	<p>CEDA (Economic Development) and Office of Emergency Services</p>
<p>B-3 – Work with banks and other financial organizations (such as BARC-First) to ensure that key business responses and recovery personnel can access damaged areas in a timely manner. They will need to set up temporary offices to access their financial resources.</p>	<p>Finance and Management Agency and Office of Emergency Services</p>
Actions to Streamline Permitting and Rebuilding Processes	Department
<p>C-1 – Examine the General Plan and zoning in commercial areas to see if major damage might result in an unintentional loss of the historical or pedestrian-friendly character of that area due to current parking, street width, or other requirements for replacement construction.</p>	<p>CEDA (Planning and Zoning)</p>
<p>C-2 – Ensure that Oakland’s General Plan (particularly, the Safety and Land Use elements) are up-to-date and consistent with local zoning so that the future recovery of damaged areas is pre-planned, not decided in a crisis environment. Such pre-planning will also improve the chances that fewer areas experience gentrification.</p>	<p>CEDA (Planning and Zoning)</p>
<p>C-3 – Set up expedited procedures for reviewing plans, granting permits, and scheduling inspections to promote self-help and contractor-assisted repairs. The building, planning, and housing department staff will need to process huge numbers of permits in a short period of time, many submitted for approval by those unfamiliar with the process. Pre-planning for procedures to integrate and streamline the process will be incredibly helpful. This type of streamlined permit process was used effectively by the City of Oakland following the East Bay Hills Firestorm.</p>	<p>CEDA (Building Services and Permit Center)</p>

Actions to Promote at the State and Federal Levels	Department
<p>D-1 – Local government personnel are the best able to support local government disaster recovery efforts. Thus, Oakland should continue to work with the State Office of Emergency Services and others to encourage training for planning and community development department staff related to long-term recovery of private businesses.</p>	<p>Office of Emergency Services and Finance and Management Agency</p>
<p>D-2 – Oakland should use the state-wide master mutual aid agreement to promote the exchange of planning, redevelopment, and community development staff to gain valuable work experience on long-term disaster-recovery and to assist impacted local governments. This program would be similar to existing programs related to fire, police, and building inspection departments.</p>	<p>All Departments</p>

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Long-Term Recovery of Business

City of Oakland Long-Term Disaster Recovery Plan

Actions to Strengthen Commercial Buildings	Department
<p>ACTION ITEM A-1 – Mandate retrofit of any unreinforced masonry buildings in seismically vulnerable commercial areas. In less vulnerable areas, work to provide incentives for strengthening of those buildings.</p>	<p>CEDA (Building Services and Permit Center)</p>
<p>STATUS</p> <p>Oakland has an ordinance mandating the retrofit of all unreinforced masonry buildings (Chapter 15.28 of the City’s Municipal Code). The City’s records show that almost all of these buildings have been retrofitted. Required mitigation includes:</p> <ul style="list-style-type: none"> ➤ Secure the roof and floors to the building’s exterior walls if such attachment is lacking or determined as inadequate. The connections between roof/floors and walls shall be designed for the out of plane forces on the walls (tension bolts); ➤ Brace or reinforce parapets; ➤ Remove, upgrade or repair nonstructural falling hazards; ➤ Protect stairways, corridors, exit balconies, exit courts and exit passageways in all buildings covered by this chapter from falling hazards. <p>The City program specifically notes that it does not mandate compliance with the Uniform Code for Building Conservation (UCBC).</p> <p>The City is mandated to report the status of retrofits to the State Seismic Safety Commission. The SSC records indicate a mixed result:</p> <ol style="list-style-type: none"> (1) The City initially inventoried a total of 1,612 URMs, including 277 that were considered “historic.” All owners were notified. (2) Upgrading to the UCBC requirements (which provides a minimum life safety retrofit for those inside these buildings) is voluntary. As of 2006, only 222 owners had retrofitted to the UCBC standard. In addition, only 1,107 owners complied with the mandatory falling hazard requirement, 121 owners were in partial compliance with the program, 3 had taken out a permit for the work, 1 was undergoing plan-check, 106 were demolished, and 2 were slated for demolition. Finally, as of the 2006 SSC report, 50 owners had not done anything. <p>There appears to be a misunderstanding regarding the result of the “bolts plus falling hazard abatement” program. Even if all of the owners had complied with this ordinance, it does not provide safety for building occupants and, more importantly from a recovery standpoint, these buildings are likely to require demolition following a major earthquake on the Hayward fault, leaving the commercial areas that they serve in disarray. The City should map these buildings to see if the buildings are clustered and determine if redevelopment funds might be available for upgraded retrofits.</p>	

Actions to Strengthen Commercial Buildings (continued)	Department
<p>ACTION ITEM A-2 – Identify key historic structures in business districts that are integral to the fabric of those neighborhoods. Work with the owners to have the buildings participate in a process where local engineers familiar with historic structures can design cost-effective retrofitting solutions, as well as conduct any post-quake inspections of the buildings so that they are not demolished unless necessary.</p> <p>(See http://quake.abag.ca.gov/business/BORP.html.)</p>	<p>CEDA (Planning and Zoning) and (Landmarks Preservation Advisory Board)</p>
<p>STATUS</p> <p>The Planning department (Zoning Update Committee) and Landmarks Preservation Board are in the process of more strictly defining the conditions under which an historic building can be demolished, in alignment with Policy 2.4 of the Historic Preservation Element of the General Plan.</p> <p>Currently the S-7 and S-20 Historic District zones and the Historic Preservation Element incorporate Criteria for Demolition and the existing landmark and preservation district regulations delay demolition or removal for up to 240 days. General Plan HPE Policy 2.4 recommends more restrictive required findings.</p> <p>Demolition prohibition rather than delay is essential if the preservation of Historic Properties is to be assured. HPE Policy 2.4 prohibits demolition unless certain findings can be made. The findings are intended to weigh the value of preserving Landmark and Preservation District properties against other concerns which may require their demolition or removal. HPE Policy 2.4 recognizes that demolition or removal of Landmark and Preservation District properties is permitted when an immediate hazard to public safety and that the demolition or removal is necessary to abate the hazard.</p> <p>The Board may recommend these Policy 2.4 findings as stated or modify them. Staff recommends that Board also review the Criteria for Demolition Findings in the S-20 and S-7 zones.</p>	

Actions to Pre-Plan for Business District Recovery	Department
<p>ACTION ITEM B-1 – Pre-identify those businesses or business districts key to recovery. For example, the sooner grocery stores are back in business, the less likely people will leave their homes due to lack of supplies, and the faster hardware stores are back in business, the quicker people will be able to repair minor damage to their homes.</p>	<p>CEDA (Economic Development) and Office of Emergency Services</p>
<p>STATUS The City currently has no plans to establish this type of program.</p>	
<p>ACTION ITEM B-2 – Continue conversations between City of Oakland staff and the large employers and smaller local-serving businesses in the City. Opening lines of communication and sharing of disaster recovery planning is essential in this process. Discuss a plan for involving the business community after a disaster in the decision-making process and in providing communication to key City staff on business needs.</p>	<p>CEDA (Economic Development) and Office of Emergency Services</p>
<p>STATUS The City currently has no plans to establish this type of program.</p>	
<p>ACTION ITEM B-3 – Work with banks and other financial organizations (such as BARC-First) to ensure that key business responses and recovery personnel can access damaged areas in a timely manner. They will need to set up temporary offices to access their financial resources.</p>	<p>Finance and Management Agency and Office of Emergency Services</p>
<p>STATUS The City currently has no plans to establish this type of program.</p>	

Actions to Streamline Permitting and Rebuilding Processes	Department
<p>ACTION ITEM C-1 – Examine the General Plan and zoning in commercial areas to see if major damage to those areas might result in an unintentional loss of the historical or pedestrian-friendly character of that area due to current parking, street width, or other requirements for replacement construction.</p>	<p>CEDA (Planning and Zoning)</p>
<p>STATUS</p> <p>The City is currently in the process of updating its zoning regulations. Zoning for the downtown area (or Central Business District) was initiated in late 2007 and is in the process of being considered by the Planning Commission. The focus of the update, in general, is on uses and development standards (e.g. height, setback, gross bulk/building envelope). Other standards that cover both residential and commercial/corridor zones (such as parking, landscaping, buffering, and design guidelines) will be addressed after the base residential and commercial zones are updated.</p>	

Actions to Streamline Permitting and Rebuilding Processes (continued)	Department
<p>ACTION ITEM C-2 – Ensure that Oakland’s General Plan (particularly, the Safety and Land Use elements) are up-to-date and consistent with local zoning so that the future recovery of damaged areas is pre-planned, not decided in a crisis environment. Such pre-planning will also improve the chances that fewer areas experience gentrification. (Note – This Action Item is identical to Action Item D-2 in the Long-Term Housing Recovery chapter.)</p>	<p>CEDA (Planning and Zoning)</p>
<p>STATUS</p> <p>Oakland adopted a new General Plan Land Use and Transportation Element in 1998. Adoption of the Plan established a new vision for Oakland, but also created inconsistencies between the General Plan and the Zoning Code. Although piecemeal changes to the Zoning Code have been made over time, it has not been comprehensively amended since 1965. Oakland is currently updating its Zoning Code to be consistent with its General Plan, with the Zoning Update Committee taking the lead.</p> <p>The City has already completed updating the open space and industrial zones, as well as the transitional zones on the edges of the city’s industrial areas, in which a mix of housing and businesses are allowed. Zoning for the downtown area (or Central Business District) was initiated in late 2007 and was considered by the Planning Commission in April 2009. There are three components to the remaining work to complete the Citywide Zoning Update:</p> <ul style="list-style-type: none"> •Residential zoning. Different zoning regulations will be developed for areas with different types of housing such as single-family flatland neighborhoods, hillside residential neighborhoods, and multi-family areas. •Commercial zoning. Different zoning regulations will be developed for different types of commercial uses located along or near the City’s major thoroughfares. These uses range from small stores to large shopping centers and may include offices, hotels, services, auto dealers, restaurants, and may other kinds of commercial activities. •Institutional zoning. Zoning will be developed for areas that primarily have public or quasi-public uses such as large educational and cultural facilities, health services and medical facilities. <p>The focus of the update is on uses and development standards (e.g. height, setback, gross bulk/building envelope). Other standards that cover both residential and commercial/corridor zones (such as parking, landscaping, buffering, and design guidelines) will be addressed after the base residential and commercial zones are updated.</p>	

Actions to Streamline Permitting and Rebuilding Processes (continued)	Department
<p>ACTION ITEM C-3 – Set up expedited procedures for reviewing plans, granting permits, and scheduling inspections to promote self-help and contractor-assisted repairs. The building, planning, and housing department staff will need to process huge numbers of permits in a short period of time, many submitted for approval by those unfamiliar with the process. Pre-planning for procedures to integrate and streamline the process will be extremely helpful. This type of streamlined permit process was used effectively by the City of Oakland following the East Bay Hills Firestorm.</p>	<p>CEDA (Building Services and Permit Center)</p>
<p>STATUS</p> <p>After the Loma Prieta earthquake and the Oakland-Berkeley Hills firestorm, the City established a one stop center. The City Administrator’s office leased a large office space and hired a consulting firm to help oversee staffing and operations. This one stop center provided many services for disaster victims such as: expedited permit processing, mental health services, architectural support and others. A new position, process coordinator, was created to oversee a consolidated review process for each permit application. FEMA and other agency staff also were on site. This one stop center closed after several years. These past experiences with an expedited permit process have prepared Oakland to put this process in place.</p> <p>Currently, the City’s Building Services has an Express Station that provides limited issuance of permits. This expedited permit processing exists mainly for trade, roofing, and simple termite repair permits.</p>	

Actions to Promote at the State and Federal Level	Department
<p>ACTION ITEM D-1 – Local government personnel are the best able to support local government disaster recovery efforts. Thus, Oakland should continue to work with the State Office of Emergency Services and others to encourage development of training for planning and community development department staff related to long-term recovery of private businesses.</p>	<p>Office of Emergency Services and Finance and Management Agency</p>
<p>STATUS</p> <p>Oakland’s Office of Emergency Services will continue to be involved in discussions with the Bay Area Super Urban Area Security Initiative (SUASI) to advocate for development of training for Community and Economic Development Agency staff. It is anticipated that this training will be available in several years, once SUASI has been rolled out.</p>	
<p>ACTION ITEM D-2</p> <p>Oakland should use the state-wide master mutual aid agreement to promote the exchange of planning, redevelopment, and community development staff to gain valuable work experience on long-term disaster-recovery and to assist impacted local governments. This program would be similar to existing programs related to fire, police, and building inspection departments.</p>	<p>All Departments</p>
<p>STATUS</p> <p>Oakland currently participates in the Emergency Managers Mutual Aid (EMMA) plan. Oakland is waiting for the State and the Bay Area Super Urban Area Security Initiative (SUASI) to be implemented.</p>	

Chapter 5: Long-Term Infrastructure Systems Recovery

Infrastructure damage in a disaster can lead to damage to other systems and delayed recovery.

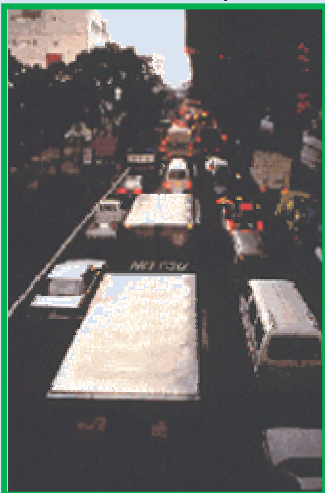
Infrastructure systems include water and wastewater, transportation (including airports), power, and communications lifelines. In 2005, the Hurricane Katrina Disaster on the Gulf Coast reinforced existing knowledge of the role of infrastructure before and after disasters.

(1) Infrastructure systems, including roads and highways, ports and airports, ferries, rail, pipelines carrying water, sewage, and natural gas, as well as power and communications systems are all interconnected.

(2) Infrastructure is critical to a safe and resilient economy and infrastructure disruptions can lead to disproportionate economic impacts on the business community.

(3) Infrastructure interdependencies can lead to cascading failures of interrelated infrastructure systems with impacts far larger than the impacted area.

(4) People who are impacted if infrastructure is damaged are disproportionately the young, the elderly, and those with special needs.



These impacts are seen in most large earthquakes as well as in storms.

Emergency and utility repair vehicles caught in the gridlock following the Kobe, Japan, earthquake.

Infrastructure systems owners and operators need to work together to increase the resiliency and speed recovery of these systems.



Roadways flooded in Hurricane Katrina

Cities, counties, transit districts, water suppliers, wastewater system operators, PG&E, telecommunications operators, and other utilities have been working independently on hazard mitigation, emergency response, and continuity of operations (or business continuity), and disaster recovery planning for their individual organization.

In addition, each type of infrastructure provider has been holding coordination meetings with the other providers of their type of infrastructure and with CalEMA. For example, AC Transit has been working with the Metropolitan Transportation Commission (MTC) on transit disaster response coordination, while water agencies, including the East Bay Municipal Utility District, have been working together on coordination.

