

# Lifelines Council Meeting #10

Lifelines Council Work Program

Naomi Kelly, City Administrator  
Chris Poland, Chairman, Degenkolb Engrs

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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 – 9

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

- Operator case studies (SFPUC on water and wastewater systems, PG&E on gas and electric systems, and AT&T and telecommunications)
- City department/program efforts (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 (Chile 2010, Christchurch NZ 2010 and 2011, and Japan 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)
- Design/launch of Lifelines Council interdependency study (e.g. impact and loss scenario for a repeat of the 1906 Earthquake, research on lifelines interdependencies)



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# Lifelines Council Meeting #10 Agenda

- Setting the 2013 Work Program – discussion led by Laurie Johnson
- Early insights and lessons learned from Superstorm Sandy – discussion led by Naomi Kelly with observations from CCSF DEM, URS, and other Council members



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# Setting the Council's 2013 Agenda

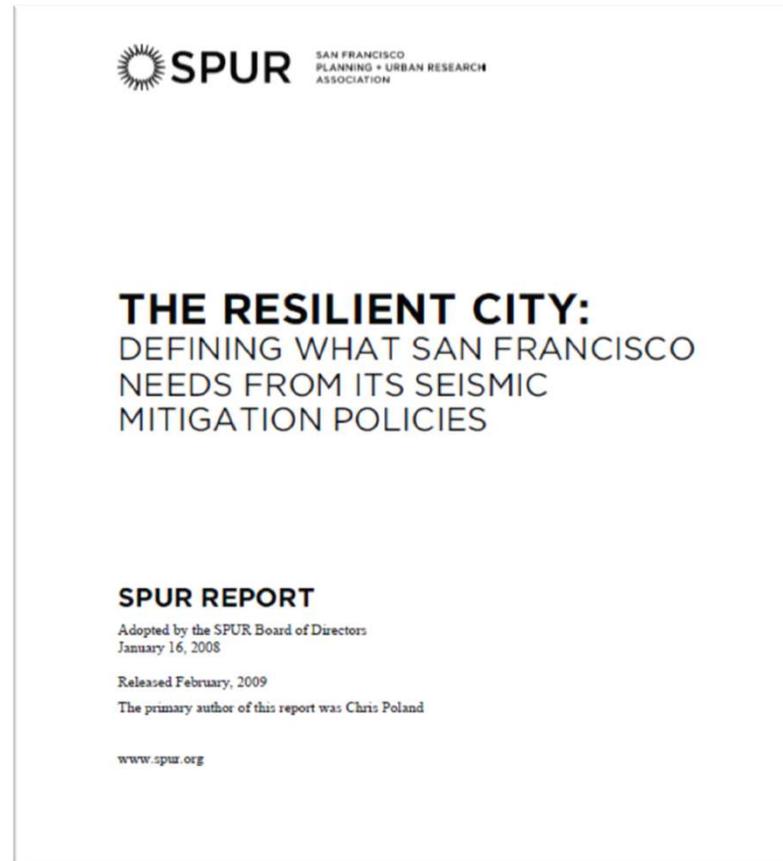
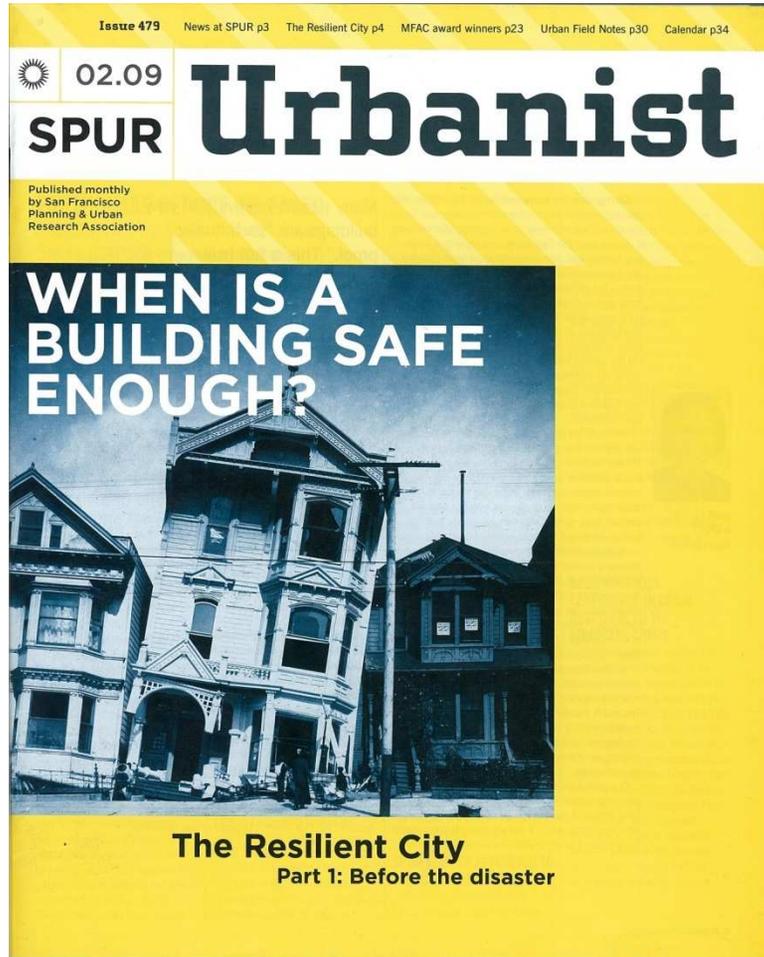
- Continue to serve as a forum for education to help advance our mutual knowledge and guide our work
- Develop a more robust forum for exchanges amongst ourselves and with key agencies and organizations that will be deciding priorities and resources post-disaster
- Begin to more collaboratively work 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



