

# Strengthening Local Resilience through Community-Based Adaptation Efforts

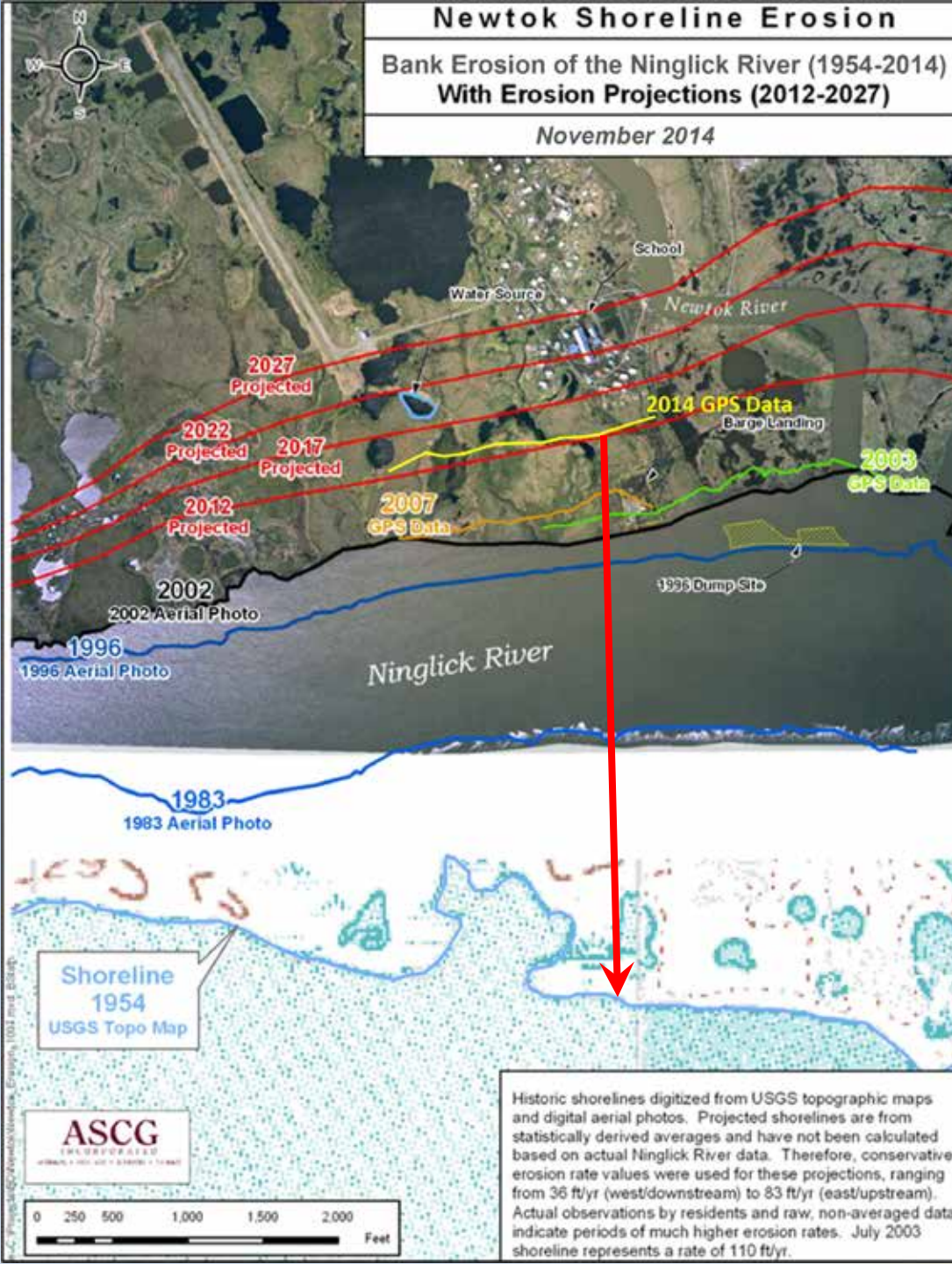
Sally Russell Cox, Alaska Division of Community and Regional Affairs 📍 Rights, Resilience and Community-based Adaptation workshop 📍 September 20, 2016



# Newtok Shoreline Erosion

Bank Erosion of the Ninglick River (1954-2014)  
With Erosion Projections (2012-2027)

November 2014



*"Not that long ago the water was far from our village and could not be easily seen from our homes. Today the weather is changing and is slowly taking away our village. Our boardwalks are warped, some of our buildings tilt, the land is sinking and falling away, and the water is close to our homes. The infrastructure that supports our village is compromised and affecting the health and well-being of our community members, especially our children."*

*Newtok Resident, from Mertarvik Strategic Management Plan*



# Newtok Shoreline Retreat, 2006 to 2014



*“The Ninglick River is eroding toward Newtok at an average rate of 72 feet per year. The maximum yearly observed rate of erosion is 300 feet per year. At that rate, the Ninglick River would reach the community school by about 2017. The school is the largest and most important structure in the community. Its loss would severely impact the function and continued existence of the community.”*

# Newtok Shoreline, July 16, 2016





# Newtok Planning Group



# Participants in Newtok Planning Group

## Native Village of Newtok

- Newtok Village Council
- Newtok Native Corporation

## State of Alaska

- Alaska Department of Commerce, Community, and Economic Development – *group coordinator*
- Alaska Department of Environmental Conservation (DEC)/Village Safe Water Program
- Alaska Department of Transportation and Public Facilities
- Alaska Department of Military and Veterans Affairs/Division of Homeland Security and Emergency Management
- Alaska Department of Education and Early Development
- Alaska Department of Health and Social Services
- Alaska Industrial Development and Export Authority/Alaska Energy Authority
- Alaska Governor's Office
- Alaska Legislative Representatives

