Climate-Safe Infrastructure Working Group
Meeting #1
January 18, 2018, Sacramento

Meeting Summary

Introduction

This meeting summary provides succinct highlights of the meeting discussions, decisions made and progress on the Working Group's efforts, as opposed to detailed meeting minutes. The meeting agenda and meeting presentation provides additional information on the contents of the meeting.

The meeting was the first gathering of the Climate-Safe Infrastructure Working Group (CSIWG or WG for short). Its primary goals were fourfold, namely to:
1. **SET GOALS** - Through an iterative process, to define the goals of, and boundaries around, the work of the CSIWG
2. **BUILD SOCIAL CAPITAL** - Get to know fellow WG and Project Team members
3. **SHAPE PROCESS** - Clarify the WG's preferred ways of working with each other toward a productive, successful outcome
4. **GET READY TO WORK** – Identify project elements, timelines, deliverables, and gain clarity on the work ahead

As such, this first meeting was primarily process-focused, but WG members also began to identify important contents of the work ahead and of the final report, which is due to the California legislature and Strategic Growth Council by July 1, 2018.

Below we summarize the key outcomes around each of the meeting goals.

Project Goals

AB2800 spells out a set of mandated outputs and goals:
>The working group shall consider and investigate, at a minimum, the following issues:
>(1) The current informational and institutional barriers to integrating projected climate change impacts into state infrastructure design.
>(2) The critical information that engineers responsible for infrastructure design and construction need to address climate change impacts.
>(3) How to select an appropriate engineering design for a range of future climate scenarios as related to infrastructure planning and investment.

Additional scope of recommendations contained in the bill suggests the CSIWG could:
>(A) Integrate scientific knowledge of projected climate change impacts into state infrastructure design.
>(B) Address critical information gaps identified by the working group.
>(C) Make recommendations on a platform or process to facilitate communication between climate scientists and infrastructure engineers.

In addition, CSIWG members voiced their own goals and hopes for outcomes from their work. The table below lists specific goals identified. They were derived from opening speakers' and members' introductory remarks as well as the mandated goals in the law. The goals are listed in large categories or coherent goal areas (highlighted in yellow) identified by the members through a clustering exercise and subsequent discussion – throughout the meeting – that refined the contents of each category.

Each meeting will include a review of progress being made along these goal statements, and make adjustments and course corrections as necessary. We include an indication of how progress can be tracked in the right hand column.

Project Goal Areas (Developed in Meeting #1)	
	TRACKING PROGRESS
GOALS	MEETING #1 - January 2018
Orient toward longer-term outcomes (Vision, indications of success over time)	
Intended Long-term Outcome (therefore work toward recommendations that…)	Brainstormed long-term outcomes of the work of the CSIWG (as indicators of success over time)
State agencies lead by example (…show clearly what the state can do immediately and over the medium- and longer-term)	
Serve as example for the rest of the country (…illustrate what barriers there are and how they could be overcome; provide examples of progress wherever possible)	
Resiliency is embodied in codes (… address the entire infrastructure planning, design, financing, implementation, monitoring and reassessment cycle, and use codes/standards and non-standard strategies to affect resilience)	
Widely accepted climate change standards (… set up a sustained process for engaging, training engineers; and make uptake of new standards and guidelines more likely)	
Codes and standards are correctly implemented and used (… focus on the development and use of forward-looking science in infrastructure building as well as on implementation)	
Sustainable, resilient and safe buildings in a real-world social context (… reflect an understanding of the systems being designed/redesigned as social-economic-ecological-technical systems)	
Produce a set of outputs by July 1	
Complete a report (core elements and text) that:	Had significant discussion on the level and contents of what the report should include
… includes concrete recommendations for updating design codes.	
… provides useable, tangible tools, techniques, guidance for people to operationalize recommendations.	
… offers technical and policy guidelines.	
... provides a path for how to implement the measures recommended	

