

Note that pages 1-5 is track changes version, pages 6-8 is clean version

PI TWG Catalog of Policy Options (as presented to AAG Dec 17)

With changes proposed on January 7 and some explanations

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The purpose of the Public Infrastructure Technical Work Group (PI TWG) is to provide policy options for “*adapting infrastructure to a changing climate*” for the Adaptation Advisory Group (AAG).

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

The **Effects of Climate Change in Alaska** to which public infrastructure must be adapted, are:

- Increased flooding (this includes coastal inundation, storm surges, coastal and river erosion, siltation, and sea level rise);
- Decreased duration and extent of sea ice;
- Increased wind;
- Thawing permafrost; and
- Increased fire risk.

POLICY OPTION 1. Preserve the State of Alaska investment in public infrastructure to the greatest extent possible in an environment of uncertainty.

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

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PROGRAM 1A: Establish a statewide baseline inventory of public infrastructure to evaluate climate change impacts on infrastructure.

Tasks

- Inventory existing public infrastructure in Alaska and document its current condition. Assemble a team of experts from diverse disciplines. Develop a model for documentation and analysis. Conduct extensive field and records review¹.
- Estimate the remaining useful life of the existing public infrastructure.
- Estimate the present value replacement costs of the existing public infrastructure.
- Inventory the physical and environmental conditions (permafrost, river and coastal shorelines, etc.) that exist where public infrastructure is located.

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¹ ISER-UAA 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)

v. Periodically monitor and update the infrastructure database.

Edited and moved to (v) above

PROGRAM 1B: Conduct a statewide hazard assessment to analyze the vulnerabilities of public infrastructure from the effects of climate change.

Tasks

Redundant with Program

- i. Based on the assessments and new climate projections, analyze for future vulnerabilities based on risk levels.
- ii. Develop statewide, regional and local vulnerability assessment tools based on the results of the assessment and analysis.

PROGRAM 1C. Mitigate the hazards wherever possible.

Tasks

- i. Develop action plans for each community;
- ii. Determine costs and benefits for presentation to the sub-cabinet (or PICC or other coordinating forum)

PROGRAM 1D. Enact a law to create and authorize a statewide capital program to fund to mitigate hazards for public infrastructure at risk and fund priority future infrastructure.

Tasks

- i. Write regulations.
- ii. Identify federal and state funding sources and request funding.
- iii. Establish policies and procedures.

The wording for the following program and tasks is confusing. It mixes climate change modeling with using the results of modeling. We should be clearer on exactly what is desired. One commentor notes: Coupling climate models with engineering models and then with economics models creates a very complex set of mathematical issues including A) how to communicate statistical uncertainty to land planners who need to make decisions now, B) what shape of statistical distributions are most appropriate when trying to evaluate building projects in high-to-medium risk areas, and C) how to accurately discount future economic risk to the present.

PROGRAM 1E: Develop an adaptive climate change model for public infrastructure that recommends strategies and approaches to identify short and long-term sustainable solutions for a changing climate. Note: Forward this program & tasks to Research Needs group. It is assumed that research for improving climatic models will be done by others. However, the output data from the climatic models would be required as input into the adaptive climate change model.

Tasks:

- i. Develop an adaptive model that uses the public infrastructure database, results from the vulnerability analysis, and output data from climatic models to identify short and long-term sustainable solutions to climate change.

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i. Develop the observation network in conjunction with developing the public infrastructure database.¶

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ii. Develop and recommend strategies and approaches

iii. Develop statewide, regional and local adaptation tools based on the adaptive climate change model.

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Policy 2. Coordinate plans for future investments in public infrastructure with updated standards for design, siting, construction, life cycle costs, and mitigation in an uncertain environment.

Program 2A: Develop new engineering and design standards as needed to address effects of climate change.

Tasks:

i. Based on the modeling result, review and modify select engineering design standards, building codes, and operation and maintenance practices to adapt for future climate changes.

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Move to program under Policy 3

Deleted: PROGRAM 1E. Enact a law to create and authorize a Public Infrastructure Commission on Climate Change (PICCC) to develop, implement and administer the databases and modeling programs listed above under a central source and to facilitate inter-agency cooperation. *NOTE: The PICCC would consist of state and local government officials and representatives from the University of Alaska, engineering profession and other interested stakeholders. Also, the PICCC would advise stakeholders by establishing a web-based system on the current and future effects of climate change on public infrastructure and the strategies and approaches for state agencies and local governments to adapt public infrastructure to a changing climate.*¶

Tasks¶

- i. Provide oversight and coordination to ensure these programs and tasks are accomplished.¶
- ii. Establish policies and procedures.¶
- iii. Develop annual work plans and request funding.¶
- iv. Measure progress toward goals in a given year and performance over several years.

POLICY OPTION 3. Provide unified decision-making and make sound investments in public infrastructure through coordination across the spectrum of government funders. Federal, State and local programs should join in a multi-agency forum.

PROGRAM 3A. Enact a law to create and authorize a Public Infrastructure Commission on Climate Change (PICCC) to develop, implement and administer the databases and modeling programs listed above under a central source and to facilitate inter-agency cooperation. A similar but different suggestion is to creation of an office – under OMB, the Governor, or Lt. Governor – to coordinate strategic policy and to review, evaluate, and integrate policy and programs – for infrastructure and other state initiatives. *NOTE: The PICCC would consist of state and local government officials and representatives from the University of Alaska, engineering profession and other interested stakeholders. Also, the PICCC would advise stakeholders by establishing a web-based system on the current and future effects of climate change on public infrastructure and the strategies and approaches for state agencies and local governments to adapt public infrastructure to a changing climate.*

Tasks

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PROGRAM 3B. Develop a public infrastructure planning network between state, federal and local agencies.

Tasks

- i. Develop a network by enhancing the current practices in place between state and local governments.

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PROGRAM 3C. Empower local community leaders to develop adaptation action plans and incorporate this information into their community plans.

Tasks

- i. Disseminate and monitor data outputs from the databases and the adaptive model via the planning network for developing adaptation action plans.
- ii. Provide the current vulnerability assessment and adaptation tools.
- iii. Set up a statewide database to record and share adaptation action plans and outcomes.

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Now program 1D.

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- Deleted: POLICY OPTION 3. Establish a statewide capital program to fund sustainable solutions that will adapt public infrastructure currently at significant risk and future public infrastructure to a changing climate. Note: Some suggest important to add prioritization concept.
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- PROGRAM 3A. Enact a law to create and authorize the state funding program.¶
- Tasks¶
- i. Write regulations.¶
- ii. Identify federal and state funding sources and request funding.¶
- iii. Establish policies and procedures.¶

CLEAN VERSION

The purpose of the Public Infrastructure Technical Work Group (PI TWG) is to provide policy options for “*adapting infrastructure to a changing climate*” for the Adaptation Advisory Group (AAG).

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Tasks

- i. Inventory existing public infrastructure in Alaska and document its current condition. Assemble a team of experts from diverse disciplines. Develop a model for documentation and analysis. Conduct extensive field and records review².
- ii. Estimate the remaining useful life of the existing public infrastructure.
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Tasks

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