



# Climate Safe Infrastructure Working Group

## **Meeting 6**

University of California-Davis

Institute of Transportation Studies, 1605 Tilia Street, Suite 100

Davis, California 95616

Wednesday, June 20, 2018

10am – 4pm

# Welcome & Introductions

## The Climate-Safe Infrastructure Working Group

### Co-Facilitators



**Juliette Finzi Hart**  
USGS



**Susi Moser**  
Susanne Moser  
Research & Consulting



**Amir Aghakouchak**  
UC-Irvine



**Bruce Swanger**  
Cal-Trans



**Chester Widom**  
DGS, State Architect



**Cis Liban**  
L.A. Metro



**Dan Cayan**  
UC-San Diego, SIO



**David Groves**  
RAND



**Nancy Ander**  
DGS, Off. of Sustain.



**Deb Niemeier**  
UC-Davis



**James Deane**  
High-Speed Rail Auth.



**John Andrew**  
DWR



**Kristin Heinemeier**  
Realized Energy



**Kyle Meng**  
UC-Santa Barbara



**Martha Brook**  
CEC



**Noah Diffenbaugh**  
Stanford



**Gurdeep Bhattal**  
Cal-Trans



**Robert Lempert**  
RAND

### Project Team



**Keali'i Bright**  
Natural Resources  
Agency



**Elea Becker Lowe**  
Natural Resources  
Agency



**Joey Wall**  
Natural Resources  
Agency



**Guido Franco**  
California Energy  
Commission

... and YOU

# AB 2800 (Quirk): Purpose

Examine how to integrate scientific data concerning projected climate change impacts into state infrastructure engineering, including oversight, investment, design, and construction.



# AB 2800 (Quirk): Reminder about Scope and Recommendations

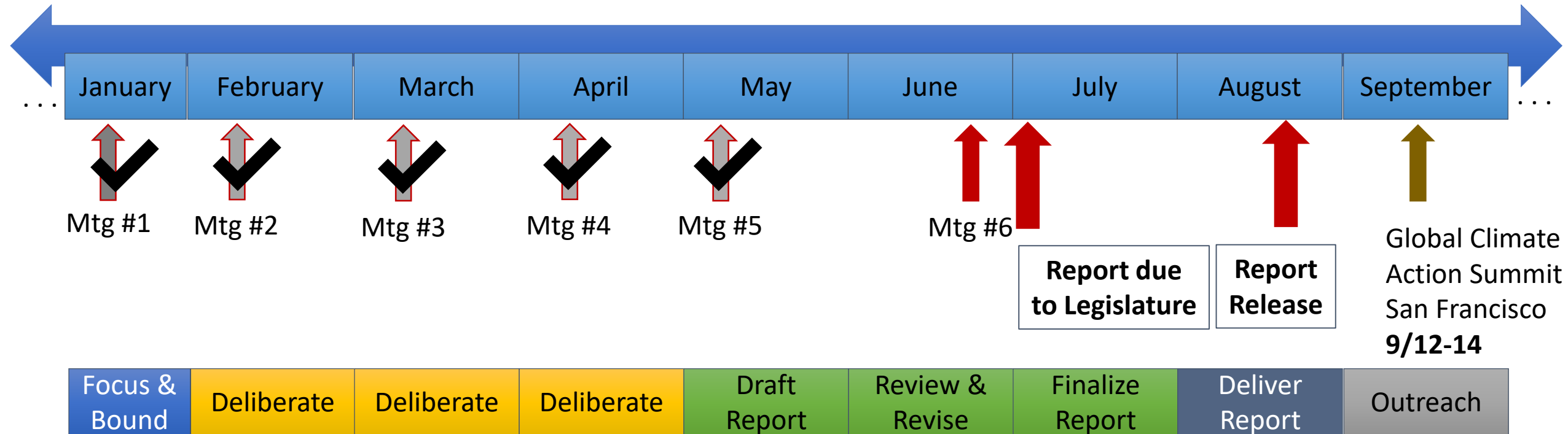
## At minimum...

- The **current informational and institutional barriers** to integrating projected climate change impacts into state infrastructure design.
- The **critical information** that engineers responsible for infrastructure design and construction **need** to address climate change impacts.
- How to **select an appropriate engineering design** for a range of future climate scenarios as related to infrastructure planning and investment.