## Federal

- U.S. Army Corps of Engineers, Alaska District
- U.S. Department of Commerce, Economic Development Administration
- U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration
- U.S. Dept. of Defense, Innovative Readiness Training Program
- U.S. Dept. of Agriculture, Rural Development
- U.S. Dept. of Agriculture, Natural Resources Conservation Services
- U.S. Department of Housing and Urban Development
- U.S. Department of the Interior, Bureau of Indian Affairs
- U.S. Department of Transportation, Federal Aviation Administration
- U.S. Environmental Protection Agency
- Denali Commission
- Alaska Congressional Delegation Representatives

## Regional Organizations

- Association of Village Council Presidents, Regional Housing Authority
- Alaska Native Tribal Health Consortium
- Coastal Villages Region Fund
- Lower Kuskokwim School District
- Rural Alaska Community Action Program
- Yukon-Kuskokwim Health Corporation

# Partnering with the Village of Newtok since 2006

- Community-driven
- Voluntary
- Regular meetings and agency project updates provide for enhanced communication among community and agencies
- Collaboration has resulted in cost-savings and leveraging of resources
- Better coordination of work
- Reduced conflicts in project timelines and construction windows



# Relocation Activities at Mertarvik, 2006 - 2016





# Alaska Climate Change Impact Mitigation Program

- Established to provide funding and technical assistance to communities imminently threatened by climate-related natural hazards.
- Intended to assist impacted communities develop planned approach to shoreline protection, building relocation and/or eventual relocation of the village.
- Also intended to address Alaska Congressional Delegation's request that State of Alaska participate with federal government in addressing climate-change impacts on Alaska's communities.



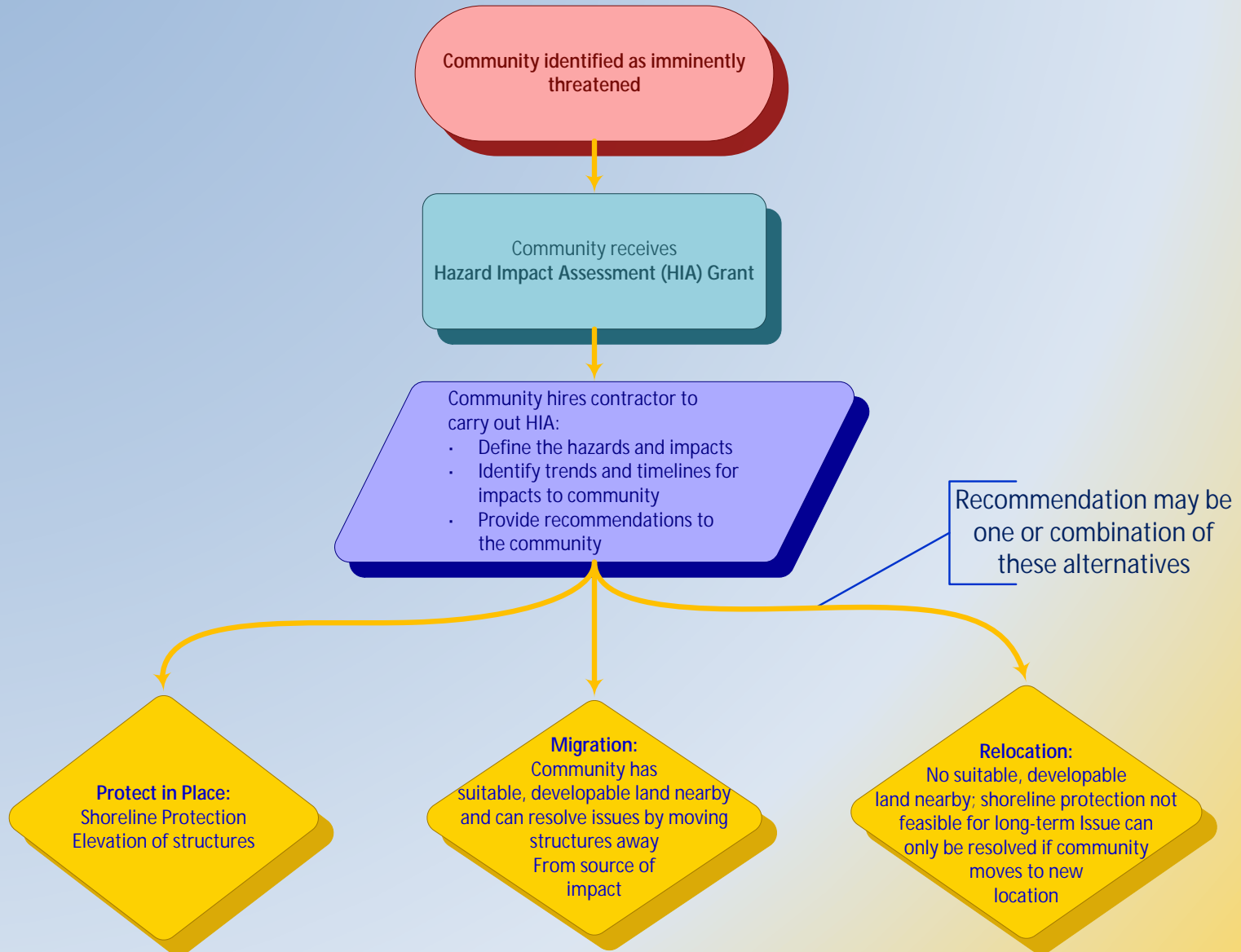
# Hazard Impact Assessments

- § Identify and document climate change-related hazards
- § Analyze hazard trends and future impacts to community
- § Recommend solutions to mitigate impacts of local natural hazards, taking into account financial considerations





