The Resilient Washington State Initiative

Emergency Management Council

July 1, 2010

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Presentation Overview

- Project Background
- Review the key points in “The Resilient City” report.
- Synopsis of how these issues relate to Washington State.
- Project Approach & Next Steps

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Background

- The project is based upon the San Francisco Urban Planning and Research Association (SPUR) Report, entitled "*The Resilient City*", which examines the current state of resilience to a scenario quake in San Francisco.

- Four (4) major policy sections are addressed within the first report:
  - Defining Resilience – Defining what we need from our seismic mitigation policies.
  - The Dilemma of Existing Buildings – Private ownership, public risk.
  - Building it Right the First Time – Improving the seismic performance of new buildings.
  - Lifelines – Upgrading infrastructure to enhance earthquake resilience.

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Background

- The RWS Initiative is a strategic planning process for achieving state-level resilience with respect to earthquake hazards.
  - The planning process will identify actions and policies before, during, and after an earthquake event that can leverage existing policies, plans and initiatives to realize disaster resilience within a 50-year life cycle.
  - The Resilient Washington State plan will identify means to coordinate agencies, public-private partnerships, and standards towards this same goal.
- This project is intended to lay a foundation for implementation of long-term seismic risk reduction policies.

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Defining Resilience

- SPUR uses engineering standards – Define how many deaths, how many building demolitions (or infrastructure failures), and how long a recovery time for various levels of EQ.
- Resilience as a disaster, but not a catastrophe.
- Ability to recover – govern, lifelines to resume in short time frame, people stay in homes, resume normal living routine in weeks and return to new “normal” in few years.
- RWS Definition : TBD

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Dilemma of Existing Buildings

- Dovetail mitigation with response and recovery – if we are not prepared to mitigate we must be prepared to respond and recover – if we are not ready to respond and recover we must mitigate.

- Shortfall in resilience is a problem almost a century in the making and will not be quickly solved in a decade.
  - Pilot School Assessment Project

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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 NEIGBORHOOD INFRASTRUCTURE									
Essential city service facilities							X		
Schools							X		
Medical provider offices								X	
90% reighborhood 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% neighboorhood 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

The "x's" in the chart to the right indicate SPUR's best educated guesses about current standards for recovery times. The shaded areas represent the goals — targets based on clearly stated performance measures (see next page) — for recovery times for the city's buildings and lifelines. The gaps between "x's" and shaded boxes represent how far we are from meeting resiliency targets.

Target States of Recovery for Buildings & Infrastructure

TARGET STATES OF RECOVERY

Performance measure	Description of usability after expected event	BUILDINGS	LIFELINES
	Category A: Safe and operational		
	Category B: Safe and usable during repairs	100% restored in 4 hours	
	Category C: Safe and usable after moderate repairs	100% restored in 4 months	
	Category D: Safe and usable after major repairs	100% restored in 3 years	
X	Expected current status		

Note: Categories A–D are defined on page 10.

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Incorporate Transparent Performance Measures

DEFINING STAGES OF DISASTER RECOVERY

PHASE	TIMEFRAME	CONDITION OF THE BUILT ENVIRONMENT
1	**1 to 7 days**	**Initial response and staging for reconstruction**
	Immediate	Mayor proclaims a local emergency and the City activates its Emergency Operations Center. Hospitals, police stations, fire stations, and City department operations centers are operational.
	Within 4 hours	People who leave or return to the city in order to get home are able to do so. Lifeline systems that support critical response facilities are operational.
	Within 24 hours	Emergency response workers are able to activate and their operations are fully mobilized. Hotels designated to house emergency response workers are safe and usable. Shelters are open. All occupied households are inspected by their occupants, and less than 5 percent of all dwelling units are found unsafe to be occupied. Residents can shelter in place[1] in superficially damaged buildings even if utility services are not functioning.
	Within 72 hours	Ninety percent of the utility systems (power, water, wastewater, natural gas and communication systems) are operational and serving the facilities supporting emergency operations and neighborhoods. Ninety percent of the major transportation system routes, including Bay crossings and airports, are open at least for emergency response. The initial recovery and reconstruction efforts will be focused on repairing residences and schools to a usable condition, and providing the utilities they need to function. Essential City services are fully restored.
2	**30 to 60 days**	**Housing restored — ongoing social needs met**
	Within 30 days	All utility systems and transportation routes serving neighborhoods are restored to 95 percent of pre-event service levels, public transportation is running at 90 percent capacity, public schools are open and in session. Ninety percent of the neighborhood businesses are open and serving the workforce. Reconstruction efforts will be focused on repairing residences, schools and medical provider offices to a usable condition, and providing the utilities they need to function. Essential City services are fully restored and medical provider offices are usable..
	Within 60 days	Airports are open for general use, public transportation is running at 95 percent capacity, minor transportation routes are repaired and reopened.
3	**Several years**	**Long-term reconstruction**
	Within 4 months	Temporary shelters are closed, with all displaced households returned home or permanently relocated. Ninety-five percent of the community retail services are reopened. Fifty percent of the non-workforce support businesses are reopened.
	Within 3 years	All business operations, including all City services not related to emergency response or reconstruction, are restored to pre-earthquake levels.

Source: SPUR analysis

SPUR has defined performance goals in terms of four "clusters" of infrastructure (page 9), eight performance categories and three response and recovery phases (shown in this table). We are not recommending that all facilities be upgraded without regard to cost. Rather, our intent is to require only those improvements needed to assure a quick recovery — or the level of resilience desired for each stage of recovery.

