Sea Level Rise Vulnerability Study for the City of Los Angeles

Phyllis Grifman
Alyssa Newton Mann
Juliette Finzi Hart

Sea Grant Program
University of Southern California

Annenberg Community Beach House
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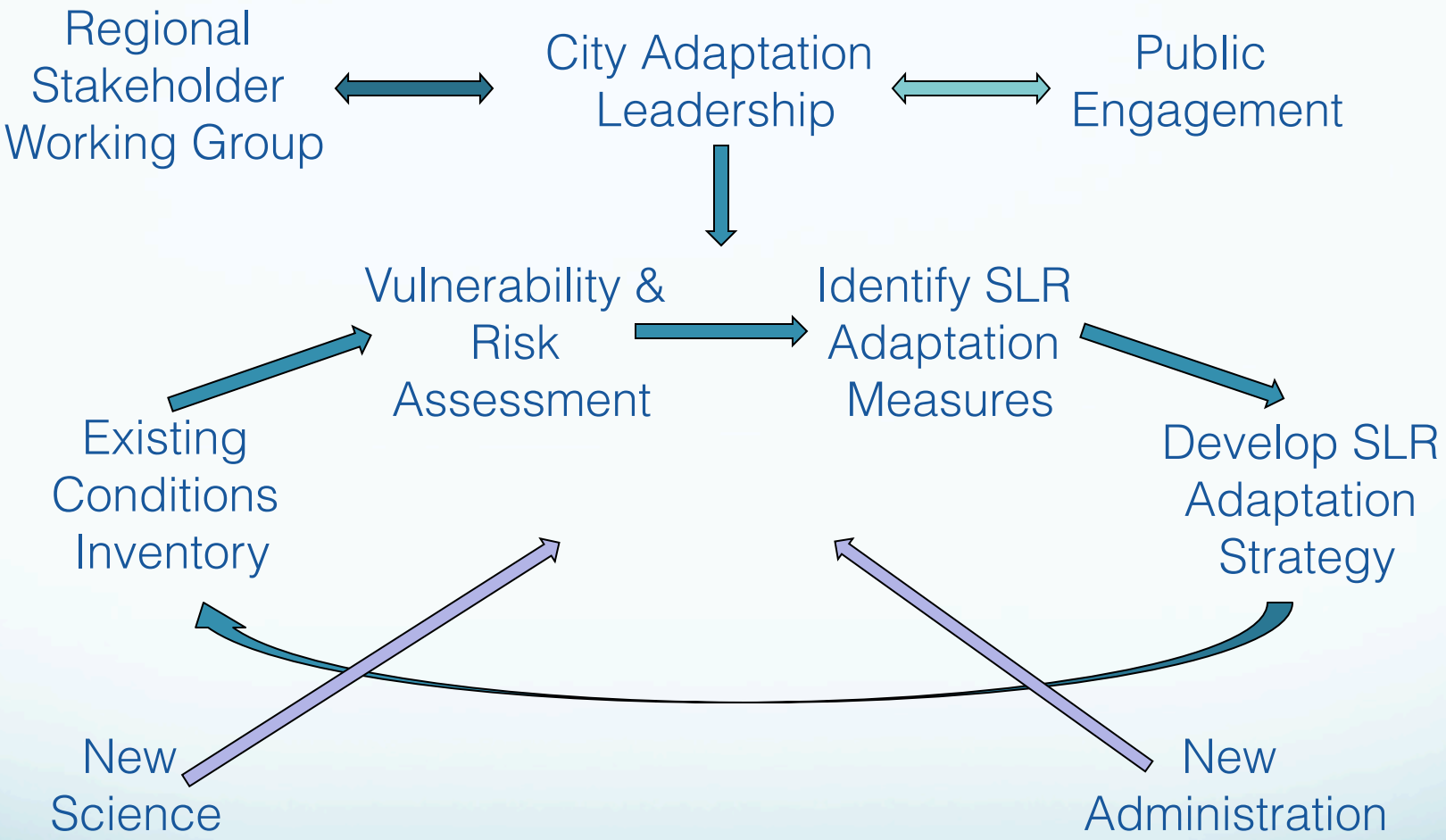
Comprehensive Planning Process Overview

