

Public Infrastructure - Technical Work Group

Wednesday, January 7, 2008

(partial) Meeting Summary - **ACTION ITEMS & SUPPORTING MATERIAL**

Note: This summary focuses on action items and supporting material. A full meeting summary capturing dialogue on coordination with IAWG and the catalog's policy option language will be issued later

Attendance

Meera Kohler, Mike O'Hare(DHS&EM), Bruce Botelho, Vladimer Romanovsky, Bob Pawlowski, Tauni Boothby, John Warren, Clint Adler (RNWG), Greg Magee, Billy O'Connor, Trish Opheen, Steve Ivanoff, Barbara Sheinberg (facilitator)

Action Summary

Information to Research Needs Work Group

1. **Sheinberg will fill in Research Needs Work Group (RNWG) template and send to PI TWG for one week review/improvement, then will forward to RNWG.** Based on PI TWG work to date, Sheinberg will include need to:
 - a. Establish a baseline inventory on the location and condition of public infrastructure that may now or in the future be at risk due to climate change, data gathering. Also establish protocol monitoring and update to inventory.
 - b. Update inputs to, revise climatic models as needed, and run models to produce a time sequence of forecasts of expected conditions due to climate change so that location and design of new infrastructure can take these conditions into account; communities can establish a time horizon within which they will need to address infrastructure fortification or relocation; to establish location specific conditions that new infrastructure must be designed to accommodate; and more.
 - c. Public infrastructure must be located and designed to withstand expected forces and hazards climate change will cause. Design and construct of some infrastructure will need to be changed as a result. Some standards and codes (building, electrical, mechanical etc.) will need to be changed as a result. The specific design, codes and standards that likely need changed must be identified, then research and engineering must be accomplished.

POLICY OPTION PAPERS: Template, VERY Relevant Examples, 1st Due Date (Jan 30)

2. **PI TWG members are volunteering their time (again!- thank you) to serve on small teams that will develop short (4-8 page) papers explaining the PI TWG's three recommended policy options in more detail.**

- a. **You agreed that the small teams would draft narrative on PI TWG Policy Option 1 and 3 that fills-in template sections (A) and (B) for the next PI TWG meeting.** (The Template to guide writing the Policy Option papers is at the end of this meeting summary.) We agree to generally defer writing on Policy Option 2 until the IAWG issues its recommendations (expected February 5).
- b. Maryland prepared Policy Option papers using a template quite similar to Alaska. A file emailed with this summary (AppendixE_Adaptation_Response.pdf) includes nine highly relevant Policy Option Papers. **Reviewing some of these 6-7 page Policy Option papers (listed below) should be very helpful as you begin work on the PI TWG policy option papers.**
 - Observation Systems for Changes in Coastal Areas
 - Adaptation of Vulnerable Public and Private Sector Infrastructure
 - Building Code Revisions and Infrastructure Design Standards
 - Disclosure
 - Integrated Planning for Coastal Erosion, Coastal Storms, and Sea Level Rise
 - Adaptation and Response Performance Measurement
 - Climate Change and Insurance Blue Ribbon Advisory Panel
 - Integrated Geographic Information Systems: Mapping, Modeling and Monitoring
 - Sustainable Shorelines and Buffer Area Management Practices
- c. Due date: **Please provide draft narrative your team has prepared to Sheinberg by Wednesday, January 30.** Sheinberg will package all parts and distribute a package and agenda to all PI TWG members (and post it online) on Friday, January 30, to support our in-person TWG meeting on Wednesday, February 4, 8:30 am - 12:30 in Anchorage.

3. POLICY OPTION PAPERS: PI TWG Teams, Process

- a. **On January 7 you agreed to: form small teams that will author the Policy Option Papers; picked a “lead,” that will coordinate efforts of the small teams; and volunteered for the Policy Option teams.**
- b. **I have taken the liberty of “assigning” a team to those PI TWG/AAG members who were not able to be on our January 7 teleconference but regularly participate in our meetings.** I did this based on my sense of your interests and expertise. Please feel free to adjust (let team leader know); if you are able to contribute, that would be excellent.
- c. **The PI TWG Catalog, with three Policy Options to use, is attached to this meeting summary.** (I have modified it just a bit to reflect the comments at the Jan. 7 meeting including support for “outcomes” column.) The catalog wording and organization may change some by April/May to reflect our work on the Policy Option papers; that’s okay.

- Feel free to ask staff and colleagues to assist you with the Policy Option papers; but please organize and serve as the ‘conduit’ for this assistance back to the PI TWG as you have been involved in the dialogue and deliberations of the group.
- I assume each group will coordinate its efforts among the team, and that the “lead” will help organize/coordinate your team effort. Email addresses are listed.
- To keep on schedule, I would recommend that Policy Option teams 1 and 3 teams begin working together and have an idea of who is writing what by January 14(ish).
- Please let me (Barbara Sheinberg know) if I can assist you in any way, if you need me to help you set up a teleconference, or anything else.

