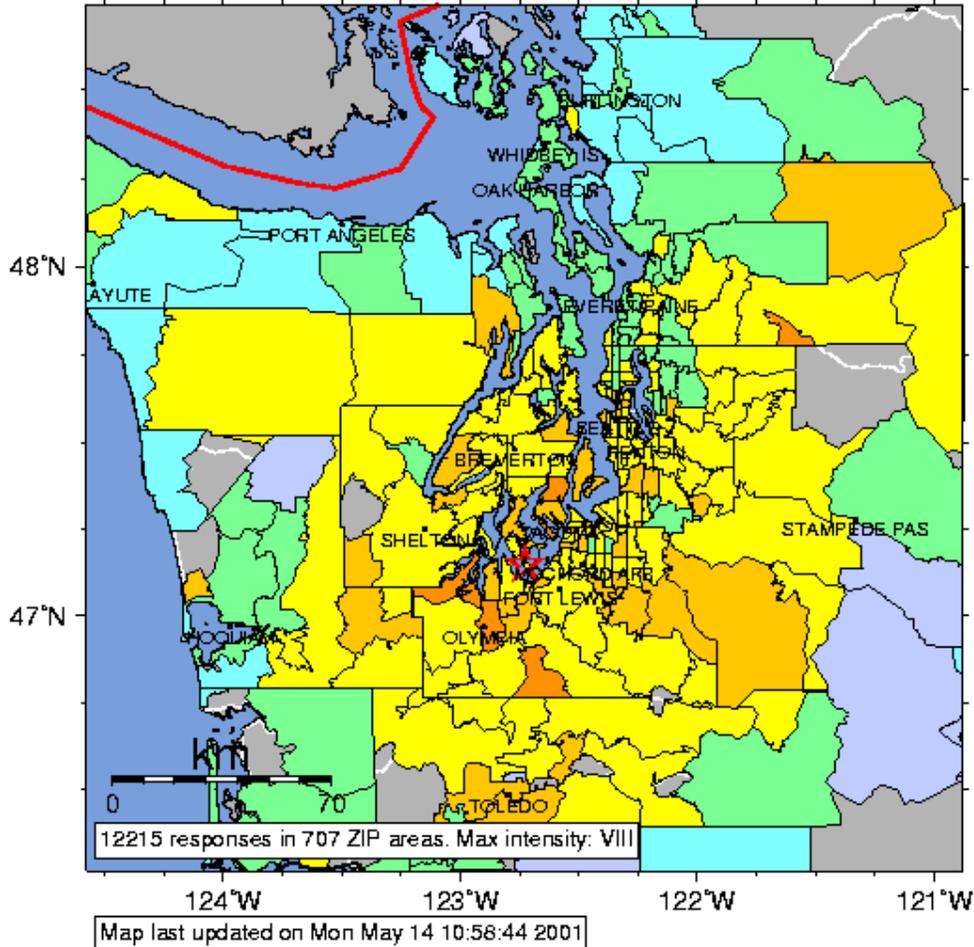


CITY OF SEATTLE
AFTER-ACTION REPORT
FOR
FEBRUARY 28, 2001 NISQUALLY EARTHQUAKE

Community Internet Intensity Map (10 miles NNE of Lacey, Washington)
 ID:2281854 10:54:33 PST FEB 28 2001 Mag=6.8 Latitude=N47.15 Longitude=W122.73



INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+
SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy

Prepared by the Disaster Management Committee

Finalized July 24, 2001

OVERVIEW

At 10:54:32 AM on February 28, 2001, a major earthquake shook the Puget Sound Region. The quake, which registered 6.8 magnitude on the Richter Scale, had its focus (hypocenter) 30 miles beneath the Nisqually River Delta, approximately 11 miles northeast of Olympia and 36 miles southwest of Seattle. In Seattle, especially south of the Ship Canal, strong and very strong ground shaking equivalent to VI and VII on the Modified Mercalli Intensity Scale (refer to front page) lasted for 30-40 seconds. Of the 31 ground motion stations for which preliminary data were available, only 13 registered peak ground acceleration forces greater than 10% of gravity. Of those, only 2 of the instruments, both in Seattle, recorded values greater than 25% of gravity. (The current Seattle Building Code, which was last revised in July 1998, calls for new construction to withstand peak lateral accelerations of 30% of gravity). A day later on March 1, 2001 two aftershocks occurred in the same general area as the mainshock. The first at 1:10 AM measured 3.4 magnitude, and the second at 6:23 AM measured 2.7 magnitude. The latter were interesting because they brought into question a previously held belief among scientists that Benioff zone (deep) quakes do not have aftershocks.

The Seattle Emergency Operations Center (EOC) was activated immediately, reaching a full Level III staffing pattern within 45 minutes. Both the Seattle Fire and Police Departments self-initiated their pre-planned windshield surveys to search for catastrophic damage. Likewise, the Seattle Transportation (SeaTran) Department and Washington Department of Transportation (WSDOT) self-initiated their pre-planned inspections of critical lifeline bridges. The Mayor declared a state of "Civil Emergency" at 1:50 PM. For the next two days the EOC remained in extended operations, finally scaling back at midnight on March 2, 2001. Starting the next morning, the City's main concentration was redirected towards recovery. On March 8, 2001 the City submitted its Preliminary Damage Assessment (PDA) to the State Emergency Management Division.

The City escaped without any catastrophic damage, although there were some minor interruptions in services and widespread property damage. The most significant challenges were as follows:

- ✓ Commercial telephone and cellular services were overloaded for several hours after the quake, but the City network continued to function without interruption.
- ✓ The Regional 800 MHz radio system was stressed until late afternoon on February 28, with calls by City users doubling normal usage.
- ✓ Seattle City Light had electrical outages that affected three feeders and 12,800 customers in the south part of the City.
- ✓ Seattle Public Utilities had 12 pipe failures that affected water service to 15 customers in the south of downtown (SODO) area. They also had a failure in a Tolt River transmission pipe and wastewater pump station on Harbor Island. Neither of the latter two failures affected the functionality of services.
- ✓ Harborview Medical Center treated 27 patients, three with serious injuries and six that required hospital admission. A total of 160-165 quake-related injuries were treated at all King County hospitals, with one reported fatality from a heart attack in a suburban city.
- ✓ A total of 29 buildings in Pioneer Square, the International District, SODO and Duwamish areas were "red-tagged" (meaning the structure is unsafe and illegal to enter). There were also 483 "yellow-tagged" buildings (meaning there is damage that restricts the use of the structure) in various parts of the city, both north and south of the Ship Canal. Additionally the seawall along the downtown Elliott Bay waterfront sunk 2-inches at one location and 74 elevator systems were shut down for repairs.

Some of the more notable large buildings with significant damage were the King County Courthouse, the Dexter Horton Building and the corporate headquarters for Starbucks and Amazon.com. In addition the FAA control tower at Sea-Tac Airport had to be evacuated and closed, the runway at King County International Airport was undermined by ground failure, and Port of Seattle facilities on Harbor Island and the Fisherman's Terminal were damaged. The DCLU produced map on page 4 illustrates the spread of damage citywide as of March 30, 2001.

- ✓ Over 200 people, who were residents of low income housing, were displaced and required emergency shelter.
- ✓ The Magnolia Bridge* and the Alaskan Way Viaduct suffered substantial damage, which will require extensive repairs or replacement and long-term interruptions of traffic flows. Several others were closed temporarily for minor damage.
- ✓ Residual and as yet undiscovered damage, especially residential chimney damage, is expected to become more evident in the fall when cold weather returns and people start burning fuel in their fireplaces.
- ✓ On May 23rd the brick facades of two buildings, one in Fremont and the other in the International District, collapsed over a 12-hour span with the cause still under investigation.

The latest cost estimate for losses and other costs incurred by City departments is \$48 million. An additional \$189 million in city damage and losses has been estimated for the private sector and for special purpose districts, essential community services and non-profits. These figures, which totaled \$237 million as of April 23, 2001, are expected to climb once the final assessment becomes known. The close out date for registration for FEMA individual assistance was June 30, 2001; by June 6, 2001 FEMA reported receiving 9,695 calls to the FEMA Help-line from Seattle businesses and homeowners.

Fortunately for the City, this event did not totally stress available City services and resources and the amount of overall disruption experienced by most citizens was fleeting and minor. There were also a number of critical variables, which weighed in the City's favor and helped moderate conditions that could have otherwise produced far more serious effects and consequences. These were the time of the earthquake, the depth and distance of the quake, the clear and moderate weather, a dry winter, and only one related fire. Even so, the response by the City's operational departments was immediate, well led and supported, and demonstrated a refined level of interdisciplinary coordination. This superb effort was hardly accidental. Years of diligent planning, preparing and exercising by both City departments and the community were clearly responsible for quickly curbing the dangers that emerged and minimizing hardships. For anyone that had previous doubts about the value of the investments made in bridge retrofitting; upgrades in the utility infrastructure; code strengthening; school, home and workplace retrofitting; community preparedness; mitigation partnerships and business resumption planning; and building a strong City organization and system to manage disasters -- this was a classic case for validating the wisdom and foresight of the City's leadership. Reaction from the rest of the country and even the world was one of awe when they saw the TV images, which showed so little visible evidence of damage and interruption from the size of quake that had wrought devastation elsewhere. For the vast majority of the public, the City was operating normally by the evening commute.

While there is much to praise in the City's response, not everything went as smoothly. Work still needs to be done to improve department emergency plans including uniform procedures for control centers, the City's recovery process must be formalized, and more training needs to be done to improve the understanding among City employees on how to safely react to an earthquake. The sections that follow, beginning on page 5, were prepared by the 9 Emergency Support Functions (ESFs). Collectively, they represent an evaluation of the scope of operations in the EOC, in department control centers, in department facilities, and among department field units.

* The Magnolia Bridge reopened on June 18, 2001

Nisqually Earthquake Damage in Seattle as of March 21, 2001

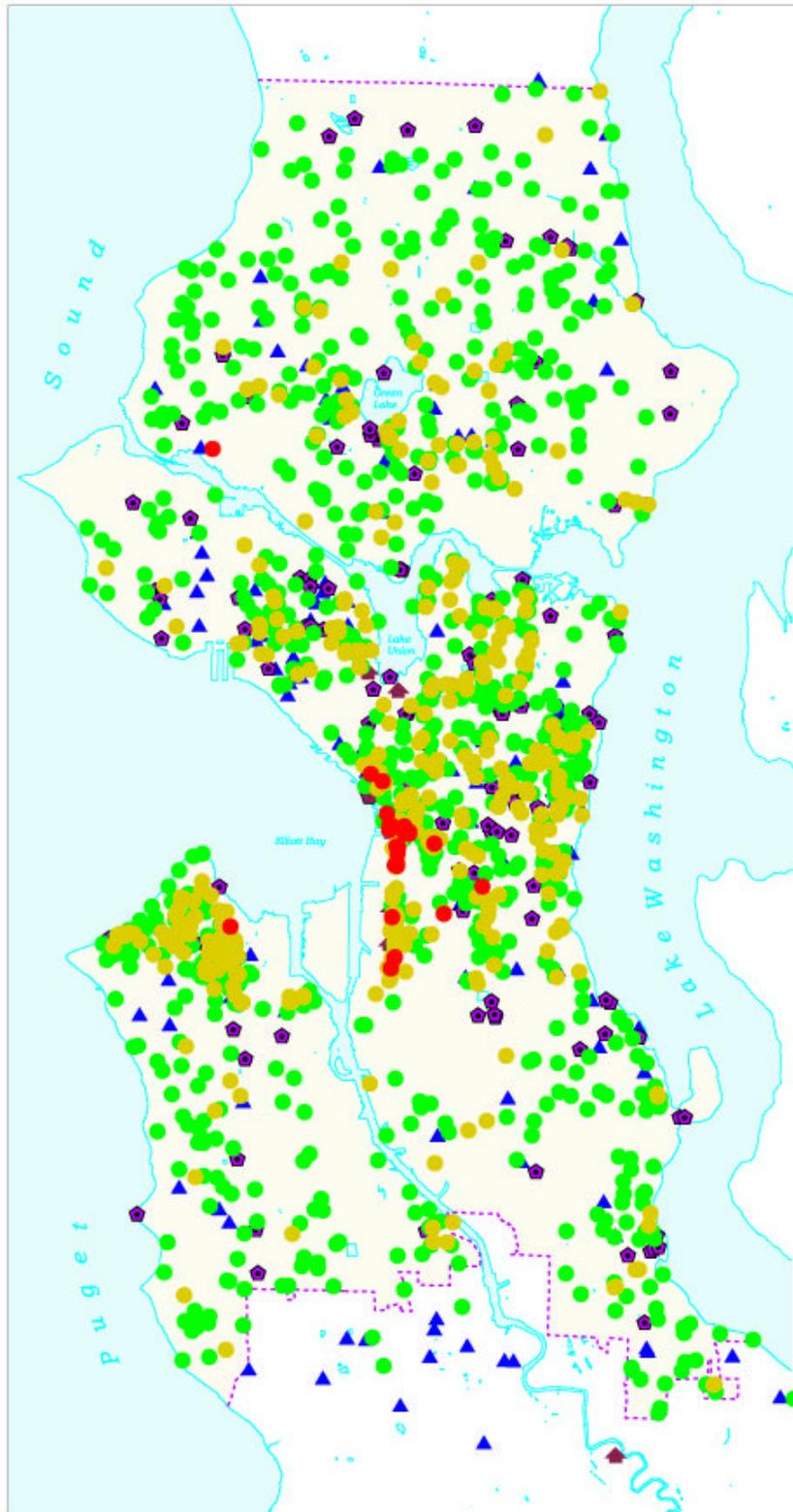


0 1 2 Miles



- Red tagged buildings - no occupancy.
- Yellow tagged buildings - limited occupancy.
- Green tagged buildings - approved for occupancy. May have damage.
- ▲ Damage reported not verified
- ⬠ Damage to Seattle Parks Dept facilities
- ◆ Elevator damage

No guarantee of any sort implied, including accuracy, completeness, or fitness for use.



EMERGENCY SUPPORT FUNCTION - 1 (EMERGENCY MANAGEMENT)

OBSERVATION: 92% of surveyed SDART neighborhoods reported activating at least a minimal neighborhood response, and expressed gratitude in knowing what to do to minimize the consequences of the disaster to people and property. However, many were uncertain about the level of response that was required, and the basic procedure they should follow when so many of their neighbors are away from the neighborhood in the middle of the day.

RECOMMENDATION: SDART clearly demonstrated its value to those neighborhoods that were organized in providing them a basic sense of what needed to be done. To continue to prepare Seattle neighborhoods for disaster, future SDART training should incorporate the following:

- All disasters, great or small, should be responded to. If the neighborhood knows that regardless of degree or extent, all disasters will be responded to, this will eliminate the uncertainty of “should we” or “shouldn’t we.” Training should include the instruction of: “Respond to all disasters – if they are small or moderate, you will have the opportunity to practice your response. Then, when the disaster is major, you will be more comfortable with the basic procedures of a response.”
- The basic neighborhood procedure to follow is SDART’s 9-Step Response Plan described below. All SDART meetings need to emphasize this Response Plan, which is: 1) Take care of home. 2) Dress properly for a disaster response. 3) Shut off the natural gas as necessary. 4) Shut off the water at the main house valve. 5) Put the OK/Help card in the front door or window. 6) Put the ABC fire extinguisher outside on the front curb or driveway. 7) Check in at the Block Response Site. 8) Use the task descriptions in the workbook to complete the response assignment. 9) Go back to the Block Response Site and give a report of your response activities.
- SDART Exercises should continue to emphasize the principles of the Incident Command System. Neighbors need to become more comfortable with the idea that even if all neighbors are not home at the time of the event, they can still have an effective response. SDART currently teaches this basic concept during the Walk•about Exercise. SDART needs to incorporate this concept into more of its drills and exercises. Neighbors need to become more comfortable with the possibility of switching Teams so that critical response activities are addressed first. Critical Teams are First Aid, Light Search & Rescue, Safety & Security, and Sheltering & Special Needs.

OBSERVATION: If this had been a more damaging earthquake, neighborhood responders would have been uncertain where at each Community Center they would find the amateur radio operators.

RECOMMENDATION: Seattle Auxiliary Communications Service (ACS) has already identified the site at each Community Center that provides them with the clearest communication signal. They now need to finish the project and put this information on their website, and work with Emergency Management to create a notebook physically located at each Community Center. Brief training needs to be given to Community Center staff so that they know the location of the notebook, and have a basic sense that somewhere on their grounds ACS will be establishing a base of operations.

OBSERVATION: Immediately following the earthquake, all of EOC’s main phone lines began ringing constantly. A majority of these calls were from the media. At first, there wasn’t a PIO in the building to take the phone calls. After one or two PIOs arrived, this still weren’t enough people to handle the volume. Individuals either had to hold for a long time (eventually they would hang up and call right back) or Emergency Management staff would need to keep trying the

different PIO lines until someone picked up. With other non-media calls coming in and people arriving in the building, the media phone calls tied up the lines and it also became increasingly difficult to spend time forwarding these calls.

RECOMMENDATION: A new phone message and forwarding system could be developed and put in to place at a moment's notice after an event. Emergency Management should review various options with DoIT Telephone Services to devise an enhanced capability for specific ESFs to handle direct calls while still allowing for some phone reception capability at the main desk.

OBSERVATION: There is only one phone in the reception area. This phone is used for multiple lines and also used to answer and admit people through the main door. When one person was on the phone, it was difficult for the other person to answer other calls or answer the door. Because the desk space in the reception area is designed and equipped for one person, it makes it unduly burdensome for the two Emergency Management Administrative Assistants to work together and achieve a comfortable and effective division of labor.

RECOMMENDATION: Add another phone in the reception area. Also, possibly add a third phone or intercom system that can be used just for the purpose of answering and opening the door. A second work space is needed with counter space and legroom.

OBSERVATION: Often, it was difficult to reach individuals in the EOC by phone or intercom. Either they were away from their desk, didn't realize their phone was ringing or were possibly in a briefing. Occasionally, someone outside the EOC, in the ACS area, would pick up a line belonging to someone in the EOC. This created confusion and wasted time.

RECOMMENDATION: All people staffing the EOC Operations Room, Communications and Warning Center or PIO Room need to be aware of which phone line belongs to them. If they do not realize that their phone is ringing, there needs to be a better method of alert. If the EOC is involved in a briefing, the reception area needs to be warned to avoid using intercom, or all-calls over the paging system to reach people during that time. Also, Emergency Management staff should carry pagers at all times.

OBSERVATION: Emergency Management staff and EOC responders did an excellent job of remaining calm and helpful. When responders were advised that they had a call they were pleasant and willing to take phone calls, even ones that may or may not have pertained to them directly. The situation had the potential of being an unpleasant one with a stressful working environment, but there was an appearance and a feeling of control and professionalism.

