Effective Disaster Plans: Response, Mitigation, and Continuity

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Thank you for coming to this presentation this morning. I want to help you and your libraries be better prepared for a disaster.

Both the library where I work at California State University, Northridge, and my house had the dubious honor on January 17, 1994 of being near the epicenter of the Northridge Earthquake. It was not a good place to be at the time. The experiences that came after the earthquake provided an education about disaster planning; I'm going to share some of the insights I've acquired with you. I hope by the end of my presentation you will have a fuller appreciation of why you want to be certain that your library has a thorough, carefully thought through disaster plan in place, why you want government documents to be included in that plan, and that you also will have some ideas about how to attain these goals. Every library needs a disaster plan.

Disaster planning is for you as well as the library.

I want to start by telling you a story about Scott Gonzalez, a young man who worked in our government documents unit as a student assistant for about four years. After Scott graduated, he got a full time job, enrolled in classes to get a teaching credential, and rented an apartment just off campus in a nice 3-story apartment complex called the Northridge Meadows. During the Northridge Earthquake, the first floor of the apartment building collapsed. Sixteen people died there, including 2 students from our campus. Fortunately, Scott's apartment was on the top floor and Scott survived.
He told me later that, even though he didn't know at the time exactly what had happened, he knew right away that he needed to get out of the building. The quake happened at 4:31 in the morning; the electricity went off, there was no moonlight, and it was very dark. He found a flashlight, pulled on a pair of pants, and managed to get out of his apartment. He hadn't found his shoes or his wallet, but he wasn't about to stay there longer looking for them. He and a neighbor headed toward the stairs. Scott thought to use his flashlight to check the stairs just before the neighbor stepped onto them. It's a good thing he did this, as most of the staircase wasn't there anymore. Scott and his neighbor could have been seriously injured or killed had they tried to go that way. Eventually, they found another way out of the building.

Scott's car was crushed when the building collapsed. So, once he was out of the Northridge Meadows, he walked ten miles in his bare feet through an earthquake-striken city to where his mother lived to make sure she was ok. People do extraordinary things in disasters without even thinking about it. Sometimes you shouldn't let them do it. In library disasters, someone has to be ready to say, "Don't do that! You are more important than the books are."

The lessons from this story are simple ones. Be prepared. People, even those of us who work with government documents, can find themselves in the middle of a disaster. Something as simple as having a flashlight available and thinking to use it at the right time can save you. Last but not least, disaster planning for a library is for you as well as the library. You cannot afford to ignore disaster planning or assume someone else will take care of it. The work you do to prepare for a disaster can save your life. It can save the collection you care about. It can ensure your library, as an institution,

survives a disaster and that you will still have a job.

Disaster statistics

Some people think a disaster will never happen to them or their library. So, how often do disasters happen? FEMA has a web page of statistics about disasters <http://www.fema.gov/library/drcys.htm>. Between 1976 and 2000 there were 861 major disaster declarations in the United States. The most in one year (1997) was 75 disasters; the least was 11 in 1988. The average number of major Federally declared disasters was 34 per year. That is a lot of disasters and a lot of communities affected, each of which probably has at least one library that was impacted by the disaster directly or indirectly via users that were affected.

One disaster can affect many libraries; the Northridge Earthquake affected more than 75 libraries. Two of the libraries most seriously damaged in that disaster were depository libraries. An additional list of weather-related disasters is available from NOAA <http://205.156.54.206/om/hazstats.htm>. It includes some disasters that were not designated as major Federally declared disasters. These lists do not include additional library disasters like the arson fire that burned the Los Angeles Public Library's Central Library or the Boston Public Library flood.

The numbers involved give a better understanding as to why the U.S. Government Printing Office started asking depository libraries whether or not their library had a disaster plan that included the Federal depository collection. In the 1999 Biennial Survey of Depository Libraries, 57 percent of depository libraries replied that they had a disaster plan, while 43 percent did not have such a plan.

Hope for the best, plan for the worst.

