

# Strategic Management Plan Background Report

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## Newtok to Mertarvik

*September 2012*



**Nunaullemteggun ikayuqulluta tamamta,  
assirluta aknirtenritellerkamtenun,  
nuggtarllemtenun ciunerkamteni**

*a community that builds together  
for the safe and healthy future of Newtok*



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# **STRATEGIC MANAGEMENT PLAN**

## **BACKGROUND REPORT :: Newtok to Mertarvik**

**Prepared for the State of Alaska,  
Department of Commerce, Community, and Economic Development (DCCED)  
Division of Community and Regional Affairs  
by Agnew::Beck Consulting**

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### **DCCED Project Manager:**

Sally Russell Cox, Planner, Division of Community and Regional Affairs

### **Project Advisors:**

Stanley Tom, Tribal Administrator, Newtok Traditional Council

George Tom, President, Newtok Native Corporation

Greg Magee, Program Manager, Village Safe Water Program, Alaska Department of Environmental Conservation

**With special acknowledgement to  
the Newtok Community and the Newtok Planning Group**

**Additional Editorial Contributions From:**

Andrea Elconin, Program Manager, U.S. Army Corps of Engineers

Carolyn George, Secretary, Newtok Traditional Council

David Vought, Sustainability Officer, Alaska HUD Office of Native American Programs

Dan Boccia, Alaska Native Tribal Health Consortium, Lead Civil Engineer

George Owletuck, M.A. Rural Development, Angall'kut Inc., Contractor to the Newtok Traditional Council

Grant Kashatok, Principal, Ayaprun School and Newtok Youth

Guy McConnell, Biologist, U.S. Army Corps of Engineers

Mike Black, Director of Program Development, Alaska Native Tribal Health Consortium

Newtok Traditional Council

Newtok Native Corporation

PDC Engineering

Participants of the October 21, 2011 Newtok Planning Group Meeting

Robin Bronen, University of Alaska Fairbanks, Resilience and Adaption Program

USKH, Inc.



# Table of Contents

<i>Introduction.....</i>	<i>ii</i>
<i>A Message from the Community .....</i>	<i>iii</i>
<i>Why Develop a Strategic Management Plan?.....</i>	<i>I</i>
<i>Mission Statement + Guiding Principles.....</i>	<i>3</i>
<i>Stakeholders + Partnerships.....</i>	<i>4</i>
<i>Relocation Plan to Mertarvik.....</i>	<i>5</i>
<i>Strategic Focus Areas.....</i>	<i>8</i>
<i>Site Preparation.....</i>	<i>9</i>
<i>Community Capacity .....</i>	<i>16</i>
<i>Health + Safety.....</i>	<i>21</i>
<i>Housing.....</i>	<i>27</i>
<i>Drinking Water, Sewer + Solid Waste .....</i>	<i>37</i>
<i>Three-Year Action Plan + Timeline .....</i>	<i>40</i>
<i>Newtok Closure + Restoration Plan .....</i>	<i>43</i>
<i>Permitting Discussion.....</i>	<i>44</i>
<i>Recommended Next Steps .....</i>	<i>46</i>



Cover photo of Mertarvik site by Agnew::Beck Consulting. Photo of Newtok children by PDC Engineers.  
Report photos by Agnew::Beck Consulting, or PDC Engineers unless otherwise noted.

# A Message from the Community

March 9, 2012

It is with excitement and great pride that we share with you our Strategic Management Plan – Newtok to Mertarvik. This document will chart the course of our future, which is to relocate as a community to Mertarvik. We will not be separated. We will stay together and we will move together.

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. Our infrastructure that supports our village is compromised and affecting the health and wellbeing of our community members, especially our children. Our children should not know the governmental term “disaster declaration.”

We saw the changes coming, we consulted our elders, and we have taken steps to move to safer land. By a vote of the people we selected Mertarvik as the place for our new village and we worked for many years to secure the land. Mertarvik is a place that we know well as we frequently stop there for fresh water before hunting and fishing trips. It is on higher ground and it will provide us with a safe site on which to build our new village.

Over five and a half years ago we joined with the State of Alaska and federal and regional agencies to create the Newtok Planning Group. This joint effort was new and has been led by Maligtaquyarat, our guiding principles, as it is our desire that our relocation be defined by our Yup’ik way of life. We have had the great benefit of working with dedicated, thoughtful partners. We believe these years have seen significant progress and this Plan is an indicator of that progress.

As we look to the future we are dedicated to the hard work of moving our community. We are strong people and are used to hard work. It has taken years of partnership to get to this point, but we also know that the water is getting closer and time is running out. With this Plan, we look to both renew the commitments with our current partners and to develop relationships with new partners to help us turn this document into action and to make our move to safer land a reality.

We have taken instruction from our elders, who are our advisors and our greatest resource. We owe it to our elders to provide them with a life where they can focus on community and our culture and not worry about the water coming into the village. We owe it to our children to provide them with a life where they do not worry about illness or the coming of the next storm. We will all sleep better when we know that our elders and children are safe.

With the guidance of our elders, we look forward to working with current and future partners who share our collective vision of creating our new village in accordance to our guiding principles. Thank you for helping us move our village.

Moses Carl

Newtok Traditional Council

George Tom

Newtok Native Corporation





# Introduction

Newtok is a growing Yup'ik Eskimo village located on the Yukon-Kuskokwim Delta along the western coast of Alaska, near the confluence of the Newtok and Ninglick Rivers. As detailed in the accompanying Relocation Report::Newtok to Mertarvik (August 2011)<sup>1</sup>, the community's health and safety are currently threatened by severe coastal erosion and flooding. The Ninglick River, which is tidally influenced and connects Baird Inlet to the Bering Sea, is eroding toward the village at an average pace of 72 feet per year (with an observed loss of up to 300 feet in one year) and has been moving toward the village for decades. Erosion projections (last updated in 2007) indicate that the river could reach the school by 2017.



The community's health and safety are currently threatened by severe coastal erosion and flooding.

Although the fast pace of erosion is alarming, it was the loss of the land barrier which separated the Newtok River from the Ninglick River in 1996 that has had the most dramatic impact on livability of the current village. Nearly overnight, the village became more susceptible to storm surges on the Ninglick River due to the loss of this land barrier by erosion. The Newtok River, which runs alongside the village, turned from a free flowing river into a slough. When the slough silted in, commercial vessels could no longer navigate to the village and honey bucket waste no longer flowed out. These changes, which are likely exacerbated by climate change and melting permafrost, have increased the frequency and severity of flooding in Newtok during the last decade.

A powerful storm surge can raise tide levels 10 to 15 feet above normal and severe flood events, such as the 20-year flood of 2005 and the lesser flood of 2006, permeate the village water supply, spread contaminated waters through the community, displace residents from homes, destroy subsistence food storage, and shut down essential utilities. The U.S. Army Corps of Engineers (USACE) predicts that the 50-year flood would inundate almost the entire community. Staying in place is not an option for Newtok. On November 8th of this year, the National Oceanic and Atmospheric Administration issued a severe storm warning for the western coast of Alaska. The posting concluded with "This will be an extremely dangerous and life threatening storm of epic magnitude rarely experienced" – a powerful reminder of Newtok's vulnerability.



Erosion projections (last updated in 2007) indicate that the river could reach the school by 2017.

Against this backdrop, the community and its partners have made significant progress laying the groundwork for the future townsite, Mertarvik. Amongst the progress,

the Newtok Planning Group saw the need to develop a strategic management plan (SMP) for the relocation and, in doing so, set clear direction and priorities for relocating Newtok to Mertarvik. DCCED secured a grant for the SMP through the federal Coastal Impact Assistance Program and in January 2011, awarded a contract to Agnew::Beck Consulting in collaboration with PDC Engineers, Inc. and USKH, Inc. This document represents the culmination of a year-long effort that included two community-wide meetings in Newtok, two Newtok Tribal Council meetings in Newtok, a site visit to Mertarvik, three Newtok Planning Group meetings, more than forty-five stakeholder and potential funder interviews, and numerous planning sessions with the Project Advisors, Stanley Tom and George Tom of



Newtok and Greg Magee of Village Safe Water, and DCCED Project Manager, Sally Russell Cox.

The reasons for producing a SMP are many:

### ***Develop a Collective Vision***

With growing concerns and urgency to relocate before Newtok is destroyed by erosion, it is important to focus the resources of the community and supporting partnerships behind a common vision and common set of priorities.

### ***Establishing a Framework for Other Plans***

The SMP acts like an “umbrella document” for relocation activities. All other plans, policies and strategies will be consistent with the SMP and take direction from it.

### ***Communicating the Strategic Plan***

Strategic planning establishes and communicates the community vision, guiding principles and strategic actions in a positive and practical way to everyone in the community, government agencies, and other organizations.

### ***Entering Into Effective Partnerships***

A SMP provides the basis for strengthening existing and building new partnerships with different levels of government, as well as other partners and funders. These partnerships are essential to achieving the strategic actions of the plan.

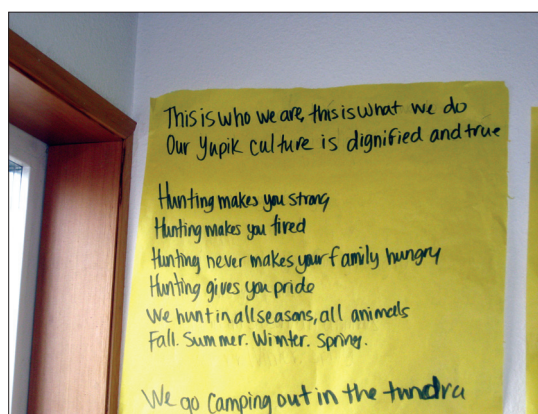
# Mission Statement + *Maligtaquyarat* (Guiding Principles) for Mertarvik

## Mission

The mission of the Mertarvik Relocation is to create a safe and self-sustainable village for this and future generations that's built by and governed by our own people working together as a tribe and people unified by our history, cultural traditions and language.

## *Maligtaquyarat* (Guiding Principles)

On June 9, 2011, the Newtok Traditional Council unanimously passed and approved a set of guiding principles for the community's relocation to Mertarvik (Newtok Traditional Council Resolution 11-30). It is the hope and intent of the Newtok Traditional Council that all community residents and partners working toward the relocation will respect and promote these guiding principles.



The guiding principles for the relocation draw upon the community's heritage and values. This poster hangs in the Newtok school.