# Community Decision-Making Process: Phase 1



# Communities receiving Hazard Impact Assessment Grants





# Kipnuk Hazard Impact Assessment

*Recommendations will provide basis for Community Planning Grant*

- § Shoreline protection to reduce rate of riverbank erosion, such as sheet piles, rip-rap, seawall, and river course modification
- § Elevate structures above flood levels. Use of appropriate foundations such as pile or triodetic foundations to address permafrost degradation
- § Adopt building code setting minimum floor height for new structures
- § Install flood warning system including monitoring component to collect data for forecasting severity of storm surges
- § Construct levee system to protect village from flooding
- § Insulated pads to elevate the relative ground surface

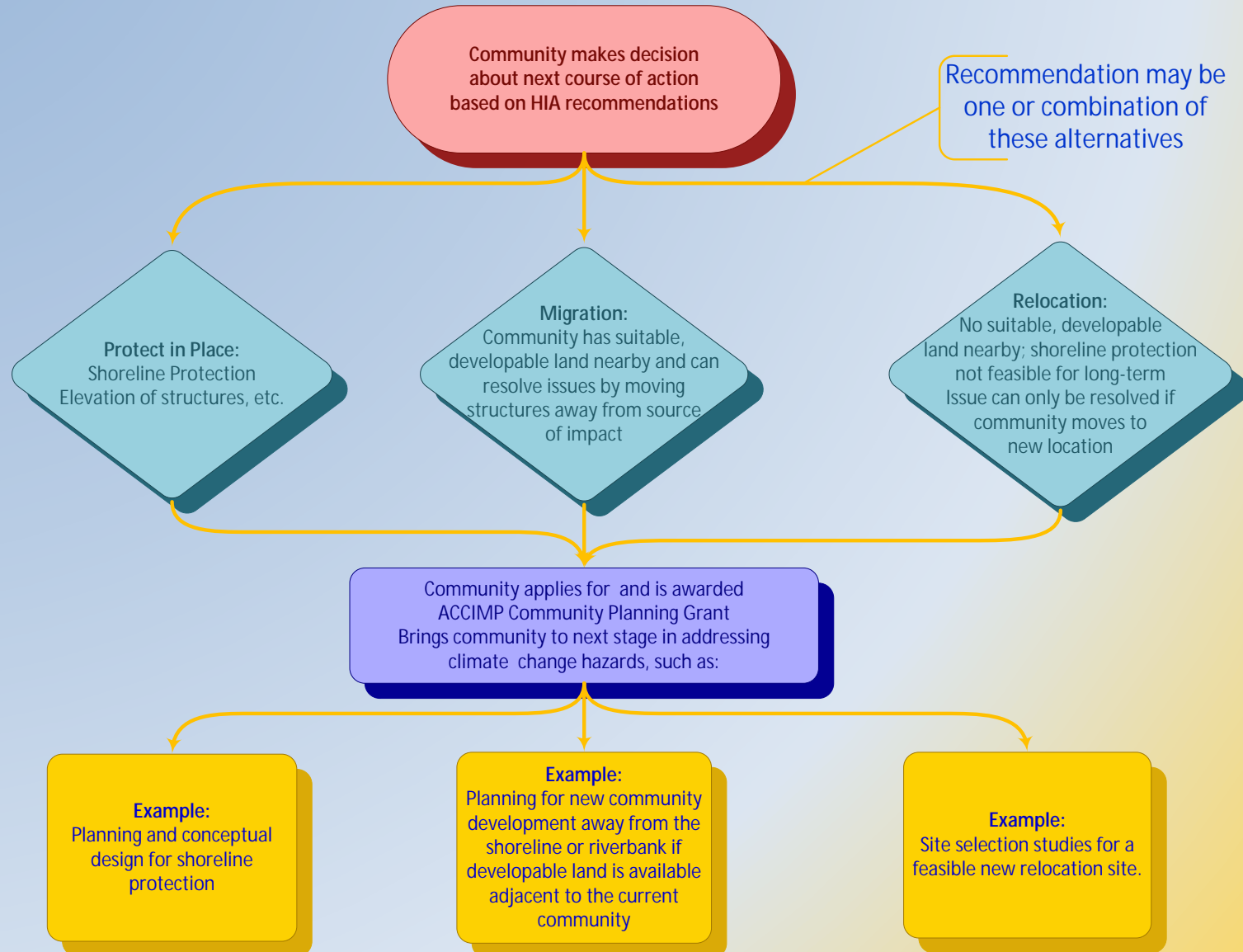


# Communities receiving Adaptation Planning Grants





# Community Decision-Making Process: Phase 2



# Shishmaref

- § Seawall has been built to protect community as a temporary measure
- § Community looking at relocation as long-term solution

