



# City and County of San Francisco LIFELINES COUNCIL



Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator

Lifelines are the systems and facilities that provide services vital to the function of an industrialized society and important to the emergency response and recovery after a natural disaster. These systems and facilities include communication, electric power, liquid fuel, natural gas, transportation (airports, highways, ports, rail and transit), water, and wastewater.

- American Society of Civil Engineering Technical Council on Lifeline Earthquake Engineering (TCLEE), 2009

## MEETING NOTES

### Meeting #10 – Developing the Lifelines Council Work Program

Thursday, November 29, 2012

2:00 PM – 4:00 PM

SAN FRANCISCO PUBLIC UTILITIES COMMISSION

525 Golden Gate Avenue

O'Shaughnessy Conference Room, 2<sup>nd</sup> floor

#### Co-Chairs

Naomi Kelly, City Administrator, General Services Agency, City and County of San Francisco  
Chris Poland, Chair, NEHRP ACEHR, Co-Chair, SPUR Resilient Cities Initiative, and Chairman, Degenkolb Engineers

#### REPRESENTED AGENCIES

|                                |                                  |                               |
|--------------------------------|----------------------------------|-------------------------------|
| AT&T                           | Office of the City Administrator | San Francisco Real Estate     |
| BRMA                           | San Francisco Capital Planning   | Division                      |
| Bay Area Center for Regional   | Program                          | San Francisco Risk Management |
| Disaster Resilience            | San Francisco Department of      | Division                      |
| California Resiliency Alliance | Emergency Management             | URS Corp                      |
| Comcast                        | San Francisco Fire Department    | Verizon Wireless              |
| Degenkolb Engineers            | San Francisco Public Utilities   |                               |
| Laurie Johnson Consulting      | Commission                       |                               |

#### 1) Welcome and Introductions

Naomi Kelly and Chris Poland, Co-Chairs

Co-Chairs Naomi Kelly and Chris Poland welcomed the group and thanked the San Francisco Public Utilities Commission for hosting the meeting at its new building. Mr. Poland briefly reviewed the background and objectives of the Lifelines Council, highlights of recent meetings and the purpose of meeting #10: setting the Council's 2013 Work Program and sharing experiences and early insights on lifelines performance and interdependencies from Hurricane Sandy.

#### 2) Launching the Lifelines Council

2013-2014 Work Program

Laurie Johnson

Laurie Johnson Consulting | Research

Dr. Johnson discussed the Council's near-term goals for completing the Lifelines Interdependency Study in early 2013, and to develop a more collaborative and interactive work program for the Lifelines Council in 2013-2014. She also reviewed the recommendations of the 2009 "Resilient City" policy paper produced by SPUR (San Francisco Planning and Urban Research Association) outlining what San Francisco had to do to improve the resilience of its buildings and lifelines to withstand a major



# City and County of San Francisco LIFELINES COUNCIL



Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator

earthquake. The first recommendation in the Lifelines section of the SPUR "Resilient City" report is to "Establish a 'Lifelines Council' to:

1. Provide a mechanism for comprehensive planning among the lifeline operators in the City and County of San Francisco to improve coordination and restoration following an earthquake.

The report then further recommends that the Council undertake the following actions:

2. Establish standards for resilience in cooperation with the lifeline providers on how all systems should perform in an "expected earthquake"
3. Conduct a seismic performance audit of lifelines and establish priorities for mitigation. It was recommended that the Lifelines Council present the results of the study to the Board of Supervisors and City's Capital Planning Committee.
4. Require improvements to City-owned and regulated systems (such as the water and wastewater systems, port, airport and Muni) necessary to meet system-specific performance goals and develop a funding program to make those improvements happen
5. Require the design and implementation of improvements to the gas distribution system that reduce the risk of post-earthquake ignitions and other secondary impacts without compromising the continued operation of the system after earthquakes
6. Establish partnerships with regional, state and private sector entities to address multijurisdictional and regional systems that serve the Bay Area.
7. Establish a program for communications and outreach to regional, state, federal and private sector entities to drive change that are in the City's self-interest while at the same time setting the standard for a comprehensive approach to addressing lifeline performance. This is particularly important in helping raise public awareness and advocate for the needs of the non-regulated lifeline systems operating in San Francisco.