## Additional...

- **Integrating scientific knowledge** of projected climate change impacts **into state infrastructure design**.
- Addressing **critical information gaps** identified by the working group.
- A **platform or process** to facilitate communication between climate scientists and infrastructure engineers.

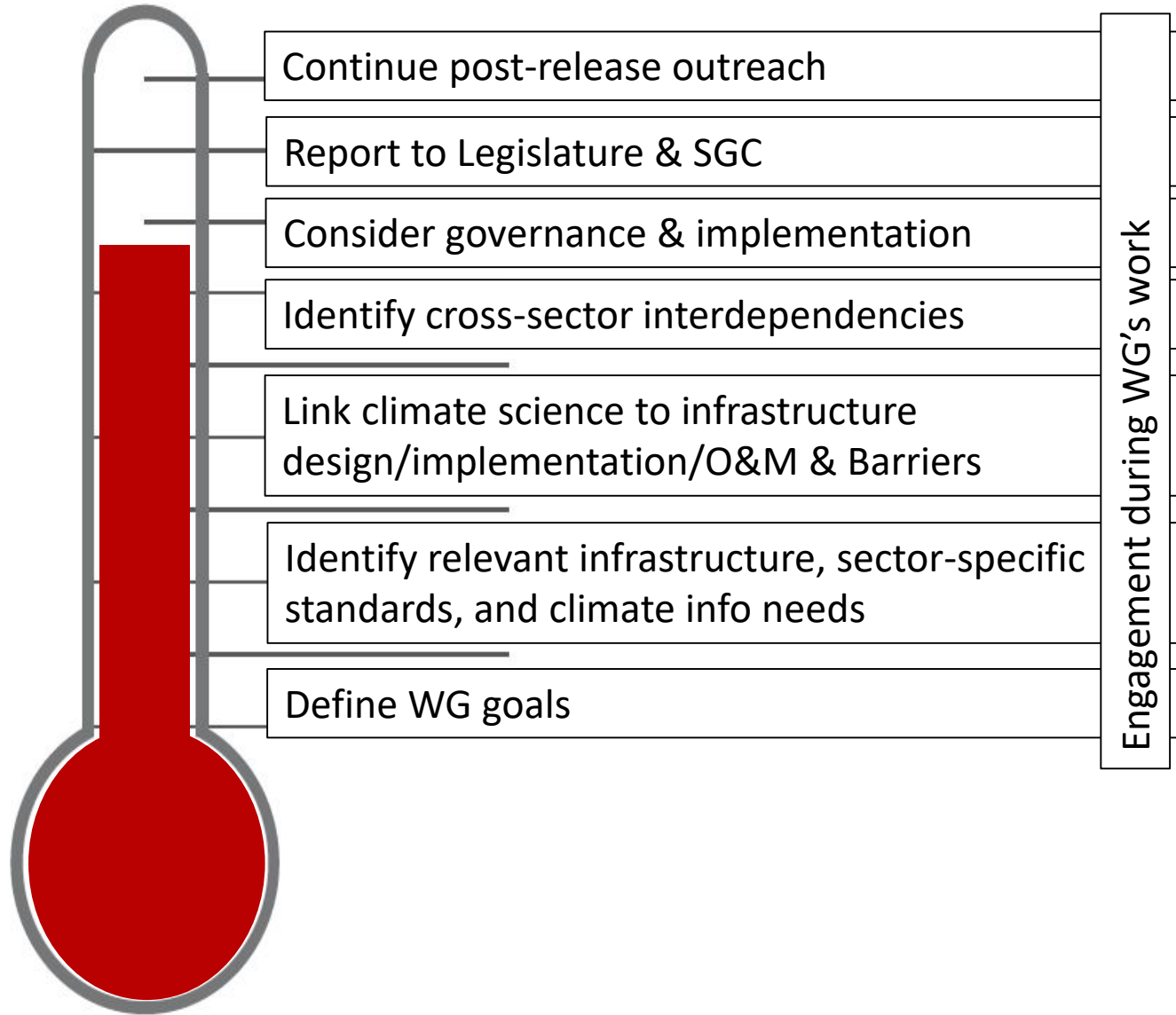
# Project Timeline



# Meeting Dates, Locations, Topics & Tasks

Mtg	Dates	Locations	Topics and Tasks
1	1/18	Sacramento	Determine project goals; WG structure and process
2	2/12	Los Angeles	Identify relevant infrastructure, sector-specific infrastructure standards, climate-sensitivity, information needs
3	3/13	San Francisco	Linking forward-looking climate science and impacts information with standards, codes, certifications throughout infrastructure life cycle, identify barriers to information use and potential ways to overcome them
4	4/11	Davis	Considering more than climate changes (land use, demographics, economy, mitigation, disasters) and cross-sector interdependencies in infrastructure design
5	5/9	San Diego	Governance of infrastructure and related standards and codes; non-standard strategies to ensure climate-safe infrastructure; tools & platform needs; deliberation of draft report; agree on refinement needs
6	6/20	Davis	Refine recommendations/implementation ideas; agree on final report revisions; project debrief and closure