- Science-based
- Participatory and stakeholder-supported
- Process adapted from many sources & firsthand experience
- Start with Sea Level Rise

“Adaptive” adaptation planning



Leadership Teams

- Adaptation Planning Team
  - City of LA
  - USC Sea Grant
  - LARC Los Angeles Regional Collaborative for Climate Action and Sustainability
  - ICLEI – Local Governments for Sustainability

- City Adaptation Leadership
  - Department of Water & Power
  - Port of Los Angeles
  - Bureau of Sanitation
  - Emergency Management Services
  - Planning
  - Recreation and Parks

Science Team

- Dr. Reinhard Flick, Scripps Institution of Oceanography / TerraCosta Consulting
- Dr. Julia Ekstrom & Dr. Susanne Moser, Susanne Moser Research & Consulting
- Dr. Dan Wei & Dr. Sam Chatterjee, USC Price School of Public Policy
- Dr. Patrick Barnard, USGS
- Lesley Ewing, CA Coastal Commission
- Brian Holland & Monica Gilchrist, ICLEI

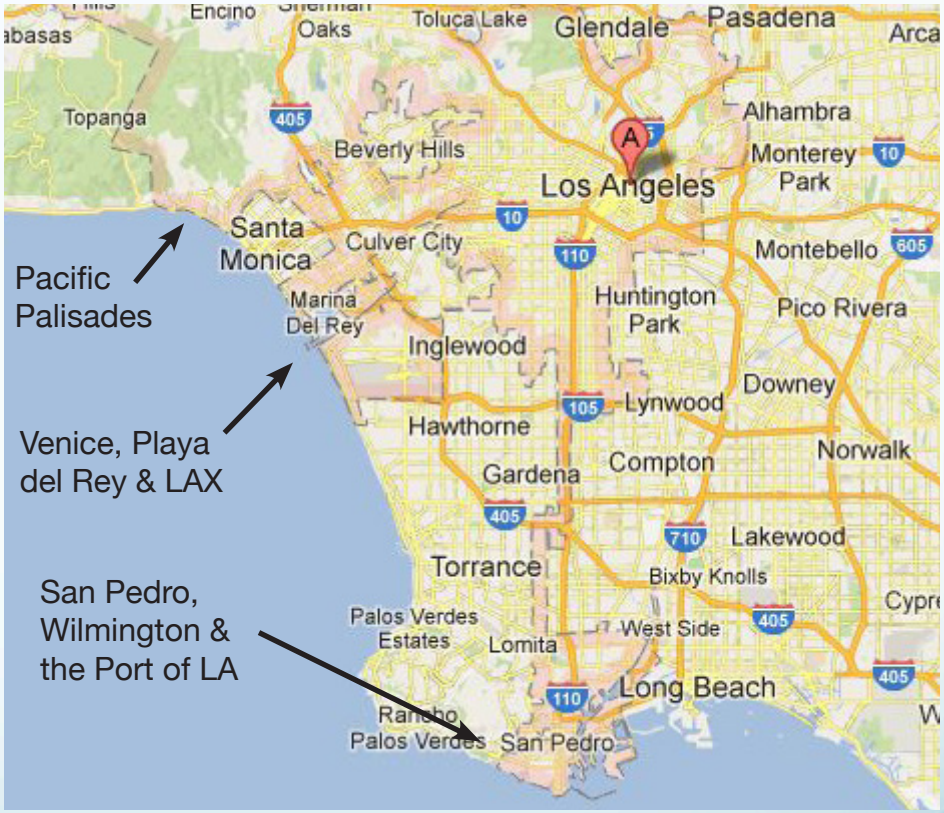
Participatory Process

- Regional Stakeholder Working Group
  - Local business, industry experts, LA County representatives, public utilities, NGOs, COGs, SCAG
- Public engagement through formal and informal discussion