She noted that most of the work of the Lifelines Council during its first 3 years centered on the first three of these recommendations with an emphasis on planning issues and (through the interdependency study) auditing the expected performance of our systems.

She then reviewed the process that has been underway since the last meeting of the Lifelines Council in September 2012, to develop and prioritize work program topics that the Council might work on over the next year and a half:

- At the September meeting, Council members broke into two small groups and discussed a potential list of work program topics. The list of potential topics came from previous meetings and interdependency study interviews; they were organized according to the SPUR Resilient City recommendations for the Lifelines Council. The small groups reviewed the list; added and deleted topics; and prepared short descriptions of each topic.
- Following the September meeting, all the topics and their descriptions were assembled into an online survey that was sent to all Lifelines Council members to review and prioritize.
- The goal of today's meeting is to review the survey results, scope the priority projects, and discuss next steps. The goal is to establish 1 to 3 work groups for 2013. Each work group would be tasked with further defining the problem, deriving possible solutions, and find "best practice" examples, when possible, that we could share with the rest of the Council. At future meetings, we will reserve time for groups to give updates on their progress and expect that the groups will eventually make a



# City and County of San Francisco LIFELINES COUNCIL



Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator

full presentation with their final recommendations to the Council, City and County of San Francisco leaders, and others to consider.

Dr. Johnson then presented the survey results. The five topics that received the most survey votes are:

1. **Design and conduct a multi-operator table-top exercise(s) (either citywide or regional)) and identify areas needing additional pre-planning for collaboration.** Aim for this effort to be integrated into the Golden Guardian 2013 exercise planning and implementation. Potential exercise topics include interdependencies between different lifeline operators, regional lifeline restoration policy discussions, mass evacuation and impacts on lifeline service restoration, a multi-operator valve shut-off exercise, operator communications (testing loss of cell phones, internet, or radios and using the CalEMA "cloud").
2. **Develop pre-designated access routes and staging areas for lifelines operators to use for equipment and temporary services (i.e. temporary cellular sites) post-disaster.** Staging areas should be interconnected with lifelines locations and recommendations of this group should be linked in with debris removal exercises.
3. **Develop damage scenarios for multiple lifelines systems and develop priority restoration schemes for these multiple systems.** Work on issues of prioritization and decision-making (i.e. clarify who sets the priorities, how the City's priorities fit or conflict with operator's priorities, and what regulations also need to be considered).
4. **Conduct a more detailed study of physical co-locations where multiple lifeline system failures are likely.** Areas with multiple buried systems are an example. Develop a report that recommends priorities for mitigation.
5. **Establish a study group to better understand the legislative agendas and needs of different operators.** Recommend any legislative and regulatory changes (local, state, and national) as well as barriers that need to be overcome for lifeline operators to improve post-disaster system performance and restoration. This could include identifying potential regulatory waivers and fast-track permitting that may be needed to help expedite restoration and mitigation work in the immediate aftermath of a disaster. Develop a report with recommendations on how the City and County of San Francisco and the Lifelines Council could support its members in pursuing these recommended changes.

She also noted that there were four other topics that received just slightly lower vote counts than the "Top 5" but still had much higher vote counts than the rest of the topics. They are:

- **Develop pre-disaster plans for emergency operations communications and restoration priority setting and decision-making among lifelines operators with systems in San Francisco.** Some operators will be seated with the infrastructure group in the CCSF Emergency Operations Center and others will also be linked into state and regional emergency operations centers which could result in conflicting priority setting, for example.
- **Develop pre-disaster plans for the provision of interim (3 months or more) utility services for shelter-in-place residents, interim housing residents, and temporary business sites.** This links with the recommendations of the SPUR "Safe Enough to Stay" report to have neighborhood service centers to provide lifelines service support to residents who shelter-in-place but may not have utility services at their residences for extended periods of time. Services could include potable water distribution, temporary sewage collection, and temporary power and cellular services.