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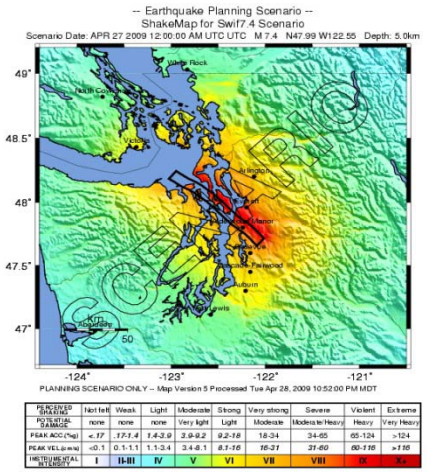
Project Approach

- Non-Technical: Aimed at Policy/Decision Makers
- Review existing information and incorporate new data from the USGS/ DNR/EMD Scenario Catalog Project.



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

- Establish formal Sub Groups with subject matter expert leads to facilitate information gathering from key partners and obtain buy in.
- Host a workshop series across the state to engage stakeholders and local jurisdictions in the process.
  - A truly Resilient State is made up of Resilient cities, counties, & tribes - local jurisdictions can adopt this approach at a smaller scale.
- Development of The Resilient Washington State Initiative is expected to take 2.5-3 years.

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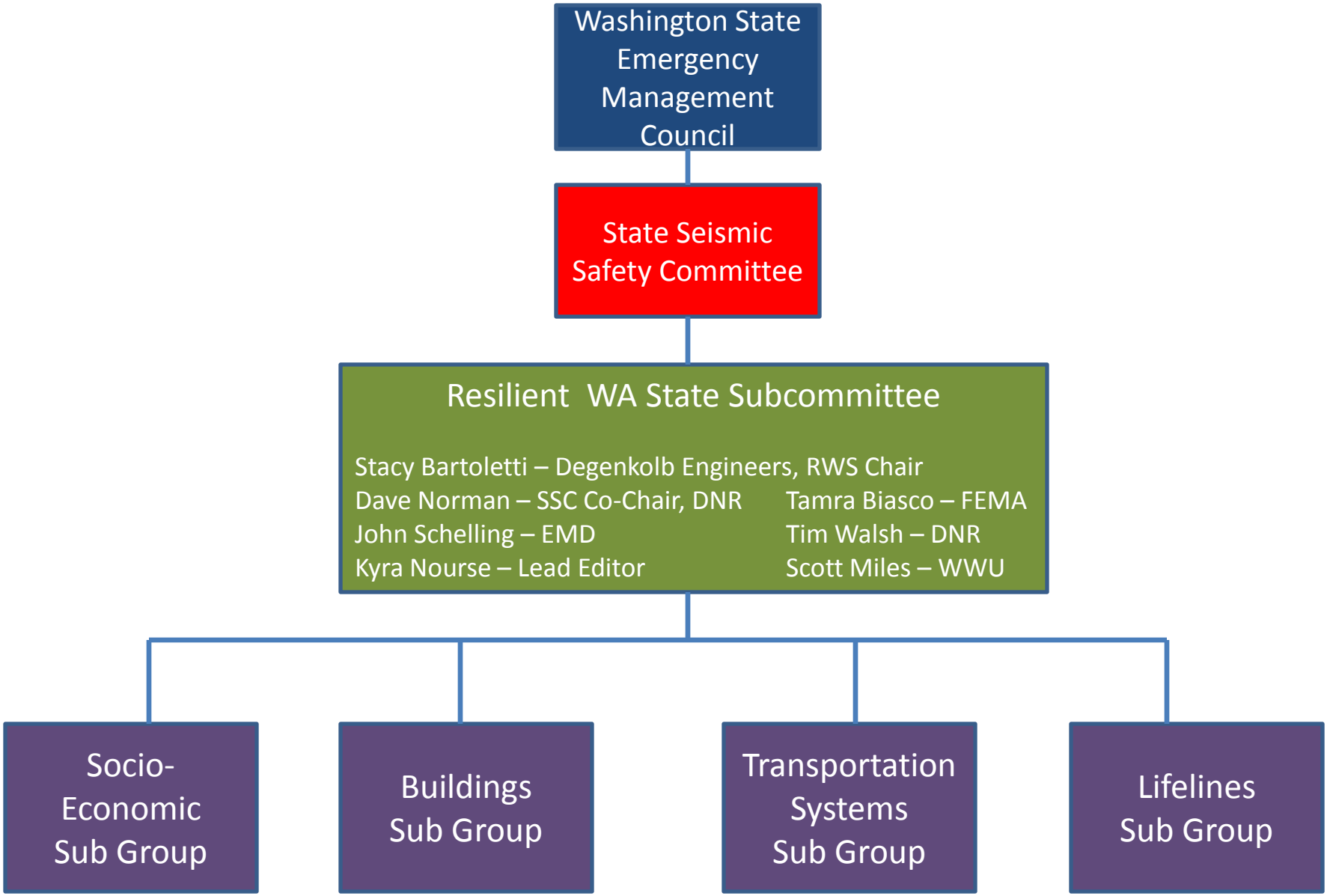
Resilient Washington State – Organizational Structure



- Questions?

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