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*

DRAFT MINUTES

Meeting #12 – Building Momentum: On the Road with Lifelines Council Workgroups

Thursday, June 27, 2013
2:00 PM – 4:00 PM

SAN FRANCISCO CITY HALL
Conference Room 201

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

REPRESENTED AGENCIES

Association of Bay Area Governments	San Francisco Department of Emergency Management	San Francisco Municipal Transportation Agency
Bay Area Center for Regional Disaster Resilience	San Francisco Department of Public Works	San Francisco Office of the City Administrator
California Resiliency Alliance	San Francisco Earthquake Safety Implementation Program	San Francisco Public Utilities Commission
Comcast	San Francisco Capital Planning Program	San Francisco International Airport
Degenkolb Engineers	San Francisco Fire Department	SPUR
Laurie Johnson Consulting	San Francisco Real Estate Division	Urban Resilience Strategies
Pacific Gas & Electric		Verizon Wireless
Port of San Francisco		
SamTrans		

1) Welcome and Introductions — Naomi Kelly and Chris Poland, Co-Chairs

Deputy City Administrator, Linda Yeung and Co-Chair, Chris Poland thanked council members for their attendance and participation, briefed the group on the work to date and the future direction of the council, focusing on the three work groups, created from a recent Lifelines Council member survey. Mr. Poland also mentioned that we are in the final stages of the Interdependency study and Dr. Laurie Johnson will present on her work shortly. As there were a number of new faces, all members introduced themselves and identified their agency.

2) Lifelines Interdependency Study Update & Final Mile — Laurie Johnson, Laurie Johnson Consulting | Research

Dr. Johnson presented the preliminary findings of the Lifelines Interdependency Study which is nearing completion. In all, 13 lifeline operators representing 12 different lifeline systems participated in the study. They are: regional roads, city streets, natural gas, electric power, telecommunications, water, auxiliary water (for fire-fighting), wastewater, municipal transit, the port, the airport, and a fuel distributor.

Dr. Johnson reviewed the study goals to first build a workable understanding of the city's lifelines systems and their interdependencies, and the consequences of existing conditions, to help expedite response and restoration planning among agencies. The study has used a 2006 analysis of the potential effects of a potential M7.9 San Andreas earthquake (similar to the 1906 earthquake) as the scenario event. The 2006 analysis mainly focused on building related damages that it estimated could exceed $120 billion across the 19-county Northern California region with heavy concentrations of building damage in San Francisco County. The 2006 analysis did not include potential additional losses resulting from fire or lifelines damages and, as Dr. Johnson explained, when the interdependency study is complete, the city and the region will have, for the first time, a complete scenario of both the likely building and lifelines damages resulting from such a major earthquake. The study methodology was derived from work performed in Vancouver (S. Chang et al.) and Southern California (Porter et al.) and shaped by the discussions of work groups held at the August 11, 2011 Lifelines Council meeting.

In reviewing the study results, Dr. Johnson first showed a series of slides that described the likely damage, response and restoration challenges that each of the 12 lifelines systems would have if a M7.9 earthquake happened today. She reported that most operators expect to have some damage in this large magnitude event. The initial damages to the regional highway systems, city streets, electrical power, seawall along San Francisco's waterfront, and buried systems such as natural gas, water distribution and wastewater collection systems all could be significant, especially in areas of poor soils. However, redundancy in the systems and efforts to upgrade some systems, including the region's freeway bridges and overpasses, the regional water conveyance system, auxiliary water, electric power and gas main lines and substations, and the telecommunications network will reduce potential damages.

Next, Dr. Johnson showed a series of curves that illustrate the expected restoration times for each of the lifeline systems. Electric power, telecommunications, and regional water are expected to restore within days to weeks. Restoration of natural gas, city streets, municipal transit, water distribution, and wastewater collection and treatment could take several months or longer. In some cases, the performance and restoration of one system is tightly coupled with another system. For example, telecommunications need electric power to operate, much of the municipal transit system needs city streets to be cleared and functional, and both the auxiliary water and wastewater systems need a water source. All operators depend upon the restoration of city streets, regional highways and the airport to get personnel and equipment into the city to conduct repairs. Most operators are also very dependent upon fuel and the restoration of electric power and telecommunications to operate their systems and undertake the necessary repairs and restoration work. The study also identified a number of interdependencies between operators whose systems are collocated or very near to each other. For example, underground water failures can impact underground electricity, gas, transit subway and telecommunications buried nearby as well as city streets above ground. Similarly, damage to city streets

can impact infrastructure buried below. Failures of the seawall along the San Francisco waterfront can also impact all lifelines adjacent to or crossing the seawall.

Next, Dr. Johnson reported on a third category of lifeline interdependencies when the failure of a critical component of a lifeline system dramatically affects the system's overall performance. Some of the most critical of these general lifeline interactions identified in the study are: a potential electrical substation failure that could impact the overall stability of the electric power system in San Francisco; failure of a major water storage or "turnout" facility that would impact both water distribution and supply to the auxiliary water system; damage to the city's southeastern wastewater treatment plant or a major transport structure that makes it difficult to restore the city's entire system; damage to the operation facility for the municipal transit system that would impact overall system operations, and damage to a major fuel pipeline or storage facility that would impact supplies and service delivery.