Every library needs a disaster plan and that plan needs to plan for the worst. It's ok to hope for the best, but you should plan for the worst. So often, particularly in libraries, we worry to the point of obsession about the relatively little stuff in disaster planning. There are reams of books, articles, and websites on how to save wet books one by one, how to treat a book for mold or mildew, etc. We can deal with that level of problem. That's a good thing, as small misadventures, particularly those involving water, happen much more frequently than catastrophic disasters.

Few sources in the literature of library science tell you to be prepared in case you lose your library collection or the building or both. Why? Probably because that isn't what we want to hear. If we don't hear the message and acknowledge it, it couldn't possibly happen to us, could it? But the truth is that libraries need to plan for both small misadventures and the worst calamity ever to hit their community.

I live and work in a community that was devastated by an earthquake that caused billions and billions of dollars of damage because it happened under a densely populated urban area. But, in seismic terms, the Northridge Earthquake was a moderate quake. It wasn't powerful enough to be "The Big One." Nonetheless, California State University, Northridge lost the use of over 100 buildings in less than 30 seconds.

The campus has spent almost eight years on disaster recovery. We lost access to our library building for many months. We lost access to our library's collection. What our library still had was the library's staff and over 25,000 students and faculty that needed library services. So, planning for the worst includes having a plan of what you will do if you have to provide services to users without access to your building or collection. That's what we had to do. We had not believed that we would lose it all and had not planned in advance for that possibility. So, we had to come up with a plan in the midst of chaos and make it work. That's not the way you want to do that kind of planning.

I'm not suggesting that you can plan every detail in advance before a catastrophic disaster. But consideration of the types of decisions that will have to be made, basic plans for alternative sites, what to do with incoming subscriptions if you lose access to the library building, the possibility of offering only online services for a long period of time, how to create teams that work well together

to solve problems, cooperative agreements with other libraries, and similar issues should be thought through before the stress of a disaster is upon you. The results of this planning should be part of a library's disaster plan.

Disasters create problems. People who do disaster preparedness planning are creating frameworks that give solutions for the problems created. How can you begin to prepare for a disaster at your library? You need one or more people who want to develop a disaster plan or improve one that already exists. Then you think about risks and assess which types of disasters are problems for which your library should plan.

Planning considerations:

Considerations in risk assessment and the first stages of disaster planning include:

- What needs to be protected?
- What do they need to be protected from?
- What are you already doing to protect them—and what could you do?
- How long can the recovery period be?
- How much time and money can be spent to ensure that the library can function after a disaster?
- Can the library afford a disaster?

Each of these will be discussed in detail.

What needs to be protected?

What needs protection in libraries usually includes people, books, the library building, and the library's ability to provide services to users (which is likely to involve computers and internet access).

What do they need to be protected from?

They need to be protected from a variety of site specific and regional risks. Site specific risks include things like problems with the roof or plumbing, drainage problems, electrical wiring, proximity to hazardous materials, and security risks for arson, theft and terrorism.

Regional risks include natural disasters such as hurricanes, tornadoes, earthquakes, floods, and volcanic eruptions. Every part of the country is at risk for several types of natural disasters. FEMA has a website that identifies, on a state by state basis, the types of natural disasters that could affect each state <http://www.fema.gov/disasters/>. There are online maps of wind zones <http://www.fema.gov/image98/wmap.gif> and tornado activity in the United States <http://www.fema.gov/image98/tmap.gif>. The Geological Survey has an Internet site that maps seismic risk for different parts of the country <http://geohazards.cr.usgs.gov/eq/html/natlmap.html>. States at risk for earthquakes include locations like Massachusetts and Virginia, places that probably don't think of themselves as earthquake territory.

What is the relative risk of each disaster event? My library, in Northridge, California, is 25 miles north of downtown Los Angeles. We are not planning for a hurricane, tornado, volcanic eruption, or excess snow on the roof. A tsunami isn't going to get us unless the wave goes over a mountain range first. But other potential disasters including earthquakes, fire, water in the library, bomb threats, power failure, and medical emergencies are definitely on our list and included in our disaster plan. Particularly earthquakes, as we have been damaged by two of them, one in 1971 and the other in 1994. We've also had bomb threats, water damage, mold and assorted other problems in the past.
Know what the risks are for your environment. You want to plan for each of the types of risks that could threaten your library. Consider carefully the magnitude of a potential disaster, not just the frequency of a particular type of natural disaster. As an example, geologists think the most powerful earthquakes that have occurred in the United States were in the middle of the country on the New Madrid fault and in the Pacific Northwest. So, libraries in those areas need to consider earthquakes in their planning even though quakes in their area occur less often than more moderate quakes happen in California.

