

Kivalina Evacuation and School Access Road Project

This paper describes the field and office tasks required to complete the pre-construction portion of the project so it can be bid for construction.

This is an update of the original paper titled, “Kivalina Evacuation and New School Access Road; A guide to the required Design and Environmental studies,” dated October 2012.

A PLAN FORWARD

**A Guide to the
Required
Geotechnical,
Survey,
Environmental,
Design, and
Permitting
Tasks**

**Updated
May 2014**

Kivalina Evacuation and School Access Road Project

A PLAN FORWARD:
A Guide to the Required Geotechnical,
Survey, Environmental, Design and Permitting Tasks



Prepared for:
Native Village of Kivalina

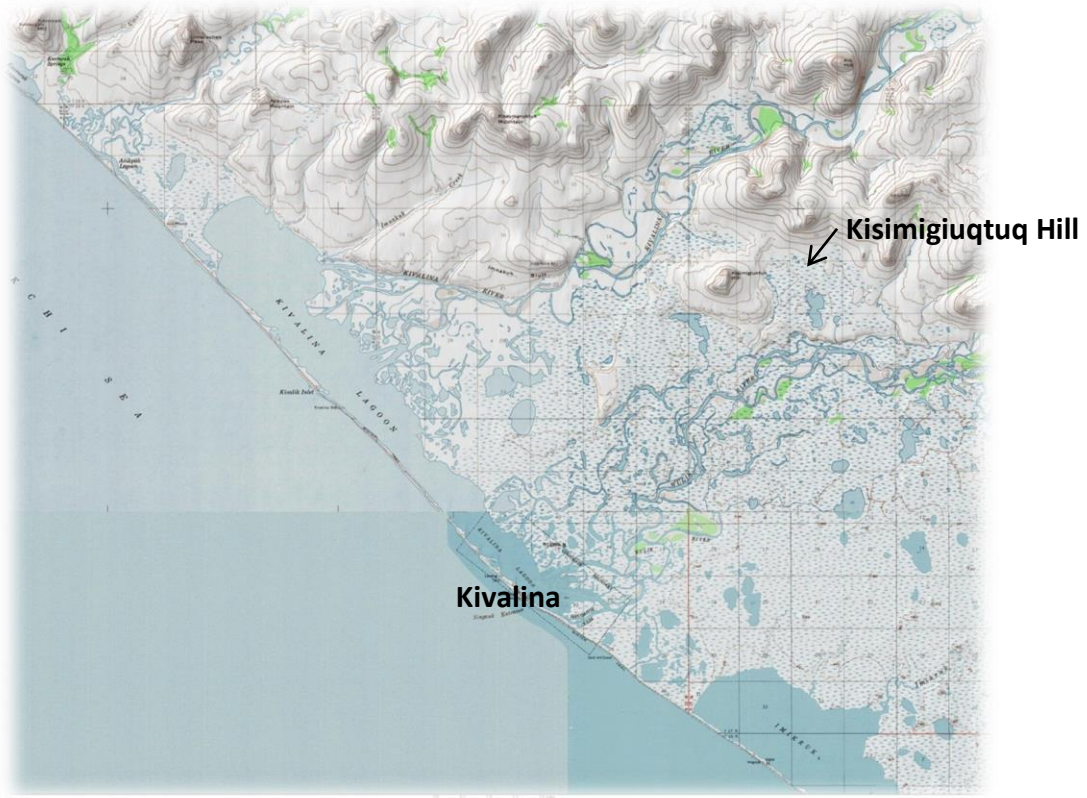
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May 2014

Table of Contents

Kivalina Evacuation Road Background	1
Tasks Completed or Under Contract.....	3
Controlled Aerial Photography	3
Preliminary Geotechnical Investigation (Road Alignments and Material Sources)	3
Road Reconnaissance Study (Report and Recommendations).....	3
Geotechnical Investigation (Causeway and Bridge Site).....	4
Bathymetric Survey	4
Hydrologic Study	5
Preliminary Causeway and Bridge Design.....	5
Geotechnical Tasks to be Completed.....	5
Geotechnical Investigation (Road Alignment)	5
Geotechnical Investigation (Material Sources).....	6
Survey Tasks to be Completed	7
Topographical Mapping from Aerial Photography	7
Design Survey of Selected Road Alignment	7
Right-of-Way Documentation.....	7
Environmental Tasks to be Completed	7
Marine Mammal Studies.....	7
Biological Assessment - Essential Fish Habitat.....	8
Wetlands Delineation	8
Archaeological Survey.....	8
Polar Bear Analysis.....	8
Western Arctic Caribou Herd Analysis	9
Threatened and Endangered Section 7 Analysis.....	9
Visual Rendering	10
Environmental Documentation.....	10
Pre-Design Tasks to be Completed	10
Preliminary Engineering Report (Design Study Report).....	10
Design Tasks to be Completed	11
Road Design	11
Causeway Design	11
Bridge Design	12
Permitting Tasks to be Completed.....	12
Permitting	12
Schedule.....	13