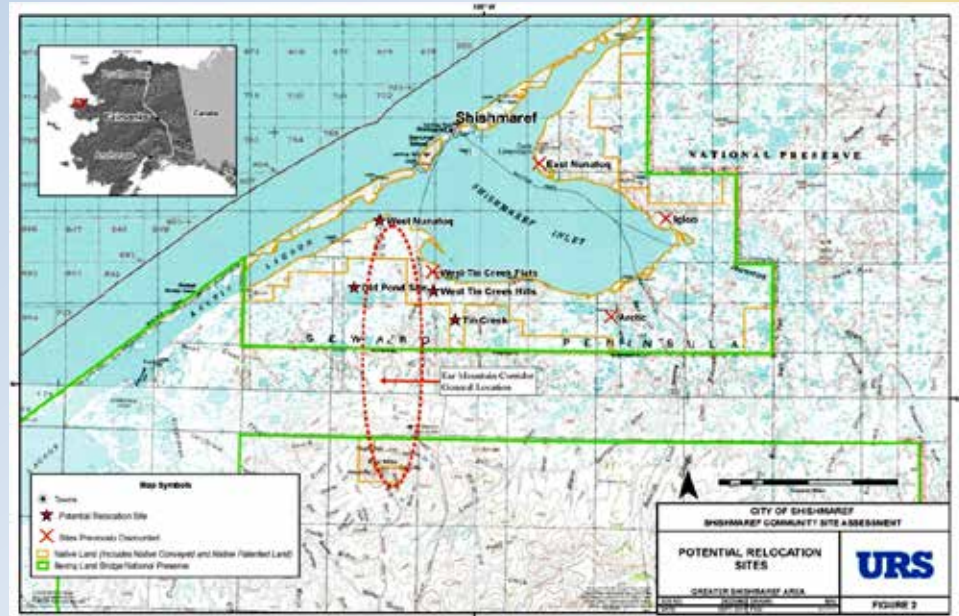


Photo: Shishmaref Relocation Coalition



# Shishmaref Community Relocation Site Selection Feasibility Study

- § Community hired consulting firm (URS Corporation) to:
- work with community to organize and review prior relocation studies
  - reconfirm community values and technical considerations for site selection criteria
  - evaluate remaining candidate sites and need for any new sites
  - identify at least one relocation site with broad community support and reasonable constructability
  - identify initial next steps for pioneer development.



# Shaktoolik

- § Berm between village and the beach is composed largely of naturally deposited driftwood logs
- § Village becomes an island during storm surges, and then it is additionally threatened by ocean waves throwing these logs into town



Photo: Steve Ivanof

# Shaktoolik Evacuation Shelter Design Analysis Report

Shaktoolik hired a contractor to develop a concept-level design for an elevated structure which will provide shelter for the community during emergencies, principally during storm surges, but also in other extreme weather events and serve other non-emergency functions.





# Unalakleet

Community has developable land nearby and can resolve issues by moving infrastructure/facilities away from source of impact



Photo: Steve Ivanoff

# Foothills Master Plan and Subdivision Design Project

Directs new development to higher ground, away from impacts of erosion, flooding, and storm surge.

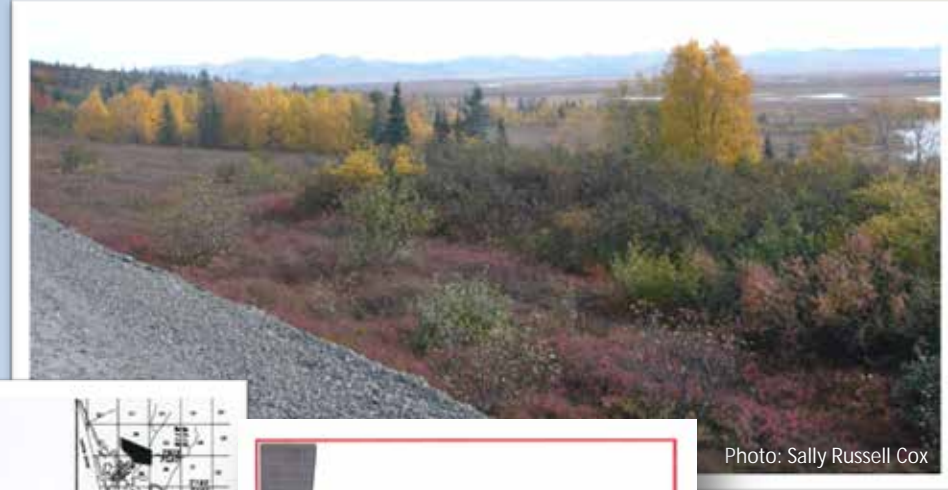
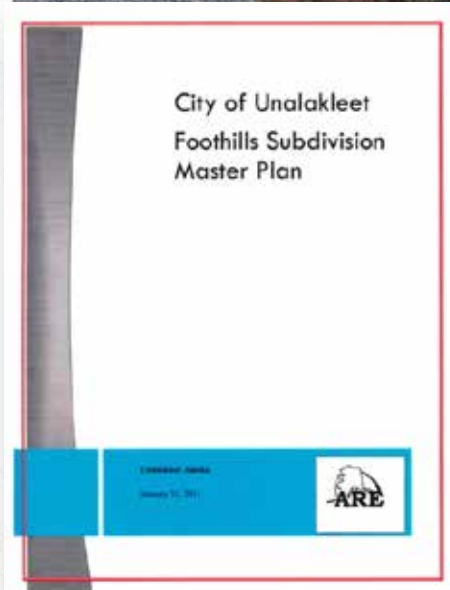
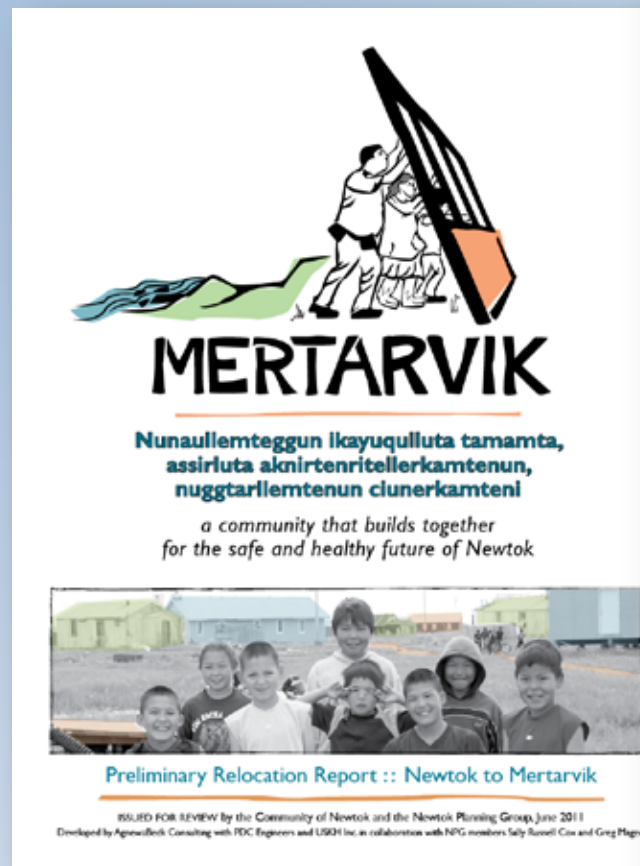