… offers recommendations that are robust, credible and actionable	
… is written for people who may be skeptical about integrating climate change science into engineering practice	
Provide clear policy guidance for near-term and longer-term decisions	
Ensure that the Report includes overarching policy recommendations which:	Agreed on the importance of policy recommendations
… emphasize the importance of policy guidance	
… address the near-term opportunities of $billions of infrastructure-spending in CA	
… convey that engineers have a responsibility to create safe buildings and communities	
… seriously consider environmental justice	
.. model how to inform decisions by science and robust evidence	
Address key issues for science & the science-practice interface	
Ensure that the Report:	Brainstormed important aspects that the final report (and the work of the CSIWG must address)
… Identifies vulnerable/critical infrastructure.	Homework to begin doing that will be sent to CSIWG after Meeting #1
… Identifies critical information needs of engineers.	
… looks at variety of time scales over which decisions are made.	
… Defines priorities for future research / understanding and information gaps	
… Identifies ways to integrate changing science into durable designs.	
… Describes a process for selecting engineering designs for a range of climate scenarios	
… Identifies barriers to integrating science into standards and design.	
… Provides guidance and examples for how to connect cutting-edge, forward-looking science to practice	
… Addresses the need for ongoing monitoring of projects so as to collect evidence on how new guidelines are working	

Focus on engagement during and after the life of the Working Group	
Reach out to public throughout CSIWG's process	Organizing of webinar series already begun; three formal public comment opportunities during meeting; project team is building growing listserv of interested stakeholders; CSIWG members invited to send names to add and spread the word about the CSIWG
Seek input from and reach out to people implementing resiliency/sustainability measures in practice	Speakers invited to Webinar #1 will offer first set of illustrative examples
Focus on owners/investors of state infrastructure, but assume a much broader audience (non-state-owned infrastructure, engineers and decision-makers everywhere in CA and beyond)	
Ensure that report is not just for the State legislature and Strategic Growth Council, but speaks directly to engineers so they can begin implementing what is being recommended for practice	
Initiate or recommend the creation of a platform and sustained, adaptive process (beyond the life of this WG) to facilitate ongoing/future science-engineering communication/interaction.	
Embody a set of principles and values throughout the Working Group's work	
Reflect what we want CA government to be.	Meeting was open to the public and widely advertised; provided several opportunities for public input. Group process transparent to all. Meeting materials shared publicly well in advance of meeting
Ensure we take social, behavioral, economic dimensions into account in recommendations (not just physical science and engineering approaches).	CSIWG membership and project team membership embodies this range of expertise.
Contribute experience and learn from all others, (e.g., status of climate science, how real-world infrastructure decisions gets made)	Members expressed their appreciation for the diversity of expertise around the table.
Form new relationships.	Relationship building process begun.
Work toward solutions for social systems.	
Work toward real results with everyone.	
Meet public responsibility to meet design life expectations of expensive infrastructure.	

Project goal discussions were further informed through a brief overview of literature reviewed to date by the facilitation team. This overview, as well as subsequent WG discussions, suggest important work areas over the course of the CSIWG's existence, including:

1. Identify the universe **of types of infrastructure** to focus on.

2. Identify **types and sector-specific regulatory mandates, standards/codes, guidelines and procedures**, their climate-sensitivity and importance, as well as non-standard opportunities for affecting the entire process from start to finish of planning, designing, building and monitoring infrastructure.

3. Identify **information needs** of engineers (for a variety of time scales, for climate science and for other science), gaps in scientific understanding to fill those gaps (i.e., research priorities, and actionable guidance on how to link physical climate science and also social, behavioral, economic and ecological science) to risk/exposure assessments, infrastructure standards and decision-making. Identify **barriers to using such information** and explore the larger context of incentives/disincentives for scientists and engineers to work together.

4. Deliberate on **appropriate approaches to prioritization** of which infrastructure design procedures to change and which infrastructure to retrofit, upgrade, replace or build.

5. Explore **governance processes** – both at the state level and beyond – for developing/changing standards and how to ensure, track, reward appropriate adoption/implementation.