What are you already doing to protect them—and what could you do?

What rules or procedures are currently in effect to prevent or minimize the impact of a disaster? Every library needs a disaster planning process in place that includes three types of planning.

- **Disaster response plans** provide for immediate reaction after a disaster occurs.
- **Mitigation** is action taken before a disaster to reduce the risk of disaster or reduce the impact of the event.
- **Continuity planning** is planning done before a disaster to ensure that the library can resume functioning as a library as soon as possible after the disaster.

Response plans

Disaster response plans are directed toward either the safety of people or the collection. You need plans for evacuating the building and coping with other life/safety emergencies. Whether it is a fire, an explosion, a chemical spill, a tornado, flooding, or some other calamity, the library needs a specific response plan so that those in charge of the library's response will have a checklist of what they need to do. The safety of people has to be the top priority. Practice with drills until you are sure your life-safety planning for each type of emergency works.

The collection emergency plan details responses for all types of emergencies that threaten the collection. If books are wet, what should be done to save them? How should it be done and who should do it? What supplies should be used and where are they available? What consultants or services will be used? What priority is assigned to saving or salvaging various parts of the collection? How do you decide when it is more cost effective to simply shovel what's left into a dumpster and start all over?

Both types of disaster response plans, whether they focus on life-safety issues for people or the well-being of the collection in an emergency, must be written as clear, "easy to use" instructions for the first response team to use as they begin to cope with an emergency. As an example, if there's a bomb threat, do you call the police first or pull an alarm to begin an evacuation of the building? When do you call the library's administrators? The person receiving the bomb threat needs to know what to do first. There isn't time for someone to read a long discourse about the subject. You need a response plan that says exactly what to do and in what order it should be done.

Mitigation

A library that is "planning for the worst while hoping for the best" will have a mitigation plan and a continuity plan in addition to their emergency response plans. Mitigation and continuity plans usually include lists of things to do with discussion about each item. They must be logical and clearly written.

A mitigation plan is a plan to minimize damage and/or prevent an emergency from becoming a disaster by taking specific actions before an emergency occurs. This is its distinction from an emergency response plan. Response plans are used once an emergency has begun. Mitigation attempts to prevent the emergency from happening in the first place or to reduce its effect when it happens. Effective mitigation planning can prevent a natural event from becoming a library disaster. Mitigation involves learning to foresee problems and to think about safety throughout your environment, learning to do such thinking on a regular basis, and making changes as needed in facilities or in procedures and daily activities to enhance safety and service continuity.

Some mitigation is easy to do and relatively inexpensive. It doesn't cost very much to have someone check regularly during the rainy season to ensure that the gutters and drains remain free of debris. That's common sense, but ensuring that this action is done could prevent a flood of water in the library. Likewise, careful attention to network security and anti-virus software can limit the damage done to computer systems. Writing disaster response plans and practicing before a disaster is another example of a mitigation activity. Other mitigation actions, such as adding a sprinkler system in the stacks or rewiring the electrical system of a building to bring it up to

current code and provide sufficient electrical outlets, require more time and money to implement.

Requiring more time and money does not make an action impossible. It simply means that you also have to plan how to get the money. Increasingly, agencies such as the Federal Emergency Management Agency (FEMA) are promoting mitigation because they have done the math. They know that mitigation saves money in the long run. They also know that mitigation can save lives.

But these things that could be done before a disaster to help your library almost certainly will not happen until there is a plan that details what should be done as mitigation. A mitigation plan is a list of mitigation activities with priorities, commitments, and a timeline. Once a mitigation plan is written, it should be reviewed regularly to consider additions and to evaluate how well mitigation goals are being met.