Photo: Sally Russell Cox



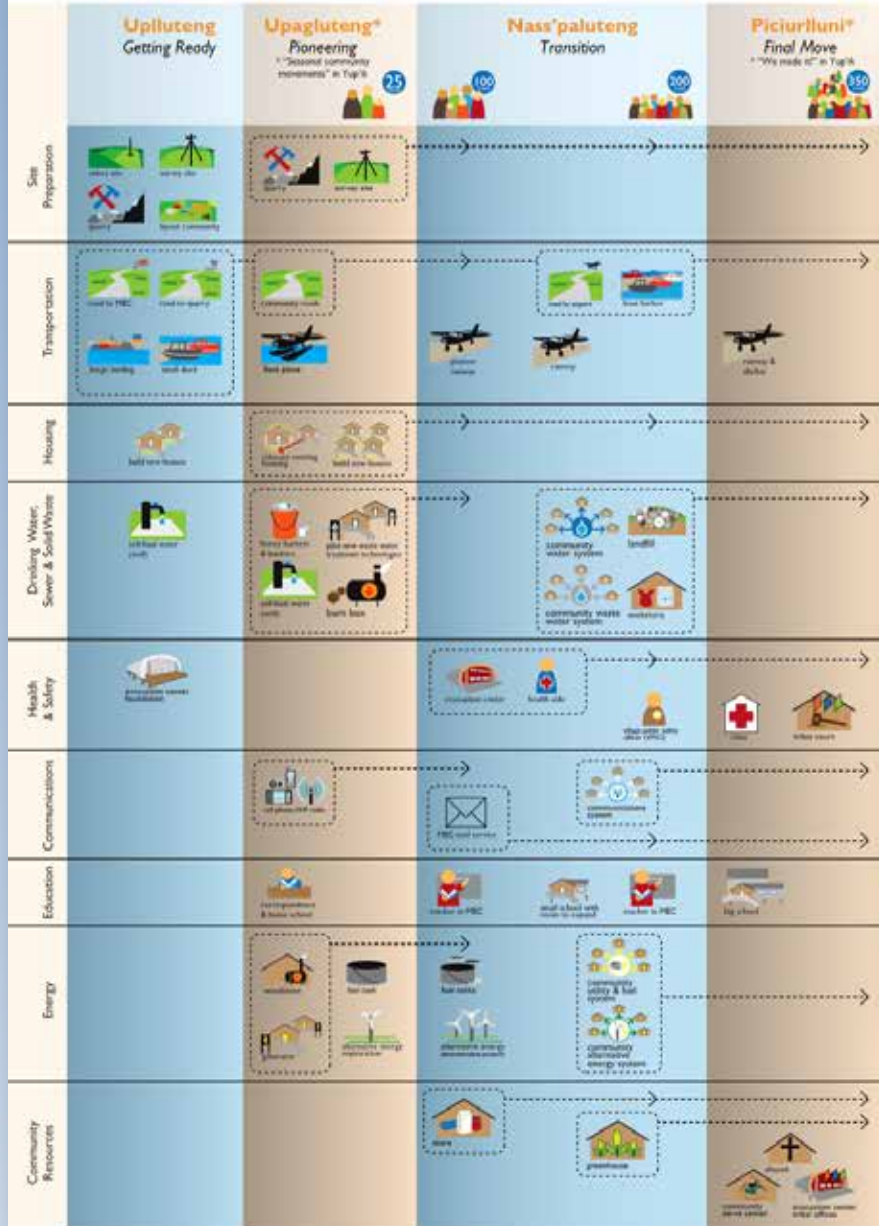
# Mertarvik Strategic Management Plan

Sets a common vision for relocating the village of Newtok to relocation site on Nelson Island.





# Mertarvik Relocation Plan



Strategic Focus Areas	2012		2013		2014	
	winter/spring	summer/fall	winter/spring	summer/fall	winter/spring	summer/fall
<b>Site Preparation</b> <ol style="list-style-type: none"> <li>1. Fund, develop townsite plan</li> <li>2. Fund, carry out survey</li> <li>3. Resolve land ownership questions</li> <li>4. Determine lot allocation strategy</li> <li>5. Construct pioneer roads</li> <li>6. Establish basic housing development rules</li> <li>7. Develop quarry resource</li> </ol>						
<b>Building Capacity</b> <ol style="list-style-type: none"> <li>1. Identify partnership team</li> <li>2. Define MDCD role, strengthen functions</li> <li>3. Assess needed skills, create training plan</li> <li>4. Assess regional demand for rock/gravel</li> <li>5. Build relationships with foundations</li> </ol>						
<b>Emergency Response + Public Health</b> <ol style="list-style-type: none"> <li>1. Redesign MEC if necessary</li> <li>2. Hire MEC construction manager and crew</li> <li>3. Develop, implement MEC funding strategy</li> <li>4. Identify health professional pioneer</li> <li>5. Complete MEC vertical construction</li> <li>6. Develop long-term plan for clinic</li> </ol>						
<b>Housing</b> <ol style="list-style-type: none"> <li>1. Complete site preparation tasks</li> <li>2. Conduct housing survey</li> <li>3. Develop a housing strategy</li> <li>4. Relocate houses</li> <li>5. Implement housing programs</li> <li>6. Research housing energy technologies</li> </ol>						
<b>Drinking Water + Sanitation</b> <ol style="list-style-type: none"> <li>1. Identify practical system alternatives</li> <li>2. Evaluate + select alternatives</li> <li>3. Develop business plan</li> <li>4. Pursue funding for design + construction</li> </ol>						

