

February 5, 2009

TO: Governor's Sub-Cabinet on Climate Change
Public Infrastructure Technical Work Group

FROM: Immediate Action Work Group

RE: Recommendation for Policy Changes for Funding Infrastructure Maintenance

The Immediate Action Work Group identified, as we believe the Sub-Cabinet and the PI - TWIG have also recognized, that maintenance of the State's infrastructure is a critical immediate action to prevent loss of life and infrastructure due to impacts from climate change phenomena.

The IAWG also recognized that the policy issues to address budgeting for maintenance is beyond the scope of its work, but identified it as a significant item warranting the immediate action to encourage and support your efforts to advance changes in policy.

The **guiding principles** supporting the IAWG's recommendation to the Sub-Cabinet and PI-TWIG are:

- Protecting Alaska's infrastructure investment that is already in place is an immediate need.
- Authorization and funding of an Infrastructure Maintenance Capital Fund, if well-structured would be an effective tool:
 - Use revenue sharing model
 - Use prioritization mechanism to identify projects
 - Coordinate plans for capital projects in a given community for cost-effectiveness
 - Utilized by both State and Local entities
 - When local is the lead, supported with engineering and professional assistance by State (ADOT) or Federal (USACE)

The IAWG's rationale and ideas for policy changes on maintaining infrastructure investment follow.

Effective and sustainable shore-protection structures must be an integral part of the state's climate change adaptation strategy and must be supported by a long-term maintenance funding program.

- The State of Alaska has vital national and state interest in the stability and behavior of coastal structures around its coastline, to ensure public safety – for both life and infrastructure investments and for the economic health of many coastal communities.
- The dominant coastal structure between Alaskan ports, harbors, navigation channels and the sea are rubble mounds. These include breakwaters, revetments, jetties, and groins. Other types of structures are common and include seawalls, piers, and bluff protection.
 - They are used for protecting harbors, wave reduction within harbors, retaining sediment, protecting navigation waterways, shoreline protection, and bluff protection.
- The purpose of maintenance is to ensure the long-term viability of public infrastructure investment, public safety and economic health by:
 - Protecting harbors and inlets that are important commercial and military navigation links
 - Protecting shore-based infrastructure
 - Providing beach and shoreline stability control
 - Stabilizing navigation channels
 - Protecting navigation, coastal communities, roadways, bridges, etc.
 - Providing flood protection
 - Providing recreational activities

While most navigation structures are federally owned and maintained, most shore-protection structures are locally owned and maintained, **yet funded by the State.**

The cost of replacing existing coastal protection infrastructure investment is high, and the cost of responding to a disaster is exorbitant. The State of Alaska needs to improve the means and methods for reducing these costs.

If can do this by:

- Regular preventative maintenance efforts can substantially reduce risks, save lives and property, and reduce full replacement costs and can extend the life of investment for 50 or more years.
- Reducing the design and construction costs of coastal structures by employing risk, life-cycle, and reliability analysis techniques in both planning and design studies in order to develop more efficient designs.

Alaska has aging infrastructure requiring maintenance:

- Most of these structures were originally built in the early 1900's and have been extended and rehabilitated many times.
- Maintenance of existing inlets becomes more important each year as ship traffic and ship drafts increase.
- As the inlet-protecting jetties erode, dredging costs can increase at an alarming rate. In addition, maintenance of existing revetments and other shoreline structures is becoming more important with increasing coastal population.
- As a result, inspection, repair, and rehabilitation of existing structures represents a large part of coastal rubble-mound work within the state while new construction of this class of structure represents a diminishing fraction of the projects.

Challenges and suggestions for changes to an Infrastructure Maintenance Policy:

- State builds, and then a community is responsible for maintenance.
 - How does a community get funding to maintain?
 - How is infrastructure inspected?
 - ADOT isn't sure of what the infrastructure inventory is
 - ADOT needs an inventory of what is out there. DCRA-Rapids Database has been identified as the preferred inventory database
 - ADOT isn't sure of the condition of infrastructure and doesn't have funding for inspections
 - Problems are discovered when there is an emergency or almost emergency situation and a community alerts DOT about a problem
- Create an Infrastructure Maintenance Capital Fund for ADOT and local governments to draw on to:
 - Conduct inspections for infrastructure and facilities, and allow ADOT or others to maintain in a timely manner
 - Examples: Beach nourishment—5 years is a standard maintenance timeframe.
 - Funds could be used for design work, upgrade riprap structures and rock revetments to replace the rock decreasing the amount of decay.
 - Develop a mechanism to prioritize projects; some ideas are:
 - Eligible for funds if a community had a certain type of structure—or possibly expand (revetment or beach nourishment)
 - Local—would need guidance from USACE or ADOT—to ensure appropriate work being conducted – to maintain life of structure.
 - When local government is responsible for—maybe factor into a revenue sharing formula, or perhaps based on Legislative districts, capital matching grants. (ex: —\$1500 per mile for road maintenance; will need p/ft rock revetment formula to fund local projects)