Public Infrastructure Technical Work Group (PI TWG) Meeting #8
Tuesday, February 24, 2009
Teleconference: 2:00-4:00 pm

CALL IN NUMBER: 1-800-315-6338 code 7494#

Agenda

NOTE: This is a short meeting, the agenda assumes everyone has read the attachments prior to the meeting.

2:00 pm	Call-in
2:05-2:15 pm	Housekeeping • Approve Feb 4 Revised Meeting Summary (attachment 1, pgs 2-7) • Relevant Feb 6 AAG Meeting Comments • Feb 23 IAWG Recommendations • Relevant info from "All-Facilitator" call on Feb 19
Focus on what is needed to complete work, and content discussion, for following items	
2:15 -2:30 pm	"Vision" Graphic and Narrative (attachment 2, pgs 8-9)
2:30 -2:50 pm	PI TWG Component 1 Paper (attachment 3, pgs 10-11)
2:50 - 3:10 pm	PI TWG Component 2 Paper (attachment 4, pgs 12-13)
3:10 -3:30 pm	PI TWG Component 3 Paper (attachment 5)
3:30-4:00 pm	Discuss Work Remaining: • Final and Complete papers due March 12 • **March 16-All day PI TWG meeting in person, Anchorage** (ID location)

PI TWG #7 Meeting Summary
February 4, 2009
Alaska Climate Change Strategy - Adaptation Advisory Group (AAG)
Public Infrastructure Technical Work Group (PI TWG)

Prepared by Barbara Sheinberg

1.0Attendance (with contact information)

NAME	PHONE	EMAIL	POSITION
Greg Magee	269-7613	greg.magee@alaska.gov	Program Manager for Village Safe Water, SOA Alaska DEC
John Madden	428-7062/ cell-947-1602	john.madden@alaska.gov	AK Div Homeland Security & Emergency Mgmt
John Warren	729-3511	jwarren@anthc.org	Director of Engineering, Alaska Native Tribal Health Consortium
Mike Coffey	465-3904	mike.coffey@alaska.gov	Chief, Statewide maintenance
Patricia Opheen	753-2662	patricia.s.opheen@usace.army.mil	Chief, Engineering, U.S. Army Corps of Engineers
Vladimir Romanovsky	474-7459	ffver@uaf.edu	Professor, Permafrost Expert, UAF
Billy Connor	474-5552	ffbgc@uaf.edu	Director, AK University Transport Center, UAF
Steve Weaver	729-3717	sweaver@anthc.org	Senior Director, Alaska Native Tribal Health Consortium
Other active PI TWG (or AAG) members that you might consult or send drafts to:			
Peter Larsen	276-3133 x113	plarsen@tnc.org	Climate Change Program Manager, The Nature Conservancy
Amy Holman	271-5334	amy.holman@noaa.gov	AK Regional Collaboration Team, NOAA
Bob Pawlowski	301-2464	cptbob@gci.net	Legislative Liaison to Denali Commission and Member of Immediate Action Workgroup
Denise Michels	443-4245/ 360-0491	mayor@ci.nome.ak.us	Mayor (Nome)
Meera Kohler	565-5531	mkohler@avec.org	Director, Alaska Village Electric Coop
Larry Dietrick	465-5255	larry.dietrick@alaska.gov	Div Dir, Spill Prevention & Response - SPAR, ADEC

Guest: Jackie Richter-Menge, US COE Cold Regions Research and Engineering Laboratory. (603) 643-4266. Jackie is beginning work on a project to identify arctic civil infrastructure needs for which CRREL and other federal research services may be needed.

2.0 Reframing PI TWG Approach

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

Effects on public infrastructure in Alaska that increased temperatures due to climate change is causing varies regionally, and includes:

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

The PI TWG is taking a systems approach to the climate change challenge.

We have established an overarching vision that Alaska must strive to meet. This vision can be achieved by enacting a comprehensive program with three components.

This system is adaptive in its nature; a continuous feedback and communication loop must occur among its program areas so information gained is continually used to update and inform the system.

PI TWG Vision: Sustainable infrastructure that supports communities in an uncertain environment.

Component 1: Accomplish systematic data collection, analysis and use.

Establish a coordinated system to observe, collect, catalog, and disseminate data on the existing condition of public infrastructure and the environmental conditions where it is located. Use this information and trend data to systematically assess the vulnerability of Alaska's public infrastructure to establish the level of risk. Three points to achieve:

- Standardize information to be gathered
- Establish a baseline and benchmarks, so data comparison and analysis is possible over time and across agencies/parties.
- Create an actionable format for this system to facilitate sharing and use of this data by local, tribal, state and federal users.