■ = project initiation   ■ = project maintenance

# Community Decision-Making Process: Phase 3

Direct assistance to community on navigating governmental processes and resources available to achieve goals and projects needed to mitigate climate change impacts

## **Establishment of Interagency Working Group:**

- Coordinated assistance to community to achieve recommendations
- Benefits: leveraging of resources, better coordination of work and reduced conflicts in project timelines and construction windows

## **Hiring Local Project Coordinator (Community Resident):**

- Full-time local project coordinator to work with project staff, agencies, and community planning grant contractors
- Serve as advocate for funding through grants and other means to implement needed evaluations and action plans.
- Represent community at interagency meetings

## **Development of Comprehensive Strategic Management Plan:**

- Contractor hired to develop strategic management plan which provides "blueprint" for how community and agencies will proceed to accomplish recommended actions.
- Contractor will work with community, local project coordinator, agencies and attend inter-agency meetings to develop strategic management plan, which will include:
  - Projected timelines/costs associated with projected relocation/shoreline protection
  - Sequence of tasks and subtasks that must take place
  - Entities responsible for specific tasks or activities
  - Best construction windows to reduce environmental impacts
  - Resources required

# Alaska Community Coastal Protection Project





# Objective:

To increase community resilience to the impacts of natural hazards

## Essential Components:

- Strong community leadership
- Agency support and collaboration
- Careful, effective planning

## Final Product:

A Strategic Management Plan that provides a “blueprint” for how the community and agencies will work together to increase community resilience and implement adaptation actions over the short-term (0-5 years), mid-term (6-10 years) and long-term (11+ years).



# Strong Community Leadership

Community grant for full-time Community Coordinator (2 years) to:

- § Represents community at interagency working group meetings
- § Works with project staff, inter-agency group, and planning contractor on resiliency plan
- § Advocates for funding to carry out resiliency plan

\*Funding for other community leaders to attend inter-agency meetings

DCRA provides training, technical assistance and other support to Community Coordinator



# Agency Support and Collaboration

Organization of interagency working group (state/federal agencies and regional organizations):

Coordinated assistance to community to identify and achieve resilience actions, based on conventional funding channels of agencies

Benefits include:

- § leveraging of resources
- § better coordination of work
- § reduced conflicts in project timelines and construction windows





# Careful, Effective Planning

## Comprehensive Strategic Management Plan:

- *Projected timelines and costs* associated with projected tasks or activities
- *The sequence of tasks and subtasks* that must take place
- *The entities responsible for specific tasks or activities.*
- *The best construction windows* to reduce environmental impacts
- *The resources required*
- *The schedule of activities.* Development of a strategic management schedule for activities will be an important product.