# Measuring Progress



CAF3  
Planning



# The Arc of Our Work to Date

- Scoping
- Process

## Meeting 1

- Identify, prioritize climate-sensitive infrastructure;
- Agree on definitions
- Prioritize relevant standards, codes, guidelines
- Identify information needs

- Connect engineers' information needs with climate science;
- Identify barriers to information use, solutions
- Work through concrete examples

- Consider comprehensive approaches to climate-safe infrastructure that integrate...
  - Land use change
  - Ecol., econ., demogr. data
  - Disaster recovery
  - Interdependencies

- Understand governance challenges
- Assess tools, platforms and processes to support science-engineering interaction
- Deliberate report & recommendations

## Meeting 2

## Meeting 3

## Meeting 4

## Meeting 5

- Report review & refinement, approval

## Meeting 6



# Tasks for Meeting #6:

- **Task 1:** Review “big comments” on working draft
- **Task 2:** Deepen into several issues related to Implementation
- **Task 3:** Tie together Vision, Challenges, Barriers, and Recommendations into clear storylines
- **Task 4:** Review and evaluate the CSIWG process



# Agenda Overview

Time	Agenda Item
10:00-10:15am	Welcome, Intros, Charge for the day
10:15-10:30am	Overview of Working Draft Feedback from CSIWG
10:30-11:00am	Session I – Revisiting Story Lines: From Vision to Implementation
11:00-12:00pm	Dr. Beverly Scott – Infrastructure Workforce, Finance and Equity Issues
12:00-12:30pm	Working Lunch
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3:30-3:40pm	Next Steps on Report, Project
3:40-4:00pm	Project Review & Evaluation
4:00pm	Adjourn

# Overview of Working Draft Feedback from CSIWG

(Details only available at the time of Meeting #6)

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# Session I – Revisiting Story Lines: From Vision to Implementation

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As it depends on CSIWG member feedback on  
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# Realizing the Vision of Climate-Safe Infrastructure for all



Credit: Angela Rowlings

**Dr. Beverly Scott**

Beverly Scott Associates, CEO &  
Parker Infrastructure Partners, Senior Partner

# Opportunity for Public Comment





# Working Lunch



12:00-12:30pm

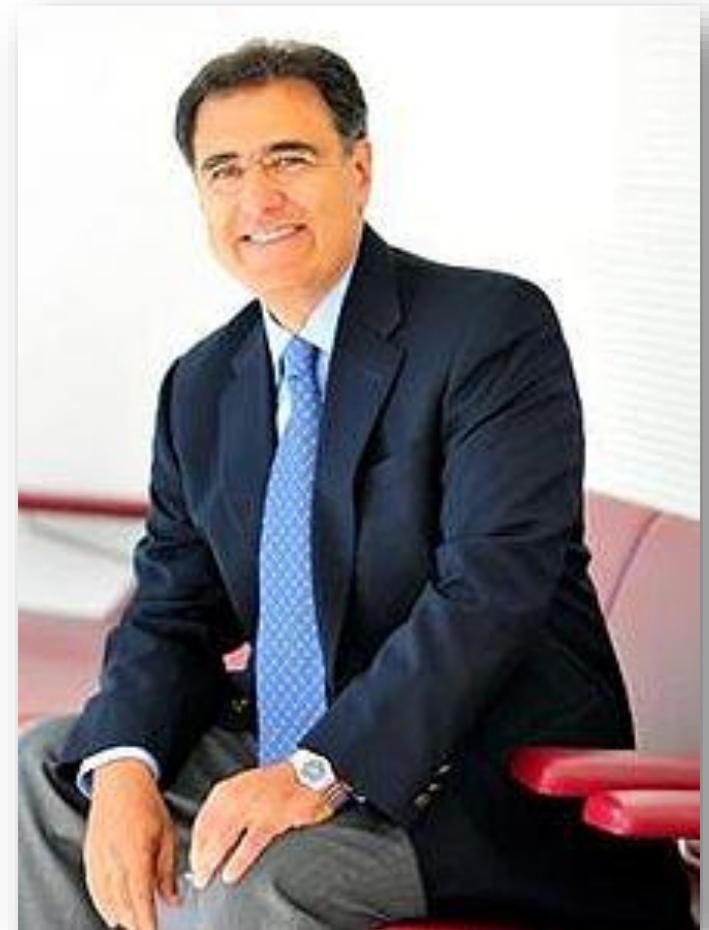
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# Realizing the Vision of Climate-Safe Infrastructure