Component 2: Implement a "no regrets" policy for existing public infrastructure.

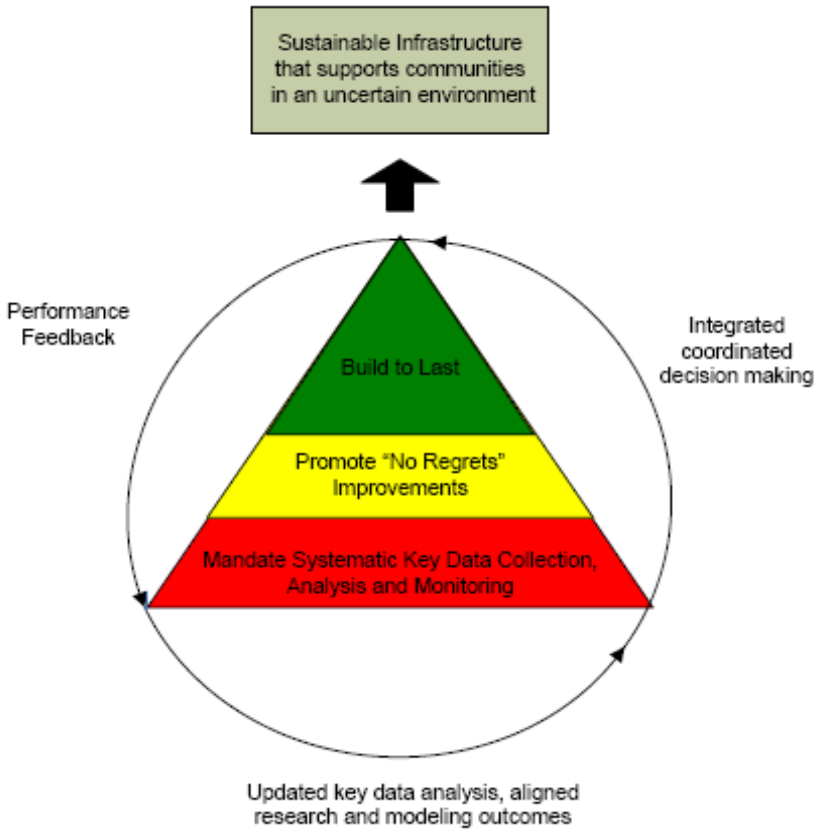
Protect current investments by maximizing the useful life of existing infrastructure. Do this by:

- Reducing the infrastructure's energy consumption (and carbon footprint) and thereby reducing consumer costs
- Making improvements that expand the useful life and service of the infrastructure. Retrofitting for resiliency.

Component 3: Build to last, build resiliency into Alaska's public infrastructure.

Build new infrastructure to last. Build it either in locations outside of hazard zones (that have been updated and defined using climate change modeling) or in a manner that can withstand the expected forces at the location over the expected life of the infrastructure. This will require climate change modeling that yields updated hazard zone locations and revised data on expected forces and conditions for which infrastructure must be designed. This will also require modification of some engineering design standards, building codes, and operation and maintenance practices.

To be successful this system, with its vision and components, must be supported by a coordinated decision-making and information-sharing. There must be procedures for coordinating across agencies.



3.0 Assignments

WHO	WHAT
Lead: Steve Weaver Assisting: Greg Magee, Mike Coffey	Write a one-page paper explaining the vision, system, and approach. Address points in "A" from the Template Guideline.
Lead: John Madden Assisting: Trish Opheen, Vladimer Romanovsky, John Warren, Greg Magee	Prepare a Policy ~~Option~~ Component Paper, using the Template Guideline, for Component 1. Address (and use the headings) for all sections.
Lead: Greg Magee Assisting: Steve Weaver, John Warren, John Madden	Prepare a Policy ~~Option~~ Component Paper, using the Template Guideline, for Component 2. Address (and use the headings) for all sections.
Lead: Billy Connor Assisting: Mike Coffey, Vladimer Romanovsky, Trish Opheen	Prepare a Policy ~~Option~~ Component Paper, using the Template Guideline, for Component 3. Address (and use the headings) for all sections.