While all of these agencies have participated in the Golden Guardian and Silver Centennial regional disaster **response** exercises, and many are jointly participating in the regional multi-jurisdictional Local Hazard **Mitigation** Plan, the ways in which these agencies can best collaborate in disaster **recovery** are just now being initiated. Such cooperation is particularly important due to the large number of organizations involved and the system recovery interdependencies.

Bay Area transportation and utility facilities and networks are vital lifelines during and following disasters, as well as in the everyday functioning of our region and its economy.

Lifeline System Interdependencies and Disaster Recovery

One of the main reasons for the interdependencies of infrastructure systems is that they tend to be geographically located in the same areas. For example, water, sewer, and natural gas pipelines tend to be under Oakland's streets. Communications and electrical cables are either located under those roads or adjacent to them. All have similar exposures to hazards that are related to serving the developed portions of the region.

In addition to geographic interdependencies, lifeline systems also have system interdependencies. Examples include the relatively flexible use of the transportation system (because of alternate available routes) to deliver water treatment chemicals to a water treatment facility and the short-term relatively inflexible use of the electric power system (due to lack

of alternative power lines) to run pumps at that water treatment facility.

In addition to identifying geographic and system interdependencies, analyses of lifeline system interdependencies need to address the length of time required to restore these services to a level adequate for recovery. The length of time of a disruption increases the impacts. However, typically, doubling the time of disruption more than doubles the impacts. In addition, the disruption of one infrastructure system delays the recovery of other systems because the infrastructure systems that all the other infrastructure systems rely on for proper functioning are not available. Thus, speeding recovery of infrastructure systems and focusing on interdependencies of those systems is particularly critical.¹

Transportation System Linkages

The following linkages between transportation systems (including Caltrans highways, Oakland roads, airports, ports, ferries, rail, BART, and bus transit) and other lifeline systems are critical:

Transportation ◀-▶ Water/Sewer (EBMUD and City of Oakland) –

- ◀-▶ **Co-location** hazard exposure of distribution pipelines beneath roads
- ◀ **Needed by the transportation system from the water-sewer system**
 - Water for concrete construction and dust control
- ▶ **Needed from the transportation system by the water-sewer system**
 - Transport of repair and maintenance vehicles to locations for repairing pipelines
 - Transport of repair, customer service, and operations facility crews to-and-from their homes
 - Delivery of chemicals to water and wastewater treatment facilities
 - Delivery of fuel to run critical facilities

Transportation ◀-▶ Telecommunications (Cell phone providers and AT&T) –

- ◀-▶ **Co-location** hazard exposure of cables and underground wiring beneath roads or along roads
- ◀ **Needed by the transportation from the telecommunications system**
 - Automated systems and process control equipment for trains
 - Communication between transit operators and bus/train drivers
 - Communication with repair and maintenance crews of roads, ports, and airports
 - Communication with people needing to travel to and from work (or using airports and ports)
 - Emergency communications with emergency operations centers
- ▶ **Needed from the transportation system by the telecommunications system**
 - Transport of repair and maintenance vehicles to locations for repairing cables, wires, and equipment
 - Transport of repair, customer service, and operations facility crews to-and-from their homes
 - Delivery of replacement specialized equipment to critical facilities

¹ See, for example, Peerenboom, J., Fisher, R., and Whitfield, R., 2001. "Recovering from Disruptions of Interdependent Critical Infrastructures" presented at the *CRIS/DRM/IIIT/NSF Workshop on Mitigating the Vulnerability of Critical Infrastructures to Catastrophic Failures* Lyceum, Alexandria, Virginia.

Transportation ◀-▶ Petroleum, natural gas, and electrical systems (PG&E and gasoline, diesel and jet fuel providers) –

◀-▶ **Co-location** hazard exposure of natural gas and some other fuel lines beneath roads, as well as electric power lines both beneath and adjacent to road corridors

◀ **Needed by the transportation system from energy systems**

- Gasoline and lubricants for use in road and highway repair and maintenance vehicles
- Gasoline & lubricants for buses & vehicles of repair & operations facility crews to-and-from their homes
- Electric power for train operations, some buses, street lights, gas station pumps, credit card machines, and control systems
- Fuel to run back-up generators at some critical operations facilities

▶ **Needed from the transportation system by energy systems**

- Transport of repair and maintenance vehicles to locations for repairing pipelines, power lines, & equipment
- Transport of repair, customer service, and operations facility crews to-and-from their homes
- Delivery of fuel to gas stations and delivery of replacement equipment to refineries and critical facilities

The following figure summarizes these linkages.

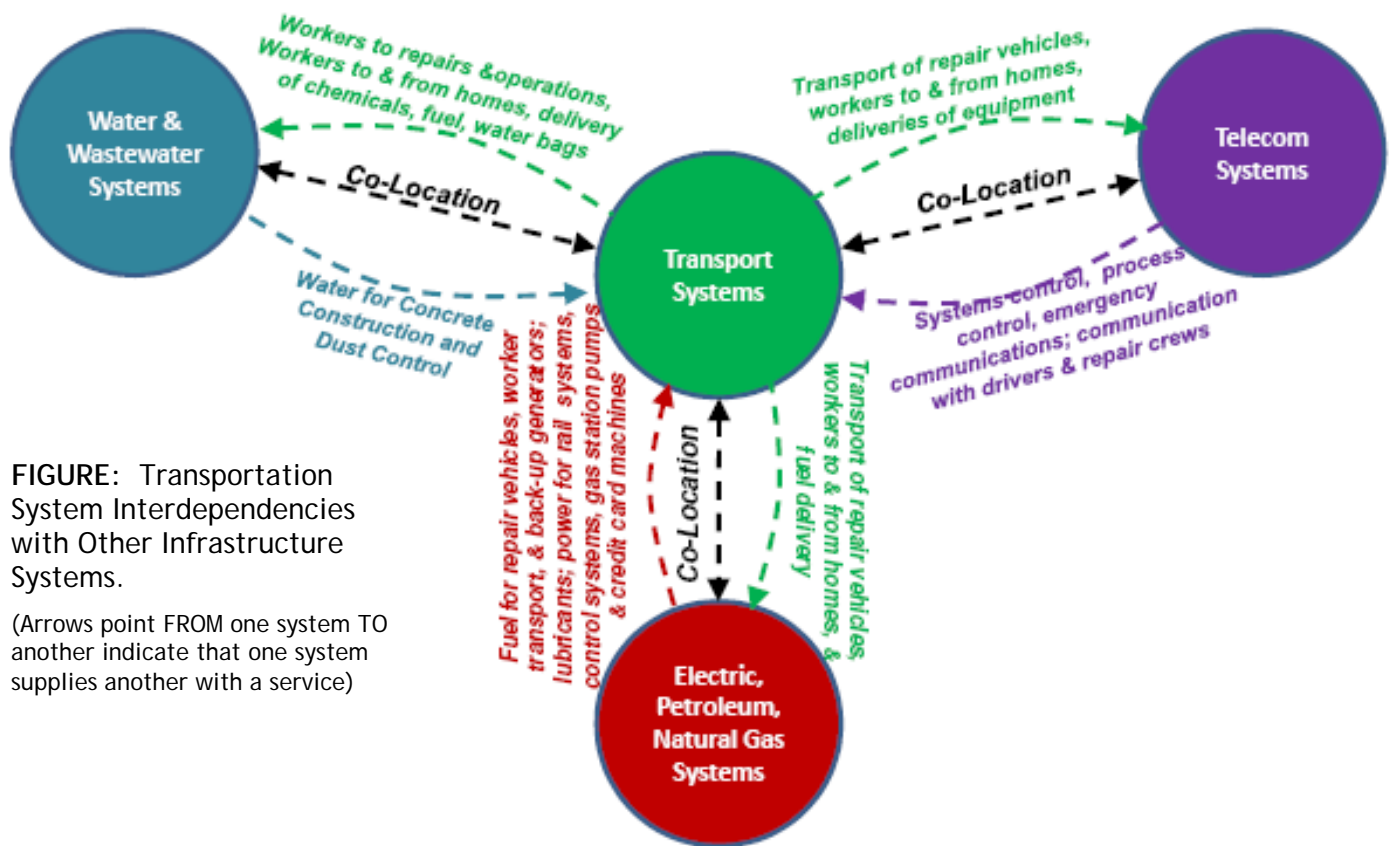


FIGURE: Transportation System Interdependencies with Other Infrastructure Systems.

(Arrows point FROM one system TO another indicate that one system supplies another with a service)

Water and Wastewater System Linkages

The following linkages between the water supply and wastewater systems and other infrastructure lifeline systems also are critical:

Water ◀-▶ Transportation Linkages – (repeated for completeness)

◀-▶ **Co-location** hazard exposure of distribution pipelines beneath roads

◀ **Needed by the water-sewer system from the transportation system**

- Transport of repair and maintenance vehicles to locations for repairing pipelines
- Transport of repair, customer service, and operations facility crews to-and-from their homes
- Delivery of chemicals to water treatment facilities
- Delivery of fuel to run critical facilities
- Delivery of emergency drinking water in bags to customers at emergency distribution points

▶ **Needed from the water system by the transportation system**

- Water for concrete construction and dust control

Water ◀-▶ Telecommunications Linkages –

◀-▶ **Co-location** hazard exposure of distribution pipelines beneath roads with cable and underground wiring; above ground networks also aligned with roads (and thus pipeline corridors)

◀ **Needed by the water-sewer system from the telecommunications system**

- Automated systems and process control equipment for treatment and operations
- Communication with repair and maintenance crews
- Communication with customers for repair and maintenance requests
- Emergency communications with emergency operations centers

▶ **Needed from the water system by the telecommunications system**

- Water for communication equipment cooling systems

Water ◀-▶ Petroleum, natural gas, and electrical systems –

◀-▶ **Co-location** hazard exposure of natural gas and some other fuel lines beneath roads, as well as electric power lines both beneath and adjacent to road corridors

◀ **Needed by the water-sewer system from energy systems**

- Gasoline and lubricants for use in repair and maintenance vehicles repairing pipelines
- Gasoline and lubricants for vehicles of repair, customer service, and operations facility crews to-and-from their homes
- Electric power for pump and lift stations, treatment plant operations, and control systems
- Fuel to run back-up generators at some critical facilities

▶ **Needed from the water-sewer system by energy systems**

- Water for refinery production, pumps, compressors, cooling, emissions reduction, and fire suppression
- Water for electric power plant operations, including cooling and emissions reduction

The following figure summarizes these linkages.

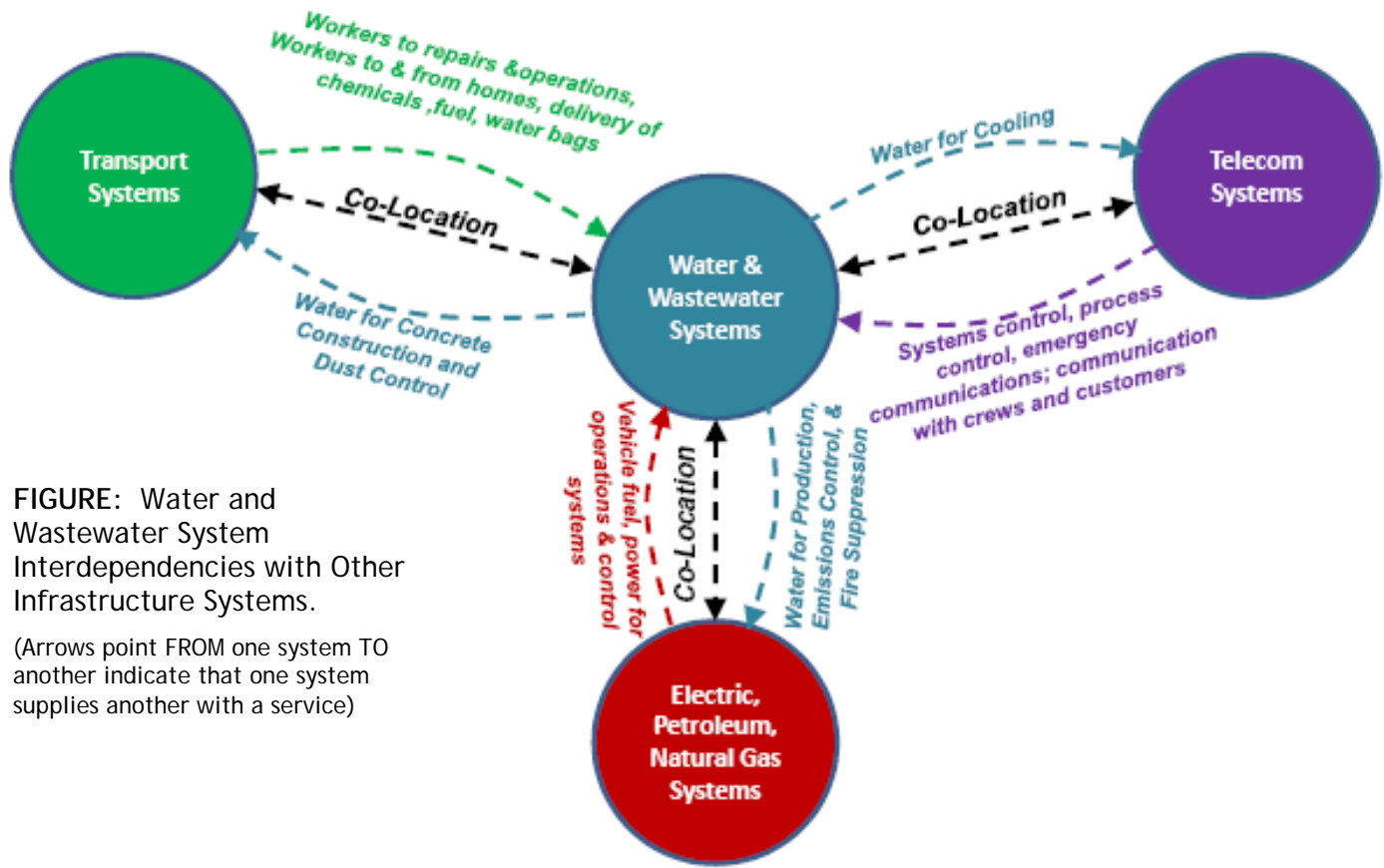


FIGURE: Water and Wastewater System Interdependencies with Other Infrastructure Systems.

(Arrows point FROM one system TO another indicate that one system supplies another with a service)

Interrelationships with electrical, natural gas, and telecommunications systems

For Oakland, both gas and electricity is provided by the Pacific Gas and Electric Company (PG&E), a private utility.

PG&E’s electric customers should expect to be without power for 72 to 96 hours. However, this ambitious recovery plan means that the company needs to have pre-established protocols with the City’s Public Works Department and EBMUD, so that trenches are excavated only once and roads can become operational as quickly as possible.