**Dr. Bilal Ayyub**

Director, Center for Technology & Systems Management  
University of Maryland  
Fellow, ASCE



# Opportunity for Public Comment



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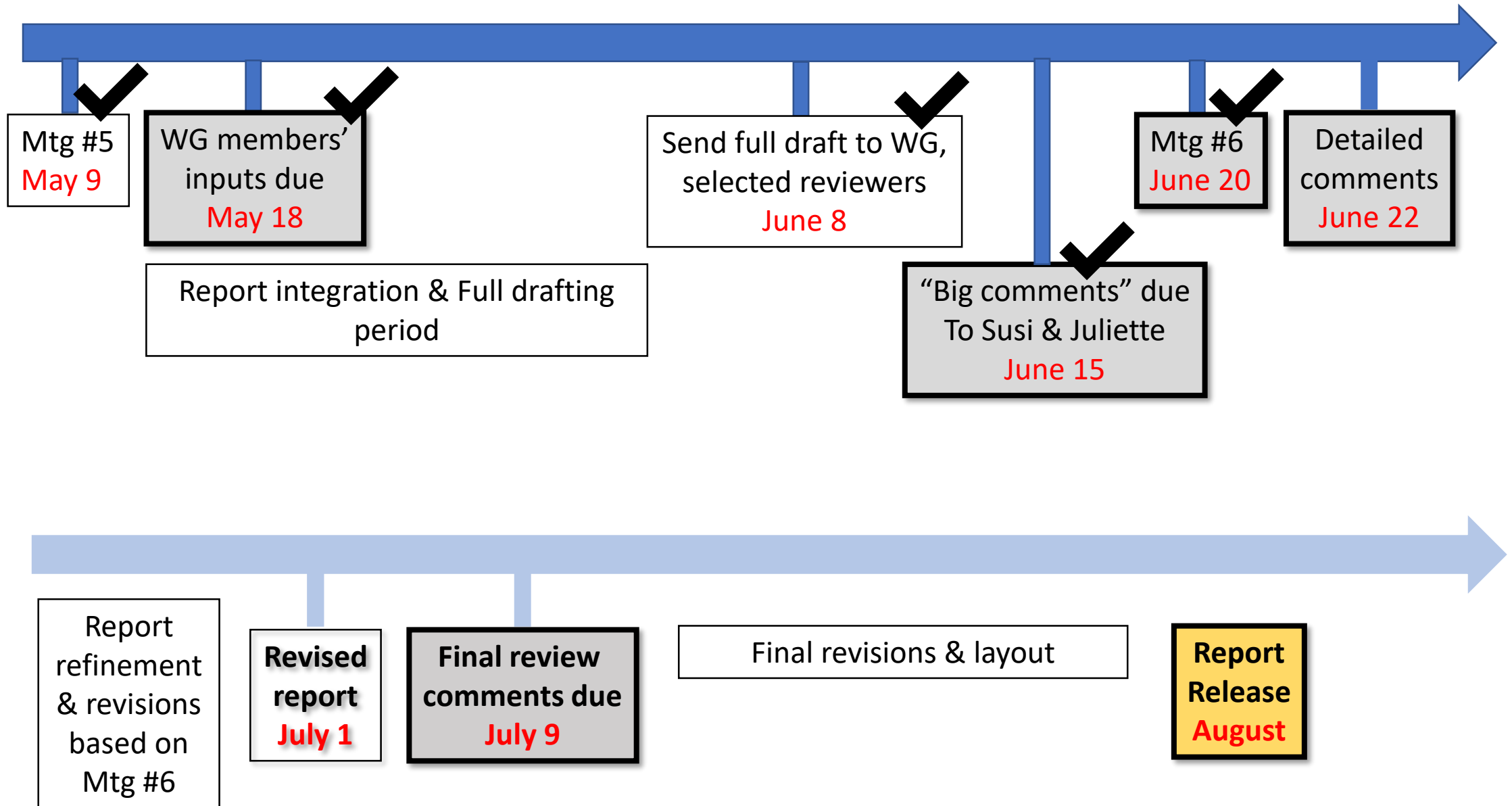
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# Report Timeline & Process (proposed)