# Phase 1

## Identifying Issues, Values, Goals and Objectives

Literature Review

Community Survey

Values Survey

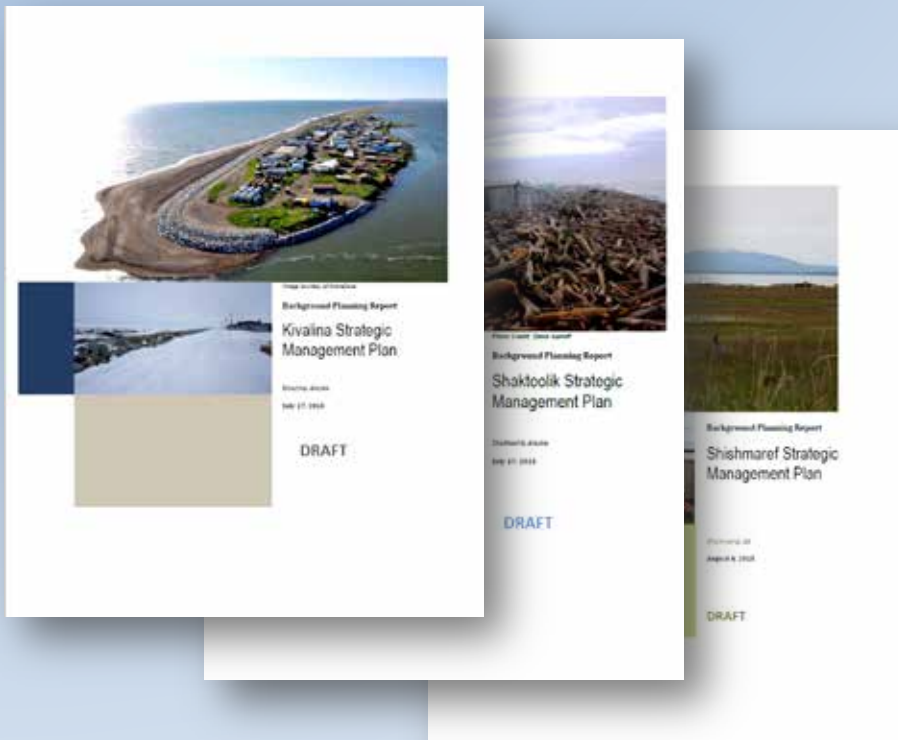
Elder Interview

High School Exercise

Community Gatherings

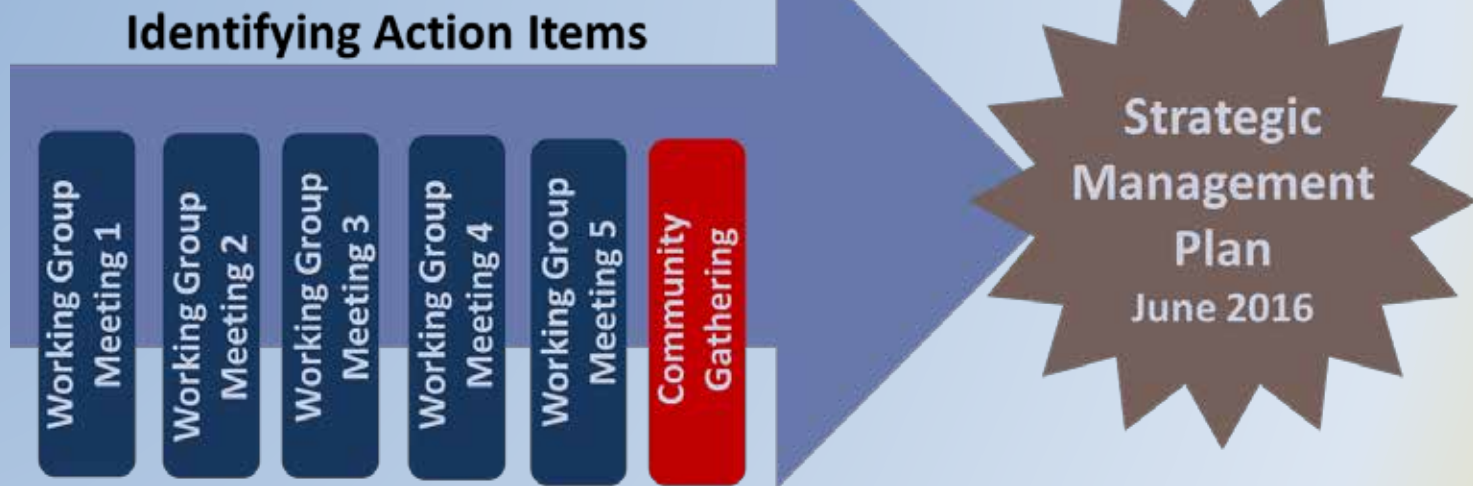
Background  
Planning  
Report  
June 2015

- Contains results of
  - Interviews and surveys
  - Literature review
  - Vision statement
  - Guiding principles
  - Resilience-related issues
- A living document
- Provides the foundation for the Strategic Management Plan