RECOMMENDATION: The demeanor and professionalism displayed by EOC responders is largely attributable to the years of experience and confidence gained in responding to the EOC for real and exercise events. It should also be viewed as validation for having a well designed emergency management system and organization, having people assigned who are familiar and comfortable with their emergency responsibilities and surroundings, and having systems in the EOC that facilitate workload demands.

OBSERVATION: In the days following the earthquake, Emergency Management Administrative Specialists were flooded with calls from the public requesting "Project Impact" and "SDART" materials, in addition to more urgent calls regarding damage reports, requests for building inspections, etc. There were also numerous calls from the media.

RECOMMENDATION: While it is important to be responsive to all calls, the persons managing the front desk have other more immediate responsibilities related to the operation of the EOC. As a solution for all parties, the telephone system at the front desk will be equipped with a new feature that will enable citizens and the media to hear a recorded message. With available choices that will be specifically tailored to fit the event, the caller can be advised to hang up and call 911 for a life-threatening emergency. Or, the caller may enter a one-digit number and be

transferred to the appropriate City department, Emergency Resource Center (ERC), Citizens Service Bureau (CSB), the EOC Media Line, the FEMA Tele-registration Line, crisis counseling services, welfare inquiry assistance, etc. For non-emergency calls pertaining to mitigation and preparedness materials, there will be an option for leaving a voice mail message. Later, when there is time to retrieve the request, the information will be acted upon.

OBSERVATION: If this had been a more damaging earthquake, it would have been appropriate for SDART staff to have access to a wireless system to communicate directly with organized neighborhoods and to give basic instructions to all neighborhoods impacted by the disaster.

RECOMMENDATION: A request has been made to the National Weather Service (NWS) to use their NOAA Weather Radio to broadcast warning messages and warning instructions to SDART neighborhoods. Emergency Management has offered to send an ACS radio operator to the NWS office at Sand Point to receive traffic from the EOC Communications and Warning Center so that it can be rebroadcast over the NOAA Weather Radio.

OBSERVATION: City employees were uncertain what their immediate response should be to: 1) ensure their own personal safety, 2) whether or not they should evacuate following the earthquake, and 3) what their job responsibilities were in the first hours and days following the quake.

RECOMMENDATION: Planning, training, and practice needs to be an ongoing effort by all City Departments. Seattle Emergency Management staff can provide training in personal safety and preparedness. (It was noted that many City Employees who had received training previous to the earthquake reported having a much better sense of what to do, thus better ensuring their safety and wellbeing). City departments need to ensure that internal plans are updated and answer specifically the responsibilities of all department personnel, both immediately and in the post disaster aftermath. These plans need to incorporate if and when evacuation from the facility is appropriate and warranted, in addition to specifying how an evacuation will be directed and carried out. The City's Disaster Readiness and Response Plan requires department preparedness plans to be kept in a current status and offers a template for departments to follow.

OBSERVATION: Thirst and hunger became an almost immediate issue. While it is unreasonable for EOC responders to expect to be fed as soon as they arrive at an activation, not being fed in a reasonably timely fashion does impact the abilities of many to perform their responsibilities to the best of their capabilities, something a disaster response obviously demands.

RECOMMENDATION: The EOC should always have bottled water on hand. The EOC should also have juices and high-energy snacks such as peanuts or granola bars available.

OBSERVATION: Not all Emergency Management staff members were certain how to use the 800 Megahertz radio, and other EOC equipment.

RECOMMENDATION: Quarterly training on basic EOC equipment and procedures would help ensure that when called upon, the Emergency Management staff would be able to provide the support they want to provide to EOC responders. Equipment training should include: radios, Smartboard, TVs (especially those with satellite connections) – how to change channels, mute, etc., TV mixer in the PIO room, computers with passwords, VCRs. Additionally, this information should be written and kept in a notebook that is immediately available.

OBSERVATION: It was very difficult to clearly hear all that was said during EOC briefings.

RECOMMENDATION: Install a better portable PA system in the EOC Operations room, and require its use during briefings.

OBSERVATION: EOC phone policy unclear. For example:

- Under what circumstances should calls be put into voice mail;
- When and how to use the all-page.

RECOMMENDATION: Develop a phone policy and make this a part of the training program.

OBSERVATION: Some responders were unclear what their voice mail numbers and passwords were, or where to find the information.

RECOMMENDATION: Label each phone with its voice mail number and password.

OBSERVATION: A lack of consideration on the part of some EOC responders to accept the responsibility for basic cleanliness and housekeeping was in this instance and has been during past activations pretty bad – some chronic problems were as follows:

- Failure to throw out trash in the cans provided – garbage in food bags left on the floor;
- Taking equipment from desks assigned to others, and not returning it;
- Leaving personal items behind;
- Not cleaning assigned workspace when relieved or after EOC demobilization.

RECOMMENDATION: Include a brief section on “housekeeping” in any training given to EOC responders, and make this a formal part of EOC demobilization.

OBSERVATION: The existing back-up communications system that relies on 800 MHz radio is not reliable. In a disaster or emergency event information flows from department control centers to the EOC by way of telephone and computer network. Should the City internal phone system fail, the current procedure is to move voice communications to the OPS Comm radio network. This network operates on the same system as most City departments and other non-City agencies. Public safety operations have priority use of this system. Therefore command and control as well as logistical and support coordination communications essential to the City's response and recovery are forced to compete for air-time on a over burdened regional radio system - which by design discourages this type of use. During the hours immediately following the quake radio traffic was extremely heavy across the county system resulting in disruption of communication. In Seattle the system soon stabilized allowing emergency traffic. Had the damage been more severe to communications infrastructure requiring a shift to 800 MHz radio for all voice traffic, the overall increase in volume would be predictably beyond the capacity of the system.

RECOMMENDATION: The City operates its own phone network facilities that have proven to be extremely durable. However, facilities are linked by fiber. Should these redundant connections be broken due to earth movement a highly reliable wireless voice network is required. There are two obvious responses to mitigate the increased load on 800 MHz.: 1) reduce volume by limiting access, set a priority scheme (this protocol is in fact in place); 2) add more capacity - additional 800 MHz channels are not currently available - an alternative is to move command and control traffic to a separate radio system. The City should implement a straightforward simplex radio network linking all the operating centers and the City EOC. This could be achieved using low-band VHF FM radio. Frequencies could be available through the State Emergency Management Division, who obtained addition radio spectrum from WSDOT after they moved to 800 MHz. No repeaters or other network infrastructure should be designed into this system. It must be point-to-point. At this frequency range, 100 watts of output power and roof mounted antennas will ensure reliable communications between key facilities with in the City. These radio channels should be encrypted so officials can speak freely with out concern of being overheard, as if they were on a phone circuit.

Cost and Timing - This is straightforward project that could easily be accomplished by the City in the near term at a cost of approximately \$100K. Procedures need to be written and related practices incorporated into the City and Departmental Emergency Preparedness Plans. Ongoing training, testing and incorporation into exercise planning is mandatory for this initiative to be successful.

OBSERVATION: There is no computer based system for the Communications and Warning Center operators to log, transcribe, code and organize incoming messages by way of phone and radio and then post for review and action by EOC Operations. Currently, messages are taken by hand and/or computer and placed in an e-mail format and forwarded for action. A separate event log is maintained and posted on a portion of the EOC Responder Common Drive on the network. This approach is time consuming, does not allow for coding and then applying sort and ordering logic to analyze messages for geographic impact, duplications, severity-priority setting and resolution tracking.

RECOMMENDATION: A simple database application deployed on the EOC network could be inexpensively constructed to address this need. This would be an interim solution, implemented in the near term until a comprehensive event management system can be designed and built for all City departments.

Cost and timing: this could be completed quickly using contract labor and existing software. The estimated cost is \$5,000.

OBSERVATION: The EOC and department control centers need enhanced methods for rapid assessment of damage. Damage from quakes, slides, eruptions and storms can significantly impact travel, slowing assessment of damage. Remote cameras carried by helicopter and at elevated fixed locations can provide clear images transmitted by way of digital wireless and wired network directly to officials located in the EOC and other key facilities in the command and control structure of the City.

RECOMMENDATION: The EOC installed and successfully employed remote helicopter-based TV technology for the Asia Pacific Cities Summit. This network should be expanded to include:

- Additional receiving sites placed at strategic, elevated locations around the City to enable reception of video from helicopter or mobile ground locations.
- Remote controlled cameras on top of Key Tower and other sites to permit immediate visual inspection of the City for collapsed structures, fires, slides and other visible problems.

Cost and Timing - This project can be implemented incrementally. The helicopter systems have been tested at the EOC and Seattle Police Operations Center (SPOC). Much of the remote camera technology has been installed by SPU and DoIT and is in use for security, SCADA and monitoring applications at our dams and watersheds. A proposal is being prepared that will provide a detailed plan in terms of geographic coverage, function, cost and a phased implementation plan.

OBSERVATION: Some individuals, representing an outside volunteer organization that reported to the EOC, set up displays and publications that contained incorrect information. This information could have found its way into press announcements, press briefings, etc. Its mere presence in the EOC lends such material a measure of credibility and gives it the presumption that it had been properly vetted.

RECOMMENDATION: Emergency Management staff should continue to monitor materials that are displayed. EOC responders should be reminded that all such information must be reviewed and approved prior to making it available to people in the EOC.

OBSERVATION: EOC equipment, like the SmartBoard, was underutilized and could have been a valuable source for keeping responders posted on developments as they became known.

RECOMMENDATION: Emergency Management should purchase additional SmartBoards. It should also emphasize the systems available in the EOC, and their appropriate use, during ESF training.

OBSERVATION: The City's selection as a Project Impact community by FEMA in 1998 proved fortuitous. With the seed money provided by a FEMA grant of \$1 million, Seattle Emergency Management was able to forge community partnerships. Educational institutions, retail, manufacturing and commercial companies, the University of Washington, community organizations, private lenders, and other state and federal agencies as well as City departments (Design Construction and Land Use, Office of Housing, Department of Information Technology, Seattle Public Utilities), and the Seattle School District are among the contributors. This initiative enabled the development of four distinct community mitigation strategies, and ultimately the formation of a permanent mitigation staff capacity within Emergency Management. Key elements of the programs that were tested in the Nisqually Earthquake are the Home Retrofit and School Retrofit programs. The earthquake damage that was avoided through mitigation efforts is as follows:

- Homes that were retrofitted received little damage. To date, there are no reports of any homes retrofitted where the work done was insufficient. Emergency Management received many calls from homeowners asserting that had they not retrofitted, their homes would have fared poorly.
- Several schools provided evidence that nonstructural retrofitting saves lives, prevents injuries, and reduces damage. None of the schools that were retrofitted sustained any damage. In one school, a 300-gallon water tank (weighing one ton when full!) had been retrofitted, drained, and secured. After the quake, the drained tank was found to have broken free of its restraints directly above a full classroom. Mitigation clearly prevented significant damage, and casualties, during this event.
- This work has sparked continued interest in the vulnerability of structures to strong ground motion. Since the earthquake, Emergency Management has received increased calls from businesses for mitigation information.
- The ongoing mapping efforts of the US Geological Survey in the Central Puget Sound Region under the auspices of Seattle Project Impact continue to illuminate the risk the region faces, providing impetus to elected officials and the entire regional community to address natural hazards.

The Executive's decision, reflected in the 2001 Budget, to extend the community mitigation program using City budget sources was providential. By developing a program and thus sustaining the momentum generated by the initial grant, the City has been able to direct citizens to a functioning and credible program. A future earthquake, perhaps of greater intensity and in closer proximity to the City of Seattle, could inflict greater damage than the Nisqually event. Because the City was proactive, and because assurances were obtained from the Mayor that there would be a commitment to the principle of community mitigation, it was possible to design and implement a program that was not subject to the whims of federal funding, or even changes in federal leadership. Instead, the original grant served as seed money that established a strong base. The protection of those school children in the classroom referenced above stands as a singular example of the fine line between an economic disaster, requiring financial recovery, and a tragedy, requiring mourning.

RECOMMENDATION: The City must continue to promote community mitigation efforts through Seattle Project Impact, as ample evidence from the Nisqually Earthquake exists to justify the benefits of these efforts. However, the true benefits may not be realized until a more serious earthquake occurs. The City has much more to do in the arena of Home and School Retrofitting, Hazard Mapping, Business Mitigation, and infrastructure protection. By continuing to lead the

regional dialogue among scientists, community leaders, business and private citizens, Seattle is actively preparing to deal with the next event.

EMERGENCY SUPPORT FUNCTION - 2 (POLICE SERVICES)

OBSERVATION: No problems of significance were encountered for this event, and there were few police-related requests made to the EOC. The potential for a problem did occur because the Seattle Police Operations Center (SPOC) did not have equivalent staffing to match their counterparts in EOC.

RECOMMENDATION: Minimum police staffing for EOC: at least seven officers be assigned to EOC in order to ensure staffing of the general staff positions, building security, and relief. Additionally, one first-level supervisor, one command-level officer and one Assistant Chief should be assigned when the police function at the EOC is activated.

It is critical that SPOC deploy at least enough personnel to match their counterparts in EOC for the general staff positions. If this is not done, there cannot be a smooth flow of information for requests for equipment, services, etc.

OBSERVATION: The computer lines between SPOC and EOC are still not fully operational (as of February 28).

RECOMMENDATION: The SPD technology staff will need to resolve this issue. Direct computer communications between the general staff positions of SPOC and EOC are critical, particularly during a critical incident in which demands for police services are high.

OBSERVATION: Combined training for police EOC and SPOC staff should occur so that each entity can clearly understand and gain a better appreciation of the function and responsibility they have during these events.

RECOMMENDATION: ESF-2 Coordinator should take the lead in determining training requirements and requesting assistance from the Emergency Management Section.

OBSERVATION: The Special Deployment Unit/SPOC response was immediate and full staffing was effected upon the arrival of personnel who were off-duty due to the previous evening Mardi Gras operation. The SPOC ensured the following priorities and functions were established:

- Injuries to any present SPOC personnel.
- Damage assessment to the SPOC.
- Contacting the four Precincts to ensure that Precinct Area Commands (PACs) were established with corresponding telephone numbers.
- Injuries to police personnel and ensuring police personnel were accounted for.
- Damage assessment to police facilities.
- Contacting PACs and establishing infrastructure damage assessment of roads and structures.
- Reporting regular scheduled status reports of the Police Department to the EOC.

SPOC was unable to be fully operational for approximately 1½ hours because the primary SPOC staff was off-duty in response to SPOC operations the previous evening during the Mardi-Gras event, which was secured at 0430 hours. Those initially detailed to SPOC in Vice/Narcotics were not trained in SPOC operations, but were given directed tasks to contact each of the Precincts and log incoming information. Secondary SPOC personnel from the Domestic Violence Unit were unavailable due to being displaced from the Arctic Building during the earthquake evacuation procedures. Upon the arrival of primary SPOC personnel, Vice/Narcotics detectives were debriefed and relieved.

RECOMMENDATION: Quick and decisive thinking by the Special Deployment Captain enabled SPOC to become functional at the earliest possible time. SPD needs to take a look at its mobilization procedures and policies to speed a department wide emergency response and to have sufficient backfill in key positions.

OBSERVATION: The earthquake affected different areas of the City, some incurred substantial damage while other areas sustained little if any damage. PACs, which sustained little damage questioned the need for establishing a PAC, and secured without notification to the SPOC. SPOC reiterated the need for the PACs and their importance for citywide operations. The PACs were quickly reestablished and maintained until SPOC operations were no longer required.

The main observation was that during this major crisis/event, the personnel of the Seattle Police Department performed in an outstanding manner. Police personnel rose to the occasion to assist in delivering police services to the community. It was apparent that many police personnel lacked complete familiarity with Disaster Readiness duties and responsibilities. This apparent lack of familiarity is due to the City not experiencing a major disaster in several years.

SPOC continues to improve its proficiency in providing timely, informative status reports to the EOC. With each operation, this issue has been improving. Issues to be addressed are ensuring that EOC obtains the analyzed information from SPOC so that the EOC Director may brief the Mayor as required.

RECOMMENDATION: That all Police personnel are updated and trained in emergency operations during a citywide disaster. Issues that should be addressed are as follows:

- Establishment of the emergency management priorities of the Department.
- Procedures in the event of loss of communications or facilities.
- Accountability and identification of available personnel.
- Re-structuring Department priorities to identify infrastructure assessments.
- Establishment of PACs and their purpose.
- Updating the ESF-2 Annex and distributing it Department wide with each Section/Precinct identifying their role and duties.
- Continue working with Emergency Management Section personnel to improve communications and flow of information.

EMERGENCY SUPPORT FUNCTION - 3 (PUBLIC WORKS)

OBSERVATION: Many of the basic concepts of operations and the command and control relationships within ESF-3 and the EOC were not clearly understood by all ESF-3 representatives. Some personnel within the ESF had not been to the EOC for years and were unfamiliar with the basics of how to work in the EOC, much less how they correspond with other departments. The use of telephones, computers, radios and notebooks that have been meticulously developed were often unused because of a lack of training of the staff that they were developed for. Status boards depicting department status were often not used, not updated, and thus not relevant to the needs of the members of the ESF or EOC staff.

RECOMMENDATION: All ESF-3 representatives should receive mandatory training on a yearly basis conducted by ESF-3 in conjunction with Emergency Management staff on the basics of EOC/ESF operations. The Disaster Management Committee should sponsor a yearly tabletop exercise designed to familiarize the members of all the ESFs with how the EOC works, how reports are sent, how the phone works, how they log onto the computer, what their passwords will be, how decisions are made, etc.

All ESF-3 representatives should conduct a yearly review of the City of Seattle Disaster Readiness and Response plan in conjunction with the mandatory yearly training. The written ESF-3 Annex should be finalized and published by ESF-3 by no later than September 30, 2001.

OBSERVATION: Information development and sharing.

General: Vast amounts of data were transmitted immediately following the earthquake. This data was transformed into Information and was invaluable in the decision making process by key organizational units. Information was required by Individual Staff, Field Crews, Operational Incident Command Branches, Control Centers (Both internal and external to the City) and Emergency Operations Centers. Much of this information did not go to the right people, in the right format at the right time.

Specific Responses:

- a) Individual employees received data in a wide variety of ways. The use of the Outdialing system, employee call-in numbers, direct contact from supervisors, and the news media. (The Emergency Alert System (EAS) was not used, because its use is restricted by FCC rules for the transmission of an immediate threat for which there is some warning time and no other means to make wide distribution of the warning).
- b) Crews did not receive sifted data. Some employees related their experience as similar to drinking from a fire hose—others stated they never heard a thing. In many cases, information was not timely and poorly formatted. Information from other city control centers that had a direct bearing on transportation and utility operations was identified as must have information.
- c) Information that was received from other control centers was frequently in a format that did not lend itself to easy distribution. Information did not generally translate easily from one operations center to another

RECOMMENDATION:

- a) Standardize employee data streams. Use the media for general employee notices regarding critical return to work information.
- b) Control Centers should staff an employee call-in phone.