# Review of the Day

Discussion  
with Dr.  
Beverly Scott

Discussion  
with Dr. Bilal  
Ayyub

Work  
Through  
Outstanding  
Report Issues

NEXT  
STEPS

Project  
review &  
evaluation

Big  
Comments



# Reminder: The Webinar Series Lives on & Goes on

## *Inaugural Webinar:* Setting the Standards and Context: Federal to Local Roles



## *Today's Webinar:* Forward-Looking Climate Science for Use in Engineering: Possibilities and Limits



**Dan Cayan, Ph.D.** | Research  
Infrastructure Working Group  
Scripps Institution of Oceanography  
**Patrick Barnard, Ph.D.** | Research  
USGS Pacific Coastal & Marine  
**Nicolas Luco, Ph.D.** | Research  
Engineer | USGS Geologic Hazards Team  
**Morgan Page, Ph.D.** | Geophysicist  
USGS Earthquake Science Center

## Mobilizing the Future: Infrastructure Challenges and Opportunities in the Transportation Sector



Gurdeep Bhambhani  
CalTrans

## Rushing toward the Future: Infrastructure Challenges and Opportunities in the WATER Sector



## Energizing the Future: Challenges & Opportunities in the Building/Energy Sector



## Building the Future: Challenges & Opportunities in the Building Sector



## Green Infrastructure: Design and Integration for Climate-Safe Communities



## Governing Infrastructure: How Regulations, Standards, Codes and Guidelines Are Set and Changed

## Tools Supporting Climate-Safe Infrastructure Design

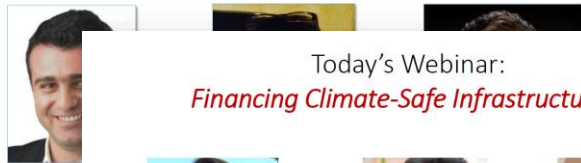


David Groves  
California State University

Wes Sullens  
California State University

Kristin Baja  
Urban Sustainability Director's Network

## Financing the Future: Challenges & Opportunities in the Building Sector



## *Today's Webinar:*

## *Financing Climate-Safe Infrastructure II*



**John Cleveland**  
Boston Green Ribbon Commission  
Innovation Network for Communities

**Vladimir Antikarov**  
The Vereia Group

**Karl Schultz**  
High Ground Foundation

## Building a Climate-Safe Future for All: Social Equity and Inclusion in Infrastructure Planning



**Deborah Moore**  
Union of Concerned Scientists

**Chione Flagal**  
Policy Link

**Katie Grace Deane**  
Center for Community Investment  
Lincoln Institute of Land Policy

## Learning from Success and Failure: Monitoring Infrastructure Performance



**Jennifer L. Jurado, Ph.D.**  
Chief Resilience Officer  
Broward County, FL

**Peter Murdoch, Ph.D.**  
Regional Science Advisor  
US Geological Survey, NE Region

**Andreas Georgoulas, Ph.D.**  
Research Director  
Harvard University Zofnas  
Program for Sustainable  
Infrastructure

Presentations, Recordings and Q&A Available at: <http://resources.ca.gov/climate/climate-safe-infrastructure-working-group/>

# Upcoming Webinars: June/July

## **Infrastructure Financing III: Innovative Instruments, Approaches and Partnerships**

Speakers: Port of San Francisco, Milken Institute, Climate Resilience Consulting

## **Talking Climate Change with Engineers: Overcoming Communication Challenges**

Speakers: George Mason University, Mississippi River Cities and Towns Initiative, Climate Access

**Closing the series: Release of Report and Sharing of Report Findings**

# Next Steps

## We Will

- Prepare meeting summary notes
- Revised/complete report for WG review by 7/1
- Conclude webinar series
- Prepare outreach plan for release and beyond
- 
- 

## You Will

- Send in ALL travel receipts
- Attend and contribute to Webinar series
- Send detailed review comments by 6/22
- Respond to input requests in coming weeks
- Review full, near-final draft between 7/1 and 7/9

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# Remember when....