Template Guideline/Headings – (see 3 page template for details)

A. Component Description
B. Component Design
    1. Structure/design:
    2. Targets/goals:
    3. Timing:
    4. Participants/parties involved:
    5. Evaluation:
    6. Research and data needs:
C. Implementation Mechanisms
D. Related Policies/Programs and Resources
E. Benefits and Costs
F. Feasibility Issues
G. TWG Approval and Deliberations

4.0 Schedule

WHEN	WHAT
Feb 4-Feb 20	Leader and team work together to prepare and internally review draft Component Papers
Friday, Feb 20, noon	Narrative due to Sheinberg
Friday, Feb 20 (if receive material on time) or Monday, Feb 23 (am)	Sheinberg distributes agenda & consolidated narrative to all
Tuesday, Feb 24 2-4pm	**PI TWG teleconference** to discuss papers
Feb 25- March 12	Leader and team work together to revise Component Papers
Thursday, March 12	Revised papers to Sheinberg
Friday, March 13	Sheinberg distributes agenda and consolidated material to all
Monday, March 16 10:00 am -5:00 pm	**PI TWG meeting** to review and final papers. In-person in Anchorage (fall back: videoconference). Tools to project and edit live will be available.
Tuesday, March 24	**AAG Meeting,** present papers

5.0 Comments/Conversation During Meeting

IBC we use doesn't apply well to arctic conditions. The cold regions utility monograph (the new "blue book") does not apply well to the arctic. Need to amend some of the codes.

The first page of the report we prepare is critical so that it goes forward to cabinet. It needs to be focused, simple, clear.

Rather than a PICCC (commission) the best way to be successful with this concept is to say what the procedures, needs and duties are that must be coordinated and communicated among agencies. It may be that down the line a new entity is needed to accomplish this but suggesting that upfront will doom the initiative. It may be that a set of procedures and communication protocols accomplish what we need and that a new agency or commission is not needed. Focus now on stating what information and communication must be coordinated and shared, and by whom.

Andrew Metzer is working on something similar to this now for the US Navy; Billy Connor can help bring this information forward to PI TWG work.

DRIP-data rich, information poor. Many agencies have data, but they can't even find the data let alone use it. It hasn't been catalogued or organized in a way that it can be accessed. Establishing a system that sets a baseline and benchmarks that all use; this is critical. Without a system that all agree to use, we will not be able to use or analyze or share data that is collected.

Data is of limited value, it is the analysis of the data that produces usable information. While it's good to know there was a flood and where it went (data), it is the 100 year return map that is needed (information based on data analysis).

Decision-makers need information to understand the implications of their choices and decisions.

Who are the decision-makers in our system?
Answer: It is broad, it is distributed decision-making. It will at differing times be engineers, the Governor, legislators, local public works directors or emergency planners.

There are three types of data needs:
A. condition of infrastructure
B. local environmental conditions
C. data on trends (temperature trending, 100 year flood events, permafrost trends, etc) . Note that trending can take years to accumulate and analyze.

We can get bogged down in precision, we need to aim for the target not the bull's-eye.

Canadians have assigned a level of risk, based on climate change, to each type of foundation. The foundation is the critical link, if it is not sustainable given changing climate conditions the infrastructure will fail.

PI TWG wants to use the word “component”, not “option”. The three components upon which our vision is based are not optional, they are a cohesive system. Options come in when determining how to apply our system and its programs. The system is scalable and the options are choosing timing, priorities, which region or area to focus on and so forth.

This system must have a continuous feedback loop, its cyclical, it must utilize adaptive management.

Life cycle costs approach must be utilized for both existing and future infrastructure. Asset management is a good approach, this include life cycle costs.