# Phase 2

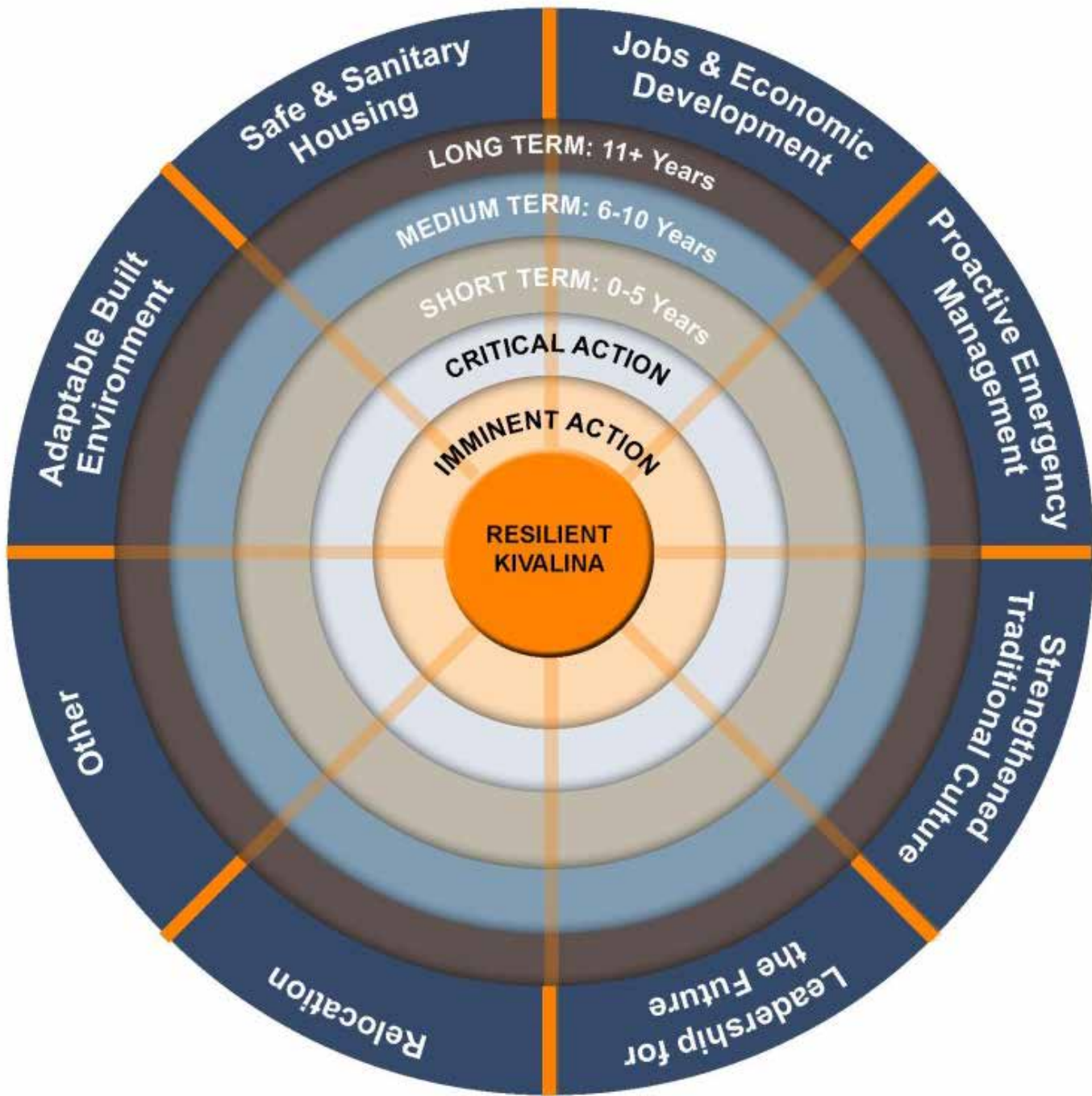


## Community Inter-Agency Planning Groups

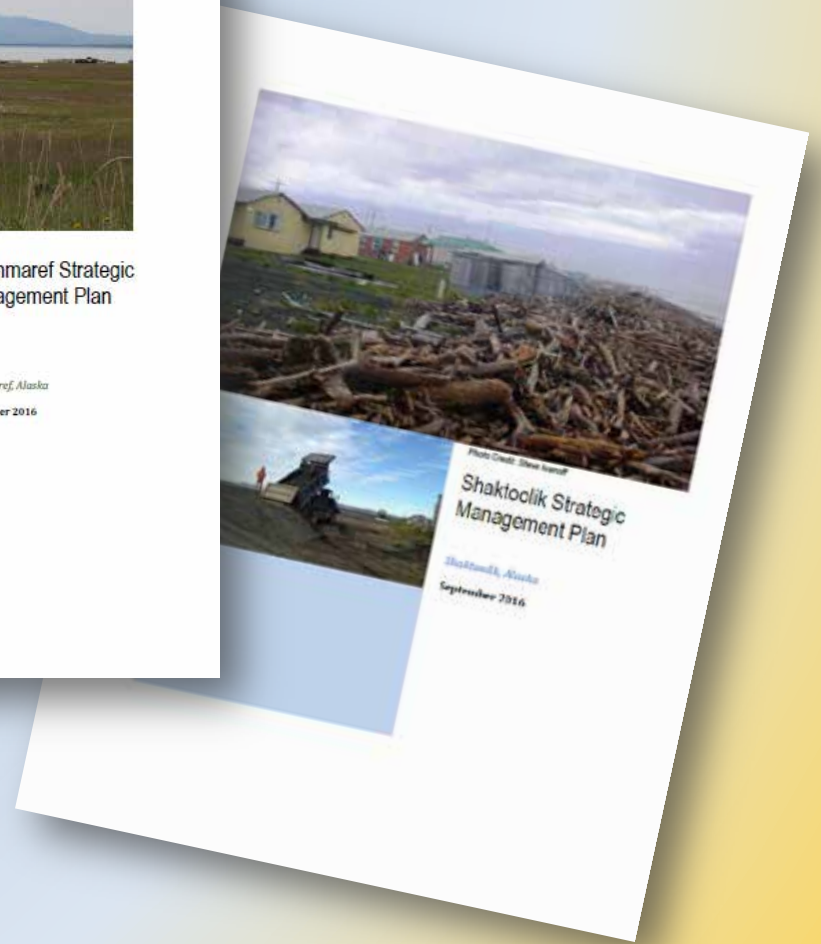
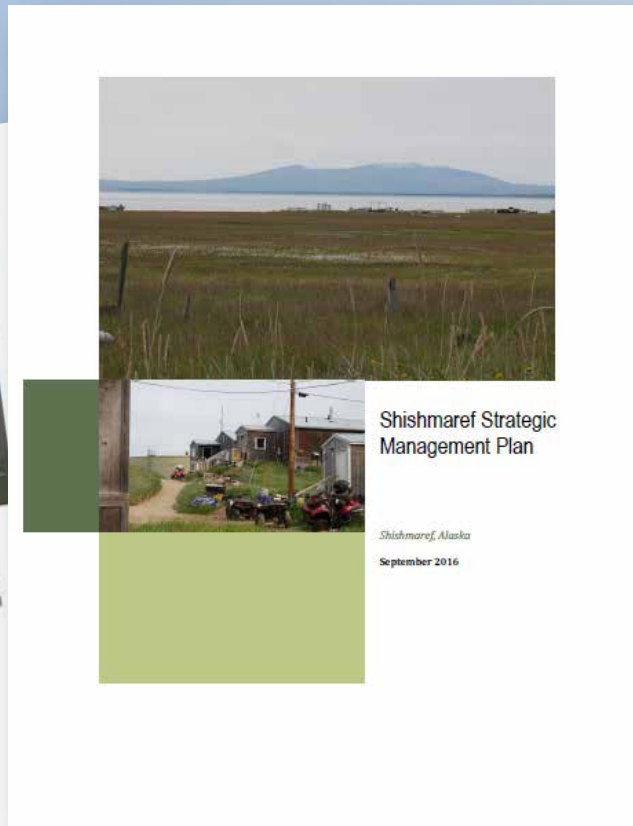
- Planning Team
- Community Coordinator
- Local leadership from Tribe, City, ANCSA Village Corporation
- Regional Organizations
  - ANCSA Regional Corporation, Native Non-Profit Regional Organization, Regional Health Organization, Regional Housing Authority ...
- State Agencies
  - DCRA, Village Safe Water, DOT/PF, DHS&EM, Alaska Energy Authority...
- Federal Agencies
  - Corps of Engineers, FEMA, FAA, HUD, EDA, USAD RD ...

# Development of Strategic Management Plan









Online at:

<https://www.commerce.alaska.gov/web/dcra/PlanningLandManagement/AlaskaCommunityCoastalProtectionProject.aspx>



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<http://commerce.state.ak.us/dnn/dcra/PlanningLandManagement/AlaskaCommunityCoastalProtectionProject.aspx>  
<http://commerce.state.ak.us/dnn/dcra/PlanningLandManagement/NewtokPlanningGroup/MertarvikStrategicManagementPlan.aspx>