Kivalina and Kisimigiqtuq Hill Vicinity Map



Kivalina Evacuation Road Background

Kivalina is a traditional Inupiat Eskimo village located in northwest Alaska. Its precarious position on a low-lying barrier island, between the Chukchi Sea and Kivalina Lagoon, and the persistence and severity of storm events have put the village at serious risk of being inundated by an ocean storm event. Currently, there is no way for community residents to escape the island by foot or wheeled vehicles; the only way to leave is by plane or boat. During a storm event both of these means of escape would be extremely dangerous, if not impossible. If a storm surge reaches a level where evacuation of the village is necessary, the residents need a route they can use to evacuate to higher ground.

The Northwest Arctic Borough School District has plans to build a new school and, in January 2012, they asked the community where they would want it located. The residents chose a site near Kisimigiqtuq Hill. That location is approximately 8 miles inland from the community and would require a road. A road to Kisimigiqtuq Hill could serve as an evacuation road and provide access to the new school.

In the spring of 2012, the Native Village of Kivalina and Maniilaq, with funds from the Bureau of Indian Affairs Tribal Transportation program, hired WHPacific to develop a draft Preliminary Environmental Report for the Evacuation Road project. The original version of this paper, which was part of that report, summarized the documents needed to complete the design and environmental phases of the evacuation road project. That paper grouped the studies into three phases: Phase I (0-3 years), Phase II (3-6 years) and Phase III (6-9 years). It pointed out that to save funds and time, some of the project studies could be performed together. It also noted that by combining the road studies with similar studies required for the school design, additional cost savings could be attained. At that time, the estimate for the construction phase of the road was \$45 million.

This paper has refined the list of required tasks, the descriptions of those tasks, and the estimated costs to perform them. This paper has also reorganized the required tasks into those completed or under contract and those tasks that still need to be completed. Tasks that need to be completed have been further grouped into categories.

At the end of this paper, a schedule has been included that shows a possible timetable to construction of the road in 2017.

Table 1, below, provides a summary of the pre-construction activities that have been funded and are completed or underway and their associated costs. Table 2 shows those pre-construction tasks that are currently not under contract and their associated estimated costs. The total cost to complete all tasks is estimated to be \$3,250,000.

Table 1. Status of Pre-Construction Tasks (Under Contract) and Associated Costs

Contractor	Pre-Construction Tasks Completed or Under Contract	Status (Start Date)	Actual Costs	Subtotals
WHPacific	Aerial Photography	Completed	\$ 35,000	\$ 270,000
	Preliminary Geotechnical Investigation (Road Alignments and Material Sites)	Completed	\$ 85,000	
	Road Reconnaissance Study (Report and Recommendations)	Completed	\$ 150,000	
USACE (w/ NAB)	Geotechnical Investigation (Causeway & Bridge)	March 2015	\$ 320,000	\$1,060,000
	Bathymetric Survey (of Lagoon)	July 2014	\$ 325,000	
	Hydrologic Study (of Lagoon)	Sept. 2014	\$ 145,000	
	35% Design (Causeway and Bridge)	January 2015	\$ 270,000	
Pre-Construction Work Under Contract			\$ 1,330,000	

Table 2. Pre-Construction Tasks (Not Under Contract) and Associated Estimated Costs to Complete