- c) Standardize reports from all control centers based on the needs of field crews and control center requirements. Ensure that information is available on a standardized GIS map that is shared among all control centers. Show critical informational requirements such as: utility outages, crew/equipment status, control center status etc.
- d) Use ERC. Modify the fields of information to better support all control centers. Add a facilities inspection module.
- e) Develop a private building inspection module for DCLU/Utility/Public Safety use. Require all city agencies to train on its use and incorporate it as a daily inspection item.

OBSERVATION: Emergency Resource Center (ERC)

Background:

- a) ERC began as a City one-stop citizen response line.
- b) ERC allows citizens to use a single telephone number (684-3355) to report problems and obtain information about outages and related repair.
- c) A special Council/Mayor's taskforce was formed in response to citizen concerns resulting from the 1997 winter storm and mudslides.
- d) A significant issue was the absence of a designated city phone number that citizens could call for information and referral -- department control centers were overloaded and there was no way for citizens to contact the City.
- e) The ERC exists as a resource to help departments manage the high volume of telephone inquiries and service requests received during times of storm-related damage, or other emergencies.
- f) SPU was directed to finance, build and operate this program with its own resources.
- g) Departments involved in the ERC project were Seattle Public Utilities, Emergency Management, Parks, SeaTran and the Department of Design, Construction and Land Use.
- h) The service practices and procedures have been refined and the computer and telephone technologies have been progressively upgraded over the past three years.
- i) There has been some interest in expanding the capabilities and capacity of the system to provide:
 - ◆ Wider range of emergency call center services, and
 - ◆ Comprehensive event management system for reporting damage and coordinating between the EOC and department control centers as well as compilation of cost estimates.
- j) There has not been the support from the departments and City management to move this initiative forward -- after several attempts to gather support SPU had shelved its plan to expand ERC through a partnership strategy.

Specific Issues:

- a) ERC was activated immediately after the earthquake apparently with expectations for an expanded scope of services beyond what ERC was designed for and capable of providing, e.g., calls to report damage to private property.
- b) ERC systems and staff are prepared to accept and process public property damage reports.
- c) ERC was required to provide around the clock information to citizens -- but did not have access to current information and was not supported by City-PIO staff during its extended period of operations.
- d) Departments, such as DCLU, wanted new data fields added into the system and expected call takers and the system to accommodate it.
- e) The EOC wanted to use the ERC system as a way of compiling the Preliminary Damage Assessment for estimating both public and private damage.

- f) The ERC computer system is used infrequently by the other departments. Staff was rusty or untrained on how to use it. In some cases reports could not be printed because network addresses had changed due to the recent City moves.
- g) ERC seems to work well for its intended purpose of providing an information and referral service and an overflow call center for the utility and public works departments in times of emergency.
- h) ERC is not staffed, equipped, or funded to be a 24x7 general purpose City information and damage reporting call center.
- i) It is unrealistic for ERC to attempt to handle all service-requests for departments not prepared to respond to citizen calls in an emergency. (pre-planning is required)
- j) The City needs a comprehensive emergency event management system, designed to:
 - ◆ Gather information coming into the various department operating systems.
 - ◆ Summarize it and pass it along to the EOC.
 - ◆ Enable a more coordinated citywide response.
 - ◆ Collect accurate and timely information.
 - ◆ Analyze and set priorities for commitment of resources.
 - ◆ Provide real time aggregation of preliminary data required for the Mayor to make a declaration of emergency.
 - ◆ Gather detailed damage information to meet FEMA recovery guidelines.

RECOMMENDATION: Suggest the Mayor appoint a task force of key department leaders to review these issues and propose a comprehensive solution -- including a charter addressing level of commitment and funding of City departments. Key participants should be: Mayor's Office Senior staff, Mayor's Communications Director, Budget Director, EOC Director (SPD Assistant Chief), Emergency Management Director, SPU – Director of Customer Service, SeaTran Deputy Director, DCLU Deputy Director, SFD Asst. Chief, Parks Department Operations Director, DoIT Operations Director and other department representatives as required.

OBSERVATION: Non-city utilities (Qwest, Seattle Steam, PSE Natural Gas) that have been identified as members of ESF-3 and assigned representation in the EOC did not automatically respond to the EOC. Responding ESF-3 staff were unaware of the existence of the direct telephone and radio connections with these outside agency control centers and the EOC Call-out List which gives the contact names and their work, home, pager and cell phone numbers.

RECOMMENDATION: Review the current concept of having these private entities as permanent members of ESF-3 at the City EOC. (Most of these agencies do not have sufficient staff to support their own control centers in addition to the City and County EOCs). Ensure that ESF-3 members are trained on available communications systems in the EOC, and know where to find their copy of the EOC Call-out List (updated copies are mailed to all ESF Coordinators, including alternates, at the beginning of every month). Rewrite ESF-3 requirements to meet realistic expectations of participants, but ensure that contact data is accurate with other Public Works agencies.

OBSERVATION: Training in response to disasters and emergencies

General: SPU employees have been trained to varying degrees in responding to emergencies and disasters. Emergency Action Plans have been prepared for the Dexter Horton, Municipal and Key Tower Buildings by building management.

Specific responses:

- a) Personal preparedness training. Employees had varying degrees of personal preparedness training and familiarization with Drop, Cover and Hold.

- b) Building management was slow in providing a response to damaged facilities. Plans and guidance that are considered normal building management practices did not follow generally accepted earthquake procedures.
- c) Assessment of key SPU facilities and systems were conducted by a variety of work groups and reported to the SPU Engineering representative at the Operations Control Center. Many of the assessments were conducted using untrained or untested personnel and a wide variety of reports were received.
- d) ICS positions that are infrequently staffed required additional training.

RECOMMENDATION:

- a) Mandatory personal preparedness training for all SPU employees. Training should be conducted yearly and concentrate on ensuring that employees are prepared to take care of themselves and their families and follow the instructions of Floor Wardens and building management following a disaster or emergency.
- b) Citywide mandated review of Emergency Action Plans targeted at multi-agency occupied buildings. Develop appropriate mandatory training requirements for Building Managers, Floor Wardens and key leaders in each downtown office location. Realistic training exercises should be scheduled and conducted by a centralized city authority (Facilities Division) in conjunction with building managers at least once a year.
- c) Conduct training and evaluation of all SPU personnel designated as a part of the assessment team following disasters. Training and exercises should be conducted at least yearly.
- d) Conduct mandatory training for SPU designated ICS positions on at least a yearly basis. Add these as mandatory training requirements and ensure that the results of training are tracked.

OBSERVATION: Staffing of Incident Command Positions

General: Most key ICS positions were rapidly staffed immediately following the earthquake. There was insufficient depth in many of the support positions at both the City EOC and at SPU's OCC.

Specific Responses:

- a) There were an insufficient number of trained administrative support personnel at both the OCC and EOC.
- b) The OCC Situation Status position needs to be filled and extensive training in the roles and responsibilities and reporting structure/methodology to the EOC, and SPU employees needs to be reinforced.
- c) The scope of the planning function at the OCC needs review.
- d) Staffing by Communications Staff specifically assigned to answering the incoming SPU employee lines was not established until March 1st.
- e) Assessment and response staff from the Engineering Branch were not pre-assigned to specific facilities and/or locations.

RECOMMENDATION:

- a) Conduct training for Admin staff on a bi-yearly basis. Maintain an active list on the call-out roster for filling these positions.
- b) Re-define the role of the Situation Status officer. Increase staffing numbers and integrate information better with the EOC.
- c) Planning role is currently under review by SPU.
- d) Pre-assign Communications staff to perform this function.
- e) Currently redefining the roles of the Engineering Branch and methodology for inspection and response staff. Work on notification procedures for staff.

OBSERVATION: Tele-Communications Radio use

General-Radio: Day-to-day communications tools were inadequate for earthquake response. Radio systems, including 800 MHz, were unreliable for many SPU users immediately following the earthquake.

Workgroups who don't use radios as part of their day-to-day business needed communications tools as part of their earthquake response tools

Discussion of activities:

- a) Immediately following the earthquake, users of the 800 MHz radio reported that the system was not working and they were unable to get access to the system in order to use it.
- b) Users of the UHF system reported that they were not able to reliably contact other users. Person originating contact would never get answer when calling, or would not hear the response if contacts ever were made.
- c) There were not enough spare radios to assign to workgroups who needed them for response activities.

Analysis:

- a) 800 MHz Radio system experienced severe overload. Users were unfamiliar with queuing and assumed when they received a busy tone ("honk") that the system was down. Users did not wait for queuing and the go-ahead tone ("tweedle dee") giving them a clear channel.
- b) UHF Radio users are unaware that the repeater is shared with other users that they cannot hear, and with whom they compete for airtime.
- c) Reassignment of radios or spare radios to be assigned to response workgroups will help coordinate their activities.

RECOMMENDATION:

Orientation and training of users to radio systems will help them use radios appropriately. Review of system use will indicate whether system resources are sufficient for both day-to-day and emergency use. Alternate systems may be identified as better meeting overall needs. Surplus radios should be stockpiled to assign to workgroups requiring communications. Assignment of radios not needed by response workgroups should be made available when necessary.

OBSERVATION: Public telephone systems were unreliable following the earthquake, and it is unrealistic to rely on them as a primary method of communications. Cellular phones which are tied directly into the City's telephone system are still dependent on radio channels from each cell-site, which are shared by all cell phone users.

Discussion of Activities:

Some workgroups attempted to use cell phones as their primary method of communications. They found that the system was significantly overloaded. Once the cell site was reached, the call completion rate was higher for 5-digit City network dialing than it was for 7 or 10-digit public number dialing. Staff also relied on cell phones to attempt local contact with family members throughout the area. This was unreliable, and led to concern among staff when they were unable to find any information about the safety of their families.

Analysis:

- a) People tend to depend on methods and tools, which are used day-to-day. Cell phones are always overloaded after any community-impacting event. Cell phones should not be depended upon as a primary emergency response tool.
- b) Cell phones have more areas of vulnerability and overload than land-line phones do. This is due to their dependence upon cell-sites with limited radio channels, mobile telephone switching offices, public switched telephone network offices, and additional nodes within the linked systems.
- c) Employees should have “out-of-area” contacts, which are part of the family’s emergency preparedness plan. The contact should be at least 300 miles away, which makes use of long-distance phone lines which have more redundancy and put less load on local lines. Also adequate planning and supplies within the family may reduce stress levels within staff.

RECOMMENDATION: Reduce reliance on cell phones as part of emergency response plans. Encourage emergency preparedness planning among staff families, including out-of-area contact. Implement SPU out of state contact answer line.

OBSERVATION: Accessibility of emergency supplies in City Buildings

Emergency/Disaster supplies have been purchased by several organizations that operate out of buildings managed by Building Management organizations and overseen by Fleets and Facilities. Many of these supplies are not incorporated into the overall plan for building evacuation and management following an event like an earthquake or fire. Many Floor Wardens/response staff and employees did not know what they had, what it did, or how to use it. Resources and training need to be in alignment. The Seattle Fire Code requires building managers of high-rises to prepare emergency procedures. Building managers frequently do not prepare plans in sufficient detail, or provide sufficient resources or training for their response staff, Floor Wardens and residents.

RECOMMENDATION: That the Facilities Division with the help of Emergency Management review current plans for building emergency plans, ensure they are aligned with citywide response plans, and conduct appropriate training.

OBSERVATION: Red-tagging of buildings by SFD and DCLU was not well coordinated, and ATC-20 standards were not uniformly applied. This inequity early in the response resulted in challenges later on when responding to citizen complaints.

RECOMMENDATION: Establish a workgroup between the major organizations that may be involved in the red-tagging process following a large-scale disaster or emergency. As a minimum include DCLU and Fire. Reinforce a standardized methodology and ensure that designated personnel are using a standardized methodology. Conduct yearly refresher training hosted by one of the major agencies and conduct a drill at least bi-yearly.

OBSERVATION: The rules regarding trespass of private property by owners or tenants of red-tagged building were not completely understood by SPD, SFD and DCLU personnel involved in the process. Buildings were red-tagged, but tenants/owners were allowed a variety of entrance and egress rights.

RECOMMENDATION: A standardized work-group for red-tagging issues in conjunction with the input of the Law department will ensure a better response.

OBSERVATION: Roads were closed by several agencies following the earthquake including King County and Seattle Police, SeaTran ,WSDOT, SFD and other agencies. Reports of closures were not consistently reported to the same agency and resulted in inaccurate

information being sent to the EOC, other control centers, the general public, and other interested parties.

RECOMMENDATION: Establish a workgroup of key participants to resolve road closure issues, including:

- 1) How information is gathered at the control centers (especially SeaTran, WSDOT, SFD and SPD).
- 2) Communicated to other control centers for emergency notifications, such as bridge failures.
- 3) Aggregated by ESF-3 at the EOC.
- 4) Communicated to the public by ESF-5.

This process needs to be formalized in the ESF-3 Annex.

OBSERVATION: Several control centers did not effectively use specialized radio and telephone communications equipment that has been installed for use during disasters and emergencies. In some cases, the equipment was functional but operators chose not to use it. In other cases, there was no connectivity for the systems.

RECOMMENDATION: Reinforce the importance of communications linkages between control centers and the EOC. Conduct a training seminar with critical Control Center/Dispatch staff on the current status and use of equipment at control centers/EOC. Continue and reinforce mandatory communications checks and drills. Conduct a communications exercise at least yearly designed specifically to reacquaint control center staff, EOC/ESF staff with communications equipment available during emergencies. Program at least a yearly review of communications equipment and methodology for ESF-3 members and senior departmental staff.

OBSERVATION: SeaTran did not activate their control center and relied on the Charles Street Dispatch to assume their responsibilities.

RECOMMENDATION: SeaTran needs to make a distinction between its Dispatch Center and its Control Center. They are two different functions, which need to be recognized as such and staffed appropriately. The Control Center is where SeaTran senior managers jointly direct and manage the scope of SeaTran emergency response citywide, make managerial decisions, and interact with the EOC as called for in the City's Disaster Readiness and Response Plan.

EMERGENCY SUPPORT FUNCTION - 4 (FIRE, RESCUE AND EMS)

OBSERVATION: Due to reorganization within the Fire Department on February 12, 2001 the Department did not assign an adequate number of personnel to respond to, and immediately staff the EOC. Consequently, the Department did not immediately fulfill its designate role of Operations Chief.

RECOMMENDATION: The Department needs to assign an adequate number of personnel to immediately respond to the EOC following a disaster or activation. In the future the Department will assign a minimum of four people to the EOC (ESF-4 Representative, Radio, Liaison, and Recorder). Additionally, one Assistant Chief and one company level officer should be assigned when Fire is the lead agency and responsible for the Operations Section.

The Department and the EOC staff need to provide training to the Management Team and those members of the Department that may be required to fill in for them in these roles and create a checklist of immediate tasks.

OBSERVATION: The Department brought in personnel to fill the support functions for ESF-4 that were not trained in the tasks required.

RECOMMENDATION: Personnel need to be identified in advance by the Department and trained in the roles and responsibilities that are assigned to ESF-4.

OBSERVATION: The Department is assigned three workstations. One is temporarily designated for the Mayor's Office. This is inadequate workspace for the Department to fulfill its role at the EOC.

RECOMMENDATION: The minimum Fire staffing for the Department at the EOC is four people (ESF-4 Representative, Radio, Liaison, and Recorder). The Emergency Management staff needs to provide a minimum of four workstations for the Department.

OBSERVATION: The work area for ESF-4 did not allow for the efficient processing of the administrative work required.

RECOMMENDATION: That SFD IT personnel work with Emergency Management to upgrade the communications equipment and assigned work stations in order that the administrative work can be efficiently processed. This should include: 1) Adding another PC to access SFD CAD and standard City applications. 2) Installing additional phone lines tied to the distinct positions. Installing a FAX machine to transmit and receive reports without having to go upstairs.

OBSERVATION: SFD did not have a copy of the EOC operations manual that they could quickly access in order to determine their role in the EOC. The Department will assemble a book for EOC responders that contains the require information.

RECOMMENDATION: The Department needs to assemble a book, which contains instructions, lists, references and the City Disaster Readiness and Response Plan. A copy must be kept and maintained at the EOC. Management Team members and those members of the Department that may be required to fill in for them need to have a copy for study, immediate reference and use. The ESF-4 Annex to the City Disaster Readiness and Response Plan must be revised to reflect current ESF-4 responsibilities, methods of operation, and resources.

OBSERVATION: There continues to be a lack of understanding of roles between the EOC, Fire Alarm Center (FAC), and the Department's RMC (Resource Management Center).

RECOMMENDATION: The Department needs to make a clear distinction of the roles, functions and expectations of personnel working at the EOC, FAC, and the RMC. These roles, functions, and expectations must be clearly established and explained in Department directives and the ESF-4 Annex to the City Disaster Readiness and Response Plan.

OBSERVATION: The tagging of buildings (red, yellow and green-tagged) by SFD and DCLU personnel needs to be coordinated and the standard ATC-20 criteria applied by trained SFD personnel. The lack of uniform criteria created confusion on the second day as City Officials worked to get an accurate count of the number of buildings in each category. It also created confusion among SFD personnel in the field, who needed to know the exact structural status of a building in order to devise the best and safest tactics to use in any response to a fire or collapse in a red- or yellow-tagged structure.

RECOMMENDATION: A standardized system for tagging buildings by SFD personnel, with subsequent confirmation or adjustment by DCLU, needs to be established unless joint inspection teams can be formed. A line of notification needs to be established between DCLU and SFD. This line must include the EOC, FAC, SFD RMC and field personnel.

OBSERVATION: The SFD structure survey process needs to be enhanced in order to provide for a more timely completion of structure review.

RECOMMENDATION: Use automobiles with 2 firefighters. Use bicycles for downtown core areas due to traffic issues. Provide firefighters with dedicated “assessment equipment” (radio, forms, barrier tape, etc.).

OBSERVATION: The survey form used by the SFD Operations units was not the same as that used by other city departments.

RECOMMENDATION: Standardize the structure survey forms used by all city departments.

EMERGENCY SUPPORT FUNCTION - 5 (PUBLIC INFORMATION)

OBSERVATION: Aside from those who had specific instructions to report to the EOC, many PIOs were unclear about what they should do.

RECOMMENDATION: In the event of an earthquake or other similar large-scale emergency, PIOs should expect the EOC will be activated and they should self-report, regardless of whether they receive specific instructions to do so. (Depending on the nature of the emergency, it is possible the PIOs would not receive notification to report to the EOC because phone lines may be tied up or down, effectively disabling pagers, cell phones may be inoperable, etc).

To avoid having everyone report for duty at once and to ensure the PIO team can provide 24-hour coverage for a sustained period of time, the Mayor's Communications Director will develop a "phased" EOC PIO call-out list, e.g., listing who should report to the EOC for the first shift, second shift and third shift (this assumes three 8.5 hour shifts, overlapping by 30 minutes, will be required). This list will include current PIOs and others with public information/EOC experience.

The COS.net Web Team needs to develop a formalized a prioritized Web Team call-out list, and procedures for implementation. At a minimum, the COS.net Web Team list should include: name, phone numbers (work, home, cell, pager and email addresses).