# Synthesis of Goals Identified in Meeting #1

## **Overarching Goals (with numerous sub-objectives each)**

**Orient toward longer-term outcomes (Vision, indications of success)**

**Produce a set of outputs by July 1**

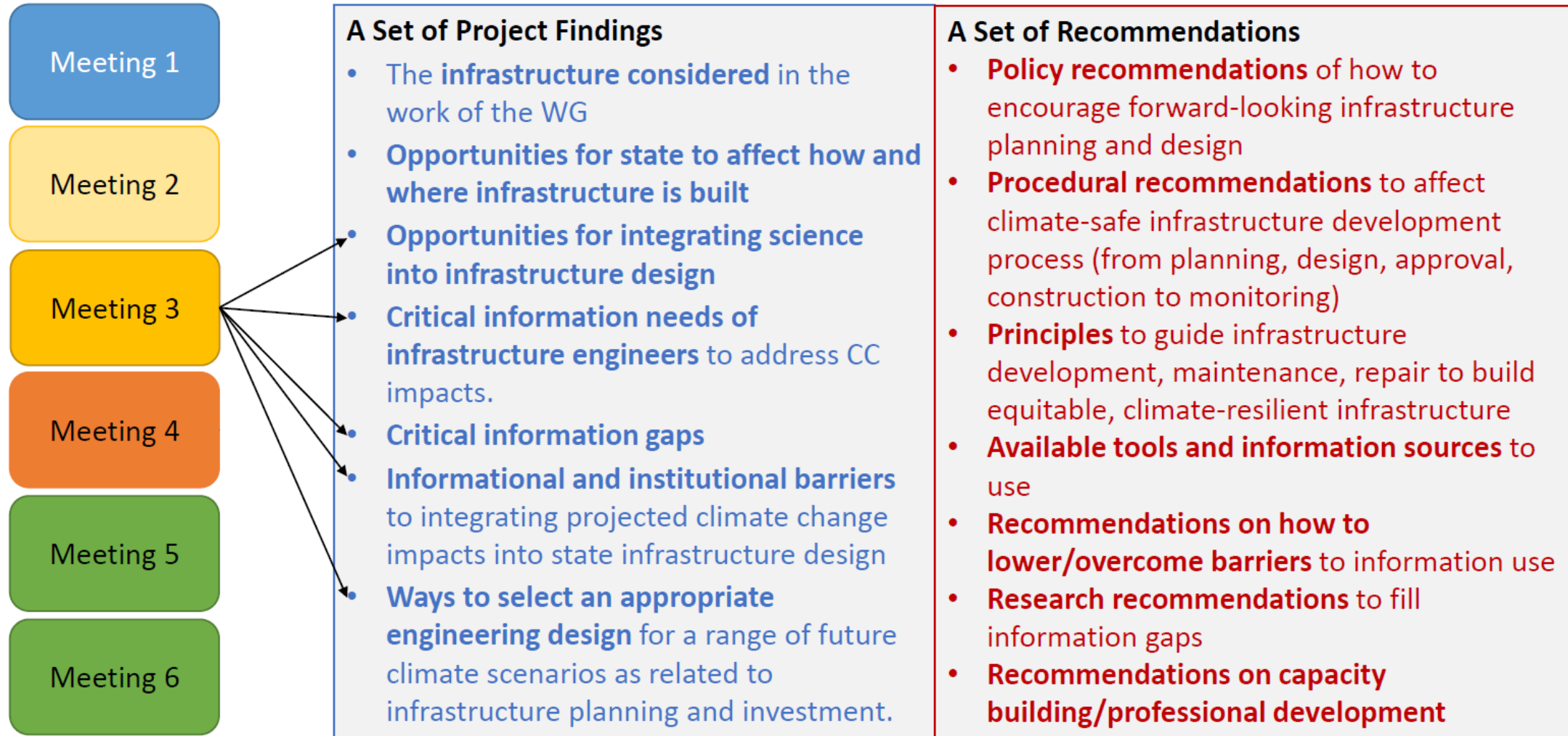
**Provide clear policy guidance for near-term and longer-term decisions**