*The relocation of Newtok will be defined by our Yup'ik way of life. Our Guiding Principles are:*

- *Remain a distinct, unique community – our own community.*
- *Stay focused on our vision by taking small steps forward each day.*
- *Make decisions openly and as a community and look to elders for guidance.*
- *Build a healthy future for our youth.*
- *Our voice comes first – we have first and final say in making decisions and defining priorities.*
- *Share with and learn from our partners.*
- *No matter how long it takes, we will work together to provide support to our people in both Mertarvik and Newtok.*
- *Development should:*

<ul style="list-style-type: none"><li>– <i>Reflect our cultural traditions.</i></li><li>– <i>Nurture our spiritual and physical well-being.</i></li><li>– <i>Respect and enhance the environment.</i></li><li>– <i>Be designed with local input from start to finish.</i></li></ul>	<ul style="list-style-type: none"><li>– <i>Be affordable for our people.</i></li><li>– <i>Hire community members first.</i></li><li>– <i>Use what we have first and use available funds wisely.</i></li><li>– <i>Look for projects that build on our talents and strengthen our economy.</i></li></ul>
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# Stakeholders + Partnerships

Residents discuss the phases of relocation and what life might be like in Mertarvik and Newtok as the community moves.



At the core of Newtok’s efforts toward a successful relocation process has been strong community leadership and effective partnerships with key stakeholder groups, including federal, state and regional agencies. From the beginning, the community of Newtok has worked together with their partners to share information and to plan and build projects that have laid the groundwork for the relocation process.



Harnessing and building upon this infrastructure of community and agency partnerships will be key to successful implementation of the SMP and ultimately the final relocation of Newtok. Allowing flexibility to adapt to lessons learned along the way will help speed the relocation process and respond to the community’s urgent need to move. In the future, as in the past, flexibility and an expanded lattice of partners will reveal opportunities and open new doors and new funding opportunities for village relocation efforts in Newtok and other threatened communities in Alaska.



# Relocation Plan to Mertarvik

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*“One thing that we gain from pioneering is continuing and honoring our values. If we rely on the western society’s way of life, that’s forgetting who I am. We need to go back to our way of life. We have to start somewhere.”*

*– Newtok Traditional Council Member*

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The Mertarvik Relocation Plan (Figure A - page 7) delineates four phases of relocation: the Getting Ready Phase, the Pioneering Phase, the Transition Phase, which includes early and late stages, and the Final Move Phase. These phases are driven by population levels at Mertarvik. The Relocation Plan also organizes work into nine strategic focus areas (site preparation; transportation; housing; drinking water, sewer, and solid waste; health and safety; communications; education; energy; and community resources) and sets clear goals by phase for each area. Priority strategic focus areas are discussed in detail in the next section while a description of each of the relocation phases is included below.

## **Phase 1: Uplluteng (Getting Ready)**

### **Population 0**

The getting ready phase refers to the current phase of development. The groundwork is being laid for future phases. This phase includes activities and infrastructure such as selecting the site, developing the quarry, drilling two drinking water wells, completing a Community Layout Plan and a SMP, conducting a harbor feasibility study, creating a topographic map to facilitate surveying, and building a barge landing, initial houses, pioneer roads, and the foundation of the Mertarvik Evacuation Center (MEC). Efforts in this phase are now well established.

## **Phase 2: Upagluteng (Pioneering)**

### **Population ~25 to 100 People**

Upagluteng refers to the traditional practice of moving with the seasons. The icons in this phase of the Relocation Plan depict what life might be like for the first residents living in Mertarvik. Self-haul water, honey buckets, wood stoves, and individual house generators, correspondence and home schooling, and VHF radio are some of the likely characteristics defining early life in Mertarvik. New technologies for waste water treatment and alternative energies might be piloted during this phase. For safety, residents will likely move back to Newtok during the spring and fall when movement back and forth from Newtok to Mertarvik would be too risky.





Photos by Carolyn George.

### ***Phase 3: Nass'paluteng (Transition)***

***Population ~100 People or More***

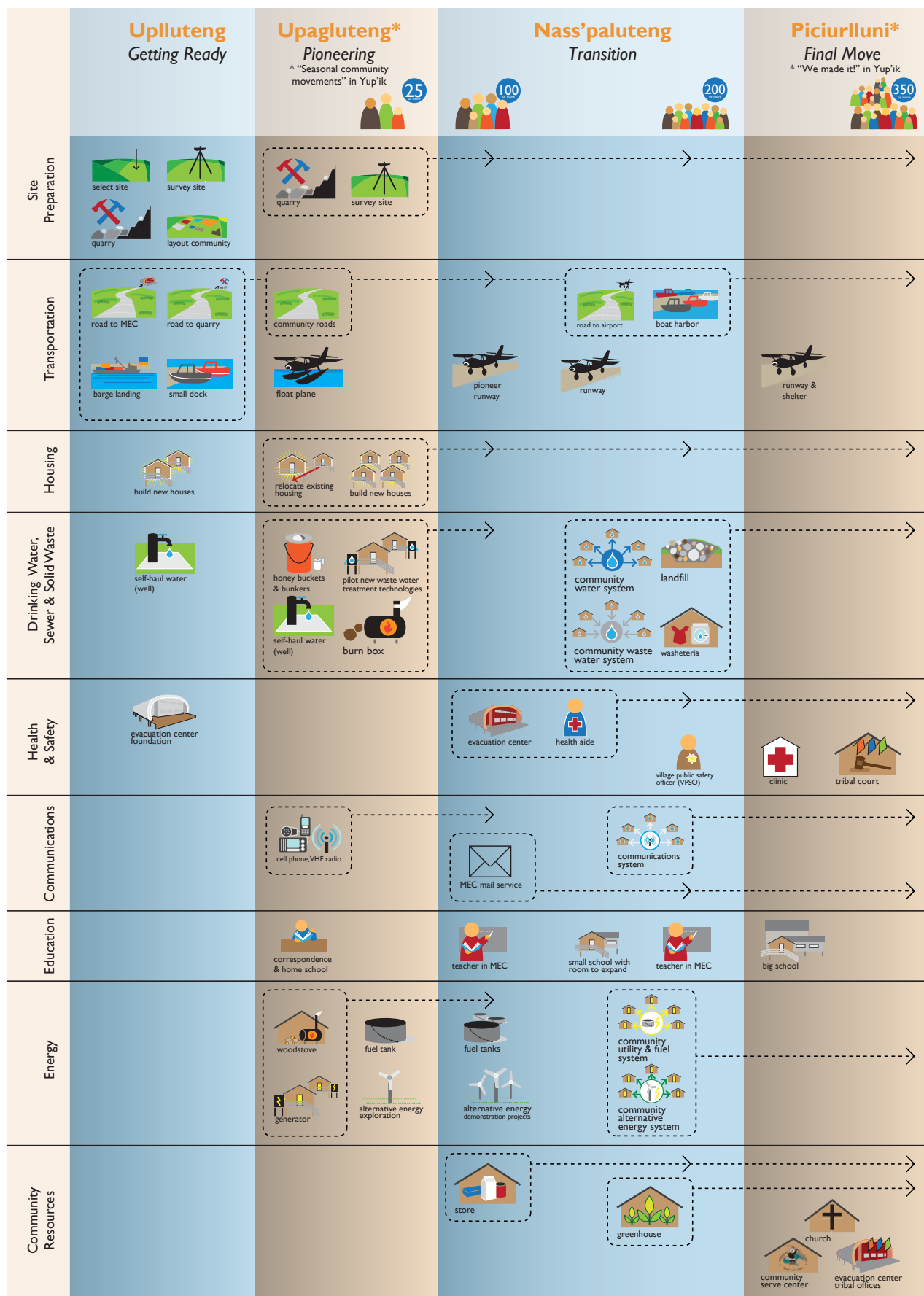
In Yup'ik, Nass'paluteng refers to periods of transition. During the transition phase, more and more community members will make the move to Mertarvik. Early in this phase, a health aide and teacher(s) might be in place to provide health care and education. The MEC will be completed and serve as a multi-functional community facility. A pioneer runway may be completed and larger-scale demonstration projects might test promising technologies as agencies explore sustainable solutions for basic services. As the population grows, reaching say 200 or more, community systems that can later be scaled to meet the entire community's needs should be agreed upon and established for water, wastewater, energy, and communications. An airport, a landfill, a small school, a store, and community greenhouse might be set in place during this phase as well.

### ***Phase 4: Piciurlluni (Final Move)***

***Population 350 People or More***

Piciurlluni means "We made it!" in Yup'ik. This stage represents the final move of all Newtok residents to the new town site. The systems developed during the Transition phase are scaled to accommodate more people and more houses. Additional community facility projects, such a large school, a clinic, and a tribal court, are completed.

# Figure A. Mertarvik Relocation Plan



# Strategic Focus Areas: A Three Year Action Plan



Photos by Carolyn George.

This section includes a discussion of “priority strategic focus areas” and lays out key actions that should be undertaken by the community and their partners over the next three years. An overview of resources for implementation (needed, in-hand and options) is also included. Please note that the options compiled are not exhaustive and Newtok’s eligibility for the programs included has not been confirmed. The intent is that the options laid out in each section represent a solid starting point for future funding research and fundraising efforts.

The “priority” label indicates the importance of these particular tracks to the relocation as a whole, but especially during the Pioneering phase. They include site preparation, community capacity, health and safety, housing, and drinking water, sewer, and

solid waste. The remaining strategic focus areas, transportation, education, energy, and communications, are not discussed in detail but are referred to more broadly in the Relocation Plan. As the community makes progress on current priorities, they will update the SMP to include priority actions for the remaining focus areas. The result is a three-year action plan that draws from interviews and input from the community and a wide range of stakeholders.