Copies of both call-out lists should be on file at the EOC and at the Mayor's Office, and included in the PIO Annex support materials. All EOC assigned PIOs and Mayor's Office staff, and everyone on either list should carry a copy of both lists with them at all times as well.

OBSERVATION: Some department heads are not aware their PIOs have a role to play during an EOC activation. Some department's emergency response plans include a role for their department PIOs.

RECOMMENDATION: All PIOs need to confirm their individual department's emergency response plans do not rely on them to fulfill a role as they will be required to support the City's centralized emergency public information function. PIOs should remind their respective department heads of their unique roles during an EOC activation. The Mayor's Office should follow-up with a reminder to department heads as well. Each department's emergency plan should include provisions to "back-fill" its PIO position(s) in the event of an EOC activation.

OBSERVATION: There were an insufficient number of computers in the PIO room. (Nearly all those that had been there during the N30 activation had disappeared). Computers are integral to the PIOs' performance of their duties and PIOs' efforts are severely hampered awaiting workstation installation AFTER an activation. In addition, the COS.net Web Team's PC was broken. Luckily it was able to be replaced with an Emergency Management machine, which had the essential software (FTP and FrontPage 2000) loaded on it. The scanner was also missing.

RECOMMENDATION: All workstations in the PIO room need computers permanently installed so that they await the team whenever the EOC is activated. All work stations need to have GroupWise, Word, Excel and Internet Explorer (with bookmarks to all local media outlets' web sites, King County, Washington State, FEMA, InWeb and COS.net preset) loaded on them. In addition to that software, the Web team's PC needs FTP, FrontPage 2000, Homesite, Photoshop, and word recognition scanning software. We should also load minimal and inexpensive software for web access on several other PCs in the PIO room in case there is need for two web work stations, and/or in the event the lead machine breaks. The scanner needs to be replaced. We should set up one machine near the web team's workstation with a cable modem or DSL to allow a separate Internet connection independent of the City's Internet Service Provider.

OBSERVATION: Web server security and reliability could be improved.

RECOMMENDATION: The COS.net Web Team should make a series of technical recommendations to improve web server security and reliability, and identify at least one back-up alternative — either another city or an ISP — to host a site it can activate if the COS.net servers or the City's local Internet connection fail. The COS.net Web Team should ensure that these recommendations are implemented once vetted.

OBSERVATION: The Citizens Service Bureau regularly provides overflow phone support to the Mayor's Office and serves as an information gathering and release point for the PIOs during an EOC activation. CSB staff were not available to provide phone support the day of the earthquake, because they didn't have internal procedures that described their emergency functions. Instead of returning to their workplace after the Municipal Building was determined to be safe, they went home. CSB staff should have stayed to offer assistance where necessary, as a part of the emergency response team for the City.

RECOMMENDATION: The CSB Supervisor has since developed a formal protocol for staff to follow during any future emergency or disaster. After confirming staff are safe and secure, one of the CSB's four complaint investigators will contact the Mayor's Administrative Assistant, Department of Finance PIO and the Mayor's Communications Director — in that order — to offer assistance and receive direction as to where their services can be best utilized. Complaint Investigator is lead, when CSB Supervisor is not available, with another backup designated to achieve the City standard for being three deep in critical positions. ESF-5 will follow-up by incorporating these ongoing procedures into its operations.

OBSERVATION: The City Light and SPU PIOs did not report to the EOC (their section directors did) and their specific expertise was missed. While we did a good job pulling together comprehensive speaking points for the Mayor's briefings, and the subsequent recap news releases, there were a couple of minor glitches. Somehow we included inaccurate information about water from the Cedar River, but we weren't aware of it until late in the day after it had been repeated by the Mayor and in the recaps, and included in news reports. We were informed about it late in the day by the SPU PIO, who was not at the EOC. Also, we were unable to provide boundaries of the City Light outage (reporters are used to getting that information). This information could have been provided by a City Light PIO or by a City Light media kit (had we had one at the EOC). The latter information in text and map form was available on the System Control Center Electrical System Status (ESS) Inweb page, and should have been accessed by the EOC PIO Team.

RECOMMENDATION: The Mayor's Communications Director has clarified with the SPU and City Light Communications Directors her expectation they not fill roles in the main PIO room, but rather be available to provide 24/7 staffing for her position during an EOC activation. SPU and City Light PIOs will be expected to report to the EOC during an activation and both utilities are expected to keep regularly updated copies of their media kits permanently on file at the EOC.

OBSERVATION: More than one PIO noted it was not clear who was in charge of the PIO room and that it took a while for the team to hit its stride. (Some employees serving on the PIO team had never been to the EOC before and were totally unfamiliar with its operation). Specific observations include:

- Received no direction upon entering EOC.
- Confusion around whom would answer phones and what the media line number was.
- Unclear how and to whom to communicate information received from local media.
- As more people arrived, delegating tasks became crucial but were very haphazard.
- Delay in finding instructions for the "proper naming of the files."

- It took quite some time to get the proper media line number and the exact location of where press should enter EOC area for press conferences.
- After a News Release was printed, there seemed to be some confusion on the fax distribution list.
- There was no direction for using the TV control board.
- Heard about logs, official forms, etc. but never saw them. Finding something as simple as a pen and pad of paper was even a challenge.
- We needed name tags.

RECOMMENDATION: First and foremost, the PIO supervisor must take charge and rally the forces. As soon as the core group is there, the supervisor should identify him/herself, make clear who is assigned which duties, and explain the role of the supervisor, i.e., she/he is supervising the room's efforts and that everything is channeled through him/her. Then he/she (or a designee) should give a quick orientation to the group on the basics, e.g., where are the supplies, restrooms, the PIOs folder on the EOC LAN, etc., and be prepared to respond to specific questions that may arise from PIOs with little, or no EOC experience. The PIO assuming the supervisor position must make his/her role clear to those in the Operations Room as well. Further training among the PIOs regarding the responsibilities of all positions and location of supporting materials will help in this regard as well. (This also argues for strong emphasis on familiarizing **all** PIOs with the duties of the PIO Room Supervisor as this position is key to a smoothly operating PIO function). Many of the items referenced in the observation do exist (e.g., the instructions for the TV control board are under the plexiglass at that workstation, but may have not have been immediately apparent because they were covered by something; pad, pens and name tags are stored in the PIOs' file cabinet, etc.) and instructions, roles and responsibilities, phone lists, etc. are permanently available in the PIOs' folder on the EOC LAN.

In the flurry of activity and with varying levels of experience and familiarity with the emergency public information function, it appears people who should have known this simply forgot. In support of its Annex, the PIO team is developing an instruction manual and checklists for PIOs that will address the first things that need to be done during an activation, key responsibilities of each position, location of files, etc. The PIO Supervisor's checklist will include the order in which the various positions in the PIO room should be filled. The PIO team should conduct ongoing and regular EOC training.

OBSERVATION: Confusion around what the media line number was.

RECOMMENDATION: In the largest type possible, post on the walls in the PIO room the phone numbers for the media line, incoming fax line and PIO Supervisor.

OBSERVATION: It is not always clear who is doing what job.

RECOMMENDATION: Permanently install name placards for each workstation identifying the position assigned to that workstation. During times the EOC is not activated these placards need to be maintained in a file cabinet so they are not disturbed by multi-use activities that regularly occur in the room assigned to the PIO Team.

OBSERVATION: The COS.net staff should not work independently to collect and/or post information. They are part of the central PIO team and under the direction of the PIO Room Supervisor, who coordinates information distribution at the behest of the Mayor's Communications Director. Nothing should be posted on the web until cleared by someone from the PIO team (it could be the Floater, it could be the PIO Supervisor, it could be a Writer, etc.).

RECOMMENDATION: It should be noted the COS.net Web Team expressed frustration with the length of time it took to provide it with information to publish on the Web. While the web is a

wonderful communications tool that allows nearly instantaneous publication and amendment, the City cannot let the ease with which it can publish to the Web override the checks and balances the PIO team uses to ensure accurate information is released. (During the earthquake, speaking points were being amended manually as they were carried up the stairs to the media briefing room, making it doubly important to confirm the information posted on the Web matched that released at the media briefings). That being said, the PIO team recognizes it needs to work closely with the COS.net staff to ensure information is being distributed as quickly and simultaneously as possible, e.g., posted to the Web, disseminated via the mayor's briefings and faxed to media. The PIO team also recognizes it needs to work with the COS.net Web Team to find ways to post information between media briefings whenever possible to ensure the web site is kept as current as possible.

OBSERVATION: Operations Room briefings do not correspond to media briefings, making it difficult to provide up-to-date information to the media. The Mayor's Communications Director relies on these briefings to collect information for release to the public.

RECOMMENDATION: The EOC Director should coordinate the Operations Room briefing schedule with that of the media briefings. The PIO Room Supervisor, and Police and Fire PIOs should attend these briefings.

OBSERVATION: Public information related to the event was released from multiple locations instead of centrally from the EOC. This should not have happened. It's too easy for misinformation to get out if we have PIOs generating releases/information from different locations. Given the quick turnaround times we work with during an emergency, making sure we have all of the information needed when pulling together speaking points for the Mayor for instance. It would be far more efficient to have all of the information sources in one room, rather than having to remember to call a PIO in another location (or wait for a PIO to call us) when we have to update information on the spot. In addition, web teams across the City were posting information related to the earthquake on department web sites.

RECOMMENDATION: During an EOC activation, all City news releases and other information related to the event must come out of the EOC, even if it's specific to a particular issue/department, e.g., water, police, fire, lights. ESF-5 will follow-up by incorporating these ongoing procedures into its operational plans. Likewise, all information regarding the event that is posted to the Web must be coordinated with the PIO team at the EOC. The PIOs will work with the COS.net Web Team to develop a procedure for ensuring this happens. (From a purely practical perspective, the web managers of all departments posting emergency information on their own pages must let the COS.net Web Team know when new items are added so the COS.net Web Team can create link from COS.net's upper-level pages).

OBSERVATION: There was some difficulty and confusion around attempting to get accurate information from the Municipal Courts regarding the status of the courts being opened or closed.

RECOMMENDATION: Municipal Courts has requested that they be solely responsible for disseminating information to the public regarding the courts. As a result, the Municipal Court PIO will be taken off the City's ESF-5 call-out list so as to remain free to carry out that function. It has also been agreed that, should the Court want to use any of the outgoing communications channels at the EOC, it will be up to them to contact the EOC PIO team.

OBSERVATION: The City could make a better use of technology to ensure emergency public information is distributed as broadly as possible.

RECOMMENDATION: The PIO team should work with DoIT to develop at least some of the following outgoing communications channels:

- Use TVSea as a “virtual briefing” for people who can’t attend the EOC Media Briefings. (This would also allow everyone in EOC to watch the briefings without going upstairs).
- Stream live video over the web of EOC Media Briefings to broaden distribution of the information.
- Stream the audio from the EOC Media Briefings and offer a phone line for media to listen in, just as we do for the City Council meetings.
- Archive the briefings on-line, either the audio or video or both.
- Quotes from the briefings should be made available via a voice mailbox so radio stations can just pick them up from there.

OBSERVATION: Some departments, most notably City Light, are not posting their news releases in the News Release Database but are posting releases directly on their own web sites. This negates the purpose of the site, e.g., having one central spot people can go to find all City-issued news releases. The database provides a variety of search options. (Note: Per an agreement with the Mayor’s Office, Fire and Police post only selected releases in this database).

RECOMMENDATION: All City PIOs should have all of their respective departments’ news releases posted in the News Release Database. Instructions for getting the releases posted are on-line at: <http://inweb/mayor/newsrsls.htm> Once the releases are in the database, there’s no need to dually post them on departments’ individual web sites. Instead, the COS.net Web Team can provide a script for departments’ web sites which automatically pulls the releases specifically related to their departments from the database for display on departments’ respective web pages. (This procedure is already in place for the Mayor’s web site).

OBSERVATION: The state released incorrect information about one of the City’s dams. Even though inspection of the dam was within the state’s jurisdiction, the specific details released regarding the dam were incorrect.

RECOMMENDATION: The PIO team should continue to work with its counterparts at the county and state level to better coordinate the release of information.

OBSERVATION: The renaming of the EOC ESF email account effectively shut down the PIOs’ ability to send Emergency Email Broadcasts from that account. (The EOC PIOs’ email account is one of two City email accounts, which has the ability to “automatically” send “Citywide” email broadcasts during an emergency). This functionality was not available to the PIOs during the activation, however, because the name of the PIO account had changed and this change had not been manually propagated throughout the system. We need to develop a “trigger” to ensure this doesn’t happen again.

RECOMMENDATION: DoIT has been asked to correct this (and DoIT has asked the EOC to avoid renaming the ESFs’ group EOC email accounts). As a work around until that’s done, the EOC PIO email account can now proxy into the Mayors Office email account and use that to send emergency messages.

OBSERVATION: This activation gave the COS.net Web Team an excellent opportunity to create an earthquake portal page with links to a variety of earthquake-related information.

RECOMMENDATION: These pages should be archived so they can be used again during future activations, as well as to document the information provided during various stages of the event. During future activations, COS.net Web Team members should work to develop a portal page as soon as possible to help organize the emergency-related information being presented and remove clutter from the main COS.net page. The COS.net Web Team should archive all “emergency-response-related” pages it creates and maintains for all events. The COS.net Web Team should direct all departments creating similar web pages to have their respective web

teams archive those pages (this was done a few days after the fact during this event). By archiving these web pages, we avoid having to reinvent the wheel next time around and have a record of what was posted when. The portal page (and COS.net home page when appropriate) should include a very visible date showing when it was updated and a statement reminding people to refresh their browsers often. (Admittedly this is only technically useful for people with browsers that do not cache or automatically refresh pages. However, it would also serve to remind people that the information on the City web pages is dynamic and changes to reflect the most recent information available). To expedite the ramp-up for future emergencies, the COS.net Web Team should develop a generic "shadow" site with templates, and store it on several City servers.

OBSERVATION: The COS.net Web Team work station at the EOC is not fully equipped to post graphical materials, such as maps, on the Web.

RECOMMENDATION: The COS.net Web Team should work with the GIS team that reports to the EOC to determine GIS' capacity to provide such support. The goal is to be able to create web-friendly maps on the fly, which would be useful for citizens and media when graphic news representations are needed during an emergency situation.

OBSERVATION: The other ESFs reporting to the EOC failed to make use of the EOC's group e-mail accounts. As the PIOs send regular updates, media coverage summaries, etc. to these EOC group email accounts during an activation, it would be useful if the other ESFs accessed these accounts.

RECOMMENDATION: The EOC's tech support staff should work with staff from DoIT and representatives of each ESF to address this issue.

OBSERVATION: The Internet provided an excellent way to communicate with employees in the days following the earthquake, especially those that were not at work because the Dexter Horton Building was closed. An employee information page was established to provide specific information for various departments' employees. The COS.net group email account, city.highlights@ci.seattle.wa.us, was published on the employee info page maintained by the COS.net Web Team to give departments an easy avenue for updating this information. Employees also sent requests for information to this email account, which were answered by the team when possible or forwarded to the appropriate party for response.

RECOMMENDATION: Develop and maintain an employee information page during future EOC activations as appropriate. ESF-5 should work with City Personnel to explore the option of creating a Citywide email account to which employees could send questions during an activation (rather than have them go to the COS.net Web Team). City Personnel would be responsible for responding to the questions, which would be more efficient than having the COS.net Web Team responding or forwarding the questions on.

OBSERVATION: Some departments were better than others when it came to providing the COS.net Web Team with information for their employees for posting on the Web. In fact, the COS.net Web Team had to seek out this information in many instances.

RECOMMENDATION: City government must attend to the information needs of its own employees during a disaster. City Personnel should take a leadership role Citywide to make it the responsibility of each department's Human Resources Unit to provide the COS.net team, via city.highlights@ci.seattle.wa.us, with information to post for their employees. The successful implementation of this recommendation should be presented to the City's Disaster Management Committee, at the earliest possible date.

OBSERVATION: While many departments have an information line in place where employees can call for instructions in the event of an emergency, there is no central number all City

employees can call. During this activation, the Fleets and Facilities Department set up a phone line to provide employees with information regarding the Dexter Horton Building status (615-0099). While this was regularly updated through the time the building reopened and employees were directed to the City's web site for additional detailed information regarding departments housed in that building, there was no central number for employees outside the Dexter Horton Building to call.

RECOMMENDATION: Create a central employee information line for use Citywide in the event of an emergency. Arrangements have been made to retain the 615-0099 phone number for this purpose. The plan is to use it as the "City of Seattle Employee Information Line" — a special voice mailbox for keeping City of Seattle employees informed and up to date in the event of an emergency. In the event of an actual emergency, employees would call this number to hear recorded general information and instructions. Additional functionality would include creating a phone tree, with general information at the top level and department-specific information on the various branches. City Personnel is taking the lead on working with departments' Human Resources units to both set up protocols for using this line and ensuring the appropriate information is centrally posted on the City's web site.

Note: While the PIOs' emergency plans call for a writer at the EOC to be available to craft messages to employees, we need someone to do the research and coordination necessary to create the messages. It seems logical for City Personnel, which is part of ESF-7 – Logistics — to coordinate the collection of this information via the human resources units of each department. Representatives from City Personnel can work with the EOC PIOs, for example, if necessary to craft the final script for the phone line. Someone from Logistics Operations Center (in the Network Control Center) should record the info and keep the line up to date. This information should also be posted on an employee information page on COS.net. Again, City Personnel should ensure the PIO Supervisor has a copy of the final script so that she/he can ensure the information contained in the script is posted on COS.net. In addition, City Personnel should work with each department's HR unit and director's office to collect specific information regarding actions each department's employees should take regarding reporting to work, etc. This info should be posted on the web by sending it directly to the COS.net Web Team via city.highlights@ci.seattle.wa.us. If we were unable to provide department-specific information on the info line, employees calling the info line would be directed to check the web for details regarding their specific department.

OBSERVATION: The emergency public information plan calls for up to four writers, who are responsible for writing various types of documents, such as news releases, speaking points, message line scripts, employee communications, etc.

RECOMMENDATION: The activation validated this procedure.

OBSERVATION: The best things about the PIO response were the regular media briefings at the EOC and the comprehensive speaking points and recap news releases PIOs pulled together at the EOC.

RECOMMENDATION: ESF-5 will follow-up by incorporating these ongoing procedures into its operations.

OBSERVATION: At the briefings, the Mayor, and others (SeaTran, School Supt. Olchefske, LuAn Johnson and Fire and Police representatives) were able to provide specific information, and update that information on a regular basis. The Mayor and others kept the message focused on the crisis at hand — the latest information on the earthquake and its aftermath. This is important because citizens tuning in to learn of the status of the City following the earthquake were in need of a clear single-subject focus. In this event, the City spoke in a coordinated manner and with one clear voice regarding the steps the local government was taking to deal with the event. It was enormously helpful for the City's public information team, including the Mayor, to be located

together at the EOC to assure that consistent, accurate information was provided on a regular basis.