Mitigation does work. One of the most successful acts of disaster planning the library at California State University, Northridge did before the Northridge Earthquake was to ensure that the library's shelving was bolted and reinforced with braces in accordance with the latest recommendations for seismic safety. About 600,000 books fell off the shelves in the Oviatt Library at California State University, Northridge during the Northridge Earthquake, but the shelving itself was not damaged despite the fact that the 6.7 magnitude earthquake was centered almost underneath the campus. In fact, one section of shelving on the first floor was particularly well braced. Nothing fell off the shelves there. It was the section where the IRS tax forms were shelved and not one of them left its place on the shelf. Other government documents fell on the floor in the quake, but the IRS was unscathed.

Why did our library spend money--a lot of money--on this mitigation? We knew from previous experience that it was important. In an earlier earthquake, the 1971 San Fernando Earthquake, our library suffered damage to its shelving. The same type of damage occurred in other California libraries in later earthquakes. It happened at Kobe University (Japan) in 1995. The same type of damage happened again in Seattle, Washington early in 2001.

When library shelving moves in a quake, it is very dangerous to people because the weight involved could crush a person. Furthermore, if shelving is damaged, it takes time and a lot of money to replace it. The library cannot reshelve the books until the damaged shelving is replaced, so access to materials is affected as well. Damage to library shelving in quakes has been documented for over thirty years. How many more libraries will suffer this type of damage before those in charge of the money for libraries located in seismic hazard areas realize that it is much less expensive to do mitigation by reinforcing and bolting the shelving than to suffer the damage?

Consider also what, if anything, in a library is safe to have in the basement given the likelihood of water-related problems. Both Boston Public Library and Colorado State University suffered incredible damage to their collections from floods. In each case, they could not have kept the water out, but the damage to their collections happened because materials were in the basement. In short, both those libraries gambled and lost. One of the traditional favorites for basements is microform, because of the weight involved. Unfortunately, replacing microform damaged by water can be an expensive undertaking. One box of Readex Depository Set microcards got wet at our library and had to be replaced at a cost of $2,200.00 for 461 microfiche. If mitigation seems expensive, consider the expense of replacing materials. Personally, I've come to the conclusion that basements make good meeting rooms and great study areas.

Mitigation can be controversial, particularly when it is expensive. Asbestos is especially problematic because abatement is expensive. However, asbestos is a very serious hazard for the collection since disasters that cause the kinds of damage that expose asbestos often also cause roof damage. If asbestos is released and then mixes with water, you get asbestos mud. After the Northridge Earthquake, our library had some asbestos on books that remained dry and could be abated, but some people on our campus with offices in the Engineering Building suffered asbestos mud.

What it contaminated was entirely lost—books, papers, and everything else asbestos mud touched. What if this had happened in the library? It could have. We were simply lucky that the places where we had asbestos contamination and the places where rainwater leaked in the library after the quake were different parts of the building.

Continuity planning

Continuity planning is planning done before a disaster to ensure that the library can resume functioning as a library as soon as possible after the disaster. The success or failure of continuity planning has a direct effect on how quickly your library can begin to function again after a disaster.

Continuity requires that key documentation be available and current. Here are a few examples of key documentation that should be stored outside the building and updated on a regular basis:

- Library's disaster plan.
- Lists of employees and contact information for them.
- Library statistics to provide data for insurers or agencies such as FEMA. (You will have to prove exactly what you have lost and its value).
- Back-up copies of vital computer data files and documentation on what computer configuration and programs are necessary to run the files.
- Account numbers, passwords, and similar practical details including the telephone number of GPO's Library Programs Service.

Continuity plans need to be reviewed regularly as procedures and processes in the library change. The relationship between emergency response plans, continuity planning, and actual employee behavior also must be examined. Simply put, if the disaster response plan says that a recent copy of the server's files is available in a specific offsite location, it still must be assured someone is actually making the copies and sending them to offsite storage on schedule or that simultaneous back-up systems are working. It isn't enough to simply write it in the plan; it has to actually be happening.

It also is very much in a library's best interest to learn, before a disaster, what types of insurance forms would need to be filled out to substantiate a claim. Learn about state and Federal disaster relief programs and the documentation required. Knowing the rules beforehand facilitates planning and improves a library's fiscal options after a disaster.

How long can the recovery period be?