# Site Preparation

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## *Surveying, Site Control, Planning, Quarry Development*

### **OBJECTIVES** (*three-year target*)

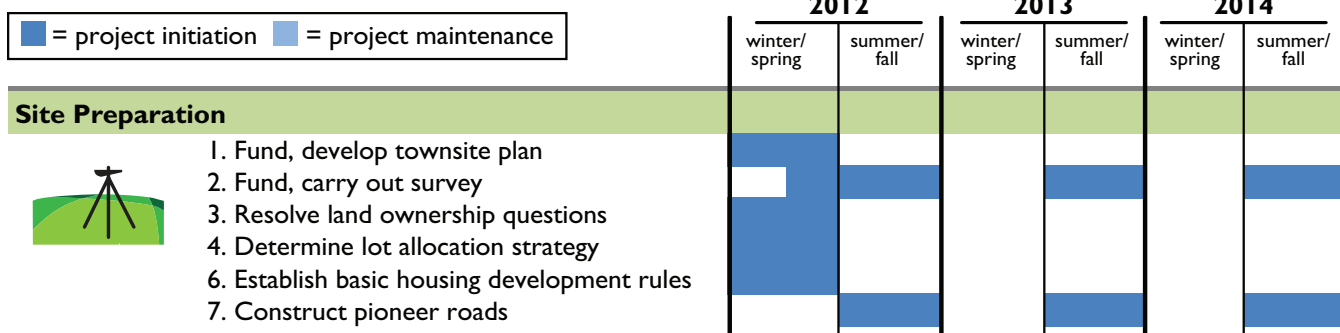
- **Develop a village plan that sets a practical framework for guiding near term locations of housing, community buildings and infrastructure, but is flexible enough to allow for incremental, organic growth.**
- **Survey parcels to provide for clearly defined ownership and/or rights to use designated lots.**
- **Secure material and equipment for essential pioneering site preparation.**

- The Mertarvik townsite, as identified on the Mertarvik Community Layout Plan, is currently owned by the Newtok Native Corporation. The process for transferring rights and land to the Tribe or to individuals remains to be determined.
- The Community Layout Plan completed in April 2011 provides a conceptual map of the future community, but a refined plan and survey are still needed. The current site of the MEC and the three homes built are the only locations known with certainty. Figure B (on page 13) provides example issues to be resolved.
- Lack of surveying and assignment of individual housing lots is a major barrier to resident-driven relocation. The NTC plans to carry out a townsite survey in summer 2012 with funding secured through a DCCED legislative grant, cost-shared with U.S. Army Corps of Engineers funding.
- Current reports suggest that Mertarvik has a potentially good quarry site nearby. The quarry site is located on land conveyed by Calista Corporation to the Newtok Native Corporation. If and when an arrangement is made between Calista Corporation and NNC for further development of the quarry, an assessment should be made to determine demand for Mertarvik rock and gravel and viability of the resource, in addition to research and business planning.

### **CURRENT STATUS**



## Mertarvik Three Year Action Plan and Proposed Schedule



### PRIORITY ACTIONS (over the next three years)

#### 1. Fund and prepare refined townsite plan.

- Using the April 2011 Community Layout Plan, which is a concept design, and topographic mapping of the townsite that was recently provided by the USACE, develop a “35 percent” townsite plan. Base the refined townsite plan on a multi-disciplinary, community-driven process that incorporates improved physical site data and an integrated consideration of community needs for housing, community facilities, infrastructure, access, energy and environmental protection.
- A refined townsite plan will become the basis for locating pioneer structures and utilities and guide future surveying efforts. The “35 percent” townsite plan would also give guidance on facilities, housing and other investments that can move forward in the near term while at the same time leaving flexibility to accommodate actions where the exact approach is not yet clear. See Figure B for an overview of key factors that will contribute to the development of a successful townsite plan.
- Assemble the right team to do site planning work. Hire a project manager to bring together and coordinate technical support with partnering agencies from across disciplines including water and sanitation, housing, energy, transportation, construction, and planning.

#### 2. Secure funding for and complete townsite survey.

- Upon completing the refined townsite plan, survey the portions of the townsite expected to be developed in the near term, including: parcels for near term individual community facilities; parcels for pioneer housing (either individual lots or larger areas for multiple homes); corridors for primary community infrastructure including roads and possible future water and sewer lines; and a general grid of survey markers to be used as references for future surveys. As development progresses, additional areas can be surveyed.

- Provide clearly visible markers on the ground at Mertarvik so builders work within the boundaries of the survey and/or community plan.

### *3. Clarify land ownership goals and develop a process for land transfer, both between Newtok Corporation and Newtok Tribe, and between these entities and individual users as appropriate.*

- Individual parcel ownership, although not essential, may expedite the pioneering process and could facilitate the use of housing loans/mortgages as a funding mechanism (see housing section for more details).

### *4. Determine method for assigning housing lots to individuals.*

- Key questions to address: Should individual parcels be defined, or instead larger areas within which groups of pioneers could locate homes within basic development rules? (see Figure C on page 14) If individual parcels is the choice, how should these be split between single and multi-family units? Will housing lots be assigned by lottery? Will housing lots be assigned to the entire community up front or just to the initial pioneers? Will groups of families be allowed to select housing lots together? Can individuals exchange lots?

### *5. Establish basic development rules for placing homes on lots.*

- Basic development rules might include the various infrastructure criteria for roads, water, sewer, electric, communications, etc. For example, the development rules for piped water and sewer would be different than an hauled water and sewer system.

### *6. Secure materials for and construct essential pioneering roads.*

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## RESOURCES

### *Townsite Plan + Initial Survey Work*

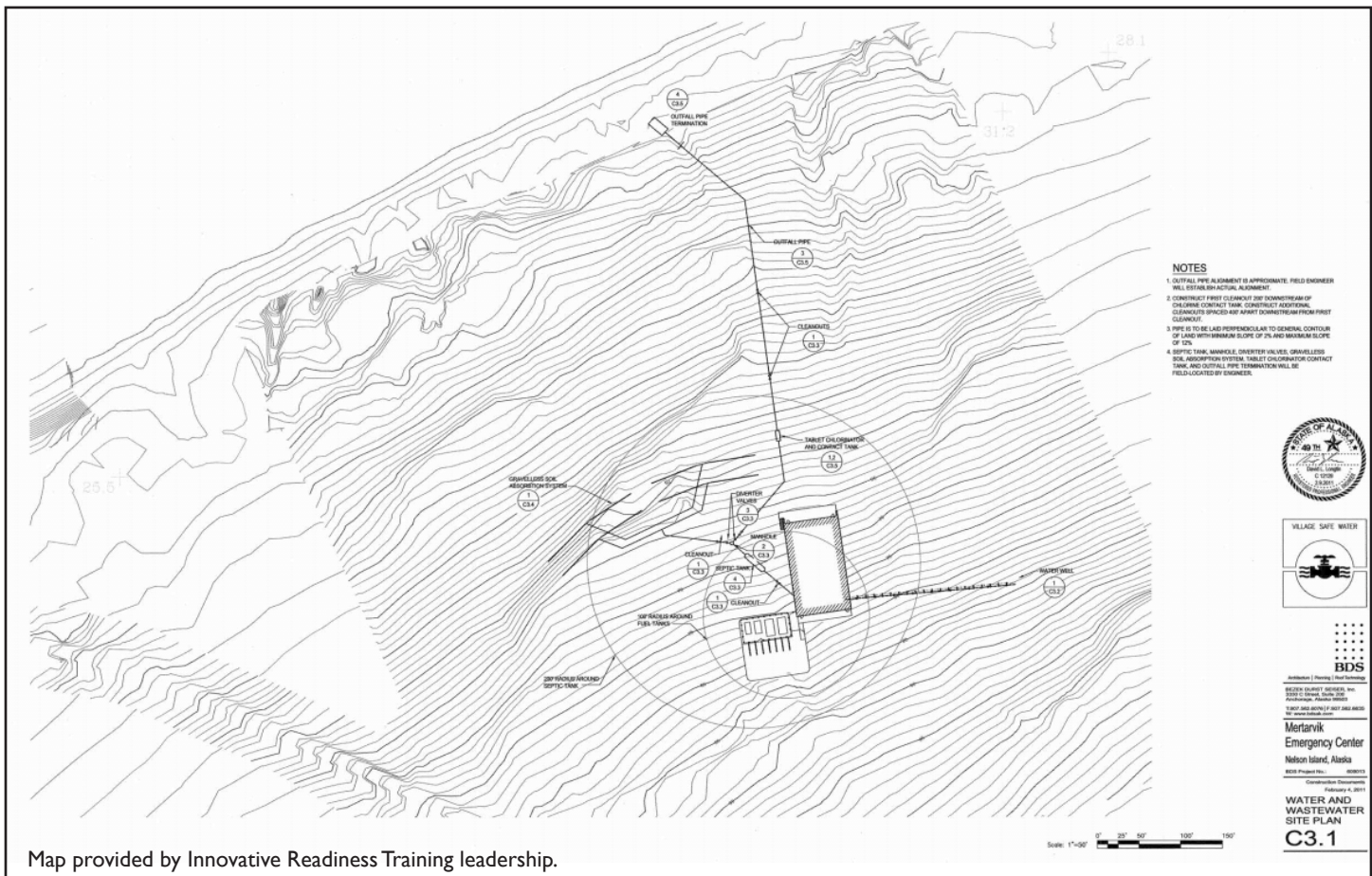
#### Needed

- Expected to range from \$100,000 to 300,000; actual number varies with extent of survey work and plan detail. Ideally will include several field-based work sessions.

#### In-Hand

- USACE has provided funding (approximately \$30,000) for the preparation of the topographic map of the Mertarvik townsite.
- Village Safe water has approximately \$200,000 in funding available to develop a water and sanitation master plan, which could provide the impetus to start the development of the “35 percent” townsite plan.
- Other potential funds include a State Legislative Grant of \$75,000 (available for Mertarvik work but requires repurposing by the legislature) and match funding for planning from USACE.
- Bureau of Indian Affairs (BIA) Indian Reservation roads funding to Newtok. All of the roads identified in the final Mertarvik Community Layout Plan have been officially included in BIA’s Roads Inventory. Funding should be used to survey the roads when the community townsite is surveyed.

## Figure B. Developing the Mertarvik Townsite Plan Concept Guidelines



**Balancing Flexibility + Certainty** – Building a village is an iterative, organic process; the townsite plan will evolve over time in response to specific opportunities and challenges. At the same time, the townsite plan needs to establish a fixed framework so, for example, the community does not find itself with key buildings in the wrong location, or no space for future utilities.

**Water + Wastewater** – Preserve option for a gravity-fed, community-wide piped water and wastewater system, even if alternatives to piping are explored in the early years. This objective requires laying out roads and building sites with appropriate easements for essential infrastructure and considering building elevations relative to water storage and wastewater treatment facilities.

**Overall Development Pattern** – Concentrate uses to reduce energy use and infrastructure costs. Spend enough time on site to ensure townsite plan is realistic, and responds to both community needs and physical constraints and opportunities. Protect access to areas that may be important for environmental quality or subsistence.

**Community Buildings** – Reserve space for a core of public buildings including both near term needs like the MEC and other future uses like a school, health clinic and store.

**Energy + Communication** – Reserve sites and easements for delivery and storage of fuel and for a community generator building. Locate the generator where waste heat can be used for space heating of public buildings like the school. Reserve sites that may be used for wind or other alternative energy sources.

**Housing** – Identify zones where houses should be located initially during the pioneer phase as well as during later phases, leaving open sites for community buildings and reserving easements or corridors for roads and other infrastructure. Provide flexibility to accommodate different forms of housing, from single family to multi-family units.

**Roads + Trails** – Reserve a basic framework of public access routes, wide enough to work for pedestrians, snow machines and ATVs and to accommodate utilities and utility vehicles, but not wider than necessary for safe movement. Encourage double loaded streets.