On the other hand, gas lines are likely to be out for weeks. The company views the principal issues are likely to be transportation of workers to locations of broken lines, as well as getting customers able to reestablish their businesses.

Telecommunications facilities and equipment are the most resilient of the infrastructure systems and are expected to return to service most rapidly.

Overall System Interdependencies

Combining these two figures creates a more complete picture of the interdependencies of water and transportation systems (typically managed by local governments) than the original Peerenboom and others (2001) figure, even though the distinctions among natural gas, electric power, and oil are not highlighted. This combined figure is shown below.

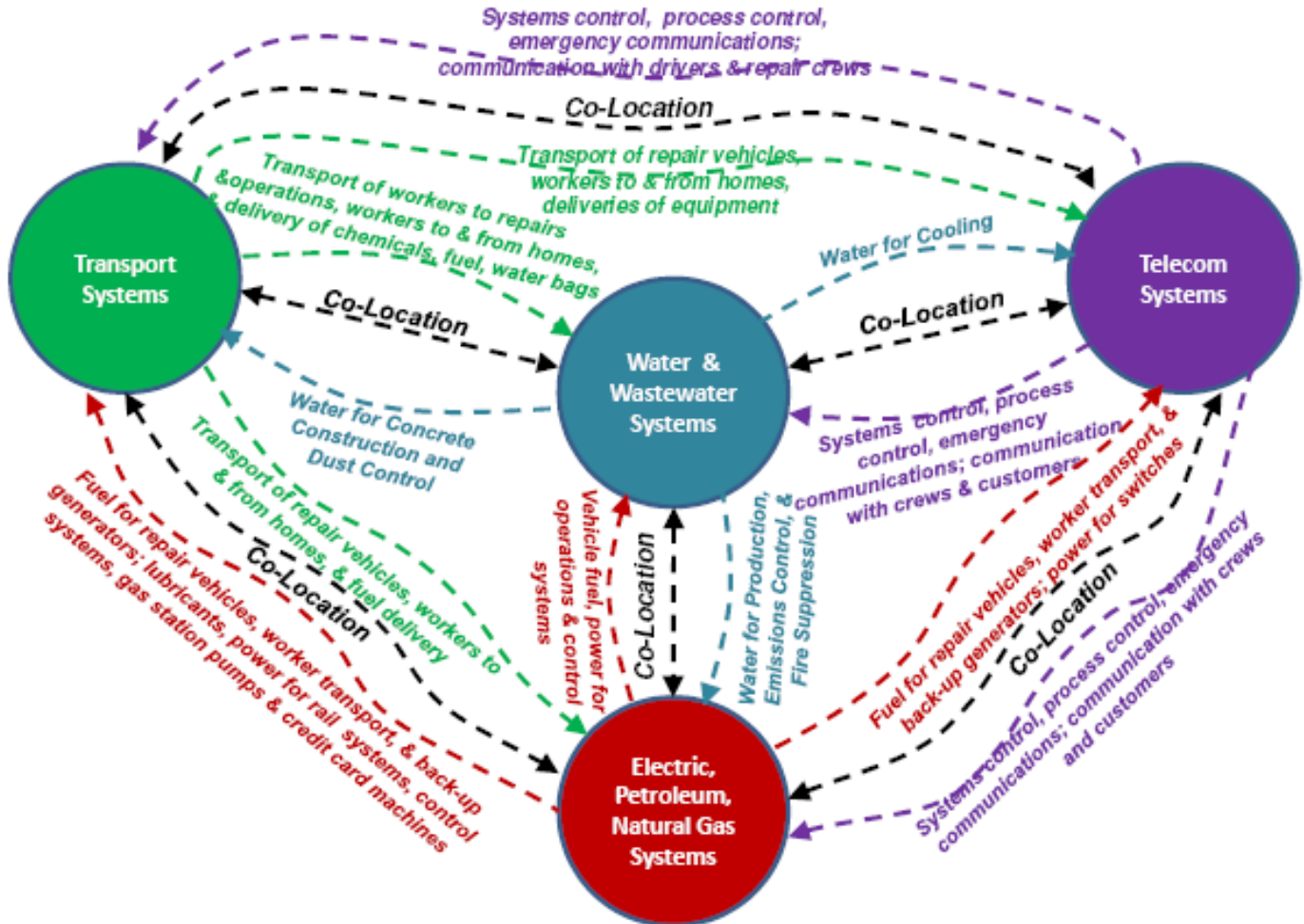


FIGURE: Transportation System Interdependencies with Other Infrastructure Systems.

(Arrows point FROM one system TO another indicate that one system supplies another with a service)

Ideas for Cooperative Action and Expected Priority Setting

The City and other infrastructure operators and managers need to better understand what each can do to help the other recover more quickly and efficiently. The following recommendations have been developed with the goals of encouraging mitigation and disaster preparedness before disasters, as well as to speed up long-term recovery after disasters.

In the case of emergency response and short-term recovery, decisions are likely to be made by senior infrastructure agency staff in individual agency Emergency Operations Centers with little or no elected official policy advice. At this time, the plan is for a Regional Recovery Authority to be appointed by the Governor to be up and running as soon as possible to make policy decisions, particularly related to allocation of limited resources. For example, in the case of transportation, the priorities will likely be bridges, fixed rail, access to ports and airports, providing access to the worst damaged areas, and providing access between less damaged areas. Transbay bridge **approaches** may take up to 90 days to fix even if bridges themselves are functional. Ports and airports may continue to have damage beyond the 90 days period; the goal should be to make at least one airport and one port operational, assuming resources will need to be prioritized and will need to rely on the Regional Recovery Authority to make those tough policy decisions.

An Action Plan for Oakland



The following recommendations for action, if adopted by the City of Oakland, will speed recovery of infrastructure in Oakland and East Bay, as well as lead to more rapid recovery for the City overall. Many of the ideas for action listed below emphasize the role of public works, general services, transportation, building, and airport personnel.

The primary operators of external utilities, systems, and agencies play a major role in recovery. These include: PG&E, EBMUD, AT&T (and other cell/wireless services), as well as support from the Alameda County Community Development Agency, Alameda County Emergency Medical Services and Fire Department, Alameda County Public Health, and the Alameda Public Works Agency.

Actions Focusing on Infrastructure Facilities	Responsible Agency
<p>A-1 – Obtain information on all critical infrastructure systems located within the City, regardless of ownership, and assess the vulnerability of critical infrastructure facilities owned by the City to damage in natural disasters and make recommendations for appropriate mitigation. (LHMP Mitigation Strategy INFR a-1)</p>	<p>Public Works Agency (PWA) and Port of Oakland (port and airport) with EBMUD, PG&E, AT&T, county and other agencies</p>
<p>A-2 – Retrofit or replace critical infrastructure facilities owned by cities and counties (and/or their back-up faculties) that are shown to be vulnerable to damage in natural disasters. (LHMP Mitigation Strategy INFR a-4)</p>	<p>Public Works Agency and Port of Oakland (port and airport)</p>

Actions Focusing on Infrastructure Facilities (continued)	Responsible Agency
<p>A-3 – Ensure that critical intersection traffic lights function following loss of power by installing battery back-ups, emergency generators, or lights powered by alternative energy sources such as solar. Proper functioning of these lights is essential for rapid evacuation, such as with hazmat releases resulting from natural disasters. (LHMP Mitigation Strategy INFR a-9)</p>	<p>Public Works Agency</p>
<p>A-4 – Clarify to workers in critical infrastructure facilities and emergency personnel, as well as to elected officials and the public, the extent to which facilities owned by the City are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake. (LHMP Mitigation Strategy INFR b-9)</p>	<p>Public Works Agency and infrastructure providers</p>
<p>A-5 – Expedite the funding and retrofit of seismically-deficient City-owned bridges and road structures by working with Caltrans and other appropriate governmental agencies. (LHMP Mitigation Strategy INFR b-1)</p>	<p>Public Works Agency (Transportation Services Department)</p>
<p>A-6 – As an infrastructure operator, designate a back-up Emergency Operations Center with redundant communications systems. (LHMP Mitigation Strategy INFR a-21)</p>	<p>Office of Emergency Services</p>
<p>A-7 – In conjunction with the Port of Oakland and the Water Emergency Transportation Authority (WETA), identify alternative locations for loading and unloading ferries.</p>	<p>Port of Oakland, Public Works Agency (Transportation Services Department) and Office of Emergency Services</p>

Actions Related to Sharing Knowledge of Infrastructure Facilities Owned by Special Districts and Companies	Responsible Agency
<p>B-1 – Ensure that critical buildings owned or leased by special districts or private utility companies participate in a program similar to San Francisco’s Building Occupancy Resumption Program (BORP). The BORP program permits owners of buildings to hire qualified engineers to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of the buildings. Note - A qualified engineer is a California licensed engineer with relevant experience. (LHMP Mitigation Strategy INFR f-1)</p>	<p>Community and Economic Development Agency (CEDA) (Building Services and Permit Center)</p>
<p>B-2 – Ensure that plans of water and wastewater agencies for speeding the repair and functional restoration of water and wastewater systems are communicated to local governments and owners of other critical infrastructure systems. If water and wastewater agencies have not yet developed such plans, encourage them to do so. (related to LHMP Mitigation Strategy INFR a-6)</p>	<p>Public Works Agency (wastewater) with EBMUD</p>
<p>B-3 – Pre-position emergency power generation capacity (or have rental/lease and delivery agreements for these generators in place) in critical buildings of cities, counties, and special districts to maintain continuity of government and services. (LHMP Mitigation Strategy INFR a-8)</p>	<p>Public Works Agency</p>
<p>B-4 – Minimize the likelihood that power interruptions will adversely impact lifeline utility systems or critical facilities by ensuring that they have adequate back-up power. (LHMP Mitigation Strategy INFR a-11)</p>	<p>Public Works Agency</p>

Actions Related to Providing Information to Businesses and Residents About Disaster Recovery	Responsible Agency
<p>C-1 – Before disasters, provide materials to the public related to planning for power deficiencies and restrictions. After a disaster, provide materials for addressing those power deficiencies and restrictions, as well as on expected time frames for power restrictions and restorations. (related to LHMP Mitigation Strategy INFR g-1)</p>	<p>PG&E with Community and Economic Development Agency (CETA), Public Information Office (PIO), and Office of Emergency Services</p>
<p>C-2 – Before disasters, provide materials to the public related to family and personal planning for delays due to traffic or road closures, or due to transit system disruption caused by disasters. After disasters, keep joint transportation communication flowing to the public in a consistent and appropriate manner, stressing what is in operation, not just what is closed, using appropriate graphics. (related to LHMP Mitigation Strategy INFR g-2)</p>	<p>Public Works Agency, CETA, PIO, and Office of Emergency Services (CORE)</p>
<p>C-3 – Before disasters, provide materials to the public related to coping with reductions in water supply or contamination of that supply BEYOND regulatory notification requirements. After disasters, keep communication flowing to the public in a consistent and appropriate manner, stressing what is in operation, not just what is disrupted, using appropriate graphics. (related to LHMP Mitigation Strategy INFR g-3)</p>	<p>EBMUD with CETA, PIO, and Office of Emergency Services</p>
<p>C-4 – Before disasters, provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment (such as materials developed by ABAG's Sewer Smart Program). After disasters, keep communication flowing to the public in a consistent and appropriate manner, stressing what is in operation, not just what is disrupted, using appropriate graphics. (related to LHMP Mitigation Strategy INFR g-4)</p>	<p>Public Works Agency, CETA, PIO, and Office of Emergency Services</p>
<p>C-5 – Both before and after disasters, and continuing into the long-term recovery period, develop and distribute appropriate materials for functional needs populations related to hazard mitigation, emergency preparedness, and disaster recovery, such as those on the http://www.preparenow.org website related to infrastructure issues. (related to LHMP Mitigation Strategy INFR g-7)</p>	<p>CETA, PIO, and Office of Emergency Services</p>

Actions Related to Regional Long-Term Recovery Planning	Responsible Agency
D-1 – Work with ABAG and other regional organizations to set regional long-term recovery goals, ensuring that the recovery goals of infrastructure providers are consistent with the goals and expectations of other infrastructure providers and those of the City, as well as of the public.	Regional agencies with infrastructure providers and Office of Emergency Services
D-2 – Do table-top and other exercises focusing on 60-120 days after a disaster jointly with infrastructure providers to identify critical interdependencies through, for example, scenario planning, as part of pre-disaster planning.	Regional agencies with infrastructure providers and Office of Emergency Services
D-3 – Work with ABAG and other government agencies to ensure that a Bay Area Recovery Planning Council is established that will coordinate and establish priorities for recovery of the region’s infrastructure systems.	Regional agencies with infrastructure providers and Office of Emergency Services
D-4 – Work to develop a systems analysis for short- and long-term recovery of the regional airport system, including both international and general aviation airports.	Regional agencies with Port of Oakland (airport) and Office of Emergency Services

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Infrastructure System Recovery STATUS

City of Oakland Long-Term Disaster Recovery Plan

Actions Focusing on Infrastructure Facilities	Responsible Agency
<p>ACTION ITEM A-1 – Obtain information on all critical infrastructure systems located within the City, regardless of ownership, and assess the vulnerability of critical infrastructure facilities owned by the City to damage in natural disasters and make recommendations for appropriate mitigation. (LHMP Mitigation Strategy INFR a-1)</p>	<p>Public Works Agency (PWA) and Port of Oakland (port and airport) with EBMUD, PG&E, AT&T, county and other agencies</p>
<p>STATUS</p> <p>Oakland has a number of potential assessment projects under study. On-going assessments have also been undertaken of the Oakland Airport and Port.</p> <p>Preliminary assessment has been completed for 40 bridges that are maintained by the City and 7 freeway overpasses that have a joint cooperation agreement between the City and Caltrans. At the present time, Caltrans is planning to complete replacement of the eastern span of the Oakland-San Francisco Bay Bridge by 2014.</p>	
<p>ACTION ITEM A-2 – Retrofit or replace critical infrastructure facilities owned by cities and counties (and/or their back-up facilities) that are shown to be vulnerable to damage in natural disasters. (LHMP Mitigation Strategy INFR a-4)</p>	<p>Public Works Agency and Port of Oakland (port and airport)</p>
<p>STATUS</p> <p>Oakland has an existing program to retrofit or replace these facilities. However, the program is underfunded. Currently, replacement of the 10th street bridge is funded by local Measure DD and the construction is scheduled to commence on spring 2011. Replacement of two grade separation bridges with two new three lane bridges (\$10 million) on 12th Street is under construction and is anticipated to be completed by 2012.</p> <p>In addition, the City is in the process of providing seismic retrofit upgrades (\$49 million) to 9 bridges using Federal HBP and State Prop-1B construction grants. No local funds for construction are available.</p>	