How long can the library remain closed, have limited access to its collection, or continue normal operations without computers? Would a few days be acceptable to the local citizens or students who depend on your library for information? What about a few months or several years? The answer to the question regarding how long the recovery period can be has obvious implications for how much emphasis should be placed on mitigation and continuity planning. If you cannot afford to be out of business, you need a workable plan to ensure that the library can continue to function after a disaster occurs. Many libraries assume that their customers will still be there after the period of recovery is over, even if recovery is a long and slow process. This assumption is most unfortunate from the user's perspective.

How much time and money can be spent to ensure that the library can continue to function as a library after a disaster?

Library administrators may think the library cannot afford much disaster planning. Certainly there has to be a balance between current needs and disaster planning, but administrators need to be aware that underfunding disaster planning can be extremely foolish in the long run.

The World Trade Center disaster of September 11, 2001 tested the disaster plans of numerous companies. Companies that had good continuity plans in place avoided loss of such vital records as account information, financial records, and personnel records. Some companies were ready to

resume operations at alternative sites within twenty-four hours. This was possible because they had disaster plans, including continuity plans, in place before the disaster occurred. Libraries need to learn from their example.

Can the library afford a disaster?

Disaster recovery typically is expensive: it involves a lot of money and employee time. There also can be costs in public relations, particularly if the damage involved occurred because reasonable mitigation and continuity planning was not done. If a library cannot afford a disaster financially or in public relations, it needs a good disaster plan to prevent damage, to limit damage, and to recover quickly.

Let me give some examples of how expensive disaster recovery can be. After the Northridge Earthquake, $407 million had to be spent on recovery on the campus of California State University, Northridge. Most will agree that $407 million is a lot of money to spend on disaster recovery at one institution. Of that amount, almost $37 million was spent on library buildings. Additional costs included rebinding almost 20,000 volumes damaged in the quake, the value of 2,000 volumes lost to mold when rainwater leaked into our storage facility during reconstruction, the cost of decontaminating about 500,000 volumes in the storage facility that were exposed to mold, and over six years of library employees spending significant amounts of time on recovery activities rather than other library work.

The Los Angeles Public Library provides another example. In 1986, the stack area of the downtown Central Library was known to be a firetrap, but those in charge did not install sprinklers. They debated what to do for years and planned some renovations. But an arsonist got there first. The library staff had an evacuation plan and got everyone out of the building safely. The library burned for over seven hours before the fire department was able to put it out. Approximately 375,000 volumes were lost, including the largest patent collection in the western United States. Another 700,000 volumes got wet. Forty-seven firefighters had to be treated in hospitals because of the intensity of the blaze. Damage was estimated at $22 million; the cost of freezer space to hold the wet books until they could be dried was one thousand dollars per day. If sprinklers had been installed before the fire, it would have been a little fire, easily put out with much less damage. Do you think the taxpayers were pleased that the city had been too ignorant or cheap to install sprinklers in a building whose design and function made it a firetrap?

Once a library has a disaster plan:

- All employees need to be trained in how the disaster plan operates and their role in mitigation, continuity, and emergency response phases of the plan.

- Disaster planning is a cycle; it is never done. Disaster plans need to be reviewed and revised regularly.

- Learn from experience, both your own experiences and those of others. Every time a practice drill or an actual emergency has been concluded, review what went well and what needs improvement

Learn from the experiences of others

Librarians at California State University, Northridge became familiar with the use of freeze-drying to treat water-damaged books after the Los Angeles Public Library's fire. Several library employees from California State University, Northridge were among the volunteers that packed water and smoke damaged books at the public library for treatment. Years later, rainwater leaked into Special Collections after the Northridge Earthquake damaged the library at California State University, Northridge. It was clear, because of what had been learned by observing the public library's recovery process, that freeze-drying was the preferred solution.

I'd like to share some problems that occurred when California State University, Northridge's disaster plans were put into effect after the Northridge Earthquake. The biggest problem was that people had not planned for the worst, which created difficulties when the level of the disaster

exceeded expectations. In addition to structural damage, damage to the contents of buildings, and the loss of the use of over 100 buildings (five of which were eventually torn down), the Northridge campus experienced loss of all utilities, failure of the telephone system, loss of the mainframe computers and internet access, major fires that burned for hours in the science buildings, explosions, clouds of chemicals, chemical and biological hazards in buildings, asbestos and asbestos mud, water damage, and mold.