# City and County of San Francisco LIFELINES COUNCIL



Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator

- **Develop integrated lifelines performance targets for all city operators.** Consider the lifelines performance standards recommended in the 2009 SPUR Resilient City policy paper as well as lifelines performance guidance offered by the American Lifelines Alliance, National Infrastructure Protection Plan, National Institute of Building Sciences, and other “best practice” organizations. Recommend how specific the targets should be and set goals for when they should be achieved. Also address how the recommended lifelines performance targets should be adopted or implemented among the city’s operators and communicated with City officials, emergency planners, regulators, and the public.
- **Establish a city-industry work group to address cellular communication siting and permitting standards, with an emphasis on providing adequate back-up power generation, fuel supplies, or alternative power supplies and plans so that cellular service is not lost following a major disaster.**

## Group Discussion.

Ms. Kelly and Mr. Poland then moderated a group discussion on the work program topics then ensued. The group first discussed the highest ranked topic: **1. Design and conduct a multi-operator table-top exercise(s) (either citywide or regional)) and identify areas needing additional pre-planning for collaboration.**

The City Administrator’s Office, SF Public Utilities Commission and the San Francisco Department of Emergency Management discussed possible tabletop exercises, dates, and locations; San Francisco’s Treasure Island is one possibility. Discussion also considered whether a Lifelines Council table top exercise might be integrated into the Golden Guardian 2013 exercise planning and implementation. Potential exercise topics include interdependencies between different lifeline operators, regional lifeline restoration policy discussions, mass evacuation and impacts on lifeline service restoration, a multi-operator valve shut-off exercise, operator communications (testing loss of cell phones, internet, or radios and using the CalEMA “cloud”). Mr. Rob Dudgeon, CCSF Department of Emergency Management, reported that the Golden Guardian exercise is a functional regional exercise utilizing the 1906 earthquake as the scenario, with state, national and local objectives already set. The city of San Francisco is focusing on mass care and the SF PUC is dealing with emergency drinking water provision. Some other utilities are not participating. Any additional objectives will have to be developed by January or February to be part of the exercise in May.

Mr. Poland showed the city’s liquefaction susceptibility map and raised the question of the Mission Creek liquefaction and lateral spreading issues. He recommended forming a working group to identify key operator facilities in the area and overlay the systems. Several operators agreed that they had key facilities in this area and that there could be significant damage. It was recommended that the group could first develop a scenario that described how much lateral spreading and settlement would occur, then operators could identify impacts to their respective systems.

Mr. Michael Carlin, SFPUC, described the city’s Underground Service Alert process where operators are notified about utility construction works proposed at a location and asked to physically post locations of their systems in the vicinity of the proposed works. He proposed that a work group could focus on how to better plan and coordinate repairs in an emergency situation involving multiple systems that are co-



# City and County of San Francisco LIFELINES COUNCIL



Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator

located or in close proximity to each other. It was recommended that this work could provide a more granular scenario of what specifically is broken and how to go about developing procedures ahead of time for coordinating repair and restoration work. A key issue is the vintages of many systems in the city; as-built plans are not available for many of the older components and lines.

It was noted that these issues also tied in with the 3<sup>rd</sup> and 4<sup>th</sup> highest ranked project topics:

**3. Develop damage scenarios for multiple lifelines systems and develop priority restoration schemes for these multiple systems.**

**4. Conduct a more detailed study of physical co-locations where multiple lifeline system failures are likely.**

Issues of information sharing were also raised. Ms. Vriheas, AT&T, raised concerns about information sharing and the need to be able to provide systems related information for response and restoration, and ensure that operator's legal teams are comfortable and anti-trust issues are considered. She explained how AT&T provides systems information to the city, but it is usually done on a project-by-project basis. Some operators don't have information packaged on their entire system. She advocated that the Council work to develop procedures and tools, if necessary, so that operators can provide necessary information when it is needed in a response situation.