RECOMMENDATION: ESF-5 demonstrated that when all public information is coordinated in one place, the quality of information provided to citizens is quite high. Further, the media always knew where to acquire official information, and was therefore able to keep the public updated as well, from their perspective.

OBSERVATION: The recap news releases were able to provide the same information from the briefings, and sometimes update the information between briefings. This information was sent to all media outlets, which ensured those not at the EOC Briefings had the latest information. This information was also posted on the City's web site.

RECOMMENDATION: ESF-5 will follow-up by incorporating these ongoing procedures into its operations.

OBSERVATION: Food was LONG in coming (as activation corresponded to the start of the lunch hour, this was especially unfortunate). Also, in the beginning it was difficult to even get away to get a beverage of any sort.

RECOMMENDATION: Have a stash of energy bars and other nonperishable snacks and bottled water available in the EOC year-round in various marked, easily accessible areas. Have contingency plans in place to feed those at the EOC within the first couple of hours of activation, realizing this may happen during off-hours or weekends when local food services are not available.

OBSERVATION: The PIO team at the EOC was scaled too far back the evening of the earthquake. (what if there had been serious aftershocks?). While some PIOs had specific recovery duties better performed from their own locations (e.g., DCLU, Fleets and Facilities), those without such pressing responsibilities should have remained at the EOC to coordinate communications regarding recovery efforts until all media activity had been fully transferred back to City departments. It was too great a burden for one person to perform. That group could have also ensured the web pages continued to be centrally managed and updated.

RECOMMENDATION: Once the responsibility for messages again became a department responsibility, the Mayor's Communications Director reasoned there was no need to have PIOs centrally located at the EOC because she no longer needed to approve all messages. The Communications Director now recognizes the City's recovery effort would have benefited from continued PIO support at the EOC and will take steps to ensure this takes place during future EOC activations.

OBSERVATION: It was initially difficult to ensure the upper-level web pages related to the event were maintained once public information was no longer centrally distributed from the EOC. (Normally, the ESD Webteam posts news releases to the database and "City Highlights" controls the home page, though this is not necessarily easy for people to remember during an emergency). Following the EOC PIO team's "deactivation," the DoIT PIO coordinated this with a single member City web team (to avoid the possibility of having one web author overwrite another's work). The only problem came near the end of the workday on March 1 and 2, when the web author's workload backed up and it took longer than he would have liked to post everything.

RECOMMENDATION: Procedures for maintaining upper level web pages need to be developed for future deactivations so that they are followed regardless of the availability of specific personnel. For the time being, all City PIOs and/or their department web teams need to do two things following the deactivation of the EOC:

1. Send the ESD Webteam (esd.webteam@ci.seattle.wa.us) copies of all news releases relating to the emergency so they can be posted in the news release database. The ESD Webteam in turn will ask the COS.net Web Team to link to these releases from the event's portal page as they are added to the news release database.
2. Send the COS.net Web Team (city.highlights@ci.seattle.wa.us) links to all emergency-related information being posted on department web pages.

In the long run, it may be worth creating an email group for emergency response that includes all members of both the ESD Webteam and City Highlights email groups. This address should be posted on the appropriate pages on COS.net and InWeb.

Regardless of the protocols established, the COS.net Web Team needs to put procedures in place that allow for sharing the workload while minimizing the danger of one Web author overwriting another's work.

OBSERVATION: One of the more interesting complications in trying to manage the Web during the earthquake aftermath was the simple fact that the COS.net Web Team was barred from its office because the Dexter Horton Building was closed. While this should be rendered 99.999 percent moot with the move to the Key Tower, the team should develop a contingency plan just in case it's forced to work remotely during an emergency.

RECOMMENDATION: Everyone on the EOC COS.net Web Team call-out list should be supplied with a consistent set of tools for their home computers, including:

- Dial-in access to the City's data backbone
- Homesite, FP2000
- FTP
- Internet Explorer
- Others (PhotoShop, ???) as required

And there should be an agreed-upon remote work site (most likely the EOC) with at least two, preferably more, fully functional workstations complete with the tools listed above.

OBSERVATION: PIO Team needs to be trained on the use of equipment – especially fax machines.

RECOMMENDATION: ESF-5 should include this as part of their ongoing training for PIOs.

OBSERVATION: Especially during the initial EOC activation period PIOs were running around all over the place – it was difficult and a drain on Emergency Management Administrative Specialist staff to find a PIO to pass calls onto.

RECOMMENDATION: Sufficient staffing of the PIO area and Media Line work stations need to be maintained at all times.

EMERGENCY SUPPORT FUNCTION - 6 (HUMAN SERVICES)

OBSERVATION: There were no assigned spaces for ESF-6 in the EOC, including no assigned phones and phone numbers, no assigned computers and ports. Messages had to be relayed from the main reception. It was several hours before ESF-6 representatives could be set up with a computer. There was no space to maintain informational resources that could be readily accessed during an actual event.

RECOMMENDATION: Provide an assigned work area, phones, and computers for ESF-6. The best location would be near to ESF-8, since there is a need for close coordination with the Public Health Department.

OBSERVATION: There were considerable difficulties in establishing phone connections with Red Cross and with other Human Services staff and organizations.

RECOMMENDATION: While working with Emergency Management staff in setting up new and permanent workspace for ESF-6 in the EOC, this should include ready access to all necessary hot/ring down line and radio communications to support ESF-6. Once this is done, the ESF-6 Coordinator will arrange for ESF-6 representatives assigned to the EOC to receive an orientation from Emergency Management on the use of these communication systems.

OBSERVATION: The ESF-6 representatives from the School District played a critical role in maintaining a “back-channel” contact with the EOC that provided for the quick transmission of information back and forth. The issue of coordinating public information releases from the EOC with the School District turned out to be an important one. If an event occurs during the school day, the welfare of children in schools will be one of the major concerns of the public at large.

RECOMMENDATION: See above recommendation for setting up hot/ring down line and radio communications. Also, work with ESF-5 to ensure the release of public information by the School District and the City is coordinated when the School District is involved in a major incident and the EOC is activated.

OBSERVATION: The Parks Department Superintendent had to perform dual roles, responding to parks facility issues while at the same time assisting with the establishment of shelters. He responded quickly and effectively to the need to establish a shelter, but in the future, it would be better to have separate Parks Department liaisons for facility and shelter issues.

RECOMMENDATION: The Parks Department has already designated different primary leads for facility and shelter issues. The Parks Department is also reviewing and updating its internal procedures for establishing a Parks Control Center when necessary to better manage these issues.

OBSERVATION: There was difficulty in getting consistent information about the needs of displaced residents or whether they had any special medical needs, e.g., we received conflicting reports as to whether some of the buildings with elderly residents were “red-tagged” or not. There was also difficulty in communicating with displaced residents about their need for and/or availability of shelter leading to confusion about transportation arrangements.

RECOMMENDATION: Work with Emergency Management staff and ESF-3 to receive training on how to quickly access information on the status of damaged building inspections, especially for those buildings that may be housing elderly and other vulnerable persons.

OBSERVATION: The displacement of large numbers of homeless persons put a strain on the existing system of homeless services. Many of these individuals would not be easily accommodated in a Red Cross shelter where there are limited resources to manage persons with

special needs. In the case of this event, we were fortunate because other homeless shelters agreed to take in additional persons to meet the need.

RECOMMENDATION: The Human Services Department will note the need for contingency funds for sheltering displaced homeless persons in its budget request for the 2003-2004 biennium. ESF-6 will also work with homeless service providers on how to add capacity when needed. Once these issues are resolved, the ESF-6 Annex (Mass Care Appendix) will be amended to reflect the procedural guidance on how this new capacity to care for the homeless and those with special needs will be administered.

OBSERVATION: There were no resources available to meet the special medical needs of any persons who may have been transported to the shelter that was set up at the Garfield Community Center. Fortunately, no need for medical support or care arose in connection with this shelter.

RECOMMENDATION: ESF-6 is currently working with ESF-8 and the Red Cross to establish a plan and protocol for managing persons with special medical needs transported to Red Cross shelters. This planning includes exploring options for designating a specific shelter just for persons with special medical needs. Once finalized, these new protocols will be added to the existing ESF-6 Appendix for Mass Care.

OBSERVATION: Arranging transportation for the persons who needed shelter was problematic. A bus was dispatched several times to one location, but the persons refused to go.

RECOMMENDATION: ESF-6 will work with ESF-7 to explore some other options.

OBSERVATION: There weren't any pre-developed information pieces for press releases on where people could turn to if they had social and health needs – using 911 is not a good option for non-emergent needs.

RECOMMENDATION: ESF-6 will work with the Human Services Department Public Information Officer to develop information, which should be maintained by ESF-5.

OBSERVATION: There was no coordination with King County regarding their shelter needs. The Red Cross had to work separately with multiple EOCs. Because they only had enough staff to send to one EOC, they sent their staff person to the King County EOC assuming that necessary information regarding shelter needs would be shared between the two EOCs. No such sharing of information occurred.

RECOMMENDATION: Seattle Emergency Management should work with King County Emergency Management to remedy this coordination breakdown.

OBSERVATION: We are maintaining an increasingly larger number of persons with special medical and support needs in community settings. The lack of communications ability made it difficult to immediately check on the welfare of all these people.

RECOMMENDATION: The Human Services Department "Aging and Disability Services" Division, which provides case management services to frail elderly and disabled adults, has developed procedures for follow up with persons on their caseloads who need to be checked on soon after a disaster event.

EMERGENCY SUPPORT FUNCTION - 7 (LOGISTICS)

OBSERVATION: In the EOC, it is recommended that the work area for the Logistics team be modified to make it more effective. There is too little space, and communications are hampered by the current configuration. By having an unreliable work area, we can't even tell our operations center what phone numbers to call from one event to another. We also have too little area for responders to effectively work in. We also feel that DCLU would be more effective if they were located between the Public Utilities/SeaTran and the Logistics Groups. DCLU has a need (particularly in an earthquake) to talk frequently to both these groups about damage to buildings and road infrastructure and communication is hampered by the current configuration. It would also be helpful to have different phone rings for different functional groups in the EOC as we have a hard time telling whose phones are ringing when they all have the same ring.

Short Term RECOMMENDATION: Assign two work stations to the Logistics Group in the same area we are currently located in. This would be in addition to the DOIT workstation across from Logistics. We would like the phone numbers 233-3838 and 233-3791 permanently assigned to Logistics as we have these numbers identified in all our internal plans as being the way to contact Logistics during an emergency. We also would like two of the permanent work station computers installed and dedicated for Logistics use. We have one laptop there now and have to bring another one with us which other groups don't have to do. We also do not want a big radio installed in our area as we don't really need it, and it takes up all the desk space we need to work on. If we need to revert to radios, we'll use portables. We recommend that DCLU be moved to the right of our work area and be integrated into the Public Works Group as the City's Disaster Readiness and Response Plan calls for. This would give us ready access to them also to discuss the status of building damage that is critical in events like earthquakes. We recommend that the phone rings for the Logistics Group be different than the ones for Public Works that DoIT tells us is doable.

Note: All of these changes were made for the Asia Pacific Mayors Summit activation.

The Logistics Coordinator, in future events, would probably have a Facilities person in the EOC although normally, they operate out of the Logistics Operations Center. For most events, this makes sense, but for earthquakes, it's important for there to be a strong link between the Facilities Group and DCLU to discuss City building damage.

Long Term RECOMMENDATION: All the above recommendations would still apply, but we recommend that the DMC and elected officials seriously consider building a new EOC facility somewhere that is of adequate size and proper layout so that communication in the facility is enhanced. The current facility is too small, too cramped, and laid out in such a way that communication is very poor due to pillars in the way, poor acoustics, etc. While we get by in the current facility, in a major event such as a more intense earthquake, responders will be hampered by the current facility. The current facility could become a backup facility that we currently don't have and/or a training facility.

OBSERVATION: There is a misperception by some EOC responders that Logistics is a gofer for everyone else at the EOC. In this event and others, ESF-7 was approached to get meals, and other types of things that distracted from dealing with assigned EOC responsibilities, such as coordinating with other agencies, getting critical resources for other City departments, e.g., equipment, materials, etc. The Logistics Group is not staffed to take care of EOC support like this and it compromises ESF-7's effectiveness to be tasked with this responsibility or perceived responsibility. This problem has occurred in numerous responses to the EOC, including this one. As an example, the first day, no one was getting food or water delivered in a timely manner, and the ESF-7 Coordinator had a number of people in his face about it when he was trying to check

the status of damaged buildings and shops, check on the status of equipment, railroads, public transit, etc.

RECOMMENDATION: The City's Disaster Readiness and Response Plan in Annex A (see page A-22) assigns the responsibility for feeding EOC responders to Emergency Management. This observation points up the need to ensure housekeeping functions are made a standard part of the training that is delivered to EOC responders. It also needs to be stressed during this training that there may be some delay in getting food to the EOC because of other requirements that exist in the Seattle Police Department (SPD). Delays may also be caused by the SPD Quartermaster having to acquire food from vendors who may be affected by damage to their facilities, loss of power, etc.

To offset possible delays, things like water should be stored in the facility so no one has to go get water if water supplies are interrupted. Even some non-perishable food can be located there. With the Quartermaster function in SPD, Emergency Management has the resources necessary to make sure food can be procured and delivered to EOC responders in a reasonably timely manner. If it's clear to EOC responders that the responsibility to support responders lies with Emergency Management, the types of frustration and miscues during the first day of this event can be avoided in the future.

OBSERVATION: There seems to be some confusion between what SPD Logistics is doing and what ESF-7 is doing. This has occurred in previous events, such as WTO and other events where SPD has the lead. It would be helpful to clarify the roles that each group has so there aren't duplications or gaps. As an example, there were problems with getting barricades delivered to certain areas to help with street closures, and SPD wasn't sure if they were supposed to be interacting with Logistics or Public Works on this issue.

RECOMMENDATION: We believe it would be helpful for there to be some discussion between these two functional groups to clarify logistics roles so they conform to guidance in the City's Disaster Plan. Specifics should be addressed in both the ESF-2 and 7 Annexes.

OBSERVATION: SeaTran needs to develop a control center that can manage the field operations for the department. Currently, they have a dispatcher at Charles St. who has neither the experience, level of authority, nor knowledge to be handling all the issues that arise in an earthquake. Communication with the Public Works Group would be much more effective if SeaTran sets up a fully functioning control center. We also believe that the Public Works Group needs more personnel assigned to their group during an event like an earthquake. There was often only one person there -- that is inadequate.

RECOMMENDATION: SeaTran develop a control center at Charles Street staffed by high level managers or supervisors to gather information on streets, bridges, traffic signals, etc., that can be summarized and sent to the Public Works Group in the EOC. The transportation network is the backbone of any response the City has to make in an earthquake, and it's critical that the information about that network be quickly ascertained and passed onto Public Works staff in the EOC. In discussions with the head of the Public Works Group, since the earthquake, he said he agrees with this recommendation and has long been pushing it within the department. We also recommend that there always be a SeaTran representative and at least one representative from each of the utilities in the EOC during an event like an earthquake. We were frequently having to answer their phones when the one person was called away. Having the DCLU person in this group will also help with this problem.

OBSERVATION: The Fleets shop personnel were not familiar with what they should do when the earthquake hit, and consequently a number of people didn't respond in a way that was in their best interest, e.g., running out of the building while the building was still shaking. People didn't know what do during the shaking and what to do when it stopped. Fortunately, only one employee was hurt by a falling light, but had the chimney stack at Charles Street fallen, which it

came close to doing, some of the people running out of the building might have been injured or worse.

RECOMMENDATION: Fleets develop an earthquake emergency plan for the shops, train the employees in how to properly respond during an earthquake and have regular drills to practice how to respond properly.

OBSERVATION: The Logistics Operations Center in the Foster Marshall Bldg worked effectively although there were some problems with the staffing of this facility initially. Facility managers did a good job of filling the void, but Logistics leaders need to be sure that the staffing issue is more clearly defined ahead of time in future events. The Logistics Group also needs a new control center since the City' lease for the Foster Marshall Bldg will not be renewed. There was also a concern from the Logistics Operations Center about a lack of feedback from the EOC concerning what was going on generally with the emergency.

RECOMMENDATION: With the breakup of ESD, there were some gaps left in the management of the Logistics Operations Center. Fortunately, Facility managers stepped in and did a good job of providing the necessary leadership, but people now need to be identified to run and direct this center in the future, including identifying who will direct and staff this facility, if necessary, on a 24 hour basis. The Departments of Finance, Fleets and Facilities, and Personnel are working on that effort now. The Logistics Operations Center has been moved to the 27th floor of Key Tower (although our longer-range plan is to have a ground level conference room in the new Civic Center when it's completed). Staffing for this facility needs to be clearly identified in the Logistics internal plan and call-out lists need to reflect who is expected to show up at this facility in future events. Having a Facility representative in the EOC in the future during earthquakes will help facilitate better communication between DCLU and others about what is going on with issues surrounding the response to the earthquake.

There are two main sources for feedback that are available to any control center. One is the department representative in the EOC and the other is COS.net. The methods used for two-way communications between the Logistics Operations Center and the EOC needs to be addressed in the ESF-7 Annex.

OBSERVATION: There was confusion by the Contracting Division about where their people were supposed to go during this type of event, and what they were supposed to do. Our internal plans call for them to help staff the Logistics Operations Center. Their primary mission is to help get necessary resources to support the emergency, yet none of the Contracting personnel showed up until after they were recalled from home.

RECOMMENDATION: The Contracting Division needs to update their Appendix to the Logistics Annex in the City plan as well as develop their own internal plan. Their staff is currently working on this effort. The plan should clearly state what Contracting people are supposed to do at their work stations in an earthquake, and who should report to the Logistics Operations Center among other things.

OBSERVATION: The Personnel Department was not clear on how permanent and temporary employees pay would be affected when they could not return to their regular work locations, such as the Dexter-Horton Bldg.

RECOMMENDATION: The Personnel Dept. should develop clear procedures on how employees' pay might be affected in this type of situation and clearly communicate that to all employees. As it turned out, there was some information about this subject on Personnel's website, but even some of the Personnel people didn't know of its existence nor have ready answers for how this might affect employees.

OBSERVATION: There seemed to be some lack of clarity about who deals with outside transportation resources, such as Metro, the ferry system, and railroads. The City's Disaster Readiness and Response Plan calls for transportation people in ESF-7 to do this, yet many people didn't realize this. The result was some miscommunications in dealing with these entities.

RECOMMENDATION: The City's Disaster Plan should clarify whose role it is to communicate with outside transportation sources to ascertain their operational status as well as coordinate transportation needs. We feel like the Transportation Group in Logistics should be doing this, and the Disaster Plan should reflect that. This responsibility should be spelled out in the ESF-7 Annex and in the ESF-9 Annex in the section that deals with damage assessment.