SLR Vulnerability Study for the City of LA
Geographic Scope

- City of LA boundaries

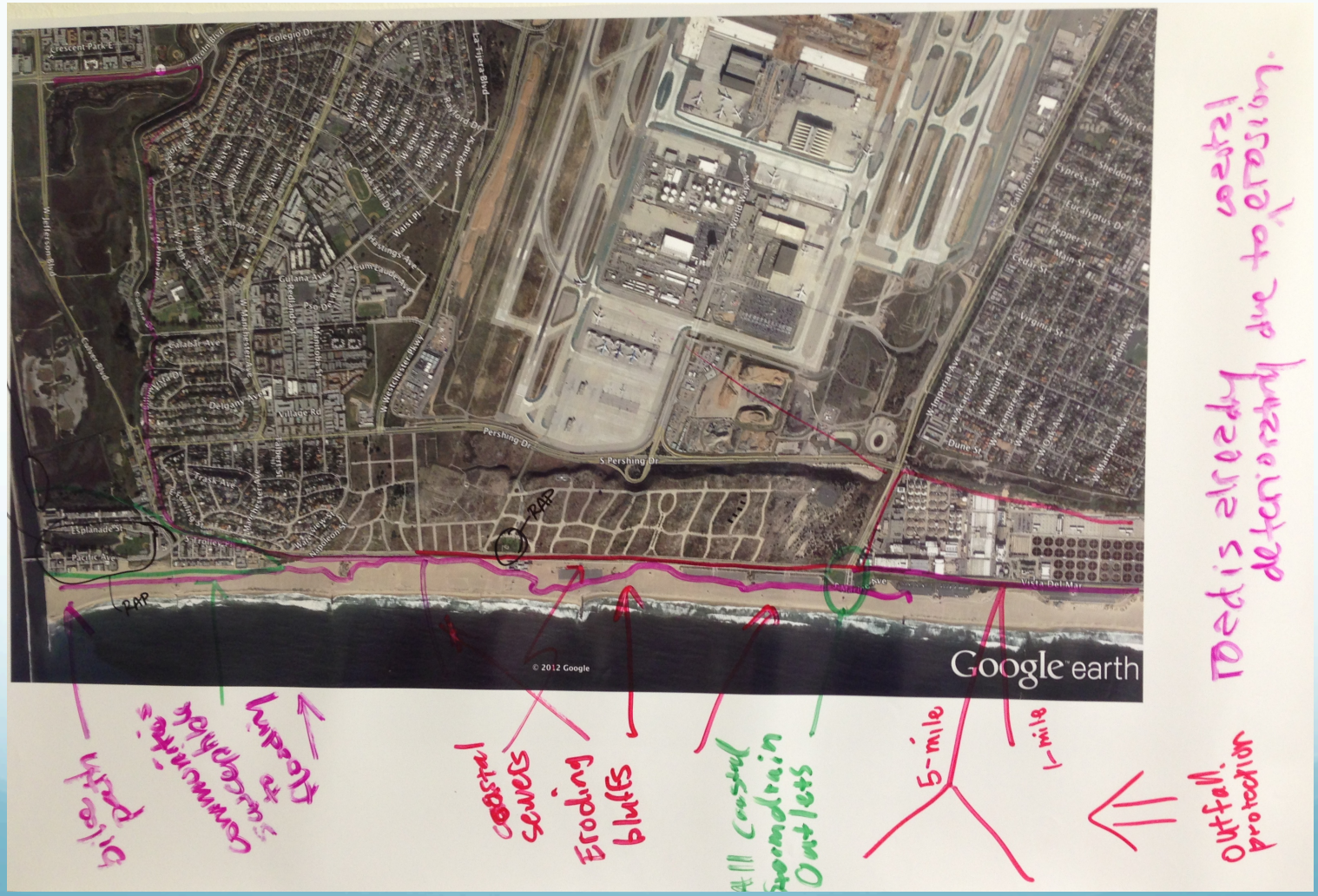
- Coastal Regions
  - Pacific Palisades
  - Venice, Playa del Rey & LAX
  - San Pedro, Wilmington & the Port of LA