**Airport + Waterfront Uses** – Reserve space for both a near-term pioneer runway and long-term runway, shelter, and airport access road. Reserve space for small boat harbor, Coastal Villages Region Fund Fisheries Support Center, and harbor-related storage areas.



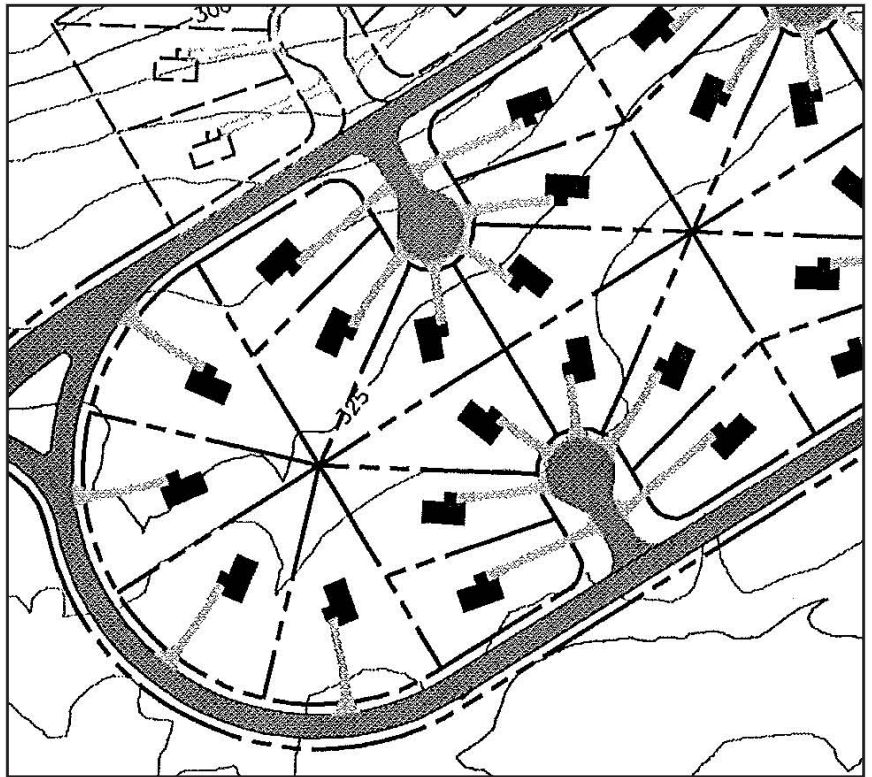
## Figure C. Parcel Layout + Survey Options

### Option 1 – Individual Surveyed Lots

Ownership: by individuals, Tribe or Corporation

Advantages:

- Clear site control
- Separation between homes
- Clear, legal access for infrastructure, e.g. roads, future water, sewer, power communications
- Easier to access to lender financing
- Simplifies future land transactions

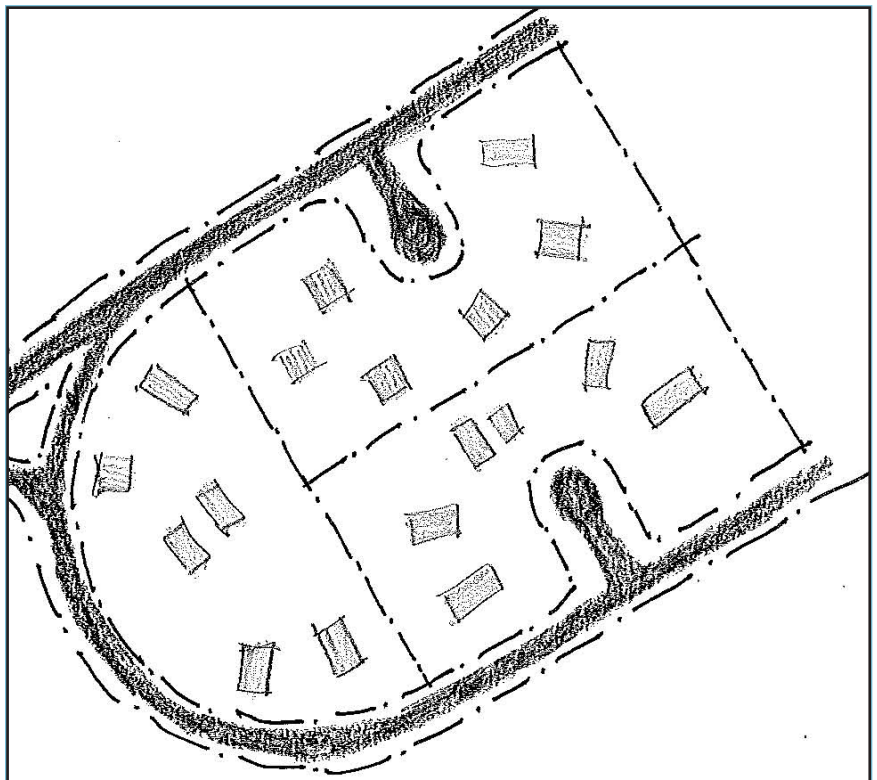


### Option 2 – Shared Larger Parcels

Ownership: by a family or group of individuals, Tribe or Corporation

Advantages:

- More closely matches traditional informal village development patterns
- More flexibility in locations of homes
- Option for increased density (which lowers infrastructure and land costs per home)
- Less extensive, less costly survey process
- Less monotonous appearance



# Community Capacity

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## Leadership Community Management Structure, Workforce Development, Quarry Development and MCDC

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*“I have confidence about this early move. When I was one or two years old, my family moved. I focus on the time when people decided to move and they moved instead of relying on the agencies. I believe our sovereign way of life will be stronger – we can start a new life, a new village. We shouldn’t wait. We need to encourage ourselves to do it ourselves. The elders have said we need to change ourselves; we need to start a new beginning and new life. Leave hate and anger and put it away and start a new life.”*

*– Newtok Traditional Council Member*

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### OBJECTIVES (three-year target)

- Build community capacity to drive the relocation process (with and without external funding).
- Expand leadership team and establish a community management structure for the relocation.
- Expand organizational capacity of the Tribe and the Mertarvik Community Development Corporation (MCDC).
- Develop a skilled workforce that can pursue, construct, and maintain infrastructure at Mertarvik and help close and restore Newtok.

### CURRENT STATUS


- The community relocation effort is currently transitioning into the Pioneering phase.
- As the relocation efforts enter into a new phase, more and more activities will need to be undertaken to ensure continued progress on all fronts. Expanding the leadership circle and clarifying roles is critical to helping current leadership manage all of the moving parts.

- The first “Uplluteng” or “Getting Ready” phase of development has shown that fostering and maintaining strong partnerships is key. Moving a village requires partnering, collaboration and coordination.
- Newtok residents are gaining the skills they will need to build and maintain a new community. In spring 2011, 17 community members completed three months of training in Bethel in construction, electrical and mechanical trades building a local construction workforce. The community is working to secure funding for additional community members and intends to expand the training opportunities to health-related skills and certifications.
- Newtok needs to expand its fundraising capacity. The MCDC was incorporated as a nonprofit corporation in the State of Alaska in August 2010. This entity is eligible for funding that the NTC is not. Determining how this organization fits into the picture is an important next step toward expanding the community’s fundraising capacity and developing a successful fundraising strategy for the relocation effort.



A top priority for the project team was working with the community to develop a shared vision and framework for the relocation. Residents leave the school after an evening meeting.

### Mertarvik Three Year Action Plan and Proposed Schedule

		2012		2013		2014	
		winter/ spring	summer/ fall	winter/ spring	summer/ fall	winter/ spring	summer/ fall
<b>Community Capacity</b>							
 <ol style="list-style-type: none"> <li>1. Expand community management team</li> <li>2. Define MCDC 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>							

#### 1. Identify community-based project management team to implement SMP.

- A diverse and capable project management team is key to ensuring that projects and project monies are managed effectively, that strategic focus areas stay on track, that potential obstacles or requirements are identified and addressed up front, and that a strong link exists between the community’s desires and the work being conducted on the ground.

**PRIORITY ACTIONS**  
(over the next three years)

## *2. Determine role of MCDC and ramp up key functions required to support relocation efforts.*

- The MCDC is a nonprofit organization created by the NTC in 2010 to increase funding eligibility and empower the NTC to construct houses for less by using local labor and to be in charge of housing design and standards.
- The community should clarify the role of the MCDC and ramp up a number of key organizational functions to sustain upcoming relocation efforts. Clearly defining the role of the MCDC will also help determine where these functions should be housed, within the Newtok tribal office and/or within the MCDC, or shared between the two. Some of the key functions include:
  - Construction Management, Fundraising and Grantwriting,
  - Accounting and Grant Management,
  - Planning, and
  - Permitting.

## *3. Assess existing local workforce skills and identify skills needed to complete upcoming projects; create a training plan to address labor needs and fill strategic skill sets.*

- For example, a Utility Manager is required in order for Mertarvik to receive sanitation funding.

## *5. Build relationships with government and non-governmental organizations the story. Establish connections and be able to tell the story.*

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## *Economic Development (expanding, retaining and creating new businesses; creating jobs; workforce development)*

## **RESOURCES**

### **Needed**

- Funding for staffing, business and economic development planning, and workforce training.

### **In-Hand**

- Existing community member experience and skill sets. Seventeen recent trainees and more training programs planned.

### **Potential Funding Sources**

- EDA's Partnership Planning grants for Indian Tribes for development and implementation of a Comprehensive Economic Development Strategy (CEDS). The first regional CEDS was created by Association of Village Council Presidents in 2002. The Lower Kuskokwim Economic Development Corporation (LKEDC) is the current Alaska Regional Development Organization for the area. Mertarvik projects should be incorporated into the LKEDC's CEDS to open up potential EDA funding opportunities.
- EDA Short-term Planning grants for the creation and retention of higher-skill, higher wage jobs. Average annual award in FY10 was \$65,000. Applications accepted on an ongoing basis.
- EDA Local Technical Assistance grants typically used for feasibility studies (e.g. quarry development and business venture). Average award in FY10 was \$50,000. Applications accepted on an ongoing basis.
- Administration for Children + Families, Social + Economic Development Strategies (\$50K-\$400K – average award, \$260K).
- AVCP Inc. – Community could solicit funding for additional staff to assist with relocation efforts.
- USDA Tribal Conservation District designation –The goal of tribal conservation districts is to set local priorities for conservation and ensure sustainable use of natural resources for subsistence, economic opportunity, resource development, and cultural preservation. Once a tribal conservation district is established, it can enter into agreements with the USDA and other agencies to carry out programs to accomplish conservation goals.