OBSERVATION: There seemed to be a lot of confusion in one incident when some citizens needed to be transported from their apartments to a Community Center. Human Services was asking us to work this issue which was proper, but there were problems with the buses showing up and the citizens refusing to leave. This happened twice and when asked to do this a third time, Metro refused to send the buses again which was understandable. The Law Department advised us that citizens couldn't be forced to leave their residences in these types of circumstances, so there was no point sending the transportation unless it was clear that people wanted to be transported.

RECOMMENDATION: We believe the City's Disaster Plan in both the Annexes for ESF-6 and 7 should be updated to reflect how this type of situation ought to be handled because it has come up before in other events also, such as mudslides and flooding situations.

OBSERVATION: Emergency generators served us pretty well. The three at our main facilities (Haller Lake, Charles St. and the Fire Garage all worked flawlessly). However, City Light has no back up power at SSC although they had some large standby generators. But when they went to try to hook one up, they had to hardwire it into the building which took three hours and they hadn't brought the thing in for maintenance for so long, the unit wouldn't start without repairs. All this kept the shop from having power for over 3 hours, which could have been critical time lost in a more intense event.

RECOMMENDATION: SCL should consider wiring in a permanent generator for this facility. If they can't do that, we would request they put in a transfer switch to facilitate easy hookup of a generator in an emergency like this. Also, the generators should get regular maintenance so they can be relied on during emergencies.

OBSERVATION: Contracting Services Division (CSD) had an operations plan for emergency response that was developed in 1995, known as Annex C (now known as ESF-7). In preparation for the Weapons of Mass Destruction exercise, CSD developed additional procedures, in addition to Annex C, for providing resource support services at the Logistics Operations Center (LOC). However, because of operational and organizational changes, CSD failed to routinely update and review procedures with critical personnel. Despite having an operations plan for emergency response, the ESF-7 responders representing the CSD failed to report to the LOC immediately following the incident. One buyer was called and did report to the LOC during the incident. Two additional buyers were available via remote access (similar to our participation during WTO). The CSD Director did assume a leadership role in directing some staff, but otherwise our actions failed to match the established plan for our response.

RECOMMENDATION: CSD is updating the ESF-7 Resource Support Appendix and all procedures associated with CSD's response for minor emergencies and for emergencies requiring reporting to the LOC.

- The ESF-7 Resource Support document (formerly known as Annex C) is being updated to ensure that it is compatible with the City's Basic Plan and is a functional description of CSD's emergency response roles and responsibilities.

- CSD's operational procedures for participation at the LOC are being updated. A detailed flow chart of our process will be incorporated into ESF-7.
- The CSD emergency responders list is being updated and expanded to include a list of alternate responders and designated "coordinators" for our role at the LOC.
- CSD is designing a plan for regular training and review of our procedures.
- We will be adding a link to the CSD InWeb home page for "Emergency Contracting". This link will take users to the ESF-7 Resource Support document and all procedures related to emergency contracting, i.e., emergency purchase contracts, emergency consultant contracting etc.

OBSERVATION: There was confusion within the CSD regarding procedures for evacuation, communication and general preparedness.

RECOMMENDATION: CSD has not had an emergency response plan with instructions for internal staff actions and preparedness. As part of our review of the ESF-7 Annex, we will be preparing a comprehensive emergency response plan that addresses internal operations and CSD staff response to the LOC. Items that we are working on:

- We have designated a new emergency gathering place for all division staff during business hours, and will finalize new procedures for checking-in and accounting for all staff.
- We have prepared a new internal emergency contact list for all staff and made it available to all members of the CSD Management Team. We are also writing new instructions for how information will be communicated to employees during an emergency.
- We have designated lead CSD staff to coordinate division-wide emergency response and safety efforts at all levels, including clarifying the responsibilities of the Safety Committee representative and the Floor Wardens.
- We will be developing a one-page fact sheet flyer for CSD employees that will provide them with consolidated information on emergency response procedures.
- CSD will have a schedule for regularly reviewing and updating its internal emergency plan. Activities will include regular safety/emergency communication with staff.

OBSERVATION: The "Emergency Procedures" publication (prepared by ESD) posted on our bulletin boards, needs to be updated.

RECOMMENDATION: In addition to posting this information on department bulletin boards, consider making it available on the InWeb. Consider developing a general emergency procedures or information pamphlet that can be distributed to new employees.

OBSERVATION: There was a lack of consistent and correct information dealing with employees reporting to work and compensation issues citywide.

RECOMMENDATION: That the Personnel Department be responsible for the collection, coordination and communication of information from **all** City departments dealing with employee reporting to work and compensation issues. The approved communication will be made available to ESF-5 and City departments for dissemination. The recommended actions should be added to the Personnel Department's responsibilities under the City's Disaster Readiness and Response Plan.

OBSERVATION: The term "essential personnel" is not defined, identified and communicated to all city employees resulting in confusion.

RECOMMENDATION: All City departments should define, identify, and communicate to all their employees who are considered "essential personnel". This is called for in the City's Disaster

Readiness and Response Plan on page 52, which requires all departments to “Ensure essential primary and backup personnel are identified and that emergency call-out lists and procedures are kept current”.

OBSERVATION: Exemption to the compensation rules contained in the City’s Human Resources Policy Manual dealing with employee unable to or told not to report to work after an emergency were not coordinated or approved by the Personnel Department. As result some employees were given incorrect information about their pay status.

RECOMMENDATION: The Mayor should require all City departments to get the approval from the Personnel Director for any statement regarding compensation prior to communication to employees so that the information is consistent with labor agreements and Citywide policy.

OBSERVATION: There was a general lack of knowledge among City employees about where and how to obtain information about the different methods they could use to check status of their department after the earthquake.

RECOMMENDATION: A generic business size card should be developed and distributed to departments to modify, print and distribute to their employees that would include phone numbers, web-site addresses and radio/TV stations where information will be available. (See related recommendation under ESF-5).

OBSERVATION: The Facilities Support Appendix (to the Logistics Annex of the City Disaster Readiness and Response Plan) directs the Facilities Operations Division of the Fleets and Facilities Department to coordinate with the DCLU Operations Center regarding structural inspections of City owned and leased buildings. This coordination did not occur. Instead, DCLU apparently performed its responsibilities under ESF 3 (Public Works Annex) on its own. The City’s Disaster Plan directs DCLU to: “determine the structural stability of critical government facilities; arrange for structural inspections of damaged buildings and residences to additionally include elevators and fire protection systems; identify and mark buildings that are unsafe for occupancy; establish the periods “yellow tagged” structures can be temporarily reentered and give timely notice to all property owners and ESF Coordinators.” Neither the DCLU Operations Center nor the DCLU representative in the EOC provided direction to Facilities regarding building inspection.

About twenty Facilities staff had already completed ATC 20 training to survey and assess structural damage in earthquake situations and determine usability of City facilities. But these individuals were largely underutilized in response to the Nisqually quake and inspected only buildings owned by the Fleets and Facilities Department. And the sites they inspected were re-inspected by DCLU.

Short-term RECOMMENDATION: The DCLU and Facilities Operations should enhance the Public Works ESF 3 Annex by adding responsibilities and high level operating procedures for coordinating site inspections. New procedures could split the site inspection workload and enable DCLU to focus on the more critical buildings, such as hospitals and police stations, by assigning Facilities inspectors to the less critical sites.

Information about the status of DCLU inspections and in particular the status of DCLU inspections performed on City owned or leased facilities should be passed from the DCLU representative in the EOC to the ESF-7 Coordinator, so it can be relayed to the Logistics Operations Center.

Longer-term RECOMMENDATION: The Fleets and Facilities Department will pursue an agreement with DCLU in which ACT-20 trained Facilities Division inspectors could be used to inspect non-City buildings, once the most critical City managed facilities have been inspected. Specifically, Facilities Division staff would be used to triage critical facilities that may need a DCLU structural expert to formally yellow- or red-tag a building. In a more intense event than this

one, these added resources might be critical in enabling DCLU in completing their rapid inspection mission.

OBSERVATION: Floor wardens and employees had not been trained in correct earthquake response procedures and equated the earthquake response to a fire response. Employees should have stayed in their buildings after the earthquake, but instead evacuated to the street. Countless employees assembled outdoors and could have been injured or killed by falling debris if the event had been more severe. Given the number of office buildings in the downtown core, most outdoor assembly areas are hazardous in earthquake situations.

Short-term RECOMMENDATION: Subsequent to the Nisqually quake, Facilities Operations designed a new Incident Command Structure to improve safety of building occupants during and immediately after the onset of an earthquake during business hours.

Longer-term RECOMMENDATION: The next step is to select and train employees to serve on the command team and four other teams, including first aid, search and rescue, communications and damage assessment. Additional floor wardens are also needed.

OBSERVATION: Property management announcements were insufficient within buildings and inconsistent between buildings. The Alaska Building had no announcements. At Key Tower, Cushman Wakefield would not provide employee direction for fear of potential litigation.

Short-term RECOMMENDATION: Facilities Operations will implement the new Incident Command Structure at the Arctic, Alaska, Muni and Public Safety Buildings and Key Tower. For Key Tower, Cushman Wakefield has agreed to announce the earthquake response procedure in accordance with this new structure.

Longer-term RECOMMENDATION: The concern on this issue is whether building managers/incident commanders can be held liable if they make an announcement to evacuate (or not), and then someone subsequently becomes injured or worse. This was an issue for the Cushman Wakefield managers in Key Tower. We recommend that the Law Department make a finding on whether legislation should be introduced to the legislature to change the law to protect building managers/incident commanders from suit in this type of incident. There is this type of protection for floor wardens, but it is our understanding that there is no similar protection for building managers or incident commanders.

A related issue is the need for re-assembly areas near high rise buildings. If people are advised to leave the building, but there is nowhere for them to safely go: Can the property managers or incident commanders be held liable if people are told to go to these areas, and someone becomes injured? There is insufficient property in the downtown area for every building occupant to go to in this type of incident so it is physically impossible to have everyone go to the street level following an earthquake, nor is it advisable for them to do so in every situation. Many property owners have identified re-assembly areas in parking lots near their buildings which works fine in fire scenarios because usually only one facility would be on fire at a time. There isn't sufficient sidewalks or parking lot space to accommodate every employee from every facility affected by an earthquake. It should be researched as to what other jurisdictions have done about this problem, and whether keeping people in buildings as long as possible might not be a better approach than trying to use fire evacuation plans for re-assembly of employees.

OBSERVATION: The performance of the City's 800 MHz radio system was degraded after the quake. The system was unusable from 11:06 to 11:17 AM. Until about 3:00 PM, the system worked at maximum capacity (24 channels), and some lower-priority users had to wait 5 to 10 seconds before receiving a channel. There were 6,000 "busies" on the system – these are times when radio users would get a "honk" telling them to wait for an open channel. (On a normal day there are 4 or 5 "busies"). The average time a user waited for a permit-to-talk-tone ("tweedle dee") was 7 seconds, but the maximum time to wait was 12 seconds. The Seattle system had

115,000 radio calls that day, as opposed to 60,000 to 80,000 normally. However many radio system users (in Police, Fire, Public Utilities and Health) erroneously thought the system was “down” for several hours.

RECOMMENDATION: (1) Many radio system users need supplemental training. When the system is busy, it will give a user a busy tone (“honk”) when the user first keys the radio. As soon as the user has permission to use the system, the radio gives the permit-to-talk tone. As stated above, that permission interval amounted to an average delay of seven seconds after keying the radio. Most users did not recognize the permit-to-talk tone, and assumed the radio system was down. If, instead, they knew what the permit-to-talk tone was, they could have used the system immediately. This is a training issue. (2) The King County 800 MHz radio systems managers have a detailed plan to review the performance and configuration of the entire countywide system. The system vendor, Motorola, will be involved for technical support.

OBSERVATION: The City’s private telephone network of 10,500 telephone lines linking over 300 locations worked almost flawlessly during and after the quake, even though the public Qwest network and the cellular telephone networks were overloaded and barely usable for several hours. The City network has multiple redundant connections including a SONET loop. This design means even with multiple fiber optic cable breaks (should they occur in a future disaster), the system will continue to function. For a few minutes immediately after the quake it took 5 to 7 seconds to get a dial tone (after lifting the receiver) in some major buildings downtown because everyone was attempting to use the system. Also the telephone switch in the City Light South Service Center failed when power to the building was lost and battery backup to the telephone switch only lasted for a couple of hours.

RECOMMENDATION: DoIT has checked and repaired or replaced battery backups for most of the City’s 24 telephone switches. The rest will be completed as soon as possible.

OBSERVATION: The City’s data communications networks performed without problem. These networks link over 8,000 computers and provide two redundant connections to the Internet. This network, like the telephone and radio networks, has multiple fiber loops and layers of redundant design. The Internet itself and electronic mail worked during the quake and afterwards.

RECOMMENDATION: DoIT will continue to improve the reliability and redundancy of this network.

OBSERVATION: The DoIT computer center (a 24x7 facility) and the DoIT Technology and Telephone Help Desks (business day only staffing) continued to function as normal during and after the quake, despite heavy call volumes. Thanks to quick action by DoIT management, staffing for these functions continued despite the general order for City employees to leave the workplace and go home. The Telephone Help Desk was especially busy on the afternoon of the quake, helping City employees update voice-menus and voicemail greetings informing citizens of the status of City facilities such as community centers, branch libraries, and so forth.

RECOMMENDATION: The DoIT departmental disaster plan, and ESF-7 Annex and Communications Appendix to the City’s Disaster Plan, will be updated to reflect the need for continued (and perhaps 24 hour) staffing of all three of these functions.

OBSERVATION: City government electronic mail systems functioned throughout the quake and recovery period. The Groupwise Web server (used by employees to get e-mail via the Internet when they are not at work) failed the day after the quake due to heavy use.

RECOMMENDATION: DoIT has upgraded the Groupwise Web computer server, and must plan to make it even more powerful and add redundancy to it, so employees can get e-mail from alternative work locations or home after a major disaster.

OBSERVATION: Most of the City's computer servers continued to function after the quake, even though they are housed in buildings which are quite susceptible to disasters such as the Dexter Horton and Municipal Buildings. This performance is due to luck (the quake wasn't more serious) and the dedication of IT support staff in several departments.

RECOMMENDATION: (1) DoIT is presently constructing a consolidated server room and new data center in Key Tower. This facility needs to be finished, needs to have backup power, and all major City government computer servers and mainframe servers need to be moved into the facility to protect them during future disaster events. The facility will be finished in Fall, 2001. SPU (with DoIT's assistance) has already temporarily moved their departmental servers into Key Tower, co-locating them with King County's computer center until the City's consolidated server room is completed. (2) DoIT and each department which owns servers needs to develop disaster recovery plans for those servers and the IT applications which each server supports.

EMERGENCY SUPPORT FUNCTION - 8 (HEALTH, MEDICAL AND MORTUARY)

OBSERVATION: The Public Health EOC proved once again to be operationally inadequate for the following reasons. It is not a designated EOC facility; EOC activation is disruptive to Downtown Public Health daily functions; there are limited phone lines (3), and limited features on phones for conference calling, etc.; there is limited space – space is not well organized for the needed tasks; there are a limited number of computers – access problems; seismic stability of the facility in question.

RECOMMENDATION: Move Public Health EOC to another location. Explore relocation to another King County owned facility, perhaps in the new King County EOC facility to open Spring, 2002.

OBSERVATION: Space is limited in the Seattle EOC. Public Health needed a minimum of one more desk, two more chairs, one more computer, in order to have adequate resources. EOC reps need task checklists and updated phone numbers.

RECOMMENDATION: Coordinate with Seattle Emergency Management to improve conditions.

OBSERVATION: 800 MHz radios did not function for several hours. Appeared to be a system wide problem due to overload. Public Health also had problems with many dead batteries for portables.

RECOMMENDATION: Encourage 800 MHz system administrators to remedy system problems. Public Health should request higher prioritization in the tier structure. Public Health staff need more training in use of the radios, what to do when you receive a busy signal, etc.

OBSERVATION: The Hospital Bed Capacity web site was a valuable tool, but was not accessible at certain times. Seattle, King County and Public Health EOCs were all attempting to get info regarding number and types of injuries, patients admitted, etc. from Hospital Control, which did not have the information needed. Resulted in Public Health having to call Emergency Departments at each hospital. Hospitals could not appreciate the urgency and need for EOCs to have this information due to FEMA requirements for disaster declaration. The Media also desired this information. There was no back up staff for the WSHA/Hospital rep in the Public Health EOC for 2nd shift.

RECOMMENDATION: Enhance Hospital Bed Capacity web site to include information on hospital patient admits, types of injuries, etc. Public Health needs to advise hospitals as to the urgency and the need for EOCs to have this information. Need cross training for Public Health assigned senior managers in assuming role of hospital coordinator.

OBSERVATION: Several EOC reps from Public Health were delayed in responding to their EOC positions due to the lack of egress from the Wells Fargo Center.

RECOMMENDATION: Work with Wells Fargo Center building management to improve situation.

OBSERVATION: All of the Public Health reps are not on broadcast page. King County EOC uses broadcast page, Seattle and Public Health decide whom to call and page individually.

RECOMMENDATION: Add King County reps as needed. Discuss broadcast page with Seattle. Review ability to establish broadcast page for Public Health EOC representatives.

OBSERVATION: Public Health amateur radio operators were not utilized.

RECOMMENDATION: Need better policy and procedures for activation.

OBSERVATION: Email system was not used for communication as effectively as it could have been. Email was working fine. Email communication from KCEOC limited to one 1 PC at the Joint Information Center.

RECOMMENDATION: Recommend additional PC's and network at King County EOC.

OBSERVATION: Staff were unclear as to activation level of Public Health EOC and whether to respond or not. Public Health did not activate Employee Emergency Info Line soon enough.

RECOMMENDATION: Explore improvements in this area.

OBSERVATION: It was unclear how much outreach to non-public agencies is needed for preliminary damage assessment activities in the EOC during the days that followed the earthquake.

RECOMMENDATION: Work with Seattle and King County for direction on policy in this area.

OBSERVATION: Working conditions at King County EOC could use improvement. Limited workspace, limited phones, limited computers, noisy. Fax was slow.

RECOMMENDATION: Discuss improvement with King County, however, chances are little money will be spent on improvements in the short term due to moving into new facility in 2002.

OBSERVATION: Confirmation and release of death information was not coordinated through proper channels.

RECOMMENDATION: Medical Examiners Office to coordinate review of policy and education for others.

OBSERVATION: King County sent all non-essential employees home, however, we could have utilized those workers for phone calling and damage assessment activities.

RECOMMENDATION: Public Health needs to establish essential vs. non-essential employee lists and review policy for when to release them and who makes that decision.

OBSERVATION: There is a need for "special needs" shelters for citizens who are compromised and cannot be cared for in a regular shelter.

RECOMMENDATION: Human Services, Public Health and Red Cross have already met to do a joint review on this issue and will make recommendations.

EMERGENCY SUPPORT FUNCTION - 9 (LONG-TERM RECOVERY AND UNMET NEEDS)

Inter-departmental Coordination

OBSERVATION: This event caused much greater participation by other City agencies than in past disasters – specifically OED, Budget, OIR, Risk Management, and Office of Housing. This began the first days after the quake and has continued through present.