**Address key issues for science & the science-practice interface**

**Focus on engagement during and after the life of the Working Group**

**Embody a set of principles and values throughout the Working Group's work**

# A Dense Schedule of Work





# External Input

## Regional Example

- Sabrina Bornstein, Deputy Chief Resilience Officer | City of Los Angeles
- Matt Barnard, Principal | Degenkolb Engineers

IN THE FUTURE, I WANT BUILDINGS TO

**Building Forward LA**



**Louise Bedsworth, Ph.D.**  
Governor's Office  
Office of Planning and Research



**James (Jim) Thorne, Ph.D.**  
C-Davis

## Integrating Land Use Change and Ecological Data in Planning and Implementation



## Panel Discussion



**Steve Reel, M.Eng.**  
Project Manager  
Port of San Francisco  
(TBC)



**Kit Batten, Ph.D.**



**Bob Battalio, P.E.**



**Nate Kaufman**

## Our Governance Panel



**Phil Gibbons**  
Port of San Diego



**Cody Hooven**  
City of San Diego



**Ralph Redman**  
San Diego Airport



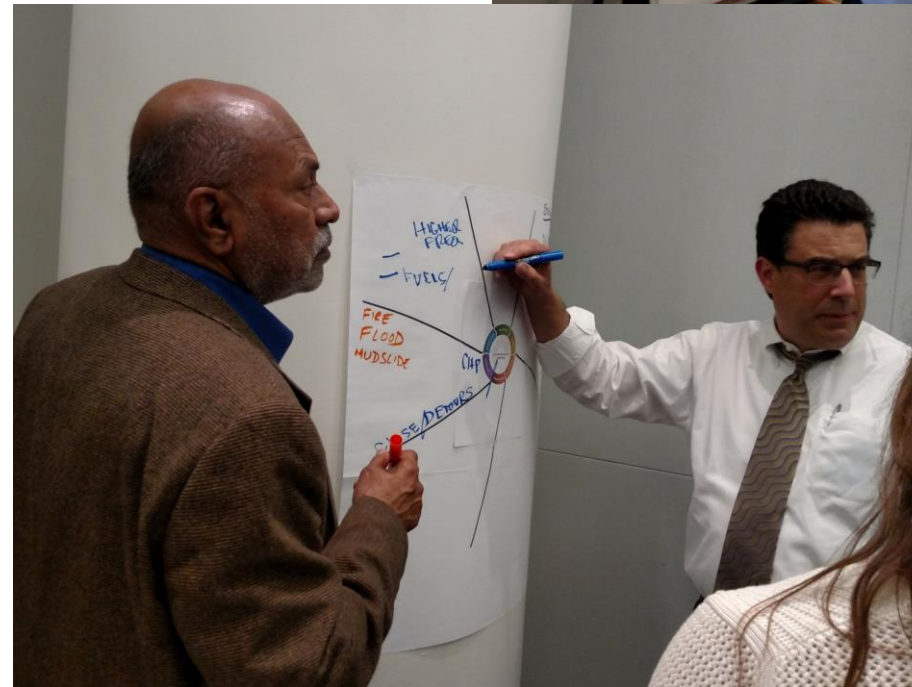
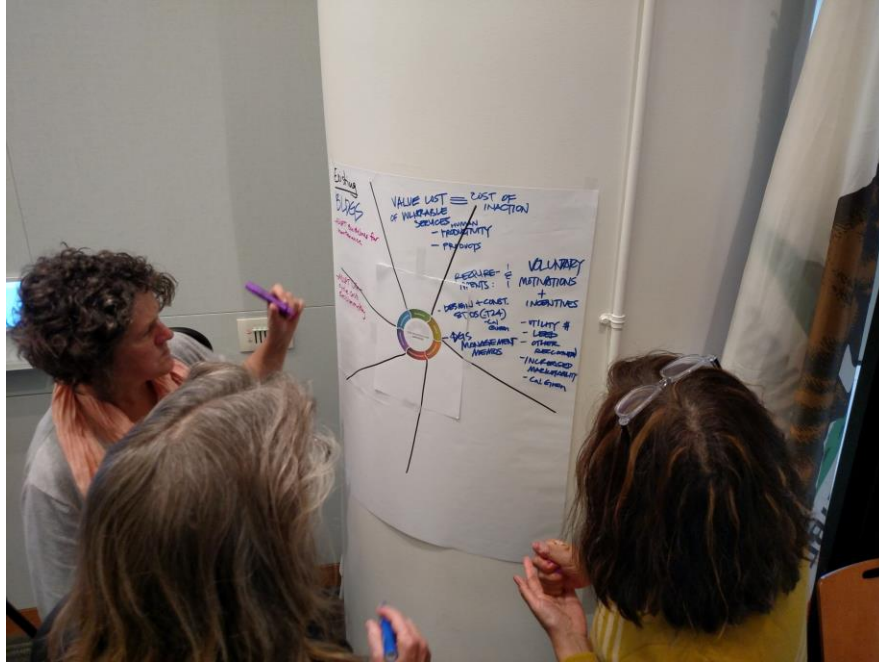
**Andrew Martin**  
San Diego Association  
of Governments