# Health + Safety

## *Completion of Mertarvik Evacuation Center; Pioneer and Long-term Health and Safety*

### *OBJECTIVES (three-year target)*

- Provide a safe place for Newtok residents during a storm or flooding event.
- Create and implement a plan to protect health and safety of pioneers.
- Begin to plan for long-term health care needs and facilities.

- The Village of Newtok contracted ADOT&PF to project manage MEC construction during the 2011 season. Using labor from IRT and Cornerstone Construction, the MEC foundation was constructed, stair, ramp, and generator/fuel landing pads were laid, a septic system and drinking water lines were installed, and two storage buildings were erected, and a well was drilled to supply water to the MEC.
- For summer 2012, the Newtok Traditional Council has taken over the project management function and has issued a Request for Proposals for outstanding design tasks and construction management.
- As of fall 2011, lack of adequate funding to complete the project is a major risk.

### *CURRENT STATUS*

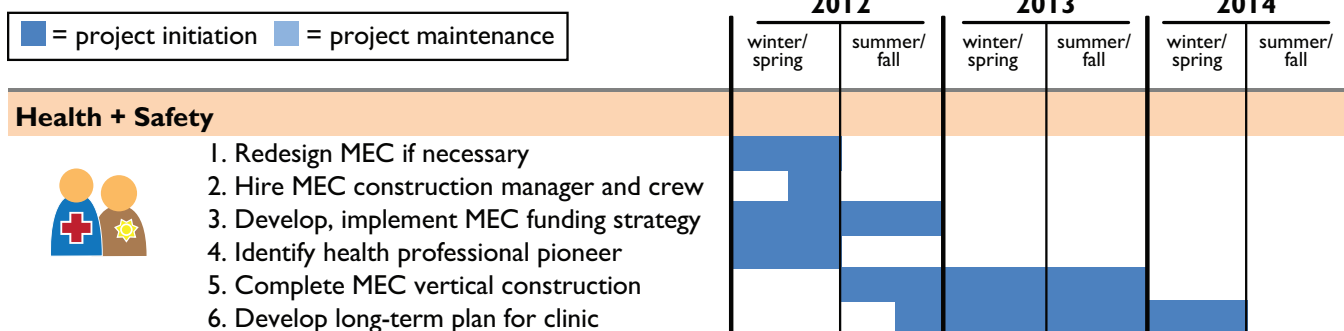


The Mertarvik Evacuation Center foundation and groundwork are complete. Vertical construction is next.

## The Story Behind the Mertarvik Evacuation Center

The driving force behind much of the activity at Mertarvik to date has been to build an emergency shelter (the “Mertarvik Evacuation Center” or “MEC”) and protect Newtok residents in the aftermath of a catastrophic storm when contaminated floodwaters are most likely to pose serious threats to health and safety. Once the evacuation center is built, Newtok residents will weather the storm in the Newtok school and then, after the storm has subsided, elders and children can stay at the evacuation center at Mertarvik where shelter and clean water would provide a safe haven for able bodied adults clean up the community. The barge landing, the roads, the first three homes, and the quarry have been built to support the development of and access to the MEC. These activities have fallen under the umbrella of a single permitting process for the MEC. Through this planning process, a better understanding of the future role of the MEC has emerged. The MEC is critical not just for the health and safety of Newtok residents but also for the pioneers and subsequent settlers of Mertarvik (Figure E page 24 shows how the MEC will be used during each phase of the relocation).

### Mertarvik Three Year Action Plan and Proposed Schedule



### PRIORITY ACTIONS

(over the next three years)

#### 1. Determine whether current design will be used for MEC and, if not, engage in a redesign process.

- The Village of Newtok is weighing the current design of the MEC and considering whether an alternative design could provide a more appropriate match to the skills of their local workforce and to the project’s current funding. This decision needs to be made quickly to avoid construction delays.

## *2. Hire a construction project manager for MEC; train and secure local labor for 2012 construction season.*

- Essential to the success of the construction efforts is the hiring of an experienced construction manager who is both well-seasoned in mobilizing projects in rural Alaska and in working with local crews. The “right” MEC construction manager could potentially transition into an on-the-ground, year round role overseeing relocation construction on a larger scale (details in the Community Capacity focus area).

## *3. Develop and implement funding strategy for remaining MEC construction funds.*

- Securing funds to complete the MEC’s construction is critical and should be considered a top priority for fundraising efforts over the next year. The level of funding already secured and invested to date should make the project competitive for additional funding.

## *4. Identify trained health professional as a pioneer; secure space to act as housing and a place to practice temporarily, until MEC is constructed.*

## *5. Complete MEC vertical wall construction.*

- Summer 2013 is our current estimate for when this critical project will be completed. This timeline is aggressive and any number of obstacles could further delay its completion.

## *6. Identify funding for assessing the feasibility of moving the existing clinic and begin developing long-term plan based on findings.*

- Funding for new clinics is scarce. The existing clinic was completed in 2004 and designed with the knowledge that it may be moved in the future. Identifying funds to assess the feasibility of moving the existing clinic is the first step in the planning effort that must take place to ensure the long-term needs of Mertarvik are addressed.
- As more and more residents make the move to Mertarvik, the community will need work with Yukon Kuskokwim Health Corporation (YKHC) to determine how best to balance the needs of residents in both locations.



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## RESOURCES

### *Mertarvik Evacuation Center*

#### Needed

- The total anticipated cost is \$9 million (amount based on the current design).

#### In-Hand

- FY11 legislative appropriation of \$4 million (\$1.1million for design and \$2.9 million for construction costs) for the MEC.
- FY12 legislative appropriation for additional \$2.5 million.

#### Options

- Additional legislative appropriation. Calista Corporation has expressed willingness to advocate for additional resources on Newtok's behalf.
- USDA Community Facilities Loans (average loan \$300K); must demonstrate financial capacity to repay the loan.
- EDA Public Works Development Program (50-80 percent of project cost – Tribes may be eligible for more).
- Rasmuson Foundation, Tier 2 Grants (\$25K or more).
- U.S. Housing and Urban Development Indian Community Development Block Grant (ICBDG); awards up to \$600,000.

### *Pioneer Health Care Temporary Office Space + Equipment*

#### Needed

- Undefined – should be clarified with appropriate health care provider (e.g. Community Health Aide and YKHC).

#### In-Hand

- Four houses at Mertarvik; one of these houses could be reserved for a community health aide and a portion of their home could be used to create a temporary office.

#### Options

- USDA Community Facility equipment grant (awards are limited to \$50,000).
- Indian Health Services equipment grants (through YKHC).

### *Clinic – Relocating Existing and/or Building New*

#### Needed

- Existing Clinic – Funding for feasibility study and, subsequently, for moving and fortifying the clinic.

- New Clinic (if existing clinic cannot be moved) – the approximate cost of existing facility in 2004 was \$1.5 million.

## Options

- Existing Clinic:
  - Denali Commission for feasibility study funds (the Denali Commission’s health clinic program is no longer funded).
  - Foraker Pre-Development Program for feasibility study funds.
  - Legislative Appropriation for feasibility study and moving funds.
  - Alaska Department of Health and Human Services Deferred Maintenance Program for repairing clinic post-move.
- New Clinic:
  - Indian Health Service Joint Venture Construction Program.
  - HUD ICDBG; awards up to \$600,000; this year’s deadline is January 4, 2012.
  - HUD Community Development Block Grant (CDBG) funds – in light of Denali Commission funding drying up, YKHC is currently exploring feasibility of using CDBG funds to help finance clinic construction; however, project wage requirements may make this funding stream too cumbersome to use.
  - Rasmuson Foundation, Tier 2 Grants (\$25K or more).
  - Legislative Appropriation.
  - U.S. Army Corps of Engineers under Section 116 of the Energy and Water Development and Related Agencies Appropriations Act of 2010 (see the box below).

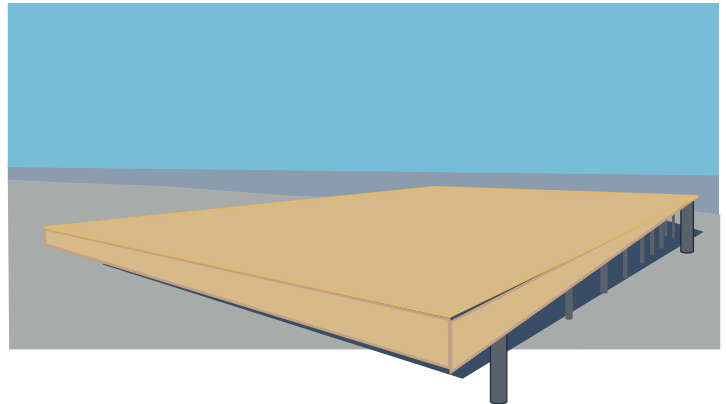
### *Alaska Coastal Erosion Authority – Does an opportunity exist?*

Section 116 of the Energy and Water Development and Related Agencies Appropriations Act of 2010 (P.L. 111-85) provides authority for the Secretary of the Army to carry out structural and non-structural projects for storm damage prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities. This authority has not yet been asserted and would require the support and approval of Congress as well as non-federal match funding. Section 116 allows for up to \$100,000 in feasibility costs at full federal expense, and 50 percent of any feasibility costs in surplus of \$100,000, as well as 65 percent of project costs (35 percent non-Federal cost share). That said, because of the flexibility provided in the language of the statute, the authority could present a tremendous opportunity for the community potentially filling in an important funding gap or gaps in the relocation effort.

## Figure E. Phased Use of the Mertarvik Evacuation Center

### 1. UPLLUNTENG – Getting Ready

- Evacuation center foundation



### 2. UPAGLUTENG – Pioneering

- Evacuation shelter
- Village relocation “field office”
- Temporary space to house community functions: health clinic, “school”, public safety, church, tribal offices



### 3. NASS’PALUTENG – Transition

- Evacuation shelter
- Village relocation “field office”
- Continued temporary space for community functions
- Initial community facilities are constructed (e.g., small school)



### 4. PICIURLLUNI – Final Move

- Tribal offices plus multi-purpose community gathering place
- Most community functions housed in their own structures

# Housing

## Assessment and Relocation of Existing Housing; Design, Funding and Construction of New Housing

*“The pieces are on the table, it’s how Newtok is going to put the pieces together.”*

– David Vought, Native American Program Specialist, HUD

### OBJECTIVES (three-year target)

- Develop a financing and construction strategy for meeting the community’s housing need.
- Assemble materials, resources and knowledge – from construction training to outside funding – so residents can move to Mertarvik.

