

Lifelines Council Meeting #9

Developing the Lifelines Council Work Program

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Lifelines Council: Background

- Recommendation of SPUR's Resilient City Initiative
<http://www.spur.org/policy/the-resilient-city>
- Launched in August 2009 with 20+ participating agencies; first meeting held in October 2009
- Documents and info available online:
<http://www.sfgsa.org/lifelinescouncil>



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Lifelines Council Objectives

- Develop and improve collaboration in the City and across the region by regularly convening a group of Executive Officers and Senior-level operational deputies of local and regional lifelines providers
- Understand inter-system dependencies to enhance planning, restoration and reconstruction.
- Share information about recovery plans, projects and priorities.
- Establish coordination processes for lifeline restoration and recovery following a major disaster event.



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Lifelines Council Meetings #1 – 8

(Presentations and meeting notes available at <http://www.sfgsa.org/lifelinescouncil>)

- Operator case studies by SFPUC on water and wastewater systems, PG&E on gas and electric systems, and AT&T and telecommunications,
- City department/program efforts by SFDPW on priority routes program, SFDEM on the EOC and response roles and inter-agency coordination, and CCSF Capital Planning program
- Post-earthquake reconnaissance reports about the Maule Chile (Feb 2010), Christchurch NZ (Sept 2010 and Feb 2011), and Tohoku Japan (March 2011)
- Educational presentations (e.g. Harvard Kennedy School's Acting In Time Initiative, ShakeAlert Early Warning System, SPUR Resilient City Transportation and Rebuilding Taskforce's policy paper)
- Impact and Loss Scenario for a repeat of the 1906 Earthquake, research on lifelines interdependencies, and design/launch of the Lifelines Council interdependency study



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Setting the Council's 2012-2013 Agenda

- Continue to serve as a forum for education to help advance our mutual knowledge and guide our work
- Can work to develop a more robust forum for exchanges amongst ourselves and with key agencies and organizations (CalEMA, CHP, FEMA) that will be deciding priorities and resources post-disaster
- But, we also want to consider how we can begin to more collaboratively work on issues common to all operators and the City in enhancing response and restoration planning, and developing a collective set of performance expectations, restoration priorities, and capabilities



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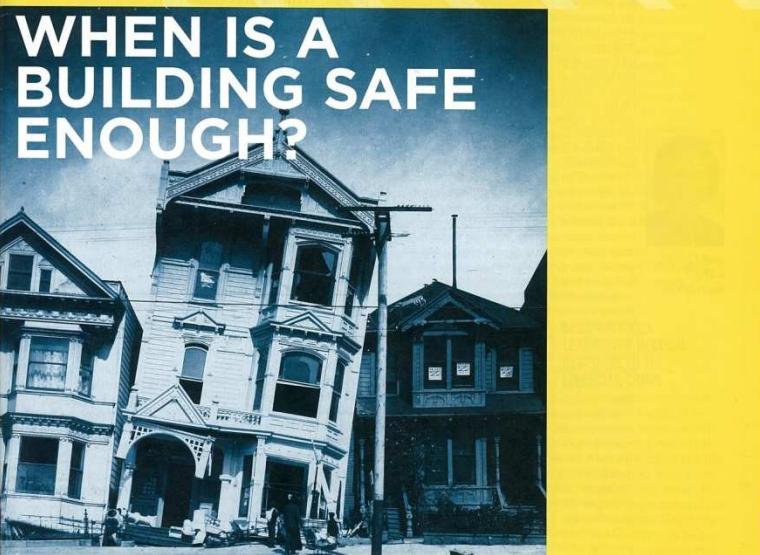
SPUR Resilient City Recommendations

Issue 479 News at SPUR p3 The Resilient City p4 MFAC award winners p23 Urban Field Notes p30 Calendar p34

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WHEN IS A BUILDING SAFE ENOUGH?



The Resilient City
Part 1: Before the disaster



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THE RESILIENT CITY: DEFINING WHAT SAN FRANCISCO NEEDS FROM ITS SEISMIC MITIGATION POLICIES

SPUR REPORT

Adopted by the SPUR Board of Directors
January 16, 2008

Released February, 2009
The primary author of this report was Chris Poland

www.spur.org



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SPUR Lifelines Recommendation #1: Establish a "Lifelines Council"

1. Undertake comprehensive planning to coordinate the recovery of lifelines following an earthquake
2. Establish resilience standards in cooperation with the lifeline providers
3. Conduct a seismic performance audit of lifelines and establish priorities for mitigation
4. Require improvements to City-owned and regulated systems to meet performance goals and develop a funding program for those improvements
5. Require the design and implementation of improvements to the gas distribution system that reduce the risk of post-earthquake ignitions
6. Establish partnerships with regional, state and private sector entities to address multijurisdictional and regional systems
7. Establish a program for communications and outreach to regional, state, federal and private sector entities to drive change



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TARGET STATES OF RECOVERY FOR SAN FRANCISCO'S BUILDINGS AND INFRASTRUCTURE