Actions Focusing on Infrastructure Facilities (continued)	Responsible Agency
<p>ACTION ITEM A-3 – Ensure that critical intersection traffic lights function following loss of power by installing battery back-ups, emergency generators, or lights powered by alternative energy sources such as solar. Proper functioning of these lights is essential for rapid evacuation, such as with hazmat releases resulting from natural disasters. (LHMP Mitigation Strategy INFR a-9)</p>	Public Works Agency
<p>STATUS</p> <p>Ensuring that critical intersection traffic lights function following loss of power is an existing program that is currently underfunded by the City of Oakland. Alternate plans are in place for long-term recovery of the traffic light system. As funding becomes available, the City of Oakland will invest in alternate energy systems to enable operation of traffic signals in the event of power disruption.</p>	
<p>ACTION ITEM A-4 – Clarify to workers in critical infrastructure facilities and emergency personnel, as well as to elected officials and the public, the extent to which facilities owned by the City are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake. (LHMP Mitigation Strategy INFR b-9)</p>	Public Works Agency and infrastructure providers
<p>STATUS</p> <p>Oakland provides this information as part of standard safety measures for all City-owned buildings. However, no critical infrastructure facilities are buildings that are occupied by workers.</p>	
<p>ACTION ITEM A-5 – Expedite the funding and retrofit of seismically-deficient city - owned bridges and road structures by working with Caltrans and other appropriate governmental agencies. (LHMP Mitigation Strategy INFR b-1)</p>	Public Works Agency (Transportation Services Department)
<p>STATUS</p> <p>Funding for this activity is dependent on Oakland obtaining federal and state (bond allocation) funding. This activity is included in the Oakland Safety Element as Policy GE-4.1</p> <p>The City is planning to apply for federal and state funds (\$49 million) for construction phase for seismic upgrades to the following bridges:</p> <ul style="list-style-type: none"> • Hegenberger Rd. Bridge over San Leandro St • Park Boulevard Viaducts I, II, and III • Leimert Blvd. Bridge • 23rd Ave Bridge • Campus Drive Bridge • Coliseum Way Bridge • Embarcadero Bridge. <p>The replacement of the 10th Street bridge (\$8 million) is currently under design and is funded by Measure DD. The replacements of the 12th Street bridges are currently under construction and are funded by federal HBP and state grants.</p>	

Actions Focusing on Infrastructure Facilities (continued)	Responsible Agency
<p>ACTION ITEM A-6 – As an infrastructure operator, designate a back-up Emergency Operations Center with redundant communications systems. (LHMP Mitigation Strategy INFR a-21)</p>	<p>Office of Emergency Services</p>
<p>STATUS Oakland has a modern EOC. A back-up locations for an alternate EOC has been identified.</p>	
<p>ACTION ITEM A-7 – In conjunction with the Port of Oakland and the Water Emergency Transportation Authority (WETA), identify alternative locations for loading and unloading ferries.</p>	<p>Port of Oakland, Public Works Agency (Transportation Services Department) and Office of Emergency Services</p>
<p>STATUS Oakland has a modern EOC. A back-up location for an alternate EOC has been identified.</p>	

Actions Related to Sharing Knowledge of Infrastructure Facilities Owned by Special Districts and Companies	Responsible Agency
<p>ACTION ITEM B-1 – Ensure that critical buildings owned or leased by special districts or private utility companies participate in a program similar to San Francisco’s Building Occupancy Resumption Program (BORP). The BORP program permits owners of buildings to hire qualified engineers to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of the buildings. Note - A qualified engineer is a California licensed engineer with relevant experience. (LHMP Mitigation Strategy INFR f-1)</p>	<p>Community and Economic Development Agency (CEDA) (Building Services and Permit Center)</p>
<p>STATUS</p> <p>Oakland allows infrastructure facility owners to “BORP” their facilities. However, it is the owner’s responsibility to ensure that these buildings are in the BORP program.</p>	
<p>ACTION ITEM B-2 – Ensure that plans of water and wastewater agencies for speeding the repair and functional restoration of water and wastewater systems are communicated to local governments and owners of other critical infrastructure systems. If water and wastewater agencies have not yet developed such plans, encourage them to do so. (related to LHMP Mitigation Strategy INFR a-6)</p>	<p>Public Works Agency (wastewater) with EBMUD</p>
<p>STATUS</p> <p>The Public Works Agency for the City has contingency plans and equipment for storm and sanitary collection system.</p> <p>Water supply for residents and businesses in the City is supplied by the East Bay Municipal Utility District (EBMUD). EBMUD has been an active participant in joint regional activities related to speeding the repair and functional restoration of water systems. For example, EBMUD belongs to the California Water/Wastewater Agency Response Network (CalWARN), a mutual aid network to speed up water system restoration. CalWARN provides its members:</p> <ul style="list-style-type: none"> • A standard omnibus mutual assistance agreement and process for sharing emergency resources among members statewide. • The resources to respond and recover more quickly from a disaster. • A mutual assistance program consistent with other statewide mutual aid programs and the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). • A forum for developing and maintaining emergency contacts and relationships. • New ideas from lessons learned in disasters. <p>For more information, see http://calwarn.org/.</p> <p>EBMUD has been a leader in evaluating its water supply system to develop and implement effective mitigation strategies to reduce the likelihood of damage and speed repair times. However, the water agency realizes that major earthquakes will still cause disruptions in water service.</p>	

Actions Related to Sharing Knowledge of Infrastructure Facilities Owned by Special Districts and Companies (continued)	Responsible Agency
<p>ACTION ITEM B-3 – Pre-position emergency power generation capacity (or have rental/lease and delivery agreements for these generators in place) in critical buildings of cities, counties, and special districts to maintain continuity of government and services. (LHMP Mitigation Strategy INFR a-8)</p>	<p>Public Works Agency</p>
<p>STATUS</p> <p>Oakland’s Public Works Agency has portable emergency generators, which are primarily used for City services and occasionally for sanitary & storm pump stations.</p>	
<p>ACTION ITEM B-4 – Minimize the likelihood that power interruptions will adversely impact lifeline utility systems or critical facilities by ensuring that they have adequate back-up power. (LHMP Mitigation Strategy INFR a-11)</p>	<p>Public Works Agency</p>
<p>STATUS</p> <p>Oakland has back-up generators or plug-in capabilities exist for sanitary pump station and for smaller storm pump stations. Additional capacity may be developed via partnerships with utility companies.</p>	

Actions Related to Providing Information to Businesses and Residents About Disaster Recovery	Responsible Agency
<p>ACTION ITEM C-1 – Before disasters, provide materials to the public related to planning for power deficiencies and restrictions. After a disaster, provide materials for addressing those power deficiencies and restrictions, as well as on expected time frames for power restrictions and restorations. (related to LHMP Mitigation Strategy INFR g-1)</p>	<p>PG&E with Community and Economic Development Agency (CETA), Public Information Office (PIO), and Office of Emergency Services</p>
<p>STATUS Oakland incorporated development and distribution of these types of materials into its on-going public education effort.</p>	
<p>ACTION ITEM C-2 – Before disasters, provide materials to the public related to family and personal planning for delays due to traffic or road closures, or due to transit system disruption caused by disasters. After disasters, keep joint transportation communication flowing to the public in a consistent and appropriate manner, stressing what is in operation, not just what is closed, using appropriate graphics. (related to LHMP Mitigation Strategy INFR g-2)</p>	<p>Public Works Agency, CETA, PIO, and Office of Emergency Services (CORE)</p>
<p>STATUS Oakland OES teaches residents to plan their own evacuation routes, have more than one route, and test/practice their plans in conjunction with Caltrans. The Public Information Group is responsible for public communication after disasters.</p>	
<p>ACTION ITEM C-3 – Before disasters, provide materials to the public related to coping with reductions in water supply or contamination of that supply BEYOND regulatory notification requirements. After disasters, keep communication flowing to the public in a consistent and appropriate manner, stressing what is in operation, not just what is disrupted, using appropriate graphics. (related to LHMP Mitigation Strategy INFR g-3)</p>	<p>EBMUD with CETA, PIO, and Office of Emergency Services</p>
<p>STATUS Materials related to water supply and possible contamination have been incorporated into the Oakland CORE disaster training curriculum for use before disasters. The Public Information Group is responsible for public communication after disasters.</p>	

Actions Related to Providing Information to Businesses and Residents About Disaster Recovery (continued)	Responsible Agency
<p>ACTION ITEM C-4 – Before disasters, provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment (such as materials developed by ABAG's Sewer Smart Program). After disasters, keep communication flowing to the public in a consistent and appropriate manner, stressing what is in operation, not just what is disrupted, using appropriate graphics. (related to LHMP Mitigation Strategy INFR g-4)</p>	<p>Public Works Agency, CETA, PIO, and Office of Emergency Services</p>
<p>STATUS</p> <p>Materials related to disrupted storm drains, sewage lines, and wastewater treatment have been incorporated into the Oakland CORE disaster training curriculum. The Public Information Group is responsible for public communication after disasters. These materials should be able to be understood graphically, and multi-lingual reporting and announcement methods should be used.</p>	
<p>ACTION ITEM C-5 – Both before and after disasters, and continuing into the long-term recovery period, develop and distribute appropriate materials for functional needs populations related to hazard mitigation, emergency preparedness, and disaster recovery, such as those on the http://www.preparenow.org website related to infrastructure issues. (related to LHMP Mitigation Strategy INFR g-7)</p>	<p>CETA, PIO, and Office of Emergency Services</p>
<p>STATUS</p> <p>Emergency preparedness materials are available through the Citizens of Oakland Responding to Emergencies (CORE) program, operated by the Oakland Office of Emergency Services (OES). CORE disaster preparedness materials and classes are available in multiple languages and alternative formats. Materials are available on the CORE website for download. OES coordinates with the ADA Programs Division in the City Administrator's Office to ensure that CORE materials address functional needs concerns and that CORE materials are available in alternative formats for persons with disabilities.</p>	

Actions Related to Regional Long-Term Recovery Planning	Responsible Agency
<p>ACTION ITEM D-1 – Work with ABAG and other regional organizations to set regional long-term recovery goals, ensuring that the recovery goals of infrastructure providers are consistent with the goals and expectations of other infrastructure providers and those of the City, as well as of the public.</p>	<p>Regional agencies with infrastructure providers and Office of Emergency Services</p>
<p>STATUS</p> <p>Oakland City Council members have been working with ABAG through ABAG’s Executive Board and Regional Planning to support the establishment of the Bay Area Disaster Recovery Planning Council to establish regional long-term recovery goals. The Oakland Office of Emergency Services is in support of this effort.</p>	
<p>ACTION ITEM D-2 – Do table-top and other exercises focusing on 60-120 days after a disaster jointly with infrastructure providers to identify critical interdependencies through, for example, scenario planning, as part of pre-disaster planning.</p>	<p>Regional agencies with infrastructure providers and Office of Emergency Services</p>
<p>STATUS</p> <p>Oakland has plans to conduct semi-annual scenario planning exercises with infrastructure providers.</p>	
<p>ACTION ITEM D-3 – Work with ABAG and other government agencies to ensure that a Bay Area Recovery Planning Council is established that will coordinate and establish priorities for recovery of the region’s infrastructure systems.</p>	<p>Regional agencies with infrastructure providers and Office of Emergency Services</p>
<p>STATUS</p> <p>Oakland City Council members have been working with ABAG through ABAG’s Executive Board and Regional Planning Committee to support the establishment of a Bay Area Recovery Planning Council to establish regional long-term recovery goals. ABAG and Oakland understand that ABAG would have no direct mechanism for control over funds. The Oakland Office of Emergency Services is in support of this effort.</p>	

Actions Related to Regional Long-Term Recovery Planning (continued)	Responsible Agency
<p>ACTION ITEM D-4 – Work to develop a systems analysis for short- and long-term recovery of the regional airport system, including both international and general aviation airports.</p>	<p>Regional agencies with Port of Oakland (airport) and Office of Emergency Services</p>
<p>STATUS</p> <p>ABAG has applied to Caltrans Aeronautics for funding to support a regional systems analysis for short- and long-term recovery of the regional airport system. The review of this plan would be through the Regional Airport Planning Committee, a joint committee of ABAG, BCDC, and MTC. Oakland has a representative on this committee.</p>	

Chapter 6: School System Mitigation and Recovery

Are Schools Safe?

There are over 130 public K-12 schools in the Oakland Unified School District serving 40,000 students, along with at least 5 colleges, and numerous private K-12 schools, day care providers and pre-schools.

As a result of the 1933 Long Beach earthquake, in which 70 schools were destroyed and another 120 suffered major structural damage, California adopted the Field Act within 30 days of that earthquake.



One of the schools damaged in the 1933 Long Beach earthquake

“The Field Act requires that the building designs be based on high level building standards adopted by the state and plans and specifications be prepared by competent designers qualified by state registration. The quality of construction was to be enforced through independent plan review and independent inspection. Finally, the design professionals, independent inspector and the contractor had to verify under penalty of perjury that the building was constructed according to the approved plans” (Dennis Bellet, Department of General Services, Division of the State Architect).

The first problem with the Field Act was that it applied only to new construction built after 1933; not to existing pre-1933 school buildings. While the 1939 Garrison Act covered the criteria for continued use or abandonment of these pre-1933 school buildings, they were not retrofitted to conform to current codes until funding was made available shortly after the 1971 San Fernando Earthquake.

The second problem is that the Act is not retroactive. Thus, many schools built between 1933 and 1979 do not meet current codes. School districts and the Division of the State Architect are now grappling with the problem of evaluating and retrofitting thousands of school buildings constructed before 1979 (due to major changes in building codes following the 1971 San Fernando earthquake).

A third problem is that this Act has gaps; it does not cover private schools, pre-schools, and day care facilities.

Role of Schools Before and After Disasters

Our schools are critical to our ability to recover following an earthquake or other major disaster in the Bay Area. While their principal mission prior to a disaster is education – whether they are a K-12 school or a university – their mission is more complex after a disaster hits.

- We rely on K-12 schools to shelter those displaced from their homes.
- We use K-12 schools as conduits for information to parents and others in the community, including post-disaster information.
- Some have suggested that schools become locations for distribution of water and other services after a disaster.
- Working parents rely on their younger children attending school and after-school programs for day care, a role that is disrupted if schools close for extended periods of time.
- Children and teens need the stability of school and sports programs to restore a sense of normalcy, at the same time as gyms and auditoriums are used as shelters.
- Our universities are a major employer and driver of the Bay Area economy and thus their continued post-disaster functioning is critical to regional recovery.

Alameda County Office of Education, school personnel, the American Red Cross, and various state agencies need to work together to ensure that we speed up the long-term recovery process so that schools can return to their mission of education. (Long-term recovery is that period from a few hours to several years after the disaster when buildings, infrastructure, and communities are rebuilt.)