Existing Conditions and Current Vulnerabilities

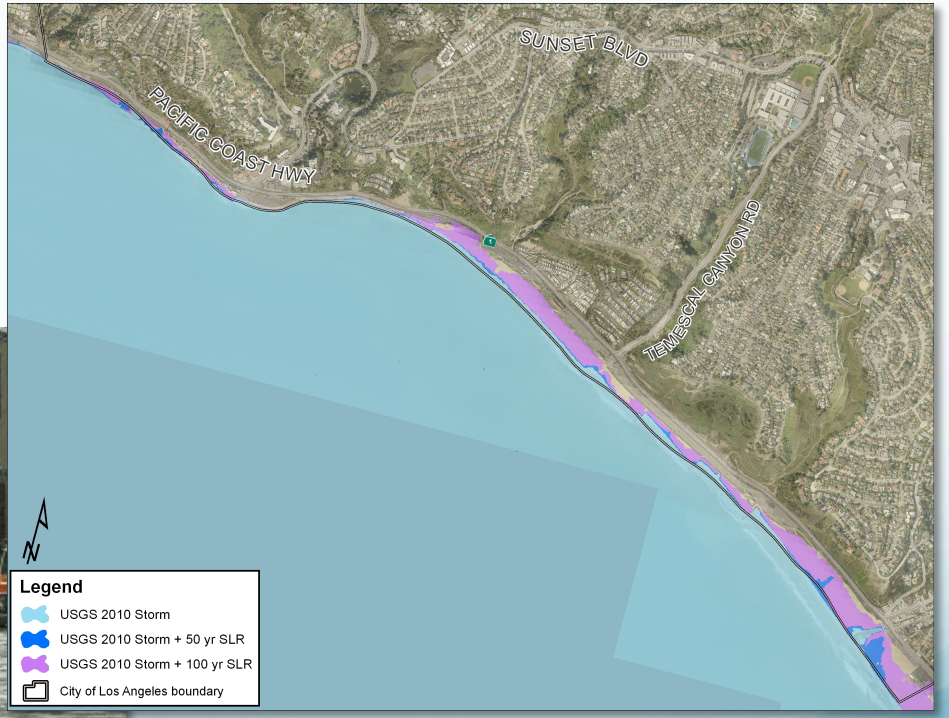
- Start with what we know
- Current Observed Vulnerabilities
  - Identified all coastal assets
  - Known vulnerabilities from high tides and storms

Existing Conditions and Current Vulnerabilities Playa del Rey to Dockweiler Beach and Hyperion Treatment Plant Map



Vulnerability Assessments – Determine SLR Exposure

- USGS – Dr. Patrick Barnard (CoSMoS 1.0)
  - Hindcast Jan 2010 Storm
  - Jan 2010 + 0.5 m (~50 yrs)
  - Jan 2010 + 1.4m (~100 yrs)