Discussion also considered whether a table top exercise might focus on post-earthquake procedures and decision-making around utility restoration and repairs. Questions raised that could be considered in designing such a table-top exercise were: How to provide and share utility information in the EOC/early post-disaster period? How to ensure a feedback loop between the city's EOC and operators in their information sharing, decision-making, and implementation/operations? What resources will be available and how will resources be allocated (i.e. who gets fuel first)? What are the political facets of the prioritization of restoration and repair efforts (i.e. emergency operations, population and special needs, economic issues) and how will prioritization decisions get made? How to deal with the reality that information sharing, coordination and decision-making will be occurring in multiple places, including the city's EOC, the regional EOC, some at the State EOC, and some with individual providers?

Mr. Dudgeon reported that it might be able to work a lifelines restoration decision-making component into a table top exercise with the City's policy group—a group led by the Mayor that advises the Mayor on priorities and decisions as part of the city's incident command system decision-making and management structure. He recommended that the Lifelines Council form a working group that would develop the exercise objectives and that an exercise location and plan would be developed based upon those objectives. He advised that his team would be more available to help design and lead the exercise effort if it was scheduled for late 2013 or thereafter.

The group also focused discussed on two other work group topics:

- **Develop pre-designated access routes and staging areas for lifelines operators to use for equipment and temporary services (i.e. temporary cellular sites) post-disaster.** It was noted that some of this work is already underway as the SF Department of Public Works in reevaluating the priority routes plan. This work could be expanded to include Lifelines Council operators. Key issues



# City and County of San Francisco LIFELINES COUNCIL



Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator

discussed: SF DEM needs to know where operators need to be in order to make a plan; operators have trouble identifying where they need to be until they know what happened; post-earthquake fires make impact route plans; and whether escorts (official or unofficial) would be needed. Dr. Johnson agreed to contact Ms. Cynthia Chono (SF DPW) to understand progress and how the efforts might include a Lifelines Council work group.

- **Establish a city-industry work group to address cellular communication siting and permitting standards, with an emphasis on providing adequate back-up power generation, fuel supplies, or alternative power supplies and plans so that cellular service is not lost following a major disaster.** Dr. Johnson asked whether it was feasible to have the Lifelines Council join in the working group already established by the City's Capital Planning and Real Estate groups to address cellular siting and permitting at City-owned facilities, and expand the scope to include broader issues raised by the Council. Mr. Jim Hennessey (Verizon) and Mr. John Updike (CCSF Real Estate) expressed interest as part of the survey to help with this work group topic. Mr. Brian Strong (CCSF Capital Planning) and Ms. Scalingi (Bay Area Center for Regional Disaster Resilience) also volunteered.

### 3) Superstorm Sandy Lifelines Response and Recovery

Naomi Kelly

Ms. Kelly began the discussion on Superstorm Sandy by acknowledging that several Lifelines Council members have already been involved in some capacity responding to Sandy and she thought it worthwhile to have a discussion about the early insights and lessons learned. In particular, she thought it useful to know what lessons are most relevant to San Francisco's lifelines and our anticipated response and recovery challenges, and also whether there are some potential topics that the Lifelines Council could study further based upon this recent disaster experience.

To help initiate the discussion, Ms. Kelly provided a brief summary of the impacts of Superstorm Sandy:

- Near the storm's center, the peak wind gusts reached almost 100 miles per hour (mph) but most coastal areas saw windspeeds of 70 to 80 mph. Wind-related damage was mostly concentrated to the areas right along the coast but significant treefall related damaged occurred far inland due to high winds.
- Sandy also had a record storm surge (relative to its windspeeds). A storm surge of 16 feet was recorded in New York harbor near Staten Island. Other coastal areas mainly saw surge heights of 4 to 12 feet and there was significant flooding in low lying areas along the coast, harbors, and rivers.
- Sandy's landfall impacted the densely populated coastal corridor of the mid-Atlantic and northeastern U.S. Over 20 million people live in the New York metropolitan area alone which was also at the epicenter of Sandy's damage.
- The storm caused 125 deaths in the U.S. and 71 more in the Caribbean.
- Damage estimates are over \$60 billion and still likely to rise, making it the 2<sup>nd</sup> costliest storm in U.S. history after Hurricane Katrina. The governors of New York and New Jersey are asking for a combined \$74 billion in federal aid.
- Treefalls, downed power lines, and flooding caused a massive power outage affecting more than 17 states and over 8.5 million customers.
- Both the petrochemical refining and transmission facilities were impacted, leading to the much publicized fuel shortages in the first week after the storm.