6. Beyond recommending changes to standards and guidelines, explore other possible interventions to **ensuring the delivery of climate-safe infrastructure**.

The WG appreciated the preparatory work already done, but also cautioned against scope creep. At the same time, WG members pushed for taking a comprehensive approach and make space for out-of-the-box thinking.

Important points emerged from the discussion that should inform the WG's work going forward:

*   Need to provide recommendations and guidelines for **various types of infrastructure:**

Existing infrastructure	What can be done with retrofits in the course of ongoing maintenance?
Infrastructure damaged in extreme event	What can be done in the context of replacement process to make infrastructure more resilient?
New infrastructure	What can be done to build more resilient infrastructure in the course of planning and building new infrastructure?
Green infrastructure (which can be existing, being replaced or new)	What can be done to affect how green infrastructure is built, and when and how can green and grey infrastructure be integrated?

*   Need to distinguish information needs regarding **decisions with various time horizons**
*   Need to distinguish between **near-term opportunities** and **longer-term opportunities to affect how and where infrastructure is built**
*   Need to have a discussion about **how to finance infrastructure**
*   Need to ensure that we have a **broad understanding of "science"**, i.e., as inclusive of physical, social, behavioral, economic, ecological science
*   Need to not only differentiate types of infrastructure and related guidelines and codes, but also **define the scope of science input into infrastructure decisions** (i.e., do we need to include information on climate impacts, and even other environmental and societal changes or just climate science inputs?)
*   Need to **clearly define key terms**, such as resilience, infrastructure, vulnerability, adaptation etc

Building Social Capital

CSIWB members were delighted with the diversity of expertise in the group, and appreciated the various opportunities they had during the meeting to begin the cross-sectoral, cross-disciplinary exchange and learning.

Working Group Process / Rules of Engagement

Capacity assessment. CSIWG members spent time assessing their capacities for contributing to the work of the group in monthly meetings, as well as between meetings. Generally, members:

- Can attend most or all monthly WG meetings
- Can participate in webinars
- Can give 0.5-4 days of time/month to work between sessions
- Have some but generally little additional help from colleagues or assistants
- Expected to do some sector-specific writing, but will rely significantly on the facilitation team to guide and support the process and fill in gaps
- See the work ahead as ambitious, requiring constant vigilance to stay focused, but generally as doable
- Recommended to draw on the expertise around the state and in the Fourth Climate Assessment to augment members' expertise
- Appreciated the ability to bring in a colleague in their stead if someone has to miss a meeting

Rules of engagement. When asked about group interactions and working styles, members offered a wide range of likes and dislikes. The facilitation team will aim to accommodate different working styles and preferences as well as they can.

What does not work for WG members	*What members liked most about good projects*
- Lack of imagination - Dominance by extroverts - Discussions outside of scope - Lack of being grounded in practical solutions while aiming too much for perfect theoretical solutions - Over-facilitation - Inability to organize the conversation - Repetition of other's comments - Revisiting decisions already made "Can't do that" attitude/comment "Can't do anything without perfect knowledge" attitude	- The people - Involvement of people from different backgrounds; empowered to act on what was decided - Complimentary idea development - Small group discussions - No single perspective dominated (all voices are heard) - Open collaboration - Something to discover, innovation - Problem oriented - Passion and interest of group; good partnership; respectful relationships - Trust between participants - Well-led committee with motivated/ knowledgeable staff - Great meeting location - Favorite foods - Something tactile to work with during heady discussions

Reliance on facilitation and project team. Project team members and particularly the facilitation team is there to support the WG process in whatever way they can. WG members were invited to frankly provide feedback for what is/isn't working for them so that adjustments can be made in a timely fashion.

Working Group structure. On the question of a Working Group structure, members remained agnostic, for now, arguing that it might be too early to decide. For some aspects of the work, a sectoral or infrastructure-type division of labor seems appropriate, but they felt the great benefit of the group is to break down and talk across typical sectoral silos. The issue will be revisited and the general preference seemed for flexibility in approach rather than a set structure.