Policy Option 1	Email Contact
Lead: DHS&EM (John Madden, Andy Jones, Michael O’Hare)	john.madden@alaska.gov mike.ohare@alaska.gov andy.jones@alaska.gov
Co-Lead: Others indicated they’d ‘step up’ as the work/needs are fleshed out further.	
Volunteers	
Greg Magee	greg.magee@alaska.gov
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Meera Kohler	mkohler@avec.org
“Assignments”	
Larry Dietrick	larry.dietrick@alaska.gov
Tricia Opheen	patricia.s.opheen@usace.army.mil
Amy Holman	amy.holman@noaa.gov
Policy Option 2	
(PI TWG will wait to work on this until IAWG issues its report, expected Feb 5)	
Volunteers	
Trish Opheen	patricia.s.opheen@usace.army.mil
DHS&EM (John, Andy, Michael)	john.madden@alaska.gov mike.ohare@alaska.gov andy.jones@alaska.gov
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Policy Option 3	
Lead: Billy O’Connor	ffbhc@uaf.edu
Volunteers	
Taunie Boothby	taunnie.boothby@alaska.gov

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Public Infrastructure Technical Work Group (PI TWG)

January 9, 2009

The purpose of the Public Infrastructure Technical Work Group (PI TWG) is to provide policy-making recommendations for “*adapting infrastructure to the effects of a changing climate*” to the Adaptation Advisory Group (AAG). The AAG will forward a suite of recommendations to Governor Palin’s cabinet to help prepare and implement the Alaska State Climate Change Strategy.

Definitions

Public Infrastructure is the essential facilities and utilities under public, cooperative or private ownership that deliver goods and services to communities.

Effects of Climate Change on public infrastructure in Alaska are:

- Increased flooding and erosion;
- Decreased duration and extent of sea ice;
- Increased wind and precipitation;
- Thawing permafrost; and
- Increased fire risk.

POLICY OPTION 1: Collect, assess and monitor data needed to develop sustainable solutions to adapt public infrastructure to the effects of a changing climate.

PROGRAMS	TASKS	OUTCOMES
A. Establish a statewide baseline inventory of public infrastructure to evaluate climate change impacts on infrastructure. ¹	1. Inventory existing public infrastructure in Alaska and document its current conditions.	◆ Comprehensive statewide database of existing infrastructure.

¹ ISER-UAA recently developed a preliminary and limited database of existing public infrastructure that was created to project the added cost (above normal wear and tear) from the effects of climate change on infrastructure at risk. See Larson, P.H., et al. (2008). Also, the Division of Community and Regional Affairs (DCRA) maintains online community databases that provide general information on community location, population, taxes, climate, history, culture, demographics, utilities, schools, health care, economy, transportation, contacts and capital projects and grants. Most of the public infrastructure is listed under the “Facilities, Utilities, and Services” data type. This information is limited and dated. The databases do not provide any information on the physical and environmental conditions (permafrost, river and coastal shorelines, etc.) that exist where the existing public infrastructure is located. DCRA’s Alaska Capital Projects Database was originally the “Rural Alaska Project Information Delivery System” (RAPIDS), which tracks capital funding for projects in rural Alaska. RAPIDS provided a place for agencies to list ongoing projects and collaborate with other agencies on project timing. In January of 2006, RAPIDS was changed to Alaska Capital Projects Database because the system is no longer exclusively for rural Alaska. The link to these databases:

http://www.commerce.state.ak.us/dca/commdb/CF_COMDB.htm

PROGRAMS	TASKS	OUTCOMES
	<ol style="list-style-type: none"> 2. Estimate the remaining useful life of the existing public infrastructure. 3. Estimate the present value replacement costs of the existing public infrastructure. 4. Inventory the physical and environmental conditions (permafrost, river and coastal shorelines, etc.) that exist where the existing public infrastructure is located. 5. Monitor and update the database through an observation network. 	<ul style="list-style-type: none"> ◆ Observation network to monitor and update
<p>B. Conduct statewide hazard assessments and analyze the vulnerabilities of public infrastructure from the effects of climate change.</p>	<ol style="list-style-type: none"> 1. Based on the assessments and new climate projections, analyze for future vulnerabilities based on risk levels. 2. Develop statewide, regional and local vulnerability assessment tools based on the results of the assessment and analysis. 	<ul style="list-style-type: none"> ◆ Vulnerability assessments ◆ Vulnerability assessment tools on public infrastructure

POLICY OPTION 2. Provide unified decision-making, make sound investments, and coordinate planning for public infrastructure through coordination across the spectrum of government funders.