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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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# Setting the Council's 2013 Agenda

- September small group discussions about the potential work program topics, considering:
  - Lifelines Council's Objectives
  - SPUR Resilient City work program recommendations
  - Priority issues emerging from lifelines interdependency study
- Full set of topics assimilated and survey sent to all council members to review and prioritize
- Goal is to establish 1 to 3 work groups for 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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# Survey Results: Top Vote-getters

1. *Undertake comprehensive planning to coordinate recovery of lifelines following an earthquake (8 topics)*
  - **Develop pre-designated access routes and staging areas for lifelines operators to use for equipment and temporary services post-disaster.**
  - **Develop damage scenarios for multiple lifelines systems and develop priority restoration schemes for these multiple systems. Work on issues of prioritization and decision-making.**
  - Develop pre-disaster plans for emergency operations communications and restoration priority setting and decision-making among lifelines operators with systems in San Francisco.
  - 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
2. *Establish resilience standards in cooperation with the lifeline providers (1 topic)*
  - Develop integrated lifelines performance targets for all city operators.
3. *Conduct a seismic performance audit of lifelines and establish priorities for mitigation (3 topics; 1 added)*
  - **Conduct a more detailed study of physical co-locations where multiple lifeline system failures are likely, such as areas with multiple buried systems, and recommend priorities for mitigation.**
  - 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 cell service is not lost following a major disaster.



# Survey Results: Top Vote-getters

4. *Require improvements to City-owned and regulated systems to meet performance goals and develop a funding program for those improvements (2 topics)*
5. *Require the design and implementation of improvements to the gas distribution system that reduce the risk of post-earthquake ignitions (1 topic)*
6. *Establish partnerships with regional, state and private sector entities to address multijurisdictional and regional systems (1 topic)*
  - **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.**
7. *Establish a program for communications and outreach to regional, state, federal and private sector entities to drive change (1 topic)*
  - **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.**



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# Survey Results: 5 Top Vote-getters

- **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”). VOLUNTEER PARTICIPANTS: Jim Turner (CCSF DEM)
- **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. (Some of this work is already in progress and could be expanded to include Lifelines Council operators and issues.)
- **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) (7)
- **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. (7)
- **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.