Social Vulnerability Assessment

- Led by Dr. Julie Ekstrom and Dr. Susanne Moser

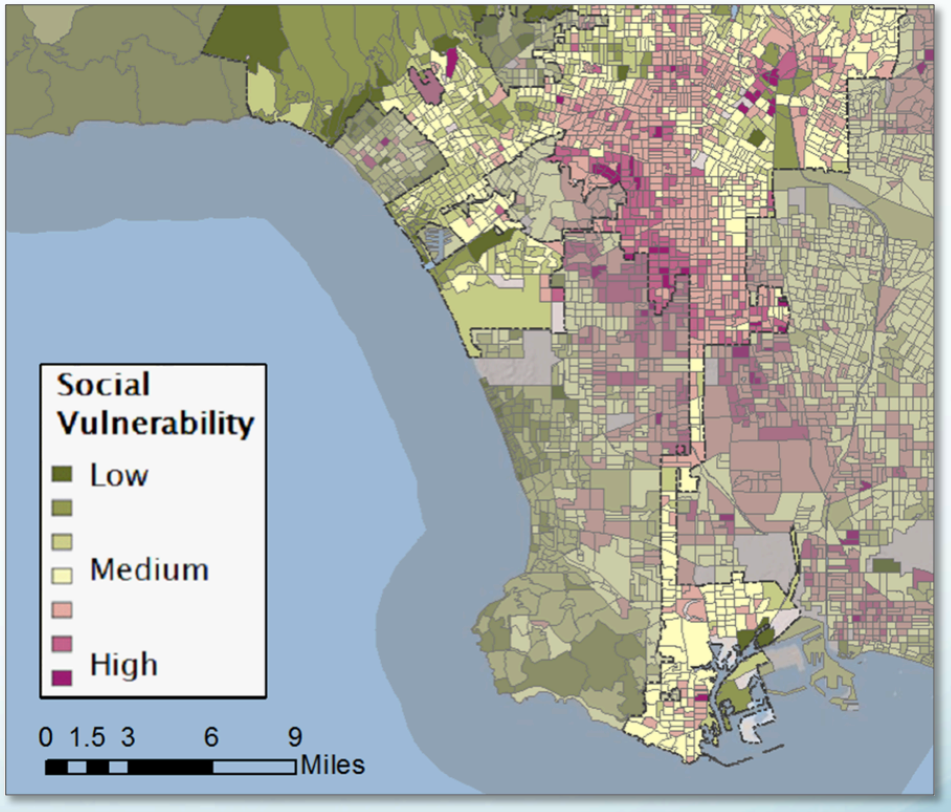
- Examined suite of census data
  - Income
  - Poverty
  - Education
  - Race
  - Age
  - Housing type/age
  - Physical/mental illnesses & disabilities

- Social Vulnerability Index analysis (Cutter et al. 2003)
  - Index of 32 different population characteristics

Social Vulnerability Assessment – Major Findings

Census data analysis

- Venice, low-lying San Pedro and Wilmington highest vulnerability
  - Lower per capita income & education, linguistic isolation, larger proportion of renters



Social Vulnerability Assessment – Major Findings

Beginning Strategies for Adaptation

- Document vulnerable populations – helps first responders
- **Communications** need to include alternative outreach efforts/information materials
  - Other languages (especially Spanish)
  - Don't require literacy or computer access