Emergency Sheltering in School Gym

Oakland Schools Retrofit Status

The Division of the State Architect (DSA) is responsible for permitting building of public school facilities. Because of the Field Act, vulnerable schools are required to be designed to state-wide earthquake standards. These standards were significantly improved following the 1971 San Fernando building, but new codes are not applied retroactively to buildings built before the new code was adopted in 1978. Pre-1933 buildings were retrofit to current standards with funding made available after the 1971 San Fernando earthquake. The Division of the State Architect maintains a list of schools that are made of material other than wood, built between 1933 and 1979. Buildings on this list are **not** required to be retrofitted. 86 school buildings in 45 campuses of the Oakland Unified School District (OUSD) are on the DSA list. Of these 86 buildings, the DSA list shows that none of the buildings have been retrofitted. The DSA list has some limitations; it only shows schools buildings that have closed their retrofit permit with DSA. School buildings in the process of being retrofitted do not show up on the list as having been retrofitted. OUSD is reviewing the DSA list to determine if any of these schools have been retrofitted and will advise the status to the appropriate agencies accordingly.

Ideas for Cooperative Action and Expected Priority Setting

The following recommendations for action, if adopted by school districts, in conjunction with county offices of education, various state agencies and the American Red Cross, will help ensure safe school facilities for students, emergency shelters, and communities. The recommendations have been developed with the goals of encouraging mitigation and disaster preparedness before disasters, as well as to speed up long-term recovery after disasters. The recommendation focus on creating safer facilities, working with private, as well as public, schools, and speeding up post-disaster structural inspection of school facilities.



An Action Plan for Oakland

The following recommendations for action, if adopted by the City of Oakland, will speed recovery of schools in Oakland, as well as lead to more rapid recovery for the City overall. Many of the ideas for action listed below emphasize the role of local schools districts, Alameda County Office of Education and the Division of the State Architect.

Actions Focusing on Education Facilities Owned by School Districts	Responsible Agency
<p>A-1 – Encourage public and private school districts, as well as day care facility owners, to assess the vulnerability of their critical education facilities to damage from natural disasters and to investigate appropriate mitigation opportunities. Options for encouragement include holding joint workshops with elected school boards and city council members, to collaborate on both vulnerability assessment and possible funding sources.</p>	<p>Implementation responsibility of Oakland Unified School District (OUSD), colleges and universities, private school districts, and daycare facility owners.</p> <p>Lists of private schools can be developed by Finance and Management Agency, while Oakland Office of Emergency Services can offer advice and encouragement.</p>

Actions Focusing on Education Facilities Owned by School Districts (continued)	Responsible Agency
<p>A-2 – Encourage the retrofit or replacement of critical education facilities that are shown to be vulnerable to damage in natural disasters. For example, in the case of privately owned educational facilities, the City could use its business license mailings to educate these building owners about the benefits of retrofitting and provide information about potential retrofit incentives.</p>	<p>Implementation responsibility of OUSD, colleges and universities, private school districts, and daycare facility owners.</p> <p>Lists of private schools can be developed by Finance and Management Agency, while Oakland Office of Emergency Services can offer advice and encouragement.</p>
<p>A-3 – Encourage comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical public and private education buildings from being functional after major disasters.</p>	<p>Implementation responsibility of OUSD, colleges and universities, private school districts, and daycare facility owners.</p> <p>Lists of private schools can be developed by Finance and Management Agency, while Oakland Office of Emergency Services can offer advice and encouragement.</p>
<p>A-4 – Work with CalEMA and school facilities to ensure that there will be an adequate group of Safety Assessment Program (SAP) inspectors trained and deployed by CalEMA to public and private schools and daycare facilities for post-disaster inspection.</p>	<p>OUSD, colleges and universities, CalEMA, Office of Emergency Services and CEDA (Building Services)</p>

As noted, schools have the additional function following a disaster of serving as emergency shelters. The following mitigation strategies focus on ensuring that they are available for that role.

Actions Related to Use of Educational Facilities as Emergency Shelters	Responsible Agency
<p>B-1 – Work cooperatively with the American Red Cross and non-profits to set up memoranda of understanding for use of education facilities as emergency shelters following disasters.</p>	<p>OUSD, Office of Emergency Services</p>

School districts cannot mitigate hazards, respond to disasters, or recover except as part of a larger community. They also have a role in assisting with the preparedness and recovery of that larger community. The following strategies relate to the unique role of schools in the community.

Actions Related to Disaster Preparedness and Recovery Planning	Responsible Agency
<p>C-1 – Encourage employees of public and private schools, as well as of daycare facilities, to have family disaster plans and conduct mitigation activities in their own homes.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>C-2 – Encourage public and private schools, as well as daycare facilities, to develop plans for evacuation or sheltering in place of school children during emergencies.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>C-3 – Encourage public and private schools, as well as daycare facilities, to utilize FEMA’s ICS 100 3-hour on-line training for their teachers and other school personnel.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>C-4 – Encourage public and private schools, as well as daycare facilities, to develop and maintain the capacity for schools to take care of the students after a disaster, and notify parents that this capacity exists.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>C-5 – Encourage public and private schools, as well as daycare facilities, to develop a continuity of operations and disaster recovery plan using models such as that developed by the University of California Berkeley.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>

Actions Related to Schools as Conduits for Information to Families About Emergencies	Responsible Agency
<p>D-1 – Utilize the unique ability of schools to reach families through educational materials on hazards, mitigation, and preparedness, particularly after disasters and at the beginning of the school year. These efforts will make the entire community more disaster-resistant.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>D-2 – Encourage schools to develop and distribute culturally appropriate materials related to disaster mitigation and preparedness.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from City of Oakland Office of Emergency Services and Equal Access Office to encourage;</p>

PHOTO CREDITS – California Geological Survey–page 1 (left); American Red Cross–page 1 (right).



School System Mitigation and Recovery STATUS

City of Oakland Long-Term Disaster Recovery Plan

Actions Focusing on Education Facilities Owned by School Districts	Responsible Agency
<p>ACTION ITEM A-1 – Encourage public and private school districts, as well as day care facility owners, to assess the vulnerability of their critical education facilities to damage from natural disasters and to investigate appropriate mitigation opportunities. Options for encouragement include holding joint workshops with elected school boards and city council members, to collaborate on both vulnerability assessment and possible funding sources.</p>	<p>Implementation responsibility of Oakland Unified School District (OUSD), colleges and universities, private school districts, and daycare facility owners.</p> <p>Lists of private schools can be developed by Finance and Management Agency, while Oakland Office of Emergency Services can offer advice and encouragement.</p>
<p>STATUS</p> <p>In general, this task is the responsibility of the Oakland Unified School District. However, because the City and its residents and businesses are relying on those schools during the recovery process, the City has a role in working with OUSD to encourage a thorough vulnerability assessment of these buildings, depending on available funding.</p> <p>The Oakland Unified School District (OUSD) is currently investigating options for hiring an architectural or engineering firm to prioritize any additional retrofit work needed on OUSD-owned facilities.</p>	

Actions Focusing on Education Facilities Owned by School Districts (continued)	Responsible Agency
<p>ACTION ITEM A-2 – Encourage the retrofit or replacement of critical education facilities that are shown to be vulnerable to damage in natural disasters. For example, in the case of privately owned educational facilities, the City could use its business license mailings to educate these building owners about the benefits of retrofitting and provide information about potential retrofit incentives.</p>	<p>Implementation responsibility of OUSD, colleges and universities, private school districts, and daycare facility owners.</p> <p>Lists of private schools can be developed by Finance and Management Agency, while Oakland Office of Emergency Services can offer advice and encouragement.</p>
<p>STATUS</p> <p>While the City of Oakland supports the concept of retrofit or replacement of critical education facilities that are shown to be vulnerable to damage in natural disasters, any retrofit or replacement of school facilities depends on the completion of A-1 and funding.</p>	

Actions Focusing on Education Facilities Owned by School Districts (continued)	Responsible Agency
<p>ACTION ITEM A-3 – Encourage comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical public and private education buildings from being functional after major disasters.</p>	<p>Implementation responsibility of OUSD, colleges and universities, private school districts, and daycare facility owners.</p> <p>Lists of private schools can be developed by Finance and Management Agency, while Oakland Office of Emergency Services can offer advice and encouragement.</p>
<p>STATUS</p> <p>While the City of Oakland supports the concept of identifying and mitigating problems with non-structural items in schools, such efforts depend on additional funding.</p>	
<p>ACTION ITEM A-4 – Work with CalEMA and school facilities to ensure that there will be an adequate group of Safety Assessment Program (SAP) inspectors trained and deployed by CalEMA to public and private schools and daycare facilities for post-disaster inspection.</p>	<p>OUSD, colleges and universities, CalEMA, Office of Emergency Services and CEDA (Building Services)</p>
<p>STATUS</p> <p>The 18 OUSD school campuses currently designated as potential care and shelter sites will be inspected by SAP teams sent out by the City of Oakland to ensure that they can safely be used as shelter sites.</p> <p>OUSD should have a plan for requesting SAP inspectors for the remaining (over 100) OUSD campuses by funneling this request through the County Office of Education.</p> <p>Private schools should investigate participating in a program similar to San Francisco’s Building Occupancy Resumption Program (BORP). The BORP program permits owners of buildings to hire qualified engineers to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of the buildings. Note - A qualified engineer is a California licensed engineer with relevant experience.</p>	

Actions Related to Use of Educational Facilities as Emergency Shelters	Responsible Agency
<p>ACTION ITEM B-1 – Work cooperatively with the American Red Cross and non-profits to set up memoranda of understanding for use of education facilities as emergency shelters following disasters.</p>	<p>OUSD, Office of Emergency Services</p>
<p>STATUS</p> <p>The City has an MOU with the OUSD listing 18 schools that are ADA-compliant and are designated as potential shelters. This list is not public because the sites must be inspected post-disaster prior to being opened as shelters.</p> <p>The City also has a separate MOU with the American Red Cross to assist the City in operating, staffing, supplying, and equipping these shelters.</p>	

Actions Related to Disaster Preparedness and Recovery Planning	Responsible Agency
<p>ACTION ITEM C-1 – Encourage employees of public and private schools, as well as of daycare facilities, to have family disaster plans and conduct mitigation activities in their own homes.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>STATUS</p> <p>In general, the City does not have jurisdiction over school personnel training programs. However, CORE’s 20-hour disaster training courses are open to all residents, including school personnel. For more information, see the Oakland CORE website at http://www.oaklandnet.com/fire/core/.</p>	
<p>ACTION ITEM C-2 – Encourage public and private schools, as well as daycare facilities, to develop plans for evacuation or sheltering in place of school children during emergencies.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>STATUS</p> <p>Schools and school districts are responsible for developing their own plans, as well as communicating those plans to the parents. However, the City encourages schools to include a transportation component in existing school drills, when available. One critical component of any plan for release procedures is communicating that plan to teachers and parents.</p>	
<p>ACTION ITEM C-3 – Encourage public and private schools, as well as daycare facilities, to utilize FEMA’s ICS 100 3-hour on-line training for their teachers and other school personnel.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>STATUS</p> <p>Oakland OES encourages public and private schools and daycare facilities to utilize ICS 100 on-line training on request. In addition, the OUSD should develop a tracking process for compliance.</p>	

Actions Related to Disaster Preparedness and Recovery Planning	Responsible Agency
<p>ACTION ITEM C-4 – Encourage public and private schools, as well as daycare facilities, to develop and maintain the capacity for schools to take care of the students after a disaster, and notify parents that this capacity exists.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>STATUS</p> <p>The City of Oakland OES encourages OUSD and private schools to develop plans for taking care of a percentage of students whose parents and guardians are not able to pick up their children.</p> <p>Such plans should include provision of food, water, sanitation, and blankets until approximately 7 p.m., when they may be evacuated to another site.</p> <p>These plans should be communicated to the parents and guardians of the students at public and private schools.</p>	
<p>ACTION ITEM C-5 – Encourage public and private schools, as well as daycare facilities, to develop a continuity of operations and disaster recovery plan using models such as that developed by the University of California Berkeley.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>STATUS</p> <p>The City of Oakland OES encourages schools to develop guiding principles and a plan that balances the use of the school facilities as a shelter and the need to resume educational opportunities for students.</p>	

Actions Related to Schools as Conduits for Information to Families About Emergencies	Responsible Agency
<p>ACTION ITEM D-1 – Utilize the unique ability of schools to reach families through educational materials on hazards, mitigation, and preparedness, particularly after disasters and at the beginning of the school year. These efforts will make the entire community more disaster-resistant.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from Office of Emergency Services</p>
<p>STATUS Oakland OES will encourage school participation in annual <i>Great Shake Out</i> activities.</p>	
<p>ACTION ITEM D-2 – Encourage schools to develop and distribute culturally appropriate materials related to disaster mitigation and preparedness.</p>	<p>OUSD, colleges and universities, private schools, and daycare owners to implement with encouragement from City of Oakland Office of Emergency Services and Equal Access Office to encourage;</p>
<p>STATUS Oakland OES disaster preparedness materials are available in English, Spanish, and Chinese. Its two-hour classes are taught in four languages: English, Spanish, Mandarin, and Cantonese. Materials are available at the CORE website for download.</p>	

Chapter 7: Health Care System Mitigation and Recovery

The Problem Is...

If the 1868 Hayward earthquake (which occurs about once every 140 years on the southern Hayward fault) were to happen today, it could result in thousands of serious injuries. This example is not the worst case, but since it has been 141 years since this earthquake, this is a likely scenario.



Damage to hospital in
1971 San Fernando Earthquake

At the same time, health care is undergoing major changes in technology that make many of our hospitals outdated.

Finally, changes are occurring in health care delivery and more procedures are occurring in out-patient clinics and in medical offices.

Hospitals no longer have medical supplies for weeks stored on site. As with manufacturing facilities, these facilities are working under the “just-in-time” supply chain strategy. Supplies are delivered from outside of the Bay Area and are pre-ordered for normal operation, not for disaster situations.

While the Bay Area may pride itself in being more prepared for a disaster than Louisiana or Mississippi was in Hurricane Katrina, we are not prepared to manage long-term recovery of health care delivery, due, in part, to an emphasis on hospitals rather than a comprehensive view of all services. We also need to ensure the delivery of adequate mental health services following disasters.

Background and History

- In 1973, as a direct result of the devastation caused by the 1971 Sylmar quake (65 deaths and a hospital collapse), the Legislature passed the Alfred E. Alquist Hospital Seismic Safety Act. The act requires that acute care hospitals be designed and constructed to withstand a major earthquake and **remain operational** immediately after the quake. Further modifications of the Act occurred following the Northridge earthquake, with the passage of SB 1953 in 1994.
- SB 1953 requires that all hospitals use standards developed by the California Office of Statewide Health Planning and Development (OSHPD) to measure the ability of these buildings to withstand a major earthquake. In 2001, plans submitted by the hospital owners determined that 37% of California’s hospitals are subject to collapse. OSHPD is focusing on monitoring the billions of dollars needed to retrofit or replace the region’s hospitals.
- OSHPD noted that, in 2008, the average age of the dangerous hospital buildings was from 45-49 years – and that the average useful life of a hospital is typically only 40-50 years. Thus, some of the billions of dollars being attributed to seismic safety upgrades are actually being driven by the upgrading of outdated buildings.
- Additional planning is needed by Oakland and Alameda County to identify and work with the ancillary health facilities in the region, including pharmacies, doctor and dentist offices, offices that sell hearing aids and eye glasses, dialysis centers, and emergency clinics. Currently there is NO state law that states that the buildings these facilities are located in must be structurally sound or that they have business continuity plans.
- While hospitals are licensed by the State, ancillary facilities obtain their building permits and business licenses from cities and counties, ensuring that this effort remains local. There is a critical need for coordination of business recovery planning between the City and these facility operators and owners.