Finally, Dr. Johnson identified three areas of potential follow-on activities resulting from the study:

1. Geographic "choke point" areas of the city where there are heavy concentrations of infrastructure in liquefaction vulnerable soils that could suffer significant ground failure and damage in a major earthquake, and in which more detailed and coordinated studies among operators are recommended. They are: the seawall along San Francisco's waterfront, portions of the Financial District and the southeastern reaches of the city near Mission and Islais Creeks.
2. Areas for coordinated planning and preparedness efforts that include: access and credentialing for utility inspectors and repair personnel; design and conduct of a lifelines interdependency tabletop exercise that might focus on restoration priority setting and emergency communication among operators and with the city's emergency operations center; and addressing post-disaster telecommunications needs including the need for additional temporary cell sites as well as more back-up generators and batteries for permanent cell sites.
3. Areas for coordinated mitigation efforts that include integrating some remaining and critical priority mitigation projects for city operators into the City's Capital Planning program; identification and advocacy, as needed, for some priority mitigation projects that private sector operators have; development of some common resilience (level of service) and restoration standards for critical system components; and development of common standards and a plan for addressing variations in system monitoring and communications capabilities among operators.

Dr. Johnson closed by presenting a timeline of next steps to be completed over the summer. A summary of each interview is being prepared and sent back to the operators for approval and all of the interview results will be integrated into a final draft report that will provide, for the first time, a scenario of multi-sector lifeline performance in San Francisco. The participating operators will all have an opportunity to review the draft report before it is publically available. A presentation on the final results will be made at the next Lifelines Council meeting scheduled for September 19, 2013.

3) Work Group update **Priority Routing**	**Patrick Otellini** **Director, SFGSA- ESIP**

Patrick Otellini, Director of the GSA Earthquake Safety Implementation Program, briefed the council on the work to date and explained how the Priority Routing workgroup would be handled in a phased approach.

- Phase I: Identify stakeholders from private & public sectors (completed)
- Phase II: Identify critical private sector facilities. Target Date: July - Sept 2013
- Phase III: Data analysis; process development & project completion. Target date: March 2014

Some of the initial work focused on the 2003 DPW Windshield Survey map and if it could be used as a starting point for the project.

Council members had the following comments:

- Develop a 72 hour "look forward" or timeline of where the routes need to be, at which time over the first three days.
- Are commodities being considered to be brought in via water? If so, the SF Port should be brought into the conversation.
- Need to deal with first few weeks & whole recovery period as well. Time sequenced plan that segments the financial district and rest of CCSF.

4) Work group update
Temporary & Permanent Cell Sites

John Updike
Director of Real Estate, SFGSA

Mr. Updike explained the progress made to date and the primary goals of the group.

Permitting & streamlining: in the short term, go after easy improvements. In the future, consider legislative-based solutions.
Look at potential staging sites and possibilities for COW's (Cell on Wheels) & COLTS (Cell on Light Trucks) (temporary, mobile antennas)

Council members had the following comments:

- Work with departments that have large properties – Rec & Park, SFMTA, SF Port
- Coordinate among City departments and cell providers regarding temporary equipment locations and how to determine a process for the location decisions
- Can the COW's/COLTs co-locate? Is collaboration possible with the Priority Routing work group?
- Along with supporting the citizens' access to a network, what are the first responders needs?

5) Golden Guardian post-exercise briefing & discussion on interdependency exercise scope

Rob Dudgeon
Deputy Director, SFDEM

Mr. Dudgeon presented on the recent state-wide Golden Guardian exercise, shared personal experiences and discussed the Interdependency Exercise scope.

The exercise "started" 72 hours after a 7.9 seismic event and everyone who played a role said participation and results far exceeded expectations.

The CCSF Policy Group was activated and tested realistic policy questions and priorities for recovery. One question posted to the group was, "What Day 3 actions will set the City up for success or failure in Month 3?"

SFPUC activated their DOC (Department Operations Center) and worked with Waste Water and Water. Main focus was testing drinking water needs' issues—answers lie in Logistics and state support. They will be moving forward with the Drinking Water Plan over the upcoming year.

SFMTA activated their DOC as well, focusing on the use of technology and getting staff from their homes to work locations.

Golden Guardian shows we need to test events with other agencies and exercise planning among the private and public sector partners.

The planning for the Lifelines Tabletop will begin in mid-July, with the target date for the exercise being December. As is the case with the other work groups, we will have one City co-chair and one private sector co-chair, with agreed upon goals

Council discussion then centered on the UC Berkeley Earthquake Early Warning System.

- Can a demo presentation take place at a future Lifelines Council meeting?
- Is private participation in the project a possibility along with cost-sharing?
- How can this system be integrated into existing plans and include service providers?
- Along with that, the USGS is creating a tsunami scenario and exercise which could create some real impacts for San Francisco and Lifeline provider's response times.

6) Next Steps and Announcements **Naomi Kelly & Chris Poland**

Our next meeting will focus on three working groups and the interdependency study. Design team members will be introduced, objectives & scope will be fine-tuned and the overall timeline will be discussed.

7) Adjourn

The meeting adjourned at 4pm.