- The current village of Newtok contains 75 houses, most of which are in poor to very poor condition. Nearly all of the homes are twenty-five years old or greater. Residents report the following conditions: cold house, bottom of house freezes/thaws, no insulation, leaks, bad foundation, windows that do not open, drafty, no arctic entryway, rotting walls, poor ventilation, shifting and rising of house, windowless rooms, no water/sewage, holes in the floor.
- Between six to 22 homes are currently believed to be moveable.
- Population is young and growing; overcrowding is an issue. July of 2008 survey of 52 households conducted by Rural CAP, the Denali Commission and DCRA found average number of people per household was 5.25 compared to a state average of 2.65 (U.S.).

### CURRENT STATUS




Initial homes at Mertarvik will house pioneering families.



Census 2010). Many residents live in one bedroom homes with four or more people per dwelling.

- For purposes of the SMP, we assume 80 housing units are needed at Mertarvik. The community has built six houses to date. Although these six houses demonstrate progress, the road ahead is long and no clear avenue currently exists for meeting the community's needs.
- No federal or state agency is mandated to assist with relocations and no funding streams exist for relocation efforts. Newtok must figure out how to meet their housing need using traditional funding streams in new ways.

### Mertarvik Three Year Action Plan and Proposed Schedule

		2012		2013		2014	
		winter/ spring	summer/ fall	winter/ spring	summer/ fall	winter/ spring	summer/ fall
<b>Housing</b>							
	1. Complete site preparation tasks						
	2. Conduct housing survey						
	3. Develop a housing strategy						
	4. Relocate houses						
	5. Implement housing programs						

### PRIORITY ACTIONS (over the next three years)

#### 1. Complete tasks outlined in Site Preparation.

- Adequate site preparation is key to ensuring houses are located optimally and funding options are readily pursuable.
- Important to balance the need to make any progress possible on housing with the need for more extensive townsite planning and surveying. As noted in site preparation section, interim rules for construction of housing may help prevent misplacement of early homes.

#### 2. Conduct housing survey to assess conditions in Newtok and determine specific needs in Mertarvik.

- Host a community-wide meeting to discuss housing options. See Figure F page 30 for an overview of housing options.
- Conduct a detailed survey of future housing needs that takes into account population growth as well as resident preferences to inform planning, design, and fundraising efforts and ensure alignment between housing demand and availability.
- Involve youth in discussions. In a September 2011 focus group held with Mertarvik youth, participants expressed their vision for Mertarvik. This vision included two-story and multi-family housing.

### 3. *Develop a housing strategy.*

- Establish housing team to a) draw conclusions regarding the most appropriate form (i.e. shape, materials, etc) and type (i.e. single family, duplex, etc) of housing for Mertarvik considering energy, traditions, available funding, and b) develop an approach to funding a housing need of this magnitude.
- Drawing upon the efforts already realized by other communities, Newtok must develop a strategy for meeting its housing needs (see Sample Housing Strategy at the end of this section).

### 4. *Relocate Newtok houses.*

- Assemble personnel, equipment, funding needed to assess which Newtok homes can be moved to Mertarvik and to move them.

### 5. *Implement housing programs / continue to build new homes.*

---

## Relocate Houses

## RESOURCES

### Needed

- Funding for feasibility assessment, as well as the expenses of preparing the future home site (laying a foundation, etc.) and safely moving the houses.

### In-Hand

- None

### Options

- HUD ICDBG; awards up to \$600,000; this year's deadline is January 4, 2012.
- Foraker Pre-Development Fund – For engineering support during the assessment stage.
- Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program – Federal disaster assistance has been made available to Alaska to supplement state, tribal and local recovery efforts in the area struck by an ice jam and flooding during the period of May 8-13, 2011. Could fund triodetic foundations for the homes in Newtok that will later be moved to Mertarvik.
- **USDA Rural Housing Site Loans – Provides financing for the purchase and development of housing sites for low- and moderate-income families.**
- USDA Rural Repair and Rehabilitation Loan and Grant Program – For moved houses.

- Alaska Housing Finance Corporation (AHFC) Small Building Material Loans – This program provides loans to people living in a rural communities to renovate or complete their home and allows for purchasing materials, freight and third party labor costs. Must be used to improve the livability of the home, energy efficiency upgrades or for adding living space that meets current state building codes. The maximum loan amount is \$100,000 for 15 years at 0.375 percent interest rate.

## *Build New Homes*

### *Needed*

- Funding for 60 to 80 housing units is needed.

### *In-Hand*

- The community currently has \$180,000 in Native American Housing and Self Determination Act (NAHASDA) funds (through AVCP Housing Authority).

### *Options*

- Individual resources (mortgage or lease payments plus sweat equity, giving residents an active role in home construction)
- Public grant funds:
  - USDA 523 Self-Help Technical Assistance Grants – Provide financial assistance to qualified nonprofit organizations and public bodies that will aid needy very low and low-income individuals and their families to build homes. Unfortunately, federal funding for USDA 523 is very uncertain.
  - HUD ICDBG; awards up to \$600,000; this year's deadline is January 4, 2012.
  - HUD Rural Innovation Fund Program – Awards range from \$300,000 to \$2,000,000.
  - HUD Sustainable Communities Program – Awards range from \$400,000 to \$5 million.
  - BIA Home Improvement Program (HIP) – For elderly housing.
- Public loans:
  - NAHASDA Title VI Loan Guarantee Program – Allows tribally designated housing entities to leverage their annual NAHASDA grant five times, for up to \$900,000.
  - USDA Rural Housing Direct Loan (Section 502 Loans) – Subsidized interest rate loans to help low-income individuals or households purchase homes in rural areas. Funds can be used to acquire, build (including funds to purchase and prepare sites and to provide water and sewage facilities), repair, renovate or relocate a home. Long-term sustainability of program is unknown.

- HUD 184 – Unlike USDA 502, HUD 184 does not subsidize the interest rate so costs are higher for the borrower. However, unlike a typical FHA guaranteed loan, HUD 184 has no annual cost, requires 2.25 percent down, and only a 1 percent guarantee fee.
- AHFC Small Building Material Loans – This program provides loans to people living in a rural communities to renovate or complete their home and allows for purchasing materials, freight and third party labor costs. Must be used to improve the livability of the home, energy efficiency upgrades or for adding living space that meets current state building codes. The maximum loan amount is \$100,000 for 15 years at 0.375 percent interest rate. This loan program is currently not available for new construction. However, it might be possible to work with AHFC to amend the rules as part of a larger housing program for a community like Newtok.
- USDA Rural Housing Site Loans – Provides financing for the purchase and development of housing sites for low- and moderate-income families.
- Future State Annuity – A possible future alternative to USDA 502, should this federal lending source dry up, is to set up a state annuity as a subsidized revolving loan fund (RLF) to make loans to home buyers in rural Alaska.
- Private foundation funds (by establishing long-term relationships with one or more foundations).
- Corporation resources (land and quarry proceeds).
- FEMA Federal Emergency Declaration funding – This funding is currently not available but may become an option for funding housing at Mertarvik in the future.



## Figure F. Rethinking Rural Housing Options

Weighing the full range of housing options is a key step in defining the community's housing needs.

### SINGLE FAMILY HOMES

#### Traditional Homes



E.g. Throughout Rural Alaska

- Offers privacy
- Familiar construction techniques.
- Construction costs have traditionally been high
- Poor quality materials and construction leads to shortened lifespan
- Typically have low energy efficiency and high energy costs
- Low density spreads out development increasing the cost to install roads and other infrastructure
- Average service lines in the region for one house: cost \$24,000 to \$45,000 for water hook up, \$22,500 to \$43,500 for sewer hook up (ANTHC)

#### Improved Traditional Homes



E.g. Crooked Creek

- Offers privacy
- Looks the same, just built better
- Emphasis on quality leads to reduced energy costs, greater durability and improved safety
- Emphasis on reduction of construction costs spreads dollars across more homes
- Low density spreads out development increasing the cost to install roads and other infrastructure
- Average service lines in the region for one house: cost \$24,000 to \$45,000 for water hook up, \$22,500 to \$43,500 for sewer hook up (ANTHC)

#### Pilot Homes for New Designs



E.g. Anaktuvik Pass Demonstration House

- Offers privacy
- Emphasis on quality leads to reduced energy costs, greater durability and improved safety
- Designs test new models for rural housing
- Construction costs depend on materials used
- Construction costs depend on materials used
- New techniques require training
- Cultural acceptance of alternative housing designs is largely untested
- Low density spreads out development increasing the cost to install roads and other infrastructure
- Average service lines in the region for one house: cost \$24,000 to \$45,000 for water hook up, \$22,500 to \$43,500 for sewer hook up (ANTHC)

PROS

CONS

### MULTI-UNIT HOMES

#### Multifamily 2-3-4 Plex Housing



E.g. Toksook Bay

- Requires less materials per unit due to shared walls
- Shared walls reduce monthly energy costs
- Concentrating development helps reduce the amount of required roads and other community infrastructure
- Consolidates water and sewer lines, reducing overall cost to build
- Shared walls reduce privacy
- Very common elsewhere but largely untested in rural Alaska; may be cultural acceptance barriers
- Can be rental or ownership property; depending on financing, rents may be too high for typical income levels

#### Independent Senior Housing



E.g. 5 Plex Senior Housing, North Slope Communities

- Requires less materials per unit due to shared walls
- Shared walls reduce monthly energy costs
- Concentrating development helps reduce the amount of required roads and other community infrastructure
- Consolidates water and sewer lines, reducing overall cost to build
- Funding opportunities are more readily available for senior housing
- Common gathering areas foster cultural traditions
- Have been shown to be financial feasible in rural Alaska
- Shared walls reduce privacy

#### Larger Multifamily Housing



E.g. 19 Units in Hooper Bay

- Requires less materials per unit due to shared walls
- Shared walls reduce monthly energy costs
- Concentrating development helps reduce the amount of required roads and other community infrastructure
- Consolidates water and sewer lines, reducing overall cost to build
- Shared walls reduce privacy
- Very common elsewhere but largely untested in rural Alaska; may be cultural acceptance barriers
- Most often rental property; depending on financing, rents may be too high for typical income levels

PROS

CONS

## *Sample Housing Strategy for Mertarvik – A Starting Point*

This “sample” housing strategy is based on the following facts:

- The very land the Newtok community sits on is threatened by severe erosion and housing is the critical factor in making relocation to safe ground at Mertarvik possible.
- Approximately 80 houses are needed at Mertarvik as soon as possible.
- No special program or funds exist to relocate communities.
- AVCP Housing receives approximately \$15 million per year in NAHASDA funds and is a large, capable organization with many resources to bring to the table.
- The Y-K region suffers from some of the greatest housing need in the state, but no community faces the same urgency or the same repercussions as Newtok.
- Tapping private foundations as a means of funding large-scale housing programs is untested, though promising.