Oakland Hospitals

The City of Oakland has eight hospitals within its City boundary. An additional eight hospitals are located in the neighboring cities of San Leandro, Berkeley and Alameda.

The exposure of Alameda County’s **230** hospitals and other critical health care facilities licensed by OSHPD to earthquake shaking is their greatest natural hazard exposure, with **99.6%** exposed to high shaking levels (peak accelerations of greater than 40% of gravity [g] with a 10% chance of being exceeded in the next 50 years), and **97.4%** being exposed to extremely high shaking levels (60% g). Thus, most of the strategies that follow deal with the shaking hazard.

Wildland-urban-interface fire threat (WUI) exposure is much less. While **35.7%** of critical health care facilities are located in WUI areas, only 4.5% of all WUI areas have burned in the past 130 years. Even though global warming may result in more fires in the next 50 years, the exposure is still less than that of earthquake shaking. In addition, **none** of these critical health care facilities are located in areas of extreme or very high wildfire threat.

The exposure to storm-related hazards is even smaller. **None** of these critical health care facilities are located in 100-year flood areas, and **none** of these critical health care facilities are located in areas of significant past landslides.



An Action Plan for Oakland

The following recommendations for action, if adopted the City of Oakland, will help to ensure a more rapid recovery of the delivery of health care following a disaster. The recommendations have been developed as part of the multi-jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area. The goal of that plan is, in part, to speed up the long-term recovery of the region from disasters.

Possible Actions Related to Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD)	Responsible Agency
<p>A-1 – Work to ensure that the Alameda County Health Department, the California Office of Statewide Health Planning and Development (OSHPD), hospital operators, and the City of Oakland coordinate with each other to comply with current state law that mandates that critical facilities are structurally sound and have nonstructural systems designed to remain functional following disasters by 2013. In particular, this coordination should include understanding any problems with obtaining funding.</p>	<p>County Health Department, OSHPD, and hospital operators with encouragement from City Office of Emergency Services, and City Emergency Medical Services</p>

Possible Actions Related to Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD) (continued)	Responsible Agency
<p>A-2 – Encourage hospitals within the City to work with the California Office of Statewide Health Planning and Development (OSHPD) to formalize arrangements with structural engineers to report to the hospital, assess damage, and determine if the buildings can be reoccupied. The program should be similar to San Francisco’s Building Occupancy Resumption Program (BORP) that permits owners of buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as inspectors for these buildings in the event of an earthquake or other disaster. OSHPD, rather than city/county building departments, has the authority and responsibility for the structural integrity of hospital structures.</p>	<p>County Public Health Department with encouragement from City Emergency Medical Services and City Office of Emergency Services based on information from hospital operators</p>
<p>A-3 – Identify health care facilities in the City adequately prepared to care for victims with respiratory problems related to smoke and/or particulate matter inhalation.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services based on information from hospital operators</p>
<p>A-4 – Identify health care facilities in the City with the capacity to shut off outside air and be self-contained.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services based on information from hospital operators</p>
<p>A-5 – Encourage hospitals and other major health care facilities in the City to have auxiliary water and power sources.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services in conjunction with EBMUD and PG&E</p>

Possible Actions Related to Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD) (continued)	Responsible Agency
<p>A-6 – Identify health care facilities with isolation capacity should a need for them arise following a communicable disease epidemic. Isolation capacity varies from a section of the hospital for most communicable diseases to the entire hospital for a major pandemic flu.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services based on information from hospital operators</p>
<p>A-7 – Support critical health care facility operators when they encourage their employees to have family disaster plans and conduct mitigation activities in their own homes by making existing preparedness materials (such as developed by CORE (Communities of Oakland Respond to Emergencies), FEMA, the American Red Cross, ABAG and others, including non-profit organizations) available.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services</p>
Possible Actions Related to Ancillary and Other Health Care Facilities (including medical offices, pharmacies, free-standing or specialty clinics, etc.)	Responsible Agency
<p>B-1 – As funding becomes available, identify these ancillary facilities in our community. These facilities are not regulated by OSHPD in the same way as hospitals.</p>	<p>City Finance and Management Agency with City Office of Emergency Services</p>
<p>B-2 – As funding becomes available, encourage these facility operators to develop disaster mitigation plans.</p>	<p>Office of Emergency Services can encourage, but implementation is the responsibility of the facility operators</p>
<p>B-3 – As funding becomes available, encourage these facility operators to create, maintain, and/or continue partnerships with local governments to develop response and business continuity plans for recovery.</p>	<p>Office of Emergency Services can encourage, but implementation is the responsibility of the facility operators</p>

Possible Actions Related to Coordination Initiatives	Responsible Agency
<p>C-1 – Plan for and exercise the locations for the distribution of medical prophylaxis to large numbers of people, as required to be included in each county’s Strategic National Stockpile Plan.</p>	<p>County Public Health Department, City Office of Emergency Services and City Emergency Medical Services</p>
<p>C-2 – Continue to develop training and capabilities as a Metropolitan Medical Response System (MMRS) city. Other MMRS cities in the Bay Area are Fremont, San José, and San Francisco (plus, nearby, Sacramento and Stockton). MMRS cities are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel to respond to mass casualty events. (The coordination among public health, medical, emergency management, coroner, EMS, fire, and law enforcement is a model for all cities and counties.)</p>	<p>City Emergency Medical Services with City Office of Emergency Services</p>
<p>C-3 – Participate in regional trainings and exercises including the National Disaster Medical System (NDMS) uniformed or non-uniformed personnel. These federal resources include veterinary, mortuary, and medical personnel. Teams in or near the Bay Area are headquartered in the cities of Santa Clara and Sacramento.</p>	<p>County Public Health Department, City Emergency Medical Services, and City Office of Emergency Services</p>
<p>C-4 – Train, exercise, and plan for hazmat related-releases due to a natural or technological disaster. Hazmat teams utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agents and Lawrence Livermore National Laboratory or Sandia (both in Livermore) for confirmation of radiological agents.</p>	<p>Oakland Fire Department Hazmat program with Office of Emergency Services</p>

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Health Care System Mitigation and Recovery STATUS

City of Oakland Long-Term Disaster Recovery Plan

Possible Actions Related to Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD)	Responsible Agency
<p>ACTION ITEM A-1 – Work to ensure that the Alameda County Health Department, the California Office of Statewide Health Planning and Development (OSHPD), hospital operators, and the City of Oakland coordinate with each other to comply with current state law that mandates that critical facilities are structurally sound and have nonstructural systems designed to remain functional following disasters by 2013. In particular, this coordination should include understanding any problems with obtaining funding.</p>	<p>County Health Department, OSHPD, and hospital operators with encouragement from City Office of Emergency Services, and City Emergency Medical Services</p>
<p>STATUS</p> <p>Of the 25 hospital campuses in Alameda County, twelve of them are designated by OSHPD as having buildings in Seismic Performance Category 1 (SPC-1). Those are buildings most in danger of collapse and requiring retrofit by 2013. (The other 13 campuses do not have any buildings in SPC-1.)</p> <p>All SPC-1 buildings at nine of these campuses are expected to be fully compliant by the deadline (Alameda Hospital, Eden Medical Center, Washington Hospital – Fremont, Kaiser – Hayward, Alameda County Medical Center – Highland Campus, Alta Bates/Summit – Herrick Campus, Kaiser – Oakland, Alameda County Medical Center – Fairmont Campus, and Kindred Hospital).</p> <p>However, one of the two non-compliant buildings at Children’s Hospital in Oakland, two buildings at Valley Memorial Hospital in Livermore, and one building at Alta Bates/Summit – Bates Campus in Berkeley are designated as “potentially non-compliant” or only “possibly compliant” by the 2013 deadline. Because Children’s Hospital is in Oakland, efforts to understand the funding issues with this hospital are particularly worthwhile and are on-going. While the City of Oakland would encourage these hospitals to comply with state mandates, the City is not in a position to assist with any funding.</p>	

Possible Actions Related to Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD) (continued)	Responsible Agency
<p>ACTION ITEM A-2 – Encourage hospitals within the City to work with the California Office of Statewide Health Planning and Development (OSHPD) to formalize arrangements with structural engineers to report to the hospital, assess damage, and determine if the buildings can be reoccupied. The program should be similar to San Francisco’s Building Occupancy Resumption Program (BORP) that permits owners of buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as inspectors for these buildings in the event of an earthquake or other disaster. OSHPD, rather than city/county building departments, has the authority and responsibility for the structural integrity of hospital structures.</p>	<p>County Public Health Department with encouragement from City Emergency Medical Services and City Office of Emergency Services based on information from hospital operators</p>
<p>STATUS Encouraging hospitals to arrange for post-disaster facility inspections is primarily under the jurisdiction of Alameda County Public Health Department.</p>	
<p>ACTION ITEM A-3 – Identify health care facilities in the City adequately prepared to care for victims with respiratory problems related to smoke and/or particulate matter inhalation.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services based on information from hospital operators</p>
<p>STATUS Highland Hospital is the trauma center for victims of respiratory problems related to smoke and/or particulate matter inhalation according to the Oakland Fire Department.</p>	

Possible Actions Related to Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD) (continued)	Responsible Agency
<p>ACTION ITEM A-4 – Identify health care facilities in the City with the capacity to shut off outside air and be self-contained.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services based on information from hospital operators</p>
<p>STATUS Information on which hospitals in Oakland have the capacity to shut off outside air and be self-contained is not known to the City at this time. This information will be obtained in conjunction with the Alameda County Public Health Department or OSHPD.</p>	
<p>ACTION ITEM A-5 – Encourage hospitals and other major health care facilities in the City to have auxiliary water and power sources.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services in conjunction with EBMUD and PG&E</p>
<p>STATUS Encouraging hospitals and other major health care facilities in the City to have auxiliary water and power sources is primarily under the jurisdiction of Alameda County Public Health Department.</p>	

Possible Actions Related to Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD) (continued)	Responsible Agency
<p>ACTION ITEM A-6 – Identify health care facilities with isolation capacity should a need for them arise following a communicable disease epidemic. Isolation capacity varies from a section of the hospital for most communicable diseases to the entire hospital for a major pandemic flu.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services based on information from hospital operators</p>
<p>STATUS Understanding which health care facilities have instituted isolation capacity should a need for it to arise following a communicable disease epidemic is primarily under the jurisdiction of Alameda County Public Health Department.</p>	
<p>ACTION ITEM A-7 – Support critical health care facility operators when they encourage their employees to have family disaster plans and conduct mitigation activities in their own homes by making existing preparedness materials (such as developed by CORE (Communities of Oakland Respond to Emergencies), FEMA, the American Red Cross, ABAG and others, including non-profit organizations) available.</p>	<p>County Public Health Department with encouragement from City Office of Emergency Services</p>
<p>STATUS While the City can encourage use of these existing materials, this task is primarily the responsibility of the County Public Health Department.</p>	

Possible Actions Related to Ancillary and Other Health Care Facilities (including medical offices, pharmacies, free-standing or specialty clinics, etc.)	Responsible Agency
<p>ACTION ITEM B-1 – As funding becomes available, identify these ancillary facilities in our community. These facilities are not regulated by OSHPD in the same way as hospitals.</p>	<p>City Finance and Management Agency with City Office of Emergency Services</p>
<p>STATUS</p> <p>While this action might lead to a contact list for further outreach activities, since there is currently no funding for outreach activities, creating this list is not a high priority activity. If creating such a list might lead to more effective outreach activities on the part of Alameda County or ABAG, such a list could be created using a combination of County Assessor’s data and City Business License Data in the future.</p>	
<p>ACTION ITEM B-2 – As funding becomes available, encourage these facility operators to develop disaster mitigation plans.</p>	<p>Office of Emergency Services can encourage, but implementation is the responsibility of the facility operators</p>
<p>STATUS</p> <p>OES may encourage, but does not have authority over the facility operators and it is the responsibility of those facility operators to develop disaster mitigation plans.</p>	
<p>ACTION ITEM B-3 – As funding becomes available, encourage these facility operators to create, maintain, and/or continue partnerships with local governments to develop response and business continuity plans for recovery.</p>	<p>Office of Emergency Services can encourage, but implementation is the responsibility of the facility operators</p>
<p>STATUS</p> <p>OES may encourage, but does not have authority over the facility operators and it is the responsibility of those facility operators to develop these partnerships, response plans, and business continuity plans.</p>	

Possible Actions Related to Coordination Initiatives	Responsible Agency
<p>ACTION ITEM C-1 – Plan for and exercise the locations for the distribution of medical prophylaxis to large numbers of people, as required to be included in each county's Strategic National Stockpile Plan.</p>	<p>County Public Health Department, City Office of Emergency Services and City Emergency Medical Services</p>
<p>STATUS OES has developed a list of Points of Distribution (PODs). This list is not released prior to a distribution because the PODs must be inspected knowing exact specifications needed.</p>	
<p>ACTION ITEM C-2 – Continue to develop training and capabilities as a Metropolitan Medical Response System (MMRS) city. Other MMRS cities in the Bay Area are Fremont, San José, and San Francisco (plus, nearby, Sacramento and Stockton). MMRS cities are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel to respond to mass casualty events. (The coordination among public health, medical, emergency management, coroner, EMS, fire, and law enforcement is a model for all cities and counties.)</p>	<p>City Emergency Medical Services with City Office of Emergency Services</p>
<p>STATUS The City understands that it is an MMRS city and the responsibilities associated with that program. The lead agency is the Oakland Fire Department Emergency Medical Services Division. This is also Oakland Safety Element Policy PS-3.2.</p>	
<p>ACTION ITEM C-3 – Participate in regional trainings and exercises including the National Disaster Medical System (NDMS) uniformed or non-uniformed personnel. These federal resources include veterinary, mortuary, and medical personnel. Teams in or near the Bay Area are headquartered in the cities of Santa Clara and Sacramento.</p>	<p>County Public Health Department, City Emergency Medical Services, and City Office of Emergency Services</p>
<p>STATUS This action is handled through mutual aid agreements.</p>	

Possible Actions Related to Coordination Initiatives (continued)	Responsible Agency
<p>ACTION ITEM C-4 – Train, exercise, and plan for hazmat related-releases due to a natural or technological disaster. Hazmat teams utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agents and Lawrence Livermore National Laboratory or Sandia (both in Livermore) for confirmation of radiological agents.</p>	<p>Oakland Fire Department Hazmat program with Office of Emergency Services</p>
<p>STATUS</p> <p>This planning is handled through the City’s HazMat program with established guidelines, policies and protocols including coordination with the Regional Terrorism Task Force and the FBI.</p>	

Chapter 8: Recovery and Land Use Change

The Problem Is...