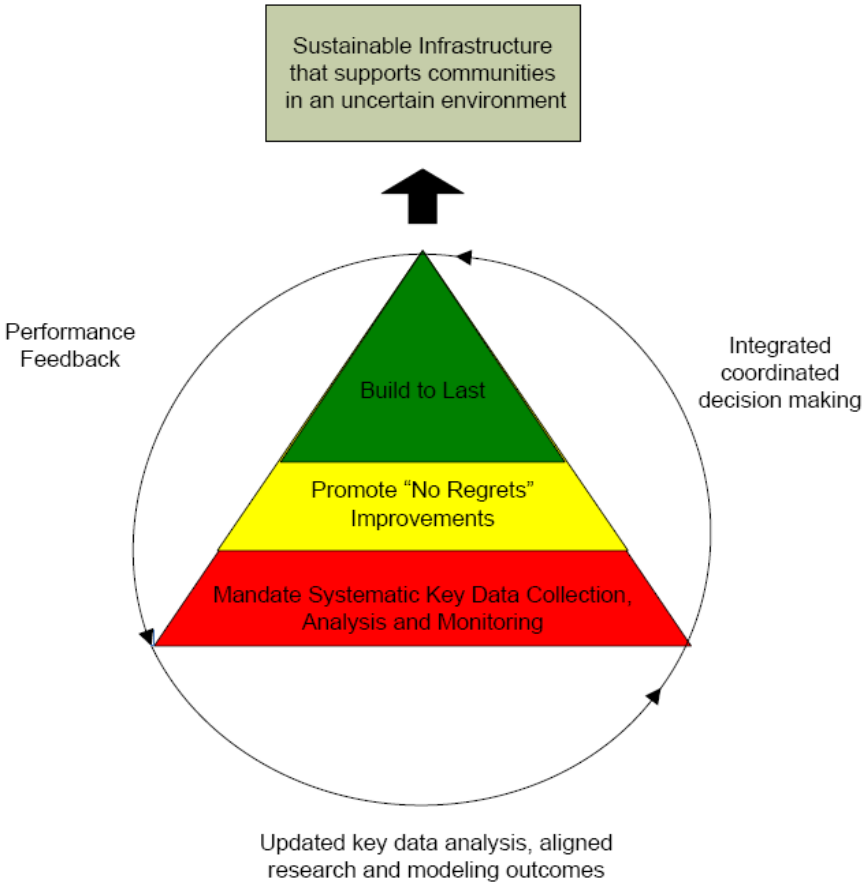
We must be careful not to dilute our message, use English not jargon. If it can be said on 2 pages rather than 6 (for the component papers) that is good.

We must design and build infrastructure for expected climate conditions so it will last for the expected life of the infrastructure. We need information and an integrated decision-making process on what the environment will be like during the expected lifetime of the infrastructure.

Some Implementation ideas (Item “C” on Template that is guiding papers we are writing) may include:

- Changing the scoring of STIP projects to include factors related to climate change
- Changing other scoring formulas that the state and federal agencies use.
- Changing the curriculum for the arctic engineering course
- Changing what is on the test for professional licensing of engineers in Alaska

Remember as we write papers, it is not our job to solve and do things in these papers, rather to outline what must be done to address/solve things.



A. Build to Last
1. Meet or exceed design service life
2. Best in class life cycle costs/asset management practices
3. Able to withstand disasters and changing environment
4. Based on the best science and appropriate building codes & engineering standards

B. Promote "No Regrets" Improvements
1. Provides benefits regardless of future climate changes
2. Enhances Sustainability
3. Protects investments/increases return on investment

C. Mandate Systematic Key Data Collection, Analysis and Monitoring
1. Baseline inventory and current conditions
2. Conduct hazard and vulnerability assessments
3. Analyze to identify future conditions and vulnerabilities
4. Identify adaptation measures and tools to assess and adopt options
5. Prioritize and coordinate research /computer modeling

VISION - Sustainable Infrastructure that supports Communities in an Uncertain Environment

The infrastructure of Alaska is particularly vulnerable to climate change. It is predicted that climate change will bring warming temperatures that will cause sea level to rise, increasing precipitation and storm intensity. With some 6,640 miles of coastline, and an estimated 47,300 miles of tidally effected shoreline, Alaska will be at the forefront of such change. Warming temperatures will likely also destabilize much of the permafrost across Alaska adding a uniquely Alaskan challenge to the issue. Coupled with the changes in our environment is the reality of the current condition of much of our infrastructure. The American Society of Civil Engineers recently reported that because decades of underfunding and inattention have endangered our nation's infrastructure, $2.2 trillion in repairs and upgrades is needed over the next five years to bring infrastructure back to adequate conditions. As the United States prepares to reinvest in its infrastructure, Alaska is faced with both a challenge and an opportunity.

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Infrastructure is the platform on which our society functions. Reliable and sustainable infrastructure is the foundation on which the future of Alaska will be built. Ensuring that Alaska is prepared to exploit invest opportunities and demonstrate that the return on investment for Alaska's current and future infrastructure provides good value for the state and the nation will require an on-going, aligned statewide effort to monitor, analyze and proactively adapt to our changing environment. It is expected that as climate change unfolds and our understanding increases, predictions will change and interventions become more effective, therefore an integrated statewide plan that incorporates cycles of improvement and is well coordinated both nationally and internationally is essential to prepare our built environment to meet the challenges ahead.

A three component approach is recommended:

1. Mandate Systematic Key Data Collection, Analysis, Monitoring, and Delivery of the obtained information – Baseline data needs to be established. We need to know where the problems are and what they are. We need to know what is working and what is not working. We need to be able to accurately define our problems and funding requirements for solutions. Based on the best science and collected empirical data we need to predict our future. The resulting information has to be readily available for all interested parties.