**To meet Newtok’s housing need within an acceptable time frame will require:**

- Moving as many homes as possible from Newtok to Mertarvik. The community of Shishmaref moved homes in a very cost effective way by placing them on skis and hooking them up to a bulldozer.
- Quick, efficient construction of new, energy efficient homes. For example, when a flood ravaged the village of Crooked Creek in Spring 2011, outside volunteers partnered with Cold Climate Housing Research Center (CCHRC) and the community to construct nine energy efficient, high quality homes in just seven weeks. They did this by using full-frame truss construction (see the Learning from the Experience of Crooked Creek box at the end of this chapter).
- Individual investment (in labor, loans/mortgages, or both). For example, in the community of Kwinhagak, the community is developing a build-to-own pilot program that combines homeowner labor and individual mortgages with grant funding to spread limited grant dollars across more homes.
- Leveraging of NAHASDA funds to secure loans.
- AVCP Housing and regional financial support.
- Foundation, corporation, or other private investor support.
- To ensure investments are sound, designs for houses that are durable, highly energy efficient, safe, and low cost are needed – housing that is a good investment should last for generations not just the life of the mortgage.

***Phase 1. Build initial homes to establish pioneer movement***

**Strategy 1: Secure funds for and build initial pioneer homes**

- BIA Housing Improvement Program homes for elderly
- AVCP Housing's NAHASDA allocation to Newtok

***Phase 2. Move 15 homes, build 5, demonstrate capacity and develop skills to build more***

*(Requires first round of surveyed lots and land assignments or ownership)*

**Strategy 1: Move as many houses as possible.**

- AVCP funds the move of its Newtok homes.
- Secure ICDBG funding to assess which homes can be moved and to move them.

**Strategy 2: Aggressively pursue funding and labor for a demonstration project.**

- Demonstration challenge – Can a material package be developed for \$50,000? Secure CCHRC design support and leverage MCDC construction team to build low cost, high efficiency, high quality (durable), and safe houses.
- Tribe borrows against its NAHASDA funds – Title VI allows you to receive five years of NAHASDA funds up front.
- Individuals borrow funds through USDA Section 502 Loan Program or alternatively AHFC Small Building Materials Loan Program (if program requirements can be modified) – Demonstration houses go to individuals who a) do not have homes that can be moved, b) are capable of pioneering, and c) meet eligibility requirements for a loan.
- Secure additional foundation or other private sector financial support.
- Test full-frame truss construction in summer months (similar to Crooked Creek); develop local workforce skills.
- Secure IRT labor to assist with building pads and truss construction (and possibly to move materials?).
- Investigate lower cost shipping options.

**Phase 3. Build 20, 30, 40 more homes, pursue a mix of other housing options.**

*(Requires remaining lots to be surveyed and assigned)*

**Strategy 1: Make it easier for families to build their own homes.**

- Subsidize the construction of building pads; every family has a lot and a building pad.
- As population of Mertarvik increases, salvage more and more materials from Newtok for home construction.
- Pursue Environmental Protection Agency or other environmental funding to support efforts to salvage materials.

**Strategy 2: Scale up – Build on success of demonstration project and scale efforts/build capacity for year round truss construction.**

- Region borrows against region's NAHASDA funds – Solicit support of AVCP and other tribes to use and leverage regional NAHASDA funds with a Title VI loan.
- AHFC Small Building Mortgage loans to individuals for income eligible families.
- Use combination of local workforce and future homeowner labor.
- Secure additional foundation or other private sector financial support.

**Strategy 3: Request that AVCP construct rental housing.**

**Strategy 4: Pursue funding for senior housing (both individual homes and multiplex).**

*Credit: Special thanks to the contributions of David Vought of HUD, who provided significant feedback for the above sample strategy.*



## Learning from the Experience of Crooked Creek

In Spring 2011, a flood ravaged the village of Crooked Creek. In response, the Alaska Department of Homeland Security and Emergency Management asked CCHRC to design energy efficient replacement homes before winter. Funding was provided by FEMA. Outside volunteers partnered with the Cold Climate Housing Research Center (CCHRC) and the community to construct nine energy efficient high quality homes in just seven weeks. They did this using full-frame truss construction. At Mertarvik (where many houses need to be built quickly), this model could allow community members to build full-frame trusses during the winter months, then construct the houses during the summer months.

### Advantages:

- Ability to work on many houses of varying sizes at the same time.
- Ability to work on home construction during the winter – in Crooked Creek, the trusses were created during the summer; Mertarvik could shift to year-round operation.
- Maximizes the short construction season – the legwork is done ahead during the summer months; housing foundations and beams are laid, then houses are erected and enclosed.
- Ability to erect many houses quickly.

### What the community would need:

- Inside workspace: Large enough to accommodate truss construction (a typical truss might be 24 feet wide) during the winter months. The MEC could likely be used for this purpose.
- Specialized equipment: Would need to purchase a press for tying the trusses together.

### Specialized skills required:

- Building and tying trusses.
- Spraying foam insulation.

How it works: When the house structure and framework are ready to go, all that building the house entails is putting the trusses together. Once the trusses are up, the exterior siding is attached and spray foam applied. Interior walls are created using plywood with a high quality finish on one side and painted with a fire retardant paint. The house is lower cost, very energy efficient, durable, and if you provide for good ventilation, healthy.



# Drinking Water, Sewer + Solid Waste

## *Pioneer Solutions; Assessment of Options, Community Site Planning, Secure Funding*

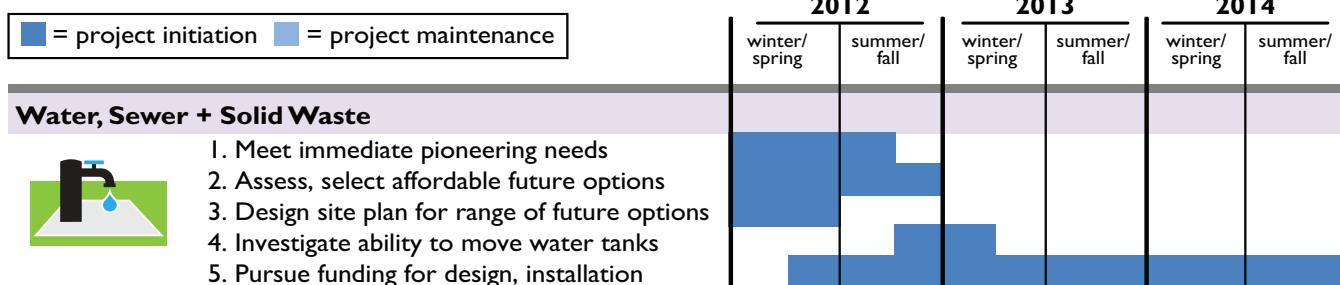
### OBJECTIVES (three-year target)

- Meet community water and sanitation needs.
- Protect environmental quality.
- Identify community systems that are affordable to install and operate for long term.

- Mertarvik townsite is situated so that future water and sewer systems can use a gravity system – a significant benefit. Additional work is needed to identify the specific location of townsite and its roads and land uses to ensure this approach is successful.
- Two wells drilled at Mertarvik produce high quality drinking water.
- VSW has \$225,000 for Mertarvik planning including additional monies in upcoming legislative cycle.
- \$1.2 million stopgap project to improve access to clean, safe drinking water and sewer systems in Newtok is currently underway.

### CURRENT STATUS

### Mertarvik Three Year Action Plan and Proposed Schedule



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**PRIORITY  
ACTIONS**  
(over the next  
three years)

*1. Ensure community site plan provides flexibility to support a range of future solutions, including piped water and sewer lines.*

- Current planning funds present an opportunity to jumpstart the next level of planning for the townsite of Mertarvik. VSW is particularly appropriate to lead this effort given a general consensus amongst agency representatives that a clear understanding of the community's sewer and water plan should be sequenced early in the development of Mertarvik.

*2. Provide solution to immediate sanitation, water needs of Mertarvik pioneers.*

- For the pioneers moving into Mertarvik, separating toilets may be a possible low cost, more convenient and environmentally friendly alternative to honeybuckets. "Separett Toilets", marketed and sold by Lifewater Engineering Company, an Alaska-based and owned company in Fairbanks, are one potential solution, as they are designed for houses without access to running water.

*3. Work with VSW to assess near-term, medium-term, and long-term drinking water, sewer, and solid waste options; select affordable solutions that are appropriate for the population size at each phase of relocation.*

- Mertarvik provides an opportunity to pilot new, sustainable solutions particularly during the Pioneering and early Transition phases.
- Better understand fully piped water and sewer systems and how they can work in rural Alaska. For example, Toksook Bay, on Nelson Island just south of Mertarvik, enjoys one of the lowest user rates in Rural Alaska of \$70/month for residential water and sewer service. Their topography and resources are similar to Mertarvik. Other rural communities with affordable piped systems include Goodnews Bay at a rate of \$85/month and Shungnak at \$80/month. (These user rates are established by the Alaska Native Tribal Health Consortium's Alaska Rural Utility Collaborative and represent true costs.) More work is needed to ensure piped water and sewer systems can be sustainable in Mertarvik.

*4. Investigate feasibility of moving water tanks to Mertarvik.*

*5. Seek funding for design and installation of water supply and sanitation systems.*

- 
- Launch a design competition for sustainable villages, including sanitation and water and energy.
  - Contact Aleutian Housing Authority to learn from their recent competition experience and potentially adapt some of their materials for a Mertarvik-specific competition.

## RESOURCES

### Needed

- Immediate need – funding for designing and then constructing line from first well (1 mile from village) and new well.

### In-Hand

- Five new water tanks in Newtok.
- Incinerator at Mertarvik.
- VSW has approximately \$200,000 funding for feasibility study; these funds could be combined with funding options described in Site Preparation, to address more a more comprehensive site plan that looks at sanitation and water as well as other infrastructure needs.

### Options

- Additional funding through VSW or EPA
- Consider an aggressive attempt to use Mertarvik as a pilot project for investigation of new approaches. Seek legislative funding that would leverage vendor and engineering resources to design, install and demonstrate new, sustainable approaches (design competition).



# Three-Year Action Plan + Timeline

## Mertarvik Three Year Action Plan and Proposed Schedule

		2012		2013		2014	
		winter/ spring	summer/ fall	winter/ spring	summer/ fall	winter/ spring	summer/ fall
<b>Legend:</b>							
■ = project initiation							
■ = project maintenance							
<b>Newtok Closure + Restoration</b>							
1. Practice emergency plan							
2. Complete water and sanitation projects							
3. Cleanup debris and solid waste							
4. Restore boardwalks							
5. Demolish and cleanup BIA school/site							
6. Inventory resources useable at Mertarvik							
7. Develop plans for closing village							
8. Identify activities for supporting pioneers							

### 1. Practice emergency plan including the instant command system.

- Send two or three community leaders to emergency training in St. Mary's.