Rebuilding after an earthquake involves a complex coordination of public and private investor decisions. While residents may desire to rebuild their community in precisely the way it was before the disaster, other factors may make it physically unsafe or economically infeasible to do so. The damage may also provide an opportunity for the application of new ideas, best practices, and development consistent with the highest aspirations of the City. More often, recovery is a rapid, poorly planned redevelopment process that operates under outdated laws and ordinances.



Demolition of San Francisco Embarcadero Freeway led to a walkable pedestrian boulevard

The 1989 Loma Prieta earthquake provided opportunities to redevelop the area around the Oakland City Hall, as well as in the vicinity of the Cypress Freeway collapse.

It also spurred a rejuvenation of the waterfront area of San Francisco when the Embarcadero Freeway had to be torn down.

The area of downtown Santa Cruz was rebuilt, but it is not the same as it was before the earthquake, in spite of the protests of those in the neighborhood.

Conversely, Hurricane Katrina accelerated trends in development and degradation that had been building for many years prior to that disaster. The public-private multi-organizational decision-making process for rebuilding is still continuing.

Planning takes time but the pressures to rebuild quickly are enormous after a disaster, as are the issues related to financing. Federal funds dominate the reconstruction process of public facilities and actions taken to reduce risk are likely the ones that the federal government is willing to fund. But federal funding requirements do not always meet community objectives for rebuilding. For example, the federal government does not usually fund replacement of a building in a different location than it was originally built, nor do they permit “local hire” requirements that are important to Oakland.

Rebuilding private residents and businesses will require private capital. 88% of residential homes that are covered by homeowners insurance are not insured for earthquakes and deductibles are high (average \$60,000) for those who are insured. Less than 5% of residential losses are expected to be covered by insurance in an earthquake. These obstacles will slow recovery time of housing, especially in lower- and middle-income neighborhoods, and delay the recovery time of small businesses serving those neighborhoods, potentially leading to blighted residential and commercial areas.

Pressure from private owners will be strong after a disaster to rebuild even in the most obviously hazardous areas, particularly if the land is left in private ownership and without adequate land use restrictions. Residents of these areas will be a powerful, cohesive group supporting federal, state, and local actions that would permit rebuilding homes on hazardous sites.

What Can Be Done?

The City of Oakland can face such challenges by being prepared with alternative land use strategies and community consensus on objectives for rebuilding *before a disaster occurs*. Land use decisions which effectively reduce seismic risk are most likely to be made when they are consistent with other community objectives. Developing reconstruction plans and priorities will also show federal funding agencies how proposed projects fit into long-term community goals.

The use of State redevelopment funding and associated processes may be an effective way to achieve land use change in heavily damaged Redevelopment Areas that can allow rebuilding in a way that reduces seismic risk while meeting other community goals. Redevelopment funds, however, can only be used for low-to-moderate income housing outside of Redevelopment Areas, however.

New housing and commercial buildings take money to build – and those new buildings cost more, in terms of mortgages, leases, and rents. Businesses that could once afford to locate in older neighborhoods can no longer afford the higher rents. Redevelopment can help maintain affordable housing and commercial space.

The City of Oakland needs to plan for the conflicting pressures of rebuilding in exactly the same places with exactly the same densities and patterns as before the disaster. Building codes, fire codes, and landslide mitigation can mitigate the effects of these hazards, but cannot eliminate the threat of damage – no building is earthquake, fire or flood “proof”.

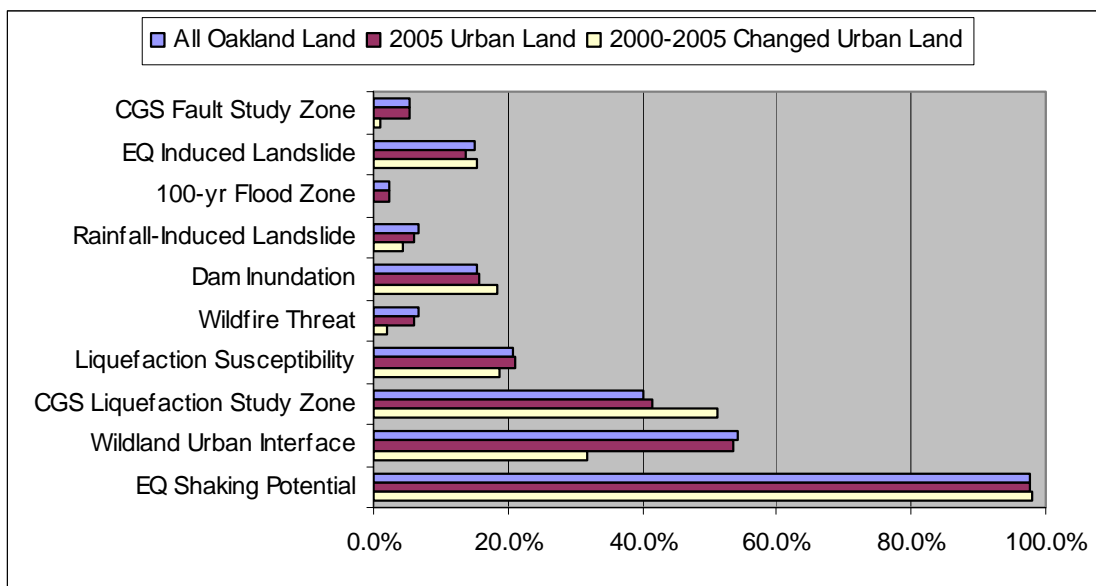
The State of California has passed several laws related to land use and disaster mitigation. First, the *Alquist-Priolo Earthquake Fault Zoning Act* of 1972 is intended to prevent new development astride known active fault traces. Second, the *Seismic Hazards Mapping Act* of 1990 requires the preparation of site-specific geotechnical reports for development proposals in areas identified as Zones of Required Investigation for earthquake-induced landslides or liquefaction as designated by the State Geologist. Both these Acts require disclosure to potential buyers in these zones.

Based on experience in past disasters, a city has approximately a 30-day window of opportunity after a disaster to learn new land use lessons and implement a new community vision. This vision must be developed before the disaster with community input and buy in. The task of creating a new vision in a post-disaster environment is otherwise extremely difficult.

Oakland Recognizes the Challenges of Growing in Hazardous Areas

From 2000 to 2005, Oakland added 11,116 people, 3,790 new households, and 3,100 jobs. Urban land* totaled 33,811 acres in 2000. (Only 1,071 acres of land out of Oakland’s total 35,742 acres is not urban land.) Rather than converting vacant land to urban, the City accommodated this growth by making 2,177 urban acres significantly denser from 2000 to 2005. Oakland is projected to continue to grow, adding 151,400 more people, 57,420 new households, and 79,330 new jobs between 2005 and 2035 (Source: ABAG’s **Projections 2009** and ABAG’s **Existing Land Use in 2000 and 2005**).

This growth continues to place increasing pressure on the City to increase the densities of urban development. Nearly all of Oakland growth will be in multi-story residential buildings in Oakland’s Priority Development Areas, around BART stations and along major transportation corridors. Many of these growth areas are in traditionally low income neighborhoods. It will be Oakland’s challenge to develop thriving pedestrian friendly neighborhoods in these areas.



As shown on this graph, during the period from 2000 to 2005, Oakland has largely refrained from building in hazardous areas.** This is due in part to numerous regulations restricting land use in hazardous areas. This poses a unique challenge for Oakland in that it will be impossible for Oakland to completely avoid building in hazardous areas.

* Urban land is non-agricultural developed land, that is, residential, commercial, industrial, infrastructure, military, and public/institutional uses.

** See the Local Hazard Mitigation Plan for the Bay Area Appendix E for definitions of areas on maps defined as “hazard areas” and for more specific information on land use and land use change in these areas. The maps used for this analysis were maps available in 2005 because they would have been available at that time to guide land use decisions. Thus, the most current hazard maps were not used in this assessment.

The only hazard area which had more dense urban development in 2005 than 2000 was liquefaction susceptibility. While **41.4%** of the Oakland's land is in a liquefaction study zone, **51.3%** of the land newly developed or redeveloped from 2000-2005 is in these areas.

For comparison, while **53.6%** of Oakland's land is in a wildland-urban-interface (WUI) fire threat area (based on mapping available **at that time**), amazingly, only **31.7%** of the land newly developed or redeveloped from 2000-2005 is in these areas, indicating that Oakland largely avoided development in the fire zones.

Finally, it is significant that nearly **98%** of Oakland's land is in the highest potential shaking areas. In this case, land use planning and zoning measures will not help Oakland in mitigating against this hazard. Engineering and building code measures have been enacted to protect housing, business and infrastructure in Oakland, but should be further evaluated.

The Priority Development Areas and Priority Conservation Areas submitted by the City of Oakland to ABAG in 2010 provide a guide for allowing greater densities in land use in the downtown, transit-oriented development areas like BART Stations, and along major transit corridors. The PDAs commit Oakland to paying an elevated level of attention to the concurrent development of transportation facilities. The PDAs are an overlay upon the Oakland General Plan land use allocation of 1998 (and its updates), which advocates for sustainable development. The precepts of the PDAs and the General Plan are consistent and should be followed when rebuilding after a natural disaster unless new data on hazardous areas shows that they are unsafe.

Definitions –

<p><u>Redevelopment</u></p> <p>Redevelopment is a legal process under which the states grant local governments special powers to address urban blight. It refers to the process of turning a developed area that is suffering deterioration, loss of vitality, or obsolescence into a community asset. (Spangle and Associates, 2002).</p>	<p><u>Reconstruction</u></p> <p>Reconstruction is a broad set of activities undertaken by public entities to repair and rebuild, or induce the private sector to repair and rebuild, a city's physical assets, including structures, facilities and, infrastructure, after a disaster. Most damage after disasters is repaired by private property owners, but in rare instances where the damage is widespread, involves significant infrastructure (sewer, water, roads, lighting, etc.) or is concentrated in areas where the community sees potential to improve the area, the city may intervene to achieve the desired results (Spangle and Associates, 2002).</p>
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An Action Plan for Oakland

The following recommendations for action, if adopted by the City of Oakland, will speed recovery in Oakland, as well as lead to more rapid economic recovery for the city overall. The ideas for action listed below emphasize the role of these **non-emergency** response staff in long-term recovery both before and after a disaster.

Actions to promote regional planning goals	Department
<p>A-1 – Promoting growth away from hazardous areas is a good way to reduce damage in a disaster and may provide an opportunity for speeding their development after a disaster. While rebuilding efforts should be consistent with regional goals for the area as expressed in the Oakland Planned Development Areas as adopted by ABAG in 2010, there is no guarantee that these areas will be deemed safe to rebuild in after a disaster.</p>	<p>Community & Economic Development Agency (CEDA) and Public Works Agency (PWA)</p>

Actions to promote regional planning goals (continued)	Department
A-2 – Examine the use of a Science and Engineering Taskforce to guide reconstruction in hazardous areas following a disaster, similar to the taskforce that was developed in Anchorage, Alaska following the devastating 1964 earthquake.	Office of Emergency Services
Actions related to zoning	Department
B-1 – Consider possible changes in land use after a disaster to promote more sustainable post disaster reconstruction. (For example, existing development in hazardous areas such as landslide-prone, or liquefaction areas might be converted to open space after a disaster to protect health, safety, and welfare of residents of those areas. The City may also have the opportunity to promote denser growth in areas near downtown closer to transportation and job centers after a disaster rather than in outlying areas).	CEDA and PWA
B-2 – Make sure that the local zoning and CEQA regulations are up to date and consistent with the General Plan (particularly the Safety, Land Use, and Transportation Elements) so that the future of damaged commercial areas and residential neighborhoods is pre-planned, and not decided during a crisis.	CEDA and PWA
B-3 – Consider where the City might zone for location of temporary housing and business districts. These temporary locations begin with the intention of getting residents into homes and allowing businesses to continue to operate, but often become more permanent than originally intended.	CEDA (Planning and Zoning) and Office of Emer. Services
B-4 – Examine the City’s General Plan and zoning in commercial areas to see if major damage to those areas might result in an unintentional loss of the historic fabric or pedestrian/bicycle friendly character of the area. (For example, current parking requirements for replacement construction might preclude rebuilding a pedestrian-friendly commercial or residential area.)	CEDA (Planning and Zoning) and Landmarks Preservation Advisory Board
B-5 Enforce the Alquist-Priolo Zone and Seismic Hazard Zone Mapping Acts with the understanding that some areas may be determined to not be able to be rebuilt in a cost-effective manner. Consider developing geologic hazard study zones that go beyond the requirements of the above acts.	CEDA and PWA
Actions related to reconstruction	Department
C-1 – Develop well-defined community development objectives with public input to help federal, state, and local officials set reconstruction priorities and judge the public acceptability of potential land use changes or restrictions.	CEDA (Planning and Zoning)
C-2 – Adopt a repair and reconstruction ordinance to make sure that both private and public buildings are not only repaired to their pre-existing condition, but also repaired to a standard that reduces the likelihood of future damage in a flexible, cost-effective manner. This will increase the likelihood that FEMA will reimburse for replacement costs of updated buildings.	CEDA (Planning, Zoning, Building Services, and Permit Center)
C-3 – Keep the City’s neighborhood and specific plans up to date. This will help foster community involvement and buy in for planned land use change and develop consensus around post disaster vision for reconstruction of specific neighborhoods.	CEDA (Planning and Zoning)
C-4 – Pre-plan ways to promote preservation of Historic Districts during the rebuilding process.	CEDA (Planning and Zoning) and Landmarks Preservation Advisory Board

Actions related to reconstruction (continued)	Department
<p>C-5 – Promote sustainable floodplain management practices with the understanding that some areas may be determined to not be able to be rebuilt in a cost-effective and sustainable manner.</p>	<p>CEDA (Planning and Zoning)</p>
Actions related to redevelopment	Department
<p>D-1 – Develop plans to implement and initiate redevelopment as needed after an earthquake. Keep redevelopment plans up to date or develop plans for older areas likely to be damaged in a disaster to be in a position to move quickly to become a redevelopment area, if needed, after a disaster.</p>	<p>CEDA (Planning, Zoning, and Building Services) and Redevelopment</p>
Actions related to education	Department
<p>E-1 – Familiarize applicable staff (e.g. planning, zoning, and housing) with geologic hazard related information so they can anticipate what kinds of damage may occur and where. Help them to understand appropriate responses to (both temporary and permanent) land use changes, land use regulations, and zoning, as well as be ready to implement these responses after a disaster.</p>	<p>CEDA and PWA with EBMUD, PG&E, and others</p>

REFERENCES – William Spangle and Associates, 1980. *Land Use Planning After Earthquakes*.
 J. Schwab with K. Topping, C. Eadie, R. Deyle and R. Smith, 1998. *Planning for Post-Disaster Recovery and Reconstruction*.
 U.S. Geological Survey, 1974. *Seismic Hazards and Land-Use Planning*. Geological Survey Circular 690.
 Spangle Associates, Urban Planning and Research, 2002. *Redevelopment after Earthquakes*.