PROGRAMS	TASKS	OUTCOMES
<p>A. Create, authorize and fund a Public Infrastructure Commission on Climate Change (PICCC)².</p> <p>Funding needed for PICCC operations; for operations, maintenance and retrofit of public infrastructure currently at immediate and significant risk; and for future sustainable public infrastructure.³</p>	<ol style="list-style-type: none"> 1. Identify federal and state funding sources and request funding. 2. Establish policies and procedures. 3. Write regulations. 	<ul style="list-style-type: none"> ◆ Establish PICCC ◆ Capital funding to plan, design and construct improvements ◆ Operation and maintenance funding
<p>B. PICCC establishes a public infrastructure planning network between federal, state agencies, tribal and local agencies to foster</p>	<ol style="list-style-type: none"> 1. Develop a statewide planning network by enhancing current practices in place among government agencies. 	<ul style="list-style-type: none"> ◆ Statewide public infrastructure planning network

² WORKING CONCEPT: Instead of designating an existing state agency to lead and oversee the data collection and evaluation system, a separate and independent state commission (or agency, forum, panel) would be created to perform the work at a central setting. The PICCC would consist of 6 to 8 members, appointed by the Governor and confirmed by the Legislature. The membership of the PICCC would represent each region of the state and include, but not limited to, a mix of officials from state, tribal and local governments, the University of Alaska, and residents of the state with a board range of professional experience in infrastructure. The mission of the PICCC would be to partner with federal agencies and local and tribal governments through MOUs and to collaborate with all Alaskans to adapt the existing public infrastructure currently at immediate and significant risk, and future public infrastructure from the effects of a changing climate. By creating the PICCC, the State of Alaska could require that all parties involved partner together to preserve current and future investments in public infrastructure to the greatest extent possible and to collect, analyze and monitor data to develop and fund sustainable solutions for adapting public infrastructure to the effects of a changing climate.

³ Alaska’s Twenty Fifth Legislature established the Alaska Climate Change Impact Mitigation Program (ACCIMP) with funding to address the immediate planning needs of communities imminently threatened by climate change-related impacts such as erosion, flooding, storm surge, and thawing permafrost. The ACCIMP is being administered by the Alaska Department of Commerce, Community, and Economic Development, Division of Community & Regional Affairs (DCRA).

The ACCIMP is being delivered through grants to meet specific objectives. The program initially directs the majority of grant funds at specific communities identified as imminently threatened by the Governor’s Subcabinet on Climate Change, Immediate Action Workgroup (IAW). These communities are Shishmaref, Kivalina, Newtok, Koyukuk, Unalakleet and Shaktoolik.

PROGRAMS	TASKS	OUTCOMES
<p>coordination, cooperation and communication.</p>	<p>2. Empower local community leaders to develop adaptation action plans and incorporate this information into their community plans.</p>	<ul style="list-style-type: none"> ◆ Share hazards assessments, vulnerability analyzes, in an actionable format, among state and federal agencies and local and tribal governments.
<p>C. Oversee development, implementation and administration of public infrastructure databases, modeling programs and adaptive action plans.</p>	<p>3. Develop adaptation action plans for communities at risk by disseminating data outputs from the databases and the adaptive climate change model.</p> <p>4. Set up a statewide database to record and share adaptation action plans and outcomes.</p>	<ul style="list-style-type: none"> ◆ Timely sharing of monitoring data among state and federal agencies, local and tribal governments. ◆ Adaptation action plans for each community ◆ Adaptation action plans resource

POLICY OPTION 3: Enact sustainable solutions to adapt public infrastructure that is currently at significant risk, and future infrastructure, to the effects of climate change.

PROGRAMS	TASKS	OUTCOMES
<p>A. Develop an adaptive climate change model for public infrastructure that recommends strategies and approaches to identify short and long-term sustainable solutions to a changing climate.</p>	<ol style="list-style-type: none"> 1. Build an adaptive model that uses the public infrastructure database and the results from vulnerability analyses and output data from climatic models by others. 2. Identify short and long-term adaptation strategies and sustainable solutions to climate change with modeling results. 3. Develop statewide, regional and local adaptation tools for public infrastructure based on the adaptive climate change model. 	<ul style="list-style-type: none"> ◆ Adaptive climate change model for public infrastructure to identify short and long-term strategies and sustainable solutions. ◆ Adaptation tools for public infrastructure. ◆ Maximize the life of and the investment in public infrastructure.
<p>B. Strengthen existing engineering and building codes and construction techniques for new infrastructure and structures in vulnerable areas.</p>	<ol style="list-style-type: none"> 1. Begin a process based on the modeling results to identify the <i>specific</i> areas where new engineering standards or design are needed. 2. Review and modify engineering design standards, building codes, and operation and maintenance practices to adapt for future climate changes. 	<ul style="list-style-type: none"> ◆ Modified engineering design standards, building codes, and operation and maintenance practices. ◆ Retrofit existing vulnerable infrastructure. ◆ Locate new infrastructure outside hazard zones or design it to withstand expected hazards/forces.