**Speaker: Nicole-Meyer-Morse, Ph.D.**  
California Office of Emergency Services

## Integrating Disaster Management & Long-Term Infrastructure Planning

# Intense Group Work





# Open, Transparent & Engaged



The screenshot shows the California Natural Resources Agency website. The header includes the CA.GOV logo, the agency name, and a search bar. The main navigation bar has links for Home, Agency, Offices, Initiatives, and Water Action Plan. The page title is "AB 2800 (Quirk) Climate-Safe Infrastructure Working Group". The text describes the impacts of climate change and the purpose of the working group. A list of investigation topics is provided. Below this is a section for the "Climate Safe Infrastructure Working Group Schedule and Meeting Materials".

**AB 2800 (Quirk) Climate-Safe Infrastructure Working Group**

The impacts of climate change are already being felt in California and include record-breaking drought, wildfires, flooding, sea level rise, coastal erosion, and heat waves. These impacts are projected to worsen with a future punctuated by what are now considered extreme weather events. Established by AB 2800 (Quirk, Statutes of 2015-16), the working group will unite experts from multiple scientific and state infrastructure disciplines to bolster the inclusion of climate impacts in state design processes. Through its deliberations, the working group will investigate:

- Current informational and institutional barriers to integrating projected climate change impacts into state infrastructure design
- Critical information that engineers responsible for infrastructure design and construction need to address climate change impacts
- How to select an appropriate engineering design for a range of future climate scenarios as related to infrastructure planning and investment.

**Climate Safe Infrastructure Working Group Schedule and Meeting Materials**

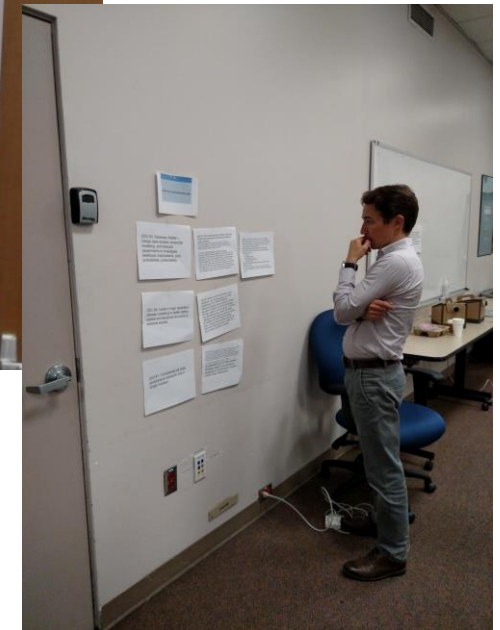
**January 18th – Meeting – Sacramento**  
Stanley Mosk Library and Courts Building, Room 500, 914 Capitol Mall Sacramento, CA 95814  
[Agenda](#) • [Meeting Materials](#) • [Meeting Summary](#)

**January 25 – Webinar: Setting the Standards and Context**  
Federal to Local Roles  
12 pm – 1 pm (PST)

**Presenters:**  
**Mike Sanio**  
*American Society of Civil Engineers*

**Kathryn Wright**  
*Meister Consultants/Cadmus Group*

**Peter Arlame**



>400 external stakeholders  
on webinars

# Outreach Ongoing...

- AAAS 2019 session proposal
- CAF 3 session planning
- Water Resources Adaptation to Climate Change Workgroup of the Advisory Committee on Water Information
- City of Boston
- Sustained National Climate Assessment
- Webinar speakers



The best is yet to come...

# Your Reflections on the AB2800 Project & Process



# Opportunity for Public Comment





# Closing Remarks



**Keali'i Bright**

Deputy Secretary for Climate and Energy  
California Natural Resources Agency

*Toward  
Climate-  
Safe  
Infrastructure*



Thank you!