# City and County of San Francisco LIFELINES COUNCIL



*Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator*

- There were also significant impacts to most lifelines systems, particularly the ports, airports, transit, roads and tunnels, sewer, water, and telecommunications.

She then introduced Mr. Rob Dudgeon (SF DEM) and Mr. Chris Barkley, a Vice President with URS Corporation, who she invited share some of their observations of Sand to help kick off the discussion.

Mr. Dudgeon and members of DEM were part of a State of California team dispatched to provide mutual aid to the state of New York. They were one of several State of California teams and their role was to help establish a New York state incident management team. Mr. Dudgeon reported that they first went to Westchester County, New York and then went to Long island for a few days. He and some members of DEM are going back to study Long Island. Issues that he found noteworthy were:

- Logistical support for utility workers. There were thousands of workers coming to the region to help restore utilities. All needed housing, food, fuel, etc. Some utilities had their own logistical support but, even still, they needed some government help (i.e. to secure space). Establishing communications and coordinating these logistical matters is an area that needs more work.
- "Utility restoration" figures don't tell the full story. For example, it was reported that over 50% of the region's power system was restored in 48 hours and 80% of the system was restored in 5 days. But, there are still outages in parts of New Jersey, New York, Connecticut, and West Virginia. And, furthermore, these restoration figures are mainly for the utility operators' portions of the system. Building owners still have to do their own repairs and so many more people really don't have power yet. There needs to be clear communications, and expectations need to be more clearly set.
- FEMA and state agencies had about a week to prepare and there were still significant gaps and problems. There were problems with inter-agency communication and trust, and disregard for evacuation orders.
- Restoration is really critical to reducing significant additional losses.

Mr. Barkley reported that his firm has a contract to support FEMA post-disaster. In Sandy, they are currently helping with the structural damage assessment. Issues that he found noteworthy were:

- There will be post-disaster assessments by FEMA and other agencies as to what failed and why and these will be useful in making recommendations for codes and standards improvements. The impacts to power users and what can be changed to improve power restoration for users will likely be assessed.
- FEMA has a mission to provide generators but it never seems to keep up with the need. It is difficult to understand what the need is and it takes a lot longer to understand the need than many people expect that it should.
- At one month into the disaster, the FEMA Public Assistance process is just getting started. This may mean that it will take a while for local governments to get money and resources in place to restore damaged infrastructure and public facilities.
- The fuel crisis is likely to have a lot of parallels to the Bay Area. There were issues of power loss, flooding at the refineries, and transportation problems. In the Bay Area, oil comes by ship to refineries for processing. The fuel distribution networks are also vulnerable in the Bay Area. How can the Lifelines Council engage with an industry that has historically been reluctant to talk



# City and County of San Francisco LIFELINES COUNCIL



*Edwin M. Lee, Mayor  
Naomi Kelly, City Administrator*

openly about these issues? In other disasters, they have done a good job of getting themselves going again.

Group discussion followed these initial presentations and it was recommended that the Lifelines Council members continue to observe utility performance and restoration in Sandy and report insights to the Council at future meetings.

#### **4) Next Steps and Announcements**

**Naomi Kelly and Chris Poland**

Ms. Kelly and Mr. Poland brought the discussion to a close. They thanked members for their input and said that they would be carefully considering the discussion and recommendations made about the focus and priorities for the Lifelines Council's 2013 Work Program and contacting individual members in the weeks to come about next steps in both chairing and participating in specific work groups.

#### **5) Adjourn**

The meeting adjourned at 4pm. Staff of the PUC then provided a tour of the new building for interested Council members.

Lifelines Council meetings will continue on a quarterly basis.