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# Survey Results: Other Top Vote-getters

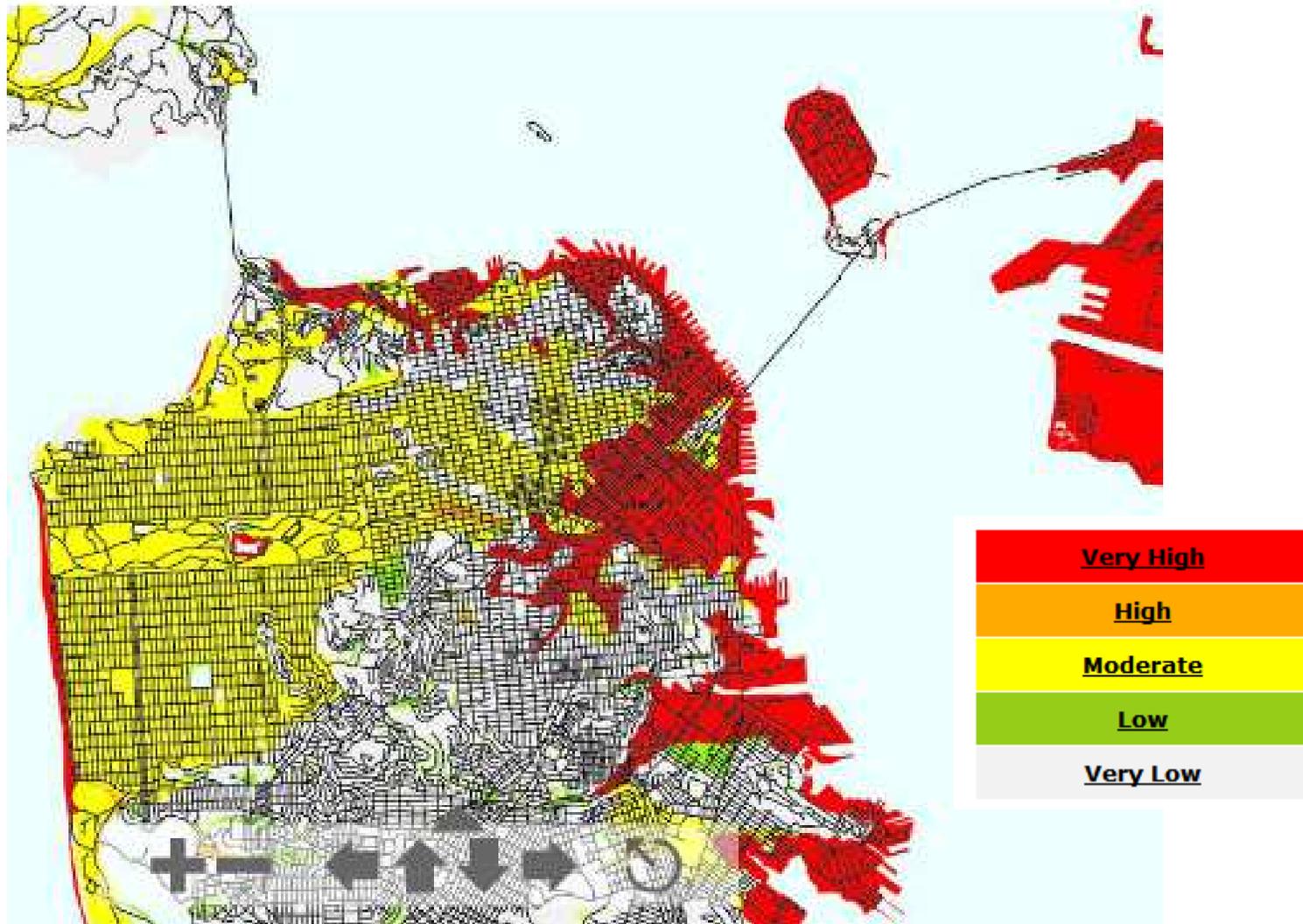
- **Develop pre-disaster plans for emergency operations communications and restoration priority setting and decision-making among lifelines operators with systems in San Francisco.** Some operators will be seated with the infrastructure group in the CCSF Emergency Operations Center and others will also 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. VOLUNTEER PARTICIPANTS: Jim Turner
- **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.** (The Lifelines Council could join in a working group already established by the City’s Capital Planning and Real Estate group to address cellular siting and permitting at City-owned facilities.) VOLUNTEER PARTICIPANTS: Jim Hennessey (Verizon), John Urdike (CCSF Real Estate)