Project Elements

Level of report. An important discussion ensued about the level at which the report should aim. Critical elements to include in final report suggested a tangible "middle" ground between overly general and overly ambitious detailed report. Critical questions to be answered and aspects to cover included:

- Changing the way people think about the problem of linking changing, uncertain science with building durable infrastructure.
- Concretizing community resilience.
- Educate about/engage on climate change.
- Adaptive design thinking and evaluation.
- What to do for different types of infrastructure
  existing >>retrofit; replacing >>upgrade; new >>novel design
- Strategies for achieving goal.
- Appropriate use of climate science.
  - What information is used now?
  - What information is needed?
  - What levels of confidence are required?
  - If climate models give highly divergent outputs, how to handle?
  - In short: How to get to numbers?
- Broader ways to change science-engineering interaction.

Timeline. As described in the powerpoint presentation.
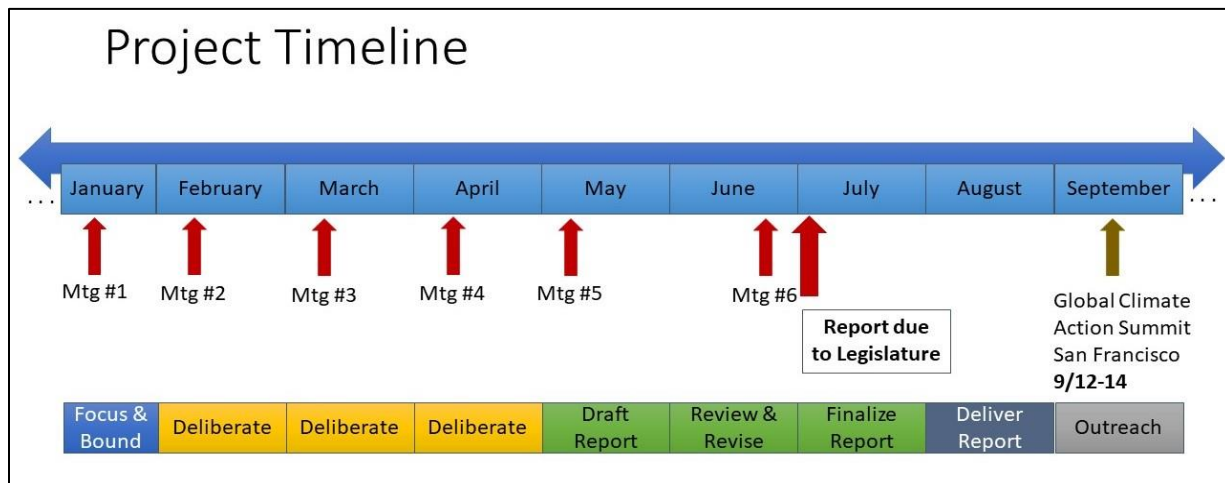
Other project elements. The timeline for the work of the CSIWG is very tight, demanding that meeting time be spent in the most efficient and effective manner. The facilitation team proposed to launch a webinar series with multiple purposes.

- Get to know WG members and share expertise.
- Educate about infrastructure issues.
- Effective use of WG meeting times.
- Maintain a constant drum beat on the topics of the WG.
- Bring in outside expertise and perspectives to enrich WG discussions.

The first webinar will be launched either 1/25 or 1/29 at 12pm PST. Expected frequency once/every 2-3 weeks. Announcements will be sent asap.

Public Comments

Several individuals provided public comments, regarding the need to define terms, the inclusion of natural infrastructure, the need to distinguish near-term opportunities for action from longer-term opportunities. All of these are integrated into these summary notes.

Next Steps

To do's for project team	To do's for CSIWG members
- Plan Mtg 2 - Launch webinar - Send out homework - Send out dropbox invitations - Send out calendar invites for webinar - State to find out whether there needs to be public/peer review	- Send in receipts for reimbursement - Make travel arrangements for Mtg 2 - Do homework - Send literature/references - Send any contacts of people who would like to learn about the CSIWG - If there needs to be peer review, suggest external reviewers