RECOMMENDATION: The City's Disaster Response and Readiness Plan, revised in 1999, describes a systematic recovery management system. The assignment for recovery planning and administration accrues to Emergency Support Function 9, or "Long-term Recovery and Unmet Needs".

OBSERVATION: Since the earthquake, two simultaneous recovery processes have been mounted at the direction of the Mayor. One, the Community Recovery Team, is comprised of influential community leaders and City technical experts and senior managers. This group will address significant public/private initiatives aimed at restoring the physical and social infrastructure of the community that was damaged by the earthquake. Implicit in these efforts is the identification of long-range problems that will require a multi-faceted approach by government and the private sector. A second effort reflects the internal City department recovery effort, as the City seeks the resources to repair physical damage to its buildings, and supports the recovery of vital community and personal resources of citizens. The Mayor appointed an Executive Department Director to lead both teams to assure that the recovery effort receives the highest priority, and to provide heightened visibility to issues that affect both the public and private sectors of the community.

The evidence is that those that have convened to address the Nisqually Quake recovery effort have functioned in much the manner envisioned by the City's Disaster Plan. That much of this occurred rapidly is a tribute to the dedication and professionalism of these individuals. However, the absence of a smoothly integrated ESF, and a detailed Recovery Annex, doubtless caused delays, repetitive actions and confusion in the initial allocation of resources and assignments. This Emergency Support Function has lagged far behind the other eight ESFs, perhaps in large part because the prior disasters have been of a scale that have not overwhelmed the capability of the Recovery and Mitigation unit in Emergency Management. This may partially account for the fact that this ESF has never convened a meeting nor has a training session been held to orient the members of that team (including the directors of CBO, OED, Finance, DoIT, OH, and others) to its responsibilities in the immediate and longer term aftermath of a major disaster. Disaster exercises have not specifically addressed the complexities of a recovery process. Still, individual department directors and senior personnel from those departments have been briefed on their responsibilities under the City's Disaster Response and Readiness Plan, and several have assisted Emergency Management on matters that arose in prior disasters. Many project and fiscal management staff have become familiar with FEMA procedures during prior disasters affecting Seattle.

RECOMMENDATION: The City should use this recovery process as a vehicle for completing its recovery plan, since it is evident that an earthquake as limited in scope as the Nisqually Quake was far more challenging than a subsequent event of similar intensity should ever be. As issues are confronted, and actions taken, and even indecision (an excellent teacher) occurs, this process should be thoroughly documented for lessons learned. The City must remember that a far more difficult set of circumstances may greet the next earthquake recovery effort, and every ounce of knowledge and procedural acumen should be realized from this one.

ASSOCIATED RECOMMENDATION: Nearer the official end of the City's Recovery efforts, a report to the City's Disaster Management Committee should be prepared detailing the accomplishments and work products of these two efforts, along with suggestions how such activities could be strengthened. These suggestions could be incorporated into the City's Recovery and Unmet Needs Annex that is being prepared under the direction of the City Budget Office, which has the lead responsibility for ESF 9.

OBSERVATION: It is a common occurrence for members of Congress and senior federal officials to tour a disaster area in the immediate aftermath of the event. Following the Nisqually Earthquake, that tour began on Thursday, March 1 – only one day after the earthquake occurred. Dignitary tours are complicated events under normal circumstances. Attention must be paid to providing the appropriate opportunity for elected officials to view damage, and to receive authoritative briefings concerning the extent of the damage, the estimated cost of repair, and the impact on the community. Where multiple damage sites are spread over a wide area, it is often difficult to identify the most significant or the most visually representative damage sites.

It is recognized that that these tours are important for both visitor and visited. Members of Congress need to understand the extent of the damage and the economic and social impacts so that their advocacy in Congress has the full force of their personal observations. Local officials have the responsibility to demonstrate the manner in which local resources have been fully allocated, in addition to conveying a specific list of unmet needs that are beyond the means of local and state government and deemed urgent. A critical part of this conversation is to ensure there is an unmistakable understanding of the nature of dire consequences that will result if the federal government does not provide the help requested, or cannot provide it in time to make a difference. The newly confirmed FEMA Director in this instance was interested in demonstrating his personal concern, and wanted to commit to both the local government officials and members of the Congressional delegation that his tenure would provide prompt and effective service in effecting the recovery.

From the Seattle perspective, the tour's outcome has, so far, been productive. Members of Congress and FEMA officials that toured a number of sites in several counties came away with an excellent overview of the damage in the region, and certain key sites have received attention as examples of the need for immediate federal attention to support the recovery effort.

From the perspective of the City's Director of Emergency Management, this outcome is somewhat providential, given the chaos that ensued during the brief period in which preparations for the tour were undertaken. The concerns are summarized as follows:

- The tour occurred much sooner than anticipated. The basic group arrived in Western Washington less than 24 hours after the quake.
- Information about the tour was sketchy -- it was known that they were coming, but since the tour would originate in the southern part of the State, no one could say for certain when the dignitaries would arrive in Seattle. Updates were forwarded from several sources, each proclaiming to be coordinating the event, and each providing information that seemed to throw previous input out the window.
- Events in Seattle were still related to responding to the earthquake, determining the extent of the damage, and also beginning to launch a recovery effort that was made more difficult by the inability (for a time) of some City fiscal staff to gain access to their offices. Most City staff, particularly Emergency Management staff, still were working on the disaster itself.
- A number of media briefings, internal EOC briefings, and issues that arose within the first full day (the same day as the tour) occupied the morning. When it became apparent that the tour did not have an assigned lead from the City of Seattle, the Director of Emergency

Management cobbled together several key sites for possible visit based upon the information provided by the City's key technical experts.

- Providing an escort for the tour required coordination with the Police Department, and drivers were provided by the Fire Department. The route plan included three possible sites. The tour's timetable slipped gradually throughout the day, leaving the Seattle segment to begin just before dusk, in the middle of afternoon drive time.
- As the tour proceeded, it was apparent that only one stop would be possible (the Magnolia Bridge, because it was receiving much media attention) while the remainder would consist of drive-bys along Alaska Way and First Avenue. No specific damage could be singled out, and without a specific stop (rain was falling as well) there was no one to present what the specific impacts were. While the visuals were good enough to illustrate that Seattle had incurred extensive damage, the tour itself could have been more informative and better organized.

RECOMMENDATION: This experience suggests that a different approach needs to be followed in the future. Improvisation may be necessary at times, but some pre-planning of the management of these very significant dignitary visits is necessary. Below are some recommendations:

- Someone from the City government that is not directly involved in the City's response and recovery effort should assume overall responsibility for coordinating tours. This person, probably a member of the Mayor's Office of Intergovernmental Relations (OIR) should also have exclusive access to a public information officer attached to ESF 5. The Coordinator should be attached to ESF-1, so that resources to support the tour and related briefings can be directed and assembled. The City's Director of OIR should assert some influence over the timing of the tour, and much better advance warning as to the number of persons accompanying the delegation needs to be available.
- The absence of radio contact between the small vans that were used added to the confusion: perhaps the rental of a bus or two that had PA capability would have been more accommodating. This may have allowed for better briefing and better selection of sites that the Mayor wished to show to his guests.
- It was unfortunate that tour route and content was selected by persons that had not been outside in daylight for more than 24-hours, and who had little specific knowledge of the type of visuals that the delegation would find most informative.
- Finally, in the future there should be a recognition that the delegation of dignitaries may visit at virtually any time, and a means of reception and touring them needs to be plotted out in advance. Even in the crush of press conferences, information demands, and event management, some resources must be spun off early on to engage these visitors in a way that meets their needs, and ultimately the City's.

OBSERVATION: Current City information systems do not effectively capture disaster damage incurred by private citizens and businesses. This information is necessary to 1) provide private damage estimates to FEMA in order to justify the Individual Assistance Program and 2) allow the City to analyze the full economic and social impact of a disaster event, and 3) conduct effective disaster assistance outreach to citizens, private businesses and non-profits.

The Emergency Resource Center (ERC), a SPU system originally designed to record citizen calls regarding utility failures, captured citizen reports both public and private damage following the earthquake. However, ERC is not designed to compile cost estimates. DCLU does compile damage estimates for their own purposes, but only for properties that are inspected. Moreover, DCLU entries do not distinguish between public and private damage. The information collected by these two systems overlap to some degree, but are not fully cross-referenced to avoid

duplication. Citizens were given telephone numbers for both ERC and DCLU for damage reporting, generating some confusion as to which number to call. In an unrelated effort, OED sent out a survey to local businesses in order to capture direct and indirect economic losses, but it was not cross-checked against ERC or DCLU data.

RECOMMENDATION:

- Explore technical and funding issues relating to improving the interface between ERC and DCLU data gathering. An improved system would capture damage estimates and locations by type of entity (e.g. public, private citizen, private business, non-profit, etc.) Citizens should have only one point of contact to report damage and request inspections.
- Examine options for improving the measurement of indirect losses (e.g. lost revenue) to the local business community. Options include formalizing OED's business survey and training local business associations to estimate losses among their constituencies.

Community Outreach

OBSERVATION: There is an Emergency Management axiom that "whatever you are prepared for will go well -- whatever has to be improvised will go less well". Because the appropriate mechanisms were not fully in place, Emergency Management and other City public contact staff were forced to improvise in a couple of critical tasks in the days following the earthquake. The first was the need to provide mental health issues awareness to those in the public and to City staff to the extent possible. The collateral responsibility was to ensure accessibility to the information provided regarding not only mental health issues, but also the provision of information to the City's many language communities. A forum was held at Seattle Center on Saturday, March 10 that provided mental health counseling services for citizens, information on federal and state earthquake assistance programs, and other community resources. In addition, information about ongoing City programs was also presented as part of the effort to prepare citizens for the next, and possibly more serious, such event. When Emergency Management jumped into the breach to organize this event, and also some collateral meetings involving City staff that had been deeply affected by their experience inside the Dexter Horton Building during the quake, it was clear that: a) there was limited ability to identify and draw upon City resources to reach out to the larger community to support forum objectives, and b) tying together mental health and language resources, if organized in advance with the appropriate protocols in place, could prove to be a significant boost to the psychological recovery of our community if a more serious quake were to occur. Similarly, when chimney damage emerged as a critical safety concern, three community forums located throughout the City were organized from scratch.

RECOMMENDATION: A template of community information needs following a major disaster should be written, in order to capture the knowledge gained from these largely successful efforts. The departments that stepped forward to assist with the arrangements should collaborate with Emergency Management and the City's Disaster Management Committee to assure that the appropriate annexes of City agencies are amended to include their participation. The Department of Neighborhoods, the Department of Human Services, and the Department of Design, Construction and Land Use all contributed resources under extreme time pressures to assure that these forums met their respective objectives. Not only should these efforts be commended, but they should also be incorporated into the City's template, and resources provided to assure that they will be able to contribute to future activities of this nature as needed.

The template and write-up can assist with on-going City mitigation activities to reach the public, especially in the different language communities, on what they can do before the next event. A collaborative effort can assist all departmental agendas. Mitigation and preparedness messages should accompany all other releases and messages sent out by City departments, taking advantage of the heightened awareness to educate the public. To the extent possible, such

messages should be prepared in advance, so that they can be issued to the public and the media during the initial 72 hours following a disaster.

OBSERVATION: The City was slow to understand and accept the need for mental health outreach to the community. This is understandable to some extent for this disaster because Seattle was not unduly impacted. However, the reticence to acknowledge mental health as a credible need and something that the City should be prepared to quickly provide undermined the efforts of City staff to provide this basic service to Seattle citizens and City employees.

RECOMMENDATION: EOC Health (ESF-8) personnel should prepare a basic structure for a Community Forum(s) that would specifically address mental health issues. This basic structure would include the players that should be prepared to conduct community debriefings in the first few days after the event to begin the process of mental health recovery. Key players would include mental health professionals trained in crisis counseling, preferably with a focus on disasters, foreign language interpreters, and Facilities Division staff prepared to help find facilities to hold these meetings. This basic structure would also include prepared press releases that specifically address mental health issues and concerns.

Additionally, specific care needs to be given to address City employees directly impacted by the disaster. Small group debriefs need to be conducted by trained professionals for as long as the need persists.

OBSERVATION: The City was unsuccessful in its attempt to obtain assistance from the State of Washington and FEMA to finance the costs of the mental health forums referenced above, largely due to the unwillingness of contract personnel of the State's Department of Social and Health Services.

RECOMMENDATION: Experience is a great teacher. In future, the City will already know the level of support for mental health outreach that is available, and will immediately initiate the steps to apply for the necessary funding support. This support must be requested promptly, as became apparent to City staff. In turn, it is recommended that the City discuss the incident with State officials to assure that the next time the State is a willing advocate for the provision of these services rather than serving as a deflector of legitimate claims on mental health services funds.

OBSERVATION: A week after the quake, Emergency Management implemented the Language Line for non-English callers to have access to an interpreter when calling Emergency Management, DCLU, and the Emergency Resource Center (ERC). This was completed within days after the quake and prior to the first community forum on March 10th so that this service could be advertised post-earthquake. One of the departments sent the Language Line materials to train their reception staff back to Emergency Management unopened, several months later.

RECOMMENDATION: Train departments that are providing a service and will have direct contact with the public. It may be found that more City departments should implement the same resource to assist in their interaction with the language communities. By setting up in advance, it makes the resource available when it will be most needed.

OBSERVATION: The City was much better prepared to inform citizens about State and Federal recovery assistance available to them following the earthquake as compared to previous disasters. Seattle Emergency Management and the State collaborated to produce a brochure called "Getting Help After A Disaster" designed to inform citizens and businesses about the types of disaster recovery assistance available and how to register. The brochures were available for immediate distribution; 35,000 brochures were delivered to Emergency Management in Seattle minutes before the quake occurred. This information piece was not only used locally by the City, but was also distributed by the State of Washington and FEMA throughout the State.

City department coordination on the distribution of brochures in the first few days following the earthquake was critical to making this a successful outreach to the community. A number of departments assisted Emergency Management with distribution, in some cases within hours of the earthquake, including the Department of Neighborhoods (Neighborhood Service Centers and Citizen Service Bureau), OED, Parks Department, Fire, DCLU and Libraries. Thousands of brochures were distributed to citizens and businesses.

RECOMMENDATION:

- Periodically update “Getting Help After A Disaster” and keep sufficient numbers on hand in case of emergency. Determine what other media pieces would be useful for recovery outreach.
- Formalize interdepartmental coordination of recovery information outreach to citizens and businesses following a disaster.

OBSERVATION: At the Mayor’s request, the City’s Department of Design, Construction and Land Use (DCLU) provided free damage inspections of private property following the earthquake. There was great demand for this critical service, placing a strain on DCLU staff resources.

RECOMMENDATION: Explore options for funding free inspections as a matter of policy following major disasters.

Public Information & Media

OBSERVATION: Elsewhere in this report, it has been noted that the decision to terminate or at least scale back EOC operations so quickly (within 24-hours) had several drawbacks. Among the more acute problems lay with the decision to cease the functioning of the public information unit. A more subtle and difficult problem arose because of the withdrawal of public information support from Emergency Management staff in the EOC. It has also been noted in this report that media calls continued unabated for many days. In addition to posing problems responding to inquiries, the absence of public information support for Emergency Management in the EOC impeded issuance of proactive messages to the public.

Initially, Emergency Management was “loaned” an experienced public information staff person who was able to provide some initial support in crafting media messages, as well as handling some of the volume of incoming calls. Unfortunately, Emergency Management was not the only critical function in need of immediate and dedicated public information support. As might be expected when only one resource is made available, the Emergency Management’s “temporary/loaned” public information officer was soon absorbed into the entity that became known as the citywide recovery effort organized by the Mayor. This effort had its own requirements, and Emergency Management was forced to try to acquire other resources via contract support (not readily available). Without questioning the need for others to have access to highly qualified professional support, it is fair to state that Emergency Management did not receive the support that it required when it asked for it.

An additional piece was added to increase media calls when the new Bush administration announced a proposed budget cut to “Project Impact” on the same day as the earthquake. As Seattle was one of the pilot “Project Impact” communities, we were instantly bombarded with national print and news media calls with questions and request for interviews. The announcement also brought the increase of requests and questions from our various legislative representatives. All of these callers and requests had to be addressed expeditiously.

RECOMMENDATION: A few corrective measures need to be acknowledged.

- First, it has been clear, in other disasters as well as in this event, that the City's need to maintain a consistent message to the public does not abate once the immediate crisis is over. The "last staff out" of the EOC besides Emergency Management, should be the public information team.
- The expressed desire of department heads to retrieve their public information resources should be weighed against the public interest requirements of the event. It would seem that public information to citizens following a Presidential Disaster Declaration might compete favorably against normal department business preferences. In any case, that is a decision that should be made in concert with other emergency support functions present in the EOC, and should be affirmed by the EOC Director and the Mayor in the future. Stand-down decisions and the phases of stand-down should be part of a deliberative decision-making process.
- Consideration must be given to the need for a full-time assignment of someone with public information credentials to support the Mayor's Communications Director's responsibility for management of the public information function. Such a person must have the support of the Communications Director and the authority to carry out the difficult task of preparing a group of professionals that work for many departments in a variety of necessary capacities. This staff function could be carried out within Emergency Management, but must have the authority of the Executive to assure that the City's public information system is capable of functioning effectively when it is needed.
- In the interim, Emergency Management should enter into a pre-contract for immediate public information support following a disaster to assure attention to these critical matters.

OBSERVATION: Media coverage about the quake has all but disappeared, although there are occasionally faint stirrings of interest. The City needs to develop and implement a public relations methodology that will keep the aftermath of the quake in people's minds so they will get the help they need as the recovery process continues.

RECOMMENDATION: Initial media coverage was predictably focused upon the desire for "great visuals" and then focused on dollar loss estimates. FEMA, the State and the City have provided a barrage of press releases. While the accuracy issues noted earlier are still a concern, FEMA has provided a lot of necessary visibility to the need to extend deadlines for chimney inspection, etc. The City must be prepared to maintain the level of public information at critical times. In the Fall, Emergency Management will work with Seattle Fire to remind residents of the possible danger in using chimneys that may have incurred hidden damage during the quake. While the focus is on safety and the possibility of financial assistance if damage is discovered and reported within the FEMA deadline, by Fall of this year the emphasis will shift to alerting residents about the public safety aspect exclusively. The October Disaster Saturday annual event sponsored by Emergency Management's SDART Program and Project Impact will provide the impetus for that offensive.

OBSERVATION: Occasionally, a well-intentioned media program does more harm than good. The post Nisqually Earthquake TV special that aired locally provided citizens with some good information about the science of earthquakes, and acknowledged the City of Seattle's SDART program. Unfortunately, that same program advised viewers to pull the covers over their head if they are in bed in an earthquake (not taught since the 1995 Northridge Quake). Viewers were advised to take cover in a doorway in the event of an earthquake (something that does not apply to every doorway, we now know). Viewers were also presented with a more expensive version of a disaster kit that Seattle Emergency Management's internationally known expert on community preparedness does not recommend.