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Recovery and Land Use Change

City of Oakland Long-Term Disaster Recovery Plan

Actions to promote regional planning goals	Department
<p>Action Item A-1 – Promoting growth away from hazardous areas is a good way to reduce damage in a disaster and may provide an opportunity for speeding their development after a disaster. While rebuilding efforts should be consistent with regional goals for the area as expressed in the Oakland Planned Development Areas as adopted by ABAG in 2010, there is no guarantee that these areas will be deemed safe to rebuild in after a disaster</p>	<p>Community & Economic Development Agency (CEDA) and Public Works Agency (PWA)</p>
<p>STATUS</p> <p>The Priority Development Areas and Priority Conservation Areas submitted by the City of Oakland to ABAG in 2010 provide a guide for allowing greater densities in land use in the downtown, transit-oriented development areas like BART Stations, and along major transit corridors. The PDAs commit Oakland to paying an elevated level of attention to the concurrent development of transportation facilities. The PDAs are an overlay upon the Oakland General Plan land use allocation of 1998 (and its updates), which advocates for sustainable development. The precepts of the PDAs and the General Plan are consistent and should be followed when rebuilding after a natural disaster. Current PDA's include MacArthur BART station area, West Oakland, Downtown (12th and 19th Street BART Stations), Fruitvale BART and the Dimond District, the Oakland Coliseum BART station area, and the Eastmont Transit Village and MacArthur Boulevard south of the ETV.</p> <p>ABAG and the City of Oakland recognize that there is no guarantee that these areas will be deemed safe to rebuild after a disaster, but they currently appear to be outside of wildfire, landslide, and flood hazard areas.</p>	

Actions to promote regional planning goals (continued)	Department
<p>Action Item A-2 – Examine the use of a Science and Engineering Taskforce to guide reconstruction in hazardous areas following a disaster, similar to the taskforce that was developed in Anchorage, Alaska following the devastating 1964 earthquake.</p>	<p>Planning Commission</p>
<p>STATUS</p> <p>After a major disaster has a significant impact on all or part of the City, Oakland plans to convene a Taskforce to make recommendations to the Planning Commission and City Council related to rebuilding, rezoning, and other issues related to possible needed land use change. In appointing this Taskforce, the City plans to tap into the resources of professional organizations such as the Earthquake Engineering Research Institute (EERI), the Geological Society of America (GSA), and the Structural Engineers Association of Northern California (SEAONC).</p> <p>The threshold for significant damage needs to be predetermined as soon as possible. One example of such a trigger would be if 50% or more of buildings are damaged to 25% or more of value in a finite geographic area, such as a city block. Such a trigger needs to be disclosed to future buyers of property, particularly in areas already known to be subject to wildfire, flooding, landsliding, or significant shaking.</p> <p>One of the issues this Taskforce would consider might be to upgrade design standards on street width and underground utilities, lighting, and sidewalks as part of the rebuilding process in areas with major damage.</p>	

Actions related to zoning	Department
<p>Action Item B-1 – Consider possible changes in land use after a disaster to promote more sustainable post-disaster reconstruction. (For example, existing development in hazardous areas such as landslide-prone, or liquefaction areas might be converted to open space after a disaster to protect health, safety, and welfare of residents of those areas. The City may also have the opportunity to promote denser growth in areas near downtown closer to transportation and job centers after a disaster rather than in outlying areas).</p>	<p>CEDA and PWA</p>
<p>STATUS</p> <p>The City will rely on specific guidance from the Oakland General Plan for rebuilding the City. Include specific policy and recommendations for each area of the City that are contained in the Oakland Land Use and Transportation Elements, the Bicycle and Pedestrian Plans, and the remaining Elements of the Plan including Safety, Housing, Open Space, Conservation, and Recreation.</p>	

Actions related to zoning (continued)	Department
<p>Action Item B-2 – Make sure that the local zoning and CEQA regulations are up to date and consistent with the General Plan (particularly the Safety, Land Use, and Transportation Elements) so that the future of damaged commercial areas and residential neighborhoods is pre-planned, and not decided during a crisis.</p>	<p>CEDA and PWA</p>
<p>STATUS</p> <p>The Safety Element of Oakland’s General Plan was updated in November 2004. Oakland adopted a new General Plan Land Use and Transportation Element in 1998, as well as a Pedestrian Plan (2002) and a Bicycle Plan (2007). Adoption of the General Plan established a new vision for Oakland, but also created inconsistencies between the General Plan and the Zoning Code. Although piecemeal changes to the Zoning Code have been made over time, it has not been comprehensively amended since 1965. Oakland is currently updating its Zoning Code to be consistent with its General Plan, with the Zoning Update Committee taking the lead.</p> <p>The City has already completed updating the open space and industrial zones, as well as the transitional zones on the edges of the city’s industrial areas, in which a mix of housing and businesses are allowed. Zoning for the downtown area (or Central Business District) was initiated in late 2007 and was considered by the Planning Commission in April 2009. There are three components to the remaining work to complete the Citywide Zoning Update:</p> <ul style="list-style-type: none"> •Residential zoning. Different zoning regulations will be developed for areas with different types of housing such as single-family flatland neighborhoods, hillside residential neighborhoods, and multi-family areas. •Commercial zoning. Different zoning regulations will be developed for different types of commercial uses located along or near the City’s major thoroughfares. These uses range from small stores to large shopping centers and may include offices, hotels, services, auto dealers, restaurants, and may other kinds of commercial activities. •Institutional zoning. Zoning will be developed for areas that primarily have public or quasi-public uses such as large educational and cultural facilities, health services and medical facilities. <p>The focus of the update is on uses and development standards (e.g. height, setback, gross bulk/building envelope). Other standards that cover both residential and commercial/corridor zones (such as parking, landscaping, buffering, and design guidelines) will be addressed after the base residential and commercial zones are updated.</p>	

Actions related to zoning (continued)	Department
<p>Action Item B-3 – Consider where the City might zone for location of temporary housing and business districts. These temporary locations begin with the intention of getting residents into homes and allowing businesses to continue to operate, but often become more permanent than originally intended.</p>	<p>CEDA (Planning and Zoning) and Office of Emergency Services</p>
<p>STATUS</p> <p>Oakland has completed a list of temporary housing locations, but does not have sufficient capacity to meet the projected need. The recommendation is that Oakland explore temporary housing locations in people’s own neighborhood because mental and physical health issues, as well as crime, are reduced if residents can remain in their pre-disaster neighborhoods and if shelters are small. (see status of Action Item C-1 in the Housing chapter)</p> <p>For example, one of the most vulnerable neighborhoods in Oakland is the high-density housing around Lake Merritt. If many of the soft-stories on these buildings lean, but do not actually collapse, it would be extremely beneficial to work to help owners shore-up these buildings and expedite repairs so that residents can move back into these neighborhoods as quickly as possible, rather than focusing on building some sort of interim housing from scratch that does not lead to permanent housing.</p> <p>In another example, some of the most vulnerable business districts in Oakland are those containing unreinforced masonry buildings. If entire neighborhood business districts are displaced due to damaged buildings (such as occurred in downtown Santa Cruz), it is useful to pre-plan areas where temporary retail might be established near the damaged districts so that residents can continue to be served by the businesses that serviced these areas prior to the disaster.</p> <p>The City recognizes the importance of allowing RVs and other temporary housing near existing housing locations to promote social continuity during the disaster recovery process. Other locations for temporary housing may include, but is not limited to, parks, or other publicly owned land.</p>	

Actions related to zoning (continued)	Department
<p>Action Item B-4 – Examine the City’s General Plan and zoning in commercial areas to see if major damage to those areas might result in an unintentional loss of the historic fabric or pedestrian/bicycle friendly character of the area. (For example, current parking requirements for replacement construction might preclude rebuilding a pedestrian-friendly commercial or residential area.)</p>	<p>CEDA (Planning and Zoning) and Landmarks Preservation Advisory Board</p>
<p>STATUS</p> <p>Existing and proposed design and zoning standards for commercial and mixed-use buildings generally encourage pedestrian appeal by means of tall and transparent ground floor facades, retail uses, and parking away from the main street frontage – all features of successful historic commercial districts like Fruitvale, Piedmont Avenue, Eastlake, and Lakeshore, and features supported by the City’s Facade Improvement Programs. The current zoning update generally supports maintaining existing neighborhood character in areas noted for historic or amenity value. In most commercial areas low-rise buildings lost in a disaster would likely be replaced by denser mixed-use development.</p>	
<p>Action Item B-5 Enforce the Alquist-Priolo Zone and Seismic Hazard Zone Mapping Acts with the understanding that some areas may be determined to not be able to be rebuilt in a cost-effective manner. Consider developing geologic hazard study zones that go beyond the requirements of the above acts.</p>	<p>CEDA and PWA</p>
<p>STATUS</p> <p>It is policy for the City of Oakland and State law that Alquist-Priolo and seismic hazard mapping zones are enforced. Oakland’s Safety Element of the General, Policy GE-1.1 states that the City will “Enact regulations requiring the preparation of site-specific geologic or geotechnical reports for development proposals in areas subject to earthquake-induced liquefaction, settlement or severe ground shaking, and conditioning project approval on the incorporation of necessary mitigation measures.”</p> <p>Many areas of Oakland and Berkeley damaged in the Oakland Hills Firestorm, are located within a State delineated earthquake fault zone. The Alquist-Priolo Act restricts construction or reconstruction of buildings intended for human occupancy in these designated zones, except for single family homes. After the firestorm, there was much debate among the cities and residents of the neighborhood about rebuilding in the hills. Many of the apartment buildings would not be allowed to be rebuilt in the same location because they were in the Alquist-Priolo Zone. Initial debate centered on mitigation measures that would make the area more resilient to future disasters, including earthquakes. In the end, the areas affected by this fire were granted an exception to the Alquist-Priolo Act and residential buildings were built in this hazardous area, making the residents vulnerable to future earthquakes.</p>	

Actions related to reconstruction	Department
<p>Action Item C-1 – Develop and adopt well-defined development objectives with public input in advance with an eye to reconstruction priorities.</p>	<p>CEDA (Planning and Zoning)</p>
<p>STATUS</p> <p>The City’s General Plan encourages development and the reuse of property in the Downtown and other areas well-served by transit and other infrastructure. The General Plan would be the primary guiding document to set reconstruction priorities and evaluate any land use changes.</p>	
<p>Action Item C-2 – Adopt a repair and reconstruction ordinance to make sure that both private and public buildings are not only repaired to their pre-existing condition, but also repaired to a standard that reduces the likelihood of future damage in a flexible, cost-effective manner. This will increase the likelihood that FEMA will reimburse for replacement costs of updated buildings.</p>	<p>CEDA (Planning, Zoning, Building Services, and Permit Center)</p>
<p>STATUS</p> <p>The current provisions of the City of Oakland Municipal Code (Chapter 15.24) do NOT qualify.</p> <p>ACTION NEEDED: Review and adopt the model ordinance recommended by CALBO. See Finance Action B-1 for additional recommendations, including the current model ordinance provisions.</p>	
<p>Action Item C-3 – Keep the City’s neighborhood and specific plans up to date. This will help foster community involvement and buy in for planned land use change and develop consensus around post disaster vision for reconstruction of specific neighborhoods.</p>	<p>CEDA (Planning and Zoning)</p>
<p>STATUS</p> <p>Any neighborhood and specific area planning is conducted within the context of the overall City General Plan.</p>	

Actions related to reconstruction (continued)	Department
<p>Action Item C-4 – Pre-plan ways to promote preservation of Historic Districts during the rebuilding process</p>	<p>CEDA (Planning and Zoning) and Landmarks Preservation Advisory Board</p>
<p>STATUS</p> <p>The City currently has nine designated historic districts containing about 1500 buildings. They include Preservation Park, Old Oakland-Victorian Row, the Bellevue-Staten Apartment District along Lake Merritt in Adams Point, Sheffield Village, Oak Center, and the 7th Street Commercial District in West Oakland. There are also several thousand buildings in districts identified as significant but not formally designated by the Landmarks Board, including the National Register-eligible Oakland Point District (Prescott).</p> <p>Ensuring that historic buildings are retrofitted and inspected by personnel familiar with historic preservation codes and standards both before and after a disaster is important. The City should examine ways in which it can actively engage historic neighborhoods in pre-planning for disaster prevention and recovery. For example, the City now has a small seismic retrofit assistance program for homeowners, and participants in Mills Act preservation contracts are encouraged to include seismic retrofit in their work program. Policy 3.10 of the Historic Preservation Element of the Oakland General Plan contains recommendations to prevent unnecessary demolitions and adverse changes to buildings following a disaster. Policy 3.11 encourages respect for historic features in seismic and other code upgrades. When buildings are destroyed (by disaster or otherwise), Policies 2.4 and 3.5 and their associated design guidelines provide that replacements should be compatible with district character.</p>	
<p>Action Item C-5 – Promote sustainable floodplain management practices with the understanding that some areas may be determined to not be able to be rebuilt in a cost-effective and sustainable manner.</p>	<p>CEDA (Planning and Zoning)</p>
<p>STATUS</p> <p>Oakland promotes several sustainable floodplain management practices in its Flooding Hazards Chapter of the Safety Element of the General Plan. These strategies including:</p> <ul style="list-style-type: none"> Amend, as necessary, the city’s regulations concerning new construction and major improvements to existing structures within flood zones in order to maintain compliance with federal requirements and, thus, remain a participant in the National Federal Insurance Program. 	

Actions related to redevelopment	Department
<p>Action Item D-1 – Develop plans to implement and initiate redevelopment as needed after an earthquake. Keep redevelopment plans up to date or develop plans for older areas likely to be damaged in a disaster to be in a position to move quickly to become a redevelopment area, if needed, after a disaster.</p>	<p>CEDA (Planning, Zoning, and Building Services) and Redevelopment</p>
<p>STATUS</p> <p>Oakland’s ten redevelopment areas, which encompass downtown and the industrial belt, include two of the largest redevelopment areas in California. Projects in these redevelopment areas can take advantage of tax increment financing and other special powers delegated to the Oakland Redevelopment Agency. Oakland will be prepared to implement redevelopment in additional areas of the city as needed after a disaster.</p>	
Actions related to education	Department
<p>Action Item E-1 – Familiarize applicable staff (e.g. planning, zoning, and housing) with geologic hazard related information so they can anticipate what kinds of damage may occur and where. Help them to understand appropriate responses to (both temporary and permanent) land use changes, land use regulations, and zoning, as well as be ready to implement these responses after a disaster.</p>	<p>CEDA and PWA with EBMUD, PG&E, and others</p>
<p>STATUS</p> <p>Oakland has plans to conduct semi-annual scenario planning exercises with infrastructure providers, including PWA, EBMUD, and others. These table-top and other exercises will focus on 60-120 days after a disaster.</p>	