### 2. Clean-up storm debris as well as solid waste that have piled up in the village because of difficulties transporting trash across the river.

- Transport the incinerator from Mertarvik during the winter and use in Newtok to burn trash.
- DCCED funding application for clean-up of hazardous materials.

### 3. Restore boardwalks.

- The community received \$17,000 from Coastal Villages Region Fund for this project.
- Newtok residents will do this work.

### 4. Demolish and clean-up old BIA school and site.

- The community is working with EPA to conduct this project.

### 5. Inventory village resources that can be used at the new village site. Examples include:

- Five new water tanks

### PRIORITY ACTIONS

(over the next three years)

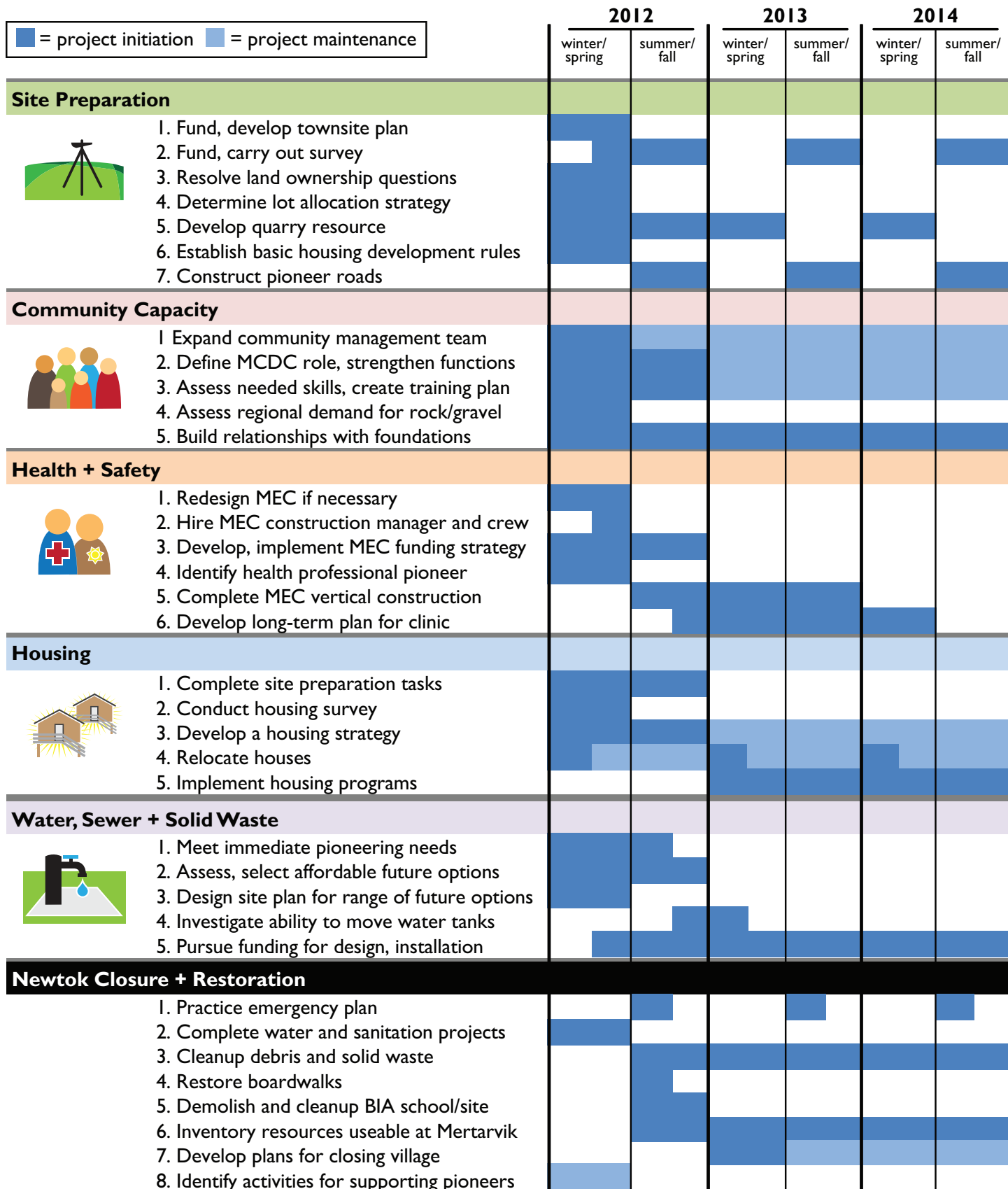
- New boardwalk materials
- Houses that are considered unsalvageable

*6. Develop mid and long-term plans for closing and restoring the village.*

*7. Identify immediate support activities for pioneer families and assign tasks that community members can conduct in Newtok.*

- Identify ways to store food at Mertarvik and start to cache subsistence foods for pioneer families.

## Figure G. Mertarvik Three Year Action Plan and Proposed Schedule



# Newtok Closure + Restoration Plan

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As Newtok and their partners plan for life at Mertarvik, consideration for how and when to close down and eventually restore the current village site is also an important priority. This section of the SMP outlines the community's vision and a preliminary set of objectives and priority actions for addressing village closure and restoration over the next three years. These actions are tied closely with ensuring the current village remains a healthy and safe place for residents to live as they plan and transition to their new home at Mertarvik.

## Vision

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*"(The community) would like to say a graceful goodbye to Newtok; we won't be able to see the old village but we will return to some of the same areas for subsistence activities."*

*– Stanley Tom, Newtok Traditional Council, Tribal Administrator*

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### OBJECTIVES (three-year target)

- Ensure health and safety of Newtok residents.
- Develop a clear plan for the eventual closure and restoration of Newtok.
- Develop support mechanisms for pioneer families.

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*"I use[d] to volunteer [to] cleanup our village and it made a big difference. I hope the whole community will help each other and make a big, big difference. I know when the whole community help[s] each other the time will go fast."*

*– Community Member in Letter  
Shared with Agnew::Beck*

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Cleanup and restoration of the current village site is an important priority.



# Permitting Discussion

During the first phase of the SMP planning effort, stakeholders expressed concern about the cumulative impacts of the community's relocation necessitating the completion of an Environmental Impact Statement (EIS) –a lengthy and costly process. SMP project team review of documented environmental studies,



Photo by Carolyn George.

existing baseline data, and National Environmental Policy Act (NEPA) documents for the MEC revealed an EIS is not inevitable. It is possible and perhaps even likely that an Environmental Assessment (EA) will suffice for any projects requiring NEPA documentation and permitting (as was true for the evacuation center), especially if the community continues to drive the relocation process by establishing a pioneering community at Mertarvik.

As the relocation progresses, opportunities may arise for agencies to pool EA efforts and, in doing so, conserve limited project resources. For example, USACE can provide about half of the funding for assessments through their Planning Assistance to States program. In this scenario, one or more agencies would lead the EA process, partnering with USACE, and each agency would then review the completed EA and write their own Finding of No Significant Impacts (FONSI), or collectively or individually proceed with an EIS if one is determined to be needed.

NEPA compliance is only one part of the puzzle. Ensuring that the appropriate permits are in place must become an ongoing consideration throughout the life of all projects at Mertarvik from planning stages through construction and completion. Table H lists recommended consultations and required permits and clearances from different regulatory agencies and the associated anticipated time frames to complete each process. Also included are milestones during project progress when certain activities should be initiated. This table does not represent an exhaustive list of requirements but highlights the major milestones in the process.

Table H. Permitting considerations for Newtok relocation projects.

Agency	Permit/Clearance/ Consultation	When to initiate	Approximate timeline to acquire permit/clearance
Federally Funded Projects			
NEPA Decision Document	Environmental Assessment (EA)	Upon receipt of funding*	1 year
	Environmental Impact Statement (EIS)	Upon finding significant environmental impact during EA process, unless funding agency decides to start with an EIS class of action.	3-5 years
SHPO/Tribes	Initiation of Consultation	Once a set of Alternatives are selected	30 days
	Finding of No Historic Properties Affected	After selection of a preferred alternative	30-120 days
State and Federally Funded Projects			
USFWS	Section 7 Consultation for T&E Species	Once a set of alternatives are selected	30-120 days +
	Consultation regarding clearing windows for nesting birds and emperor geese	For any proposed ground disturbing activities	14-30 days
NMFS	Consultation for Essential Fish Habitat	For any in-water work	14-30 days
ADF&G	Title 16 Fish Habitat permit	For any work within Takikchak Creek	30-90 days
USACE	404 Wetlands permit	After a selection of a preferred alternative	120 days
ADEC	APDES Construction General Permit	1 month prior to construction, once 100% construction documents are complete	30 days**
Privately Funded Projects			
ADF&G	Title 16 Fish Habitat permit	For any work within Takikchak Creek	30-90 days
USACE	404 Wetlands permit, Individual or Nationwide Permit	For any work placing fill within wetlands	120 days
USFWS	Consultation regarding clearing windows for nesting birds and emperor geese	For any proposed ground disturbing activities	14-30 days
ADEC	APDES Construction General Permit	For any work that is part of a development plan with greater than 1 acre of disturbance. 1 month prior to construction, once 100% construction documents are complete	30 days**

\*Initiation of NEPA document will begin with informal agency scoping and data gathering. The NEPA process will continue throughout the entire project until a decision document (Finding of No Significant Impact (FONSI) or Record of Decision (ROD)) is obtained.

+Length of consultation will depend on determination of affect by regulatory agency.

\*\* Includes review and approval of SWPPP, pre construction site visit, and submittal of notice of intent.

# Recommended Next Steps

The next steps for the community include tasks that will help move the Strategic Management Plan forward:

- Share final SMP back with the community; begin to recruit interested residents for project management team positions.
- Establish protocol for reviewing and revising the SMP. As the guiding document for the relocation process, the community and their partners should convene regularly to assess progress on priority actions, to identify additional needs and potential resources and to update the plan (including actions for focus areas not fleshed out for this version of the SMP).
- Identify other planning needs and potential planning resources (e.g. Comprehensive Planning?).

Sharing the final SMP back with the whole community and recruiting interested residents for project management team positions are key next steps.



Photo by Carolyn George.



## Strategic Management Plan :: Newtok to Mertarvik

Prepared for the Alaska Department of Commerce, Community, and Economic Development, Division of Community and Regional Affairs by Agnew::Beck consulting with PDC engineers and USKH Inc.