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2. Promote "No regrets" Improvements - In parallel with phase I, create and fund infrastructure improvements that are worth doing regardless of climate change effects. Promote sustainability and protect/extend the service life of existing infrastructure.

3. Build to Last – Based on phase I, new/replacement facilities need to be planned, designed, and built to better survive extreme events and the changing environment. A systematic performance review/analysis feed-back loop needs to be integrated into the public infrastructure funding, construction, and facilities operations process, so that planners and builders use "what works" and codes and standards are assessed and improved as needed to achieve the best results.

PI TWG POLICY COMPONENT 1
BUILD TO LAST, BUILD RESILIENCY INTO ALASKA'S PUBLIC INFRASTRUCTURE.

A. Component Description

Establish an integrated system of all appropriate databases to document the status of existing public infrastructure, to better coordinate all projects within communities, and to improve project planning in an environment of uncertainty.

B. Component Design

7. Structure/design: Establish a network of planners across government and academia to identify and link all available data on infrastructure, plans, and potential changes to the environment.
8. Targets/goals:
    a. Identify and link databases and fill gaps in data where possible.
    b. Document status, plans, and vulnerabilities of existing public infrastructure.
    c. Analyze and deconflict plans for renovation, retrofit, replacement, or relocation of existing infrastructure.
    d. Improve quality of data, scenarios, and assumptions for policies and plans for future infrastructure.
    e. Improve dissemination of new data, trends, and assumptions bearing on effective planning, e.g. flood plain mapping, climate predictions, demographics, permafrost conditions.
9. Timing:
   This component can begin immediately upon approval. It is scalable to begin with existing resources but could contribute to significantly improvements in project effectiveness with a small professional cadre.
10. Participants/parties involved:
    There are several government agencies and academic databases already in use but not integrated. Each has a database manager or monitor. This component can begin with as a proof of concept and expand as needed.
11. Evaluation:

12. Research and data needs:

C. Implementation Mechanisms

D. Related Policies/Programs and Resources

E. Benefits and Costs
   This network may significantly improve coordination between projects involving one or several state and federal agencies. There is a potential for significant savings through a common set of planning assumptions and the timing and sequence of otherwise disparate projects. The costs will vary with the scale of implementation from low (network of existing planners and database managers) to moderate (small professional cadre for analysis and a standing resource for policy makers).

F. Feasibility Issues
This approach is similar to that instituted by the State of Iowa to rebuild or repair 8000 elements of public infrastructure damaged or destroyed by the 2008 floods. The Rebuild Iowa Office, with a small cadre under the Lieutenant Governor and a network of public and private sector, coordinates, prioritizes, and monitors the rebuilding effort of dozens of state and federal agencies with many funding sources.

G. TWG Approval and Deliberations

PI TWG Component 2: Implement a "No Regrets" policy for existing public infrastructure.

A. Description

Due to the uncertainties of climate change impacts on public infrastructure, a "no-regrets" approach should be adopted to deal with these uncertainties. A no-regrets approach provides cost-effective and cost-saving benefits regardless of future climate changes. This approach promotes building resilience that does not depend overly on the potential consequences of future climatic events on infrastructure in Alaska.

B. Option Design

Structure/design:

With climate change, adaptation requires both adjustments to present climate as well as to future climates. However, our understanding today of climate changes processes and the associated impacts in Alaska are to a great extent incomplete, which makes it extremely difficult to adapt existing and new infrastructure to future climate changes. Due to these uncertainties, implementing no-regrets measures that are sustainable would provide cost-effective benefits to communities even if the underlying climate change assumptions were incorrect. Also, no-regret options will continue to build resilience that starts with Component #1 and ends with Component #3.

No-regrets adaptations for public infrastructure include actions such as the analysis of infrastructure failures, regular infrastructure maintenance, updating climatic design values and engineering codes and standards, promoting innovative designs and energy–efficient technologies, using alternative energy sources, and building with better materials. Examples of no-regrets options include water conservation, long term planning and preparedness for droughts and severe flooding, and enhanced water quality protection. With assistance from federal and state agencies, many communities have been adapting to climate risks indirectly by using no-regrets measures

Targets/goals

Timing

Participants/Parties involved

Evaluation

Research and Data Needs

C. Implementation Mechanisms

Adapting public infrastructure to a changing climate will be expensive. However, the cost of not adapting infrastructure will be greater. Uncertainty and cost should not be barriers to implementing adaptation options if a no-regrets approach is taken.

D. Related Policies/Programs and Resources

Related Policies and Programs

Available Resources

E. Benefits and Costs

F. Feasibility Issues

Feasibility

Constraints

G. TWG Approval and Deliberations