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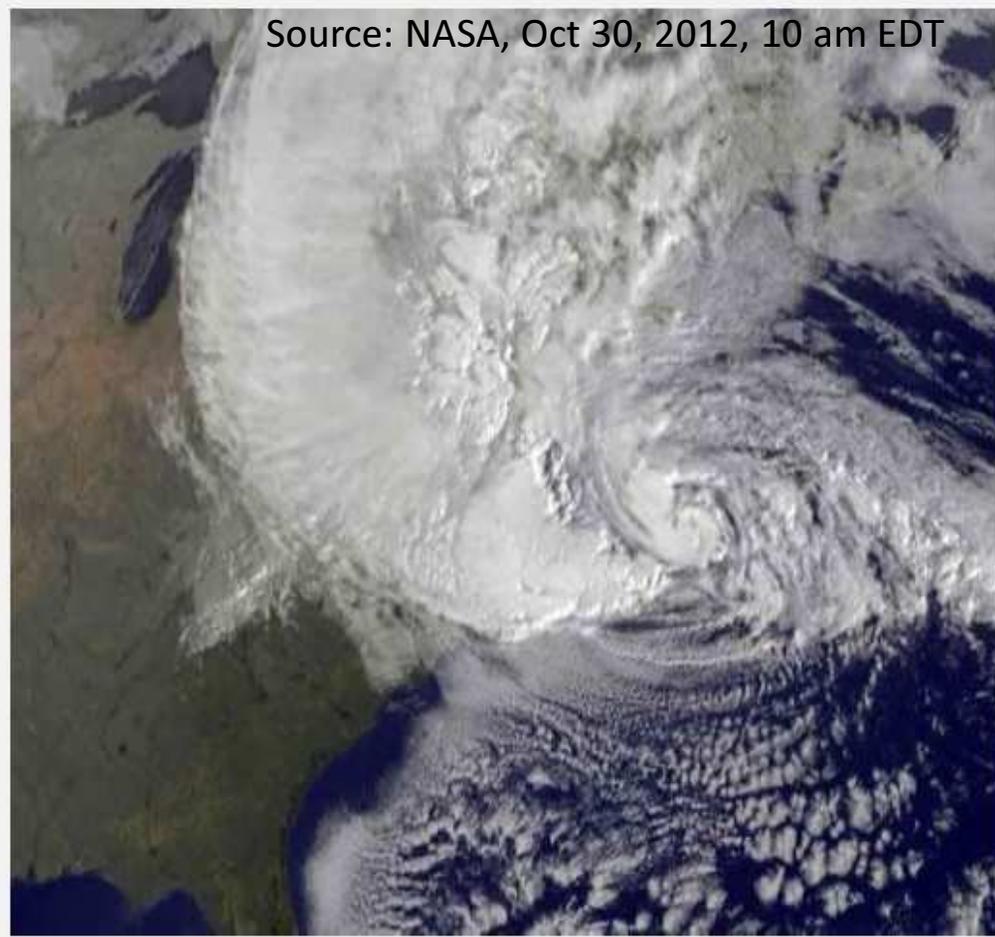
# Liquefaction Susceptibility (USGS)



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# Superstorm Sandy: Early insights and lessons learned