Some of this damage and disruption would have happened no matter what planning had been done in advance because our campus was at the epicenter of a damaging earthquake, which is, by definition, "being in the wrong place at the wrong time." But, some of the problems happened, in my opinion, because of inadequate disaster planning, both in the scale and detail of planning. Fire damage and the related chemical hazards and explosions could have been reduced or eliminated. Asbestos mud could have been avoided. Two other lessons learned involved financial procedures and communications.

Fiscal authority and financial procedures need to be resolved before a disaster. As teams of engineers and other emergency response workers arrived at California State University, Northridge to begin damage assessment, the campus needed portable toilets, drinking water, and food for the workers. This was complicated by the question of how to pay for these things—both financial authority and physically how to do it since the university's supply of checks was locked inside a building with structural damage. At one point, an administrator charged something like five hundred dollars worth of pizza on her personal credit card so teams of hungry workers could have something to eat and go back to work. State agencies do not normally make purchases with credit cards, but either that or advance contingency contracts were what the institution needed.

Communication systems are very important. The campus phone system failed, leaving only a few pay phones still working. So visualize the administrator who had to arrange for pizza and portable toilets waiting in line for a pay phone. The array of communication problems that were experienced by the campus led to changes in our library's disaster planning. Certain administrators are now expected to have a cellular telephone and FAX machine at home to facilitate communication during an emergency. Library disaster response plans include what to do if the police cannot be reached by telephone during an emergency.

Disaster planning for government documents

I would like to share some suggestions about disaster planning for documents collections and documents departments in libraries. Depository librarians need to consider the following question carefully: In what ways are documents treated differently in your library from other materials? The answer to this question is important, because it may identify areas in which a documents collection has been left out of a library's disaster planning.

Ensure that documents are included in the library–wide disaster plan. Establish salvage priorities for the documents collection. Make sure key documentation for the library includes documents-related information. Back-up copies of computer files, salvage priorities, floor plans, and processing procedures should be stored outside the building. If a disaster causes structural damage, you may not be allowed to reenter the building to retrieve what you need or there may be a long delay before this is allowed.

On a more personal scale, look at your office or work area. Do you have a flashlight or emergency light that you can find in the dark? I think the small emergency lights that plug into electrical outlets and only come on when the power goes off are very handy since they come on automatically when you need them and can be pulled out of the plug and used as a flashlight. Take a long and critical look at your surroundings to identify problem areas. One of the changes we made in our documents processing area is that we stopped storing boxes of stuff under the workroom table. One of the safer places to be in an earthquake is under a table. So we've changed our ways. The space under that table is reserved for us. The boxes of stuff have to go somewhere else.
I wasn't as well prepared for a library disaster as I could have been. I hadn't realized all the ways in

which documents were not included in the library's disaster planning, usually because the plans just didn't get into that level of detail. Now that I know more about disaster preparedness, it has made some other planning decisions regarding documents much easier. The issues involved in continuity planning provided me with additional goals regarding the integration of documents with other technical processing and library systems. Having spent months after the earthquake offering library services without our building or collection, I can attest to the importance of what electronic access to government publications offers documents librarians involved in disaster recovery.

We made some good things come out of the quake on our campus and in our library by working together. Many people were determined not just to have California State University, Northridge come back after the quake, but to be better than we were before. Crisis provides an opportunity for change and we tried to seize that opportunity. But we cannot get back the time we lost. For a very considerable period of time after the disaster we were simply on a different path, doing different things than we wanted to be doing. It is much better to stay on a path of your own choice. That's why you want your library to have a thorough, carefully thought through disaster plan.

A list of selected resources on disaster planning for libraries is included in the handout for this morning's session. Stephen Henson (the other speaker on disaster plans), and I prepared the list together and hope it will be useful as you improve your library's disaster plan.

This presentation and supporting material (internet links and images) are available online at: <http://library.csun.edu/mfinley/fdc.html>.

[An extensive bibliography is available at: <http://library.csun.edu/mfinley/fdcread.html>.]

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