Community Resilience: Lifelines

Chris Barkley
AECOM
Overview: San Francisco’s Resilience Strategy

- Earthquake Safety Implementation Program (ESIP)
  - Mandatory Retrofit of Soft-Story Structures
  - Seismic Retrofit Financing
  - Earthquake Safety for Private Schools
  - Lifelines Council

- Development of the Resilience Strategy
  - Support from 100 Resilient Cities
  - Integration of ESIP, ongoing initiatives related to sea-level rise, housing, racial equity challenges
  - Office of Resilience and Recovery

- Goal: Path forward through an integrated approach to social and physical resilience
Addressing the Problem of Lifelines Performance

• SPUR’s Resilient City Initiative
• Among other findings: lack of understanding of, and consistent standards for, lifeline performance
• Recommended establishment of:
  • Understanding of potential lifeline performance
  • Priorities for mitigation
  • Partnerships with regional, state, and private sector entities
  • Program for communications and outreach to drive change among regional, state, Federal, and private sector entities
The Lifelines Council

- Objectives:
  - Develop and improve collaboration in the City and across the region
  - 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
  - Engaged 30 public and private sector providers

- 5-year implementation plan
Interdependency Study

• Objectives:
  • Develop understanding of lifelines performance and system interdependencies in a major disaster
  • Identify assets/restoration schemes to prioritize post-disaster restoration activities

• Findings:
  • Major retrofits have increased resilience, but vulnerabilities remain
  • Recovery of certain systems is coupled with/interdependent with other systems
  • Restoration of even moderate damage may be delayed by interdependencies
  • Lifeline issues that could seriously delay recovery were identified
Interdependency Study

© Lifelines Interdependency Study, April 2014, written by Laurie Johnson, Ph.D. AICP for the City and County of San Francisco’s Lifeline Council. Used with permission.

Legend
- Electricity
- Gas
- Regional Water
- Local Roads
- Telecom
- Transit
- Wastewater
- Airport
- Fuel

EERI Annual Meeting, San Francisco
April 6, 2016
Current Initiatives

• Address priorities identified in the Interdependency Study:
  • Analyze areas of infrastructure concentration ("choke points") – Market Street corridor
  • Assess multi-hazard vulnerability of infrastructure near the waterfront sea wall
  • Plan for post-disaster fuel supplies for lifeline operators
  • Identify staging/equipment storage sites for provider recovery operations
  • Integrate San Francisco’s initiative with other regional efforts to work towards regional resilience
Regional Lifelines Resilience

- Most lifeline systems are owned by regional providers

Lifelines Council initiatives:
- Consolidate work of others – e.g. ABAG’s Cascading Failures report, UASI efforts
- Promote collaboration among interdependent providers – e.g. PG&E and East Bay MUD
- Engage regional stakeholders (ABAG, State OES, lifeline providers) in sustainable regional effort

DHS initiative to promote lifeline resilience with regional assessment
- Building on Lifelines Council and ABAG efforts
- Goal to establish long-term Federal-State-local-private sector framework to collectively align planning and address area risk
Challenges

• Facilitate sustained collaboration among providers
• Overcome limitations on information exchange due to security and competitive constraints
• Promote realistic understanding of existing and desired lifelines performance among political leadership
• Cooperate despite gaps and overlaps in regulation and jurisdiction
• Establish policies and standards for lifelines performance despite lack of common authorities