PI TWG POLICY OPTION PAPERS – TEMPLATE

A. Issue being Addressed and Option Description

This is a very short introduction and overview of the option, including:

- Issue to be addressed by this specific option.
- Overview of the option—what is it?
- How significant or important is this option to the functioning of public infrastructure? How critical is it to the overall viability of the Alaska's public infrastructure that this option be implemented?
- How does the option address the issue of concern, including identifying the goal of the option?
- Why is this option necessary--why do current trends or projections indicate that these goals are unlikely to be realized without the intervention of this option?

B. Option Design

This is the heart of the option discussion. It is suggested that it be divided into the following sections.

- **Structure/design:** What is the option? How is it structured and designed?
- **Targets/goals:** May include specific quantitative targets or goals, if any.
- **Timing:** When would the policy/program/action take place, how long would it take, over what time frame can results be expected? Would the benefits provided be only in the short-term or over the longer term as well? Will the proposed action be adjusted in response to changing conditions or will it be effective under different plausible climate scenarios? (e.g., no regrets if the option is implemented and changes don't occur or occur differently than anticipated.) Is the policy, program or action needed in response to likely immediate impacts (e.g., thawing ice and permafrost) or longer term impacts?
- **Participants/Parties involved:** Individuals, federal/state/local government agencies, non-governmental organizations, private foundations, corporations, and others involved in this issue. Describe how they are involved.
- **Evaluation:** What type of monitoring and evaluation of the adopted policy, once implemented, would be needed to gauge effectiveness and any corrections that would be needed overtime.

- **Research and Data Needs:** What R/D will be needed before this option can be implemented (note that this will float over to the RN WG as well as remain here).

C. Implementation Mechanisms

This is an indication of how the option could be implemented, for example:

- Steps that would be taken to get it in place (does a feasibility study need to be done first?).
- Is new legislative authority needed?
- Does a new agency or group need to be formed? A new activity added to an existing government agency, or expansion of an activity already undertaken by a non-governmental entity?
- Is there anything else that needs critically to happen before this option can be implemented?

D. Related Policies/Programs and Resources

- **Related Policies and Programs:** Do current governmental, non-governmental, or private programs exist that are relevant to this policy option? Please list them and describe in some detail. Err on the side of including too much information and too many potentially relevant programs (these can be trimmed down later). Are there potential synergies with other efforts being undertaken in other sectors, states, or otherwise?
- **Available Resources:** What resources already exist to address this issue? Are there funding mechanisms in place to institute this policy? Is the necessary expertise available? Does an existing governmental body have the necessary authority and/or practical ability to implement this policy option? Are there unconventional resources available, such as indigenous knowledge or social networks?

E. Benefits and Costs

Still working on details, but likely will include:

- Qualitative or quantitative estimate of effectiveness of option.
- Qualitative discussion or quantitative estimate of the cost of the option (both governmental and private sector, if the option involves private sector investment or other costs). Cost includes the initial costs of implementing the policy/program/action, and also costs over time - such as operation and maintenance, administration and staffing, expected frequency of reconstruction, non-economic and non-quantifiable costs such as the “cost” of resource value lost if action is not taken. For example, costs such as an increased impact on human health should be considered along with more traditional costs.

- Co-benefits—non-impact related, or ancillary, benefits.
- What governs effectiveness of adaptation options?
- Key assumptions about effectiveness and key uncertainties.
- Documentation of data sources used for estimates.

F. Feasibility Issues

- **Feasibility:** Can the state realistically implement the proposed action. Is the proposed action within state authority or is it more appropriately the role of the federal government, localities, individuals, etc? Do the necessary legal, administrative, financial, technical, and other resources exist, and are they available for use on this proposed state action? (Question for Jackie/Larry: can the TWGs leave the issue of political feasibility entirely to the Governor's Sub-Cabinet?)

Include in this discussion other aspects of the context for the option, such as substantive or procedural issues involved with this policy option, including potential conflicts of interest, different levels of governmental or non-governmental involvement in this issue.

- **Constraints:** Are there potentially limiting factors for this policy option? Does the policy require public buy-in? Will there be a long delay between actions taken and benefits realized? Are there other potential logistical, geographical, financial, technical, or procedural constraints?

Note that the discussion does not need to be broken into two separate sections as indicated above. The sections are more of an indication of the types of issues that can be raised in the feasibility section.

G. TWG Approval and Deliberations

This is particularly of interest for the AAG. This section indicates the level of approval within the TWG, and is a place to indicate any minority views on the option, as well as caveats or ideas to keep in mind as implement the policies. This will likely appear only briefly in the final appendix of options, but is important for the AAG.