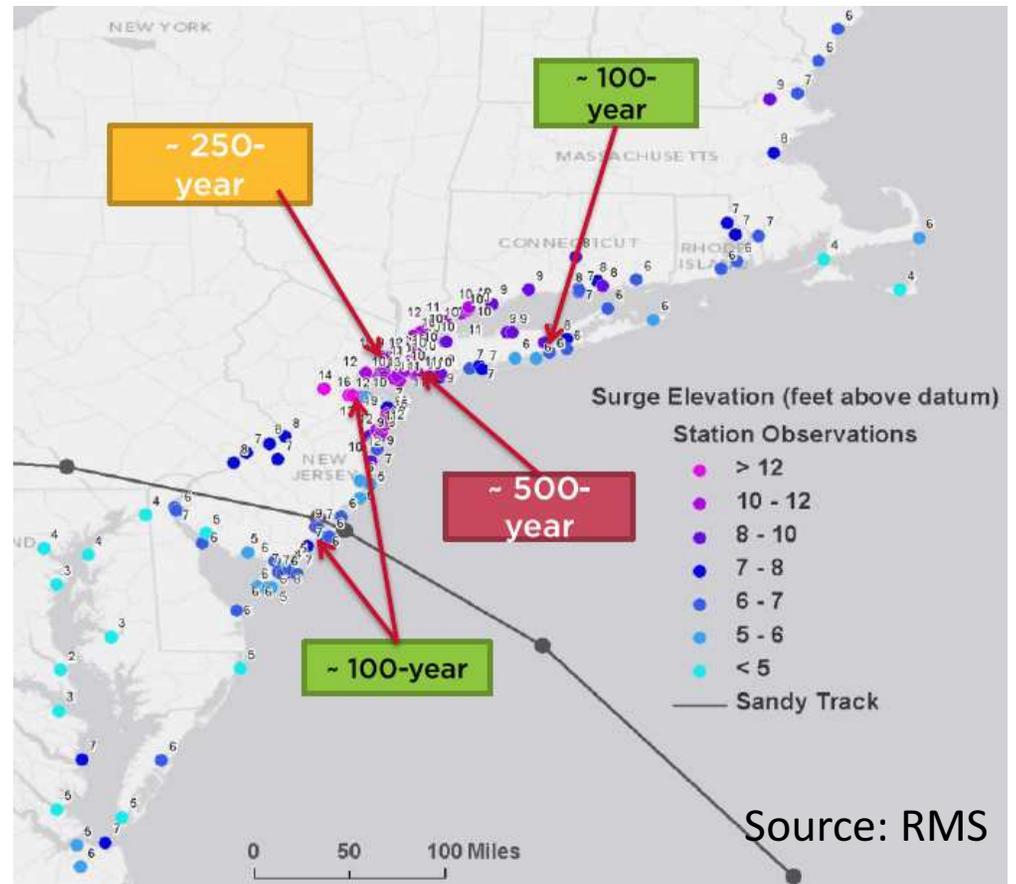


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# Superstorm Sandy

- Large, slow-moving post-tropical storm
  - Tropical storm force winds extended over 800 miles
  - Record low central pressure (940 hp)
- Peak wind gusts: ~95 mph (borderline Cat 1 hurricane), significant treefall but structure damage mostly concentrated at coast (4 – 5 blocks)
- Record storm surge: 16 feet (NYC harbor), mostly 4 to 12 feet surge



# Superstorm Sandy Impacts

- Multi-state impact (20+ million population in NY metro area)
- Deaths: 125 (60 in NY State (48 in NY City), 34 in NJ, 16 in PA, 6 in WV)
- Damage: \$63 billion (Insurance ~\$20 billion, NY State \$30 billion and NY City \$19 billion)
- Power loss in 17 states, over 8.5 million customers. 50% restored in 48 hours; 80% restored in 5 days (outage concentrations in NJ, NY, CT, and WV)
- Petrochemical refining and transmission facilities impacted
- Ports, airports, transit, roads, tunnels, sewer, water, telecommunications impacted
- 10 – 15 million sq feet of NYC Financial District office space impacted (>10% of 94 million sq feet)
- Expect a strong government-led recovery: 3 FEMA regions; first full-scale implementation of the National Disaster Recovery Framework



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# Superstorm Sandy:

Discussion on lessons for San Francisco lifelines and potential topics for further study



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