RECOMMENDATION: A means of communicating to local media what is generally known throughout the country must be devised -- that substantial professional expertise is available at

no charge to the media. Information is readily available from City Emergency Management staff. It is imperative that the broadcast and print media accept their public responsibility to provide information that is up to date and accurate.

Staff Resources & Training

OBSERVATION: The decision in 1999 to augment the Emergency Management staff made a huge difference in the City's preparedness for this earthquake. This was manifested as follows:

- At the time of the augmentation of the recovery and (post disaster) mitigation function, one staff position was struggling with the management of four different disaster processes, stemming from winter storms in 1996 and 1997, as well as flood disasters in 1990-91 and 1995. More than \$20 million dollars was ultimately recovered, but the volume of work and the extremely large amount of recoverable City funds caused the Mayor to include a second position in the 1999 City Budget. This allowed the closeout of the last of these four disasters in January, just prior to the earthquake. The burden of these other disaster recovery processes would have been overwhelming had that work been pending on February 28, 2001.
- The additional staff resource allowed the proactive development of two critical tasks: the conducting of training for more than 80 fiscal and project managers from a number of City departments in new FEMA procedures might not have occurred. In addition, just prior to the quake, it was possible to work in collaboration with the State of Washington Emergency Management Division to write and publish a brochure entitled "Getting Help After a Disaster". This was completed within weeks of the creation of the concept: 35,000 brochures were delivered to Emergency Management in Seattle minutes before the quake occurred, thus the City had useful recovery information available immediately.

RECOMMENDATION: Staffing for the day-to-day management of recovery tasks, including training and the proactive planning was achieved only after an insurmountable workload was documented. Although many things can be identified as needing improvement, this experience argues that shortfalls in disaster staffing that are noted must be acted upon promptly. The need for adequate staff to address disaster issues, before a crisis occurs, merits analysis and attention as part of the immediate post event budget cycle. There would have been no way to manage the immediate aftermath of the event had there not been seasoned staff already in place within Emergency Management.

OBSERVATION: A substantial amount of overtime has resulted from the recovery process for Emergency Management staff.

RECOMMENDATION: The need to augment staff, and plan for future resource demands, must be addressed. The use of City Budget analysts is but one alternative (see the following recommendation regarding FEMA program training for CBO staff).

OBSERVATION: Within one hour of the cessation of ground motion, the Emergency Management Recovery and Mitigation unit was released from supporting response tasks in order to allow them to focus on preparing to initiate recovery procedures. Emergency Management was able to staff the response function around the clock without drawing those personnel away from that responsibility. However, had the earthquake been more severe and disruptive, it would have remained necessary to continue staffing the recovery effort even though the response work would have remained "hot" for many more days. This would have stretched the stamina of the remaining five professional and two clerical staff of Emergency Management. As other issues emerged during the following week, it would have been impossible for staff to respond creatively without significant augmentation.

RECOMMENDATION: Budget Office staff stepped in willingly to support Emergency Management's interactions with the departments. They should be trained in the FEMA process so they can be used more effectively in future events, which is consistent with a requirement established in the Seattle Municipal Code.

OBSERVATION: Emergency Management was aided considerably by the spontaneous "self-report" of a former King County emergency management staff person now working for the City. His knowledge and experience provided important support. His presence eased the temptation to draw recovery and mitigation staff away from their assigned duties. If necessary, persons that can ease the staffing burden should be retained or their availability assured through pre-designated contracts, or in the case of City employees by agreement between Emergency Management and the "loaning" department.

RECOMMENDATION: Emergency Management, in addition to pursuing professional additions to its current complement of staff through the budget process, should continue to look for and train (or refresh) any City personnel that might have the aptitude and the experience to assist in a crisis.

OBSERVATION: A new City staff training series offered in the fall of 2000 was effective in educating department fiscal and project management staff about their role in the new FEMA Public Assistance Program. (The Program was recently redesigned to be simpler and gives jurisdictions a greater role and responsibility in defining reimbursable recovery work). Emergency Management trained 85 staff members across 14 departments and distributed numerous staff reference guides. Following the earthquake, additional people were trained as departments assigned staff to work on earthquake projects. In spite of staff assignment changes, the training allowed departments to get up to speed quickly on important aspects of the Public Assistance process -- including damage assessment, deadlines and cost documentation -- that have a significant impact on the amount of money the City recovers under the Public Assistance Program.

RECOMMENDATION: The need to have a fully trained and practiced team extends to all of those that might be called to support the City's management of a disaster. Departments should assure that their staff receive periodic training that establishes or refreshes a manager's knowledge of FEMA requirements. For its part, Emergency Management should continue to provide regular training opportunities as part of its recovery and mitigation mission.

Recovery Logistics

OBSERVATION: The United Way donated excellent space in their building for the Earthquake Assistance Center.

RECOMMENDATION: Elsewhere in this document (under ESF-7) it is noted how difficult the task is to quickly identify suitable space for FEMA and SBA and state and other support personnel in a Disaster Recovery Center. It was important that the office be located in close proximity to the area that received the most concentrated damage (Pioneer Square), and there were space and availability requirements that proved very challenging. The recommendation, contained in ESF-7's report, that advance work be carried out to identify potential sites throughout the community is prudent, and should be implemented.

OBSERVATION: A pre-designated site(s) for the Disaster Recovery Center (DRC) would have been useful. As it turned out, ESF-7 had to scramble to find a facility that would work in the downtown area, the area hit hardest by the quake.

RECOMMENDATION: Facilities has attempted to pre-designate three of the community colleges as large scale DRCs prior to this event. In a more intensive event, these facilities would still be good locations to operate from (North, Central and South Community colleges). The City ought

to work out a pre-arranged agreement with King County United Way to use the Lowman Bldg if there is a need for this type of facility in the downtown area in the future.

Recognizing that different geographic areas of the Seattle may be affected in a hazard event and that it is desirable to locate a DRC close to impacted areas, the City should explore additional space options in parts of the City not well served by the locations mentioned above.

OBSERVATION: There were numerous offers to donate money, goods and services to the City following this event. ESF-7 believes the City wasn't prepared to deal with this initially, particularly the money donations.

RECOMMENDATION: OED and others came up with a good way to deal with donated money (i.e., donating funds to the Seattle Foundation) which ought to be detailed in the City's Recovery Plan. Perhaps donated goods should be given to relief agencies who have the storage infrastructure, transportation resources, and experience to handle large volumes of donated goods, such as Goodwill, Salvation Army and others. Donated services ought to be directed to the City departments that most need them.

The Logistics Group (ESF-7) can help direct these resources to the right departments if they know what services departments are in need of. Training should touch on this need to funnel resources to them, and a quick reminder should be sent from the Logistics Group to departments right after an event, as outside offers of help begin as soon as the news of a disaster spreads across the country and the world.

Note: If department control centers are properly identifying critical resource needs beyond the departments' ability to obtain to the EOC, it would facilitate efforts by ESF-7 to determine if a match could be found among those goods that have been or are expected to be donated. Such reporting is already required by the Seattle Disaster Readiness and Response Plan and should be emphasized during training of department control center staffs.

OBSERVATION: A recovery process management database is crucial. Without it, tracking multiple FEMA Public Assistance projects takes on nightmarish proportions in a larger event.

RECOMMENDATION: This ongoing effort has been interrupted by the quake itself. This Catch 22 effect must be dealt with. As soon as possible, the staff work (recovery staff and EM technology staff) needs to resume.

Special Issues

OBSERVATION: Changes in federal laws regarding disaster relief for private non-profits (PNPs) have created barriers and confusions for non-profits, some of whom experienced considerable structural damage and need financial assistance. The change in the law means that many PNPs may no longer be eligible for FEMA Public Assistance. The requirement that they must first apply for Individual Assistance (e.g. a small business loan) has not only proved to be a bureaucratic morass, but also is not realistic, since many of these organizations have already maximized their revenue generating ability and are unable to assume additional debt. The City has a strong interest in ensuring that these organizations, which provide critical social services to City residents, receive the disaster recovery assistance they need.

RECOMMENDATION: The Office of Economic Development, Human Services Department, the Office of Housing, and Emergency Management are working together to provide assistance to non-profits needing to apply for disaster assistance as a result of the Nisqually Earthquake. Seattle elected officials should seek changes in federal law to make it easier for non-profits to obtain disaster assistance, so those vital services to Seattle residents are not disrupted.

The City and State of Washington also should consider setting up a Recovery Fund for the special needs of people and organizations not well covered by FEMA Public and Individual Assistance Programs. OIR should explore options with the State and Federal Legislature.

OBSERVATION: Extensive damage of historic buildings, many of which are Unreinforced Masonry (URM) buildings, created a strain between the City's desire to preserve historic areas and the prohibitive cost to private property owners to repair damage. Limited outside assistance is available to help offset the costs of rehabilitating historic buildings.

One notable example is the Cadillac Hotel, which is a 111-year-old building in the Pioneer Square district that was severely damaged by the earthquake. The owners requested for an emergency permit to demolish the red-tagged building, stating that their projected cost to repair the building (\$8.7 million) makes restoration economically unfeasible. The permit must be approved through the Pioneer Square Preservation Board, which wants to consider all options for saving this historic structure. The Department of Neighborhoods rejected the permit request and the situation is currently unresolved.

RECOMMENDATION:

- Make more assistance available to owners of historic properties to repair disaster damage. Several post-earthquake initiatives should be formalized, including: 1) The Non-profit Historic Seattle's loan fund for structural engineering estimates, and 2) The Mayor's request for \$7 million in federal discretionary funds for the protection of historic structures.
- Clarify processes and policies for resolving differences of opinion between property owners and City Preservation Boards on demolition and rehabilitation of disaster damaged buildings in historic areas.

FEMA/State/City Coordination

INTRODUCTION: State/FEMA made extraordinary attempts to make the new FEMA system work for local jurisdictions. In that spirit, the following observations and recommendations should be discussed with FEMA and the State.

FEMA assistance to City government:

OBSERVATION: The FEMA Public Assistance Program was recently redesigned to simplify and streamline the application procedure for reimbursement. While the greater involvement of jurisdictions in defining and describing and costing disaster damage is welcome, the process of drafting the Project Worksheets (i.e. project descriptions) to State/FEMA's satisfaction has proven onerous. The experience to date suggests that the new process is more burdensome to City staff than the earlier system.

RECOMMENDATION: Discussions with FEMA, the State and other jurisdictions should take place for the purpose of redesigning the system so it is truly user-friendly.

FEMA assistance to citizens:

OBSERVATION: On the preparedness side, FEMA proved difficult to work with. Not only did they not assist the local effort, the messages they distributed in some instances actually countered the local message, creating confusion in the minds of the public, and the question of who was the credible authority.

RECOMMENDATION: FEMA must - *must* - coordinate with the local officials as they begin to set up shop. They must take the time to find out about local programs and make sure that they support rather than undermine the local message. For example, a Seattle Emergency Management staff member called the FEMA number and was told that securing one's home to its foundation was not nearly as important as making sure the roof was strapped. A second FEMA representative recommended securing the water heater with plumber's tape. Both comments run counter to the advice that is commonly accepted by Northwest disaster experts.

In an emergency people expect to be able to count on their government not to send mixed and contradictory messages. We can only imagine how many people were so affected, but we can document that an Emergency Management staff member encountered many Seattle citizens who had been told by FEMA to do things inconsistent with the local program and building code. If FEMA is insistent about putting out their own message, they should at least allow the locals to approve the message to ensure that it is consistent with the message the locals have been promoting.

It is suspected that much of this problem was the result of FEMA bringing in many Disaster Assistance Employees who had little to no experience, and who didn't have the good sense to check with someone who knew the correct information before authoritatively conveying bad information.

OBSERVATION: Interactions between FEMA, the State, and the City have been somewhat strained at times. It is clear that FEMA unleashed an incredible number of resources to deal with this earthquake. The State apparently was unable to match the sheer volume of temporary and full time staff, and volunteers, and this caused confusion for local governments, and created some pressures and strains between federal, state and local officials. Concerns raised by the City's subject matter experts regarding inappropriate or inaccurate presentation of material were frequently brushed aside by FEMA personnel, who possessed far less knowledge and expertise than City staff. Often information regarding the activities of FEMA outreach, particularly the hazard mitigation personnel imported from other regions was withheld or just never communicated to the City until the misinformation had been transmitted to the public.

Similarly, inspections staff have provided information that has been inaccurate, or has been retracted without informing the City staff. FEMA dispatched teams to the City to conduct inspections of major projects, but gave incorrect instructions to the City on how to prepare for those inspections. Further, these teams were dispatched well before the need for their arrival was affirmed by the City. As a result, inspection teams experienced unnecessary "down" time. This clearly placed burdens on those that must defend FEMA's costs for this disaster, yet cooperative discussions in advance would have resulted in the teams coming to Seattle only after the City was ready to receive them.

RECOMMENDATION: FEMA's role under the Stafford Act is to support, rather than supplant, local government. It is clear that that was the intent of the Federal Coordinating Officer and senior FEMA staff. It is also apparent that Seattle, and perhaps other jurisdictions, believe that this goal was not always achieved. There should be a debrief among local, state and federal officials prior to the conclusion of the FEMA effort in Western Washington. This should include but not be limited to the following issues:

- It is necessary to clarify roles and responsibilities of local, state and federal agency personnel.
- A fundamental necessity is the forging of an agreement in this region regarding orientation of outside FEMA's Disaster Assistance Employees (DAEs) arriving from other areas of the country. Few problems surfaced within FEMA Region X staff, however and regional staff were uniformly responsive to Seattle's concerns.
- The State's inability to adequately advocate for local interests due to lack of staff to match FEMA's numbers must be addressed.

- With respect to inspections for large projects, the needs of the local community should continue to be as paramount to FEMA's National Headquarters as it was the day after the earthquake, and the timing of FEMA's assistance should be coordinated more effectively with the City in the future.

ASSOCIATED RECOMMENDATION: Seattle and its companion jurisdictions must do more than rail against the slights and insensitivity of FEMA. FEMA, on balance, responds with enthusiasm and resources. Its errors and missteps often stem from a lack of information about local programs, local expertise, and perhaps are a result of an erroneous assumption that FEMA is needed because local government is unable to handle anything at all as a result of the disaster. A further problem is the folly of many untrained but enthusiastic personnel -- they fail to recognize what they do not know. Seattle's Emergency Management staff met many FEMA workers, who were on their initial visit to Seattle -- they had in some cases responded to flood disasters, or tornadoes in other jurisdictions. Many knew little about earthquakes. Sadly, even some that arrived from earthquake areas knew far too little about the subject matter they were presenting and yet still presented themselves as experts. Most appeared sincere, and highly motivated. Their preparation was limited, and they quickly fanned out throughout the City and the region without adequate accountability or coordination from their supervisors, and also without the full knowledge and approval of local jurisdictions.

Seattle must prepare as if the same thing will happen the next time. The City must assume that whatever agreements are hammered out in good faith during the post-Nisqually debriefs may be ignored, or forgotten, the next time FEMA responds to a call for help from our region. Accordingly, the City must prepare internally to document these concerns:

- The relationship following a disaster between FEMA, the State, and local government needs to be collaborative from the beginning -- many of the products that could be developed cooperatively could remain available to local government when FEMA departs. This would be preferable to local government having to launch a concerted effort to retrieve and confiscate publications, and correct advice, that set preparedness and mitigation efforts back many years.
- FEMA must bring a list of the resources they have access to for the City's perusal -- a menu of sorts; and, the City should be prepared to provide information on its programs to facilitate FEMA's awareness of local capabilities.
- FEMA's staff must be compelled to operate through the State Coordinating Officer and a local liaison so that no Seattle citizens are contacted through the media or in person until Seattle has concurred in the message. This is necessary not only for coordination, but to assure consistency and accuracy in the messages citizens receive.
- FEMA staff cannot predict DAE skill sets or expertise areas. They will not know past relationships, organizations, or agreements established for an event. Locals need to work with FEMA and their DAEs on training before they go out into the local communities and talk to the public.

ASSOCIATED RECOMMENDATION: Based on some of the issues raised with DAE volunteers, such as FEMA not knowing their skill sets or expertise before they arrive -- a solution must be established as the next event may not provide sufficient time to address each shortcoming.

- Every DAE assigned to work in Seattle must be provided a one-page document written by the City that at a minimum describes local policies and programs for mitigation, preparedness, recovery, etc. It should further include the jurisdiction's local philosophy for emergency management, where to go for more information on mitigation (schools, home, etc.), recovery (key priorities), etc.)

- DAEs should check with local jurisdictions before making blanket statements to the public. For example, they must be aware that building codes are locally written and not give advice counter to existing local law.
- Establish standard expectations for City employees and expect FEMA and their DAEs to operate in the same way. Examples are: 1) all facts are checked by a local source/expert; 2) City employees work with local experts on press releases before making public statements; 3) refer to City internet sites for preliminary information as it is an accessible resource; and; 4) nothing should have the City of Seattle's name or logo on it without permission, etc.

OBSERVATION: Among the publications that were disseminated to the public and the media was a joint FEMA/State of Washington document entitled "Rebuilding For The Future – Examples of Mitigation Successes Following the Nisqually Earthquake". While the need to promote the value of mitigation carried out by Seattle and other Project Impact communities in the region is acknowledged, it remains important to check information being printed thoroughly and to fulfill commitments to local personnel for the opportunity to review and comment on information presented. In this case, those that prepared the publication violated most accepted standards for communicating and affirming facts as they related to Seattle. In fact, the first inkling Seattle Emergency Management received that such a publication was in the offing was when it was unveiled and distributed as a joint document by State and Federal officials. Some participants have expressed regret at the failure to provide an opportunity to review the publication, which contains inaccuracies and incorrect information. For them, this may well have been an honest oversight. However, those that committed to providing an opportunity to review the publication should have fulfilled that commitment.

There were other breakdowns in the way this matter was handled. A staff member of Seattle Emergency Management was cited as a contributor, without permission. A homeowner was inconvenienced on a weekend to meet an imaginary deadline. And, the videotape and digital and still photos that were promised to the Seattle Emergency Management Community Preparedness Manager have yet to be delivered.

RECOMMENDATION: The bottom line on these interactions is that throughout the post disaster period, requests for cooperation and commitments cannot be handled informally. In the future, coordination should be a formal process.

OBSERVATION: Immediately following the quake, a variety of FEMA/other government/non-government researchers were dispatched to cover mitigation, preparedness and recovery work in the City. City resources were inundated by multiple requests for similar information to be used for research purposes. In lieu of their quick deadlines and our preoccupation with pressing City issues, only limited time could be spent with these groups. This proved to be unfortunate from the standpoint that some of the final reports were poorly written and/or used incoherent data gathering, and also because of the wasted time by key employees. To make matters worse, once these reports were written some outside groups blindly accepted the "findings" to be credible.

RECOMMENDATION: Emergency Management should assess the City's experience with these researchers and decide how this matter should be handled next time, as it is very likely that the same activities, and perhaps the same personnel, will reappear for the next similar event.