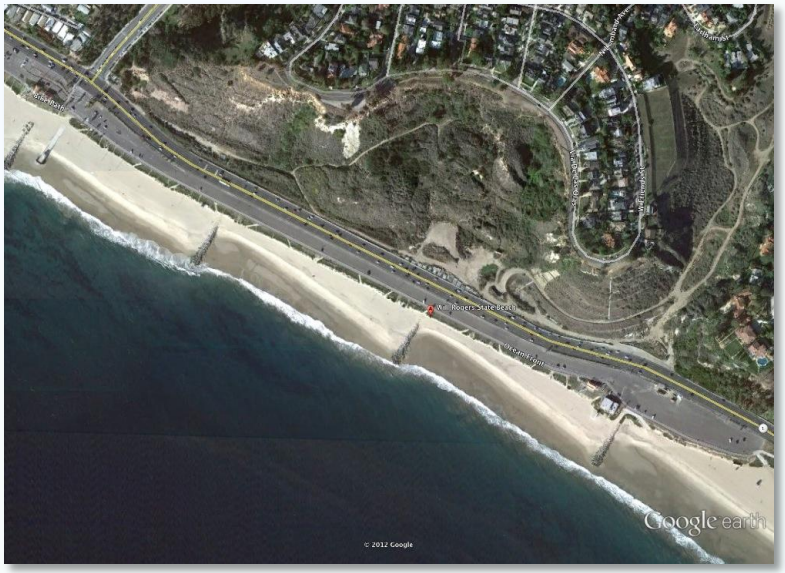
Guidance for Moving Forward

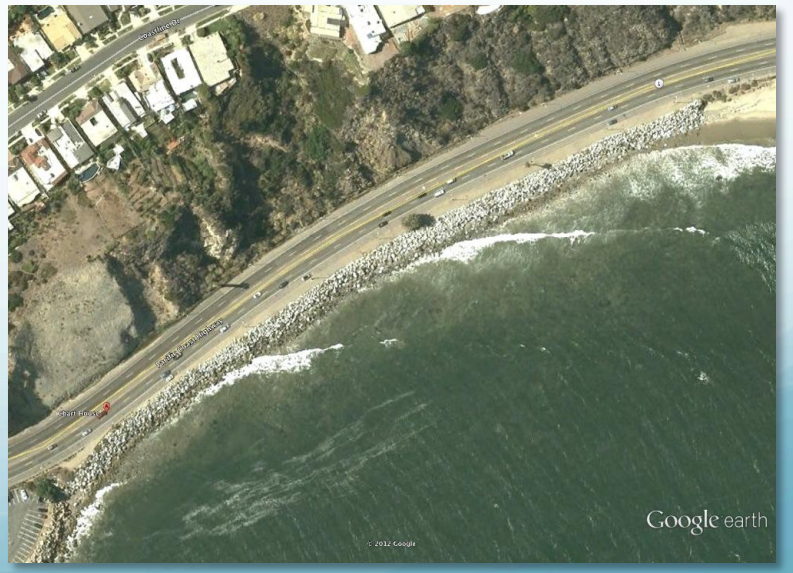
- Matrix of potential adaptation strategies – Lesley Ewing

General Techniques	Technique Details	Spatial Scale	Temporal Scale (Implement/ Effective)	Adaptive Capacity	Responsible Party	Costs	Comments
Land Acquisition	Fee Simple Acquisition	One or more lots	Short/ Long-term	Yes	Government, Non-Governmental Organization, Homeowner Association, Geologic Hazard Abatement District	High	Provides greatest control over land use and hazard response. Land can be purchased from willing sellers or by governments using eminent domain.
	Conservation Easements	One or more lots	Short/ Long-term – lessen with time	Yes	Government, Non-Governmental Organization, Homeowner Association, Geologic Hazard Abatement District	Low to Moderate	Provides less control than fee simple acquisition. Can be part of a permit action. Land can be purchased from willing sellers.
	Transfer Development Credit	Jurisdiction, Region	Moderate/ Long-term	Yes	Government, Geologic Hazard Abatement District	Low to Moderate	Provides fee simple acquisition of high hazard lots. Takes time to set up TDC Program and develop criteria for hazardous lot acquisitions. Costs to administer are low. Acquisition costs paid by developers. Cost of coastal land may make program infeasible.

Guidance for Moving Forward

- Invest in a strong foundation for climate adaptation
- Define clear adaptation goals
- Develop clear prioritization and selection criteria for choosing among possible adaptation strategies
- Continue “adaptive adaptation planning” approach
- Expand partnerships in developing adaptation options





Actions the City Can Take Now to Prepare for SLR

- Storm watch and notification
- Semi-annual beach width monitoring
- Annual monitoring of cliff retreat
- Use of historical profiles and existing wave data for predictions
- Coordination with local, regional, state and federal agencies

Challenges to anticipate

- Funding
- Staff resources
- Competing priorities

Lessons Learned

- Flexibility built into process
- Communication needs to be well planned
- Patience!

Next …

Matthew Peterson, Chief Sustainability Officer, City of L.A.

Dr. Ron Flick, Scripps IO, TerraCosta Consulting

Brian Holland, Dir. Climate Programs, ICLEI

Dr. Dan Wei, USC Price School of Public Policy

Panel II

Next steps for the region
New funding for science and modeling
Coordinated information and planning

Thank you!

Phyllis Grifman
Associate Director
213-740-1963
grifman@usc.edu

Alyssa Newton
Regional Research &
Planning Specialist
213-740-8602
agnewton@usc.edu