INFRASTRUCTURE CLUSTER FACILITIES	Event occurs	Phase 1 Hours			Phase 2 Days		Phase 3 Months		
		4	24	72	30	60	4	36	36+
CRITICAL RESPONSE FACILITIES AND SUPPORT SYSTEMS									
Hospitals								X	
Police and fire stations				X					
Emergency Operations Center							X		
Related utilities								X	
Roads and ports for emergency					X				
CalTrain for emergency traffic						X			
Airport for emergency traffic				X					
EMERGENCY HOUSING AND SUPPORT SYSTEMS									
95% residence shelter-in-place								X	
Emergency responder housing					X				
Public shelters							X		
90% related utilities								X	
90% roads, port facilities and public transit							X		
90% Muni and BART capacity						X			
HOUSING AND NEIGHBORHOOD INFRASTRUCTURE									
Essential city service facilities							X		
Schools							X		
Medical provider offices							X		
90% neighborhood retail services								X	
95% of all utilities								X	
90% roads and highways							X		
90% transit							X		
90% railroads							X		
Airport for commercial traffic					X				
95% transit							X		
COMMUNITY RECOVERY									
All residences repaired, replaced or relocated								X	
95% neighborhood retail businesses open							X		
50% offices and workplaces open							X		
Non-emergency city service facilities							X		
All businesses open							X		
100% utilities							X		
100% roads and highways							X		
100% travel							X		

Source: SPUR analysis

TARGET STATES OF RECOVERY

Performance measure Description of usability after expected event

BUILDINGS Category A: Safe and operational

Category B: 100% restored Safe and usable In 4 hours during repairs

Category C: 100% restored Safe and usable In 4 months after moderate repairs

Expected current status



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DEFINING TRANSPARENT PERFORMANCE MEASURES

Declaring in simple, concise and understandable terms the expected seismic performance of structures and systems, given a specific earthquake size, requires first the adoption of terms that are recognizable, consistent with other performance rating systems and useful in establishing policy.

SPUR defines categories of the expected performance of buildings and lifeline systems in terms of both safety during the earthquake and usability during the response and recovery periods that follow. Lifeline performance is further defined in terms of the time allowed to resume service.

LIFELINES	
I	Resume 100% of service levels within four hours. Critical response facilities — including evacuation centers and shelters — need to be supported by utility and transportation systems critical to their success. This level of performance assures that these systems will be available within four hours of the disaster. It requires a combination of well built buildings and systems, provisions for making immediate repairs or activating back-up systems as needed, and redundancy within the networks that allows troubled spots to be isolated.
II	Resume 90% service within 72 hours, 95% within 30 days, 100% within four months. Housing and residential neighborhoods require that utility and transportation systems be restored quickly so that these areas can be brought back to livable conditions. There is time to make repairs to lightly damaged buildings and replace isolated portions of the networks or create alternate paths for bridging around the damage. There is time for parts and materials needed for repairs to be imported into damaged areas. These systems need to have a higher level of resilience and redundancy than the systems that support the rest of the city.
III	Resume 90 % service within 72 hours, 95% within 30 days, 100% within three years. The balance of the city needs to have its systems restored as buildings are repaired and returned to operation. There is time to repair and replace older vulnerable systems with new. Temporary systems can be installed as needed. Most existing lifeline systems will qualify for Category III performance.

Source: SPUR analysis

EXAMPLES OF LIFELINE RESTORATION TIMES

	LIFELINE SYSTEM	TARGET STATE FOR RECOVERY
Category I (4 hours)	Municipal water supply system	Water service or temporary supplies available to 100% of facilities critical to response
	Auxiliary water supply system	Water available for firefighting in 100% of city neighborhoods
	Electric power	Power restored, or temporary power available to, 100% of facilities critical to response
	Natural gas	Establish immediate control of the system and shut off service to quadrants in which damage is likely to be significant and result in hazardous conditions
	Port of San Francisco	Critical ferry facilities available for transportation of first responders and evacuations
Category II (30 days)	Municipal water supply system	Water service restored to 90% of customers
	Natural gas	Service restored to 95% of customers in non-liquefaction areas
	Transit	90% of MUNI capacity restored
	San Francisco International Airport	Open for emergency traffic and evacuation flights
Category III (30 days)	Water, wastewater, electric power, and telecommunications	Service restored to 95% of customers
	Natural gas	Service restored to 95% of customers, including those in liquefaction zones
	Transit	Service restored for 90% of Muni customers
	San Francisco International Airport	Airport open for commercial traffic

Source: SPUR analysis

Setting the Council's 2012-2013 Agenda

- Today, small group discussions about the potential work program topics, considering:
 - Lifelines Council's Objectives
 - SPUR Resilient City work program recommendations
 - Priority issues emerging from the lifelines interdependency study
- Full set of topics will be assimilated and sent to all council members to review and prioritize
- Goal is to establish 1 to 3 work groups for 2012-2013:
 - Further define the problem, derive solutions, and find “best practice” examples, when possible
 - Identify financing and implementation issues
 - Report back to the Council with recommendations



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