Category	Pre-Construction Tasks to be Completed	Estimated Costs	Subtotals
Geotech.	Geotechnical Investigation (Road Alignment)	\$ 300,000	\$ 600,000
	Geotechnical Investigation (Material Sites)	\$ 300,000	
Survey	Topo Map from Aerial Photography	\$ 50,000	\$ 110,000
	Centerline Field Verification of Topo Map Data	\$ 30,000	
	Right-of-Way Documentation	\$ 30,000	
Environ.	Marine Mammal Study	\$ 155,000	\$ 510,000
	Biological Assessment - Essential Fish Habitat (EFH)	\$ 100,000	
	Wetlands Delineation	\$ 60,000	
	Archaeological Survey	\$ 35,000	
	Environmental Document (Environmental Assessment)	\$ 160,000	
Pre-Design	Hydrological and Hydraulic Study (Uplands)	\$ 100,000	\$ 150,000
	Preliminary Engineering Report (Design Study Report)	\$ 50,000	
Design / Construction Documents	Road	\$ 250,000	\$ 500,000
	Causeway	\$ 100,000	
	Bridge(s)	\$ 150,000	
Permits	Permit Applications	\$ 50,000	\$ 50,000
Pre-Construction Work to be Completed		\$ 1,920,000	
Total Pre-Construction Costs		\$ 3,250,000	

Tasks Completed or Under Contract

Controlled Aerial Photography

Purpose: Obtain aerial photos along the alternative Evacuation and School Access Road alignments. These photos will be used in evaluating the various alignment alternatives. When an alignment is selected, this photography will be used to produce a topographical map for design.

Scope of Work: Procure aerial photography from AeroMetric that covers the alternative route corridors between Kivalina and Kisimigiuqtuq Hill, extending roughly to the Kivalina and Wulik Rivers. The digital color photos must be ground controlled by field survey and have a 1-foot pixel resolution and suitable for making a topographical map with 2-foot contours.

Actual Cost: \$35,000

Status: Completed

Preliminary Geotechnical Investigation (Road Alignments and Material Sources)

Purpose: Determine the general shallow subsurface conditions along the alternative Evacuation and School Access Road alignments. Identify and characterize potential gravel material sources near the proposed routes.

Scope of Work: Perform a geotechnical field exploration and provide conceptual-level geotechnical recommendations for a roadway between Kivalina and Kisimigiuqtuq Hill. A geotechnical drilling program at the bridge location(s) is not included in this preliminary geotechnical report.

The shallow subsurface exploration program will be supported by helicopter and will focus on the following:

- Determine the depth of the active layer by advancing hand probes along the proposed alignments
- Determine shallow subsurface conditions along the proposed alignments by advancing shallow boreholes with a hand-operated power drill
- Determine the location and quality of potential material borrow sources near the proposed alignments.

Representative samples will be collected for analysis. The location of each probe and borehole will be recorded using hand-held GPS instruments.

Prepare a geotechnical report summarizing the field work and results of the laboratory testing. The report will also include conceptual-level geotechnical engineering considerations for road embankment design and material sources. Recommendations and estimated costs for further geotechnical work will be included.

Actual Cost: \$85,000

Status: Completed

Road Reconnaissance Study (Report and Recommendations)

Purpose: Evaluate Evacuation and School Access Road alignment alternatives and recommend a preferred alignment for further study.

Scope of Work: Coordinate with the community and gather available agency documents from prior, ongoing, and proposed projects in the immediate area. Hold a public meeting to gather local input. Propose alternative road alignments and then investigate them in the field. Coordinate the work of the geotechnical investigation, described above.

The Reconnaissance Report will summarize the findings of the office research, field work, and the analysis of the alternatives. It will include the following:

- Executive Summary
- General description of terrain, visible hydrologic, geologic and geographic features, and natural hazards
- Records of meetings with the Native Village of Kivalina, governments, agencies, stakeholders, and the general public
- Descriptions of alternatives investigated
- Analysis of desirability and feasibility of each alternative, including environmental impact considerations, ROW impacts, functionality, cost, constructability, and safety
- Conceptual level construction cost estimates for each alternative

Actual Cost: \$150,000

Status: Completed

Geotechnical Investigation (Causeway and Bridge Site)

Purpose: Obtain geotechnical information sufficient to design the causeway and bridge foundations across Kivalina Lagoon.

Scope of Work: Prepare a geotechnical drilling program based on the lagoon crossing location determined in the Road Reconnaissance Study, available soils and geologic maps, reports, publications, aerial photographs, and other available reference material. Boring locations, spacing, and depths shall be determined by a geotechnical engineer based on the topography, geologic conditions, visible soil conditions, design considerations, and in accordance with the standard practices needed to determine foundation information.

Prepare a geotechnical report summarizing the field work and results of the laboratory testing. The report will also include geotechnical design information that can be used by the bridge engineers to select and design the appropriate bridge foundations. The report will also include soils information that can be used for the causeway design and construction.

Actual Cost: \$320,000

Status: Under contract w/ USACE. Scheduled to begin in March 2015.

Bathymetric Survey

Purpose: Determine the underwater topography (bathymetry) in Kivalina Lagoon, near the causeway and bridge locations. This information will be used to prepare a hydrology report and to assist in the causeway and bridge designs.

Scope of Work: The bathymetric survey will be detailed enough to allow the design of a bridge and causeway that will not trap marine mammals, interfere with fish passage, or adversely disrupt the

flow of water in Kivalina Lagoon. The underwater topography of the lagoon will be depicted as a bathymetric contour map.

Actual Cost: \$325,000

Status: Under contract w/ USACE. Scheduled to begin in July 2014.

Hydrologic Study

Purpose: Analyze the currents and water and sediment movement in Kivalina Lagoon. This information will be used to assist in the design of the causeway and bridge(s).

Scope of Work: Review all available documents and conduct the field and office studies necessary to determine the hydrologic characteristics in Kivalina Lagoon. The study will include examining the current hydrology, flood inundation information, basin characteristics, and tidal impacts. Water resource investigations will be conducted, as needed, to prepare a detailed Hydrologic Study Report that can be used to determine the appropriate causeway and bridge designs, as well as bridge location(s).

Estimated Cost: \$145,000

Status: Under contract w/ USACE. Scheduled to begin in September 2014.

Preliminary Causeway and Bridge Design

Purpose: Prepare preliminary designs of the causeway and bridge(s) across Kivalina Lagoon.

Scope of Work: Use the information obtained in the geotechnical investigation, bathymetric survey, and hydrology study to prepare 35% complete design drawings of the causeway and bridge(s). The designs will be completed to a level that major details are known. These details will include height and width of causeway embankment; side slope protection; bridge abutment foundations; bridge type, member sizes, and spans; and estimated construction costs.

Documentation, including calculations and AutoCAD drawings, will be assembled into a Preliminary Lagoon Crossing Design Report. This report will be used by consulting engineers to complete the causeway and bridge designs.

Estimated Cost: \$270,000

Status: Under contract w/ USACE. Scheduled to begin in January 2015.

Geotechnical Tasks to be Completed

Geotechnical Investigation (Road Alignment)

Purpose: Characterize and classify the geotechnical conditions along the selected Evacuation and School Access Road alignment to a greater extent than was done during the preliminary geotechnical investigation. The roadway geotechnical investigation will provide sufficient subsurface data to design the roadway prisms.

Scope of Work: Explore subsurface conditions along the selected alignment. An experienced engineer or geologist will be present during the field work to locate the test holes, observe the excavation work,

collect samples, and prepare a descriptive log for each hole. It is anticipated that 20 – 30 shallow boreholes, spaced 1,000 to 2,000 feet apart, will be drilled along the route.

Perform laboratory tests on selected soil samples to evaluate the behavior characteristics of the soil encountered. Selected samples will be tested for natural water content, grain-size distribution, and possibly Atterberg Limits, as appropriate. The types of tests and the testing program will be adjusted based on the actual conditions encountered.

Based on the results of the field explorations and laboratory testing, conduct engineering design analyses to evaluate the foundation parameters and provide recommendations needed for the final design of the proposed roadway prisms. Prepare a geotechnical report that presents conclusions and recommendations concerning drainage, road design, suitability of local materials as borrow, and other factors, as appropriate.

Along with the engineering recommendations, the report will also include a site description, summarize field explorations, laboratory test procedures and results, and present narrative description of the subsurface conditions encountered. This description will be supported by tabulated logs of all test holes.

Estimated Cost: \$300,000.

Geotechnical Investigation (Material Sources)

Purpose: Characterize, classify, and delineate the granular material deposits identified as potential material sources during the preliminary geotechnical investigation. The material source geotechnical investigation will provide sufficient subsurface data to determine the extent and quality of potential material sources.

Scope of Work: Explore subsurface conditions at the potential material source locations. An experienced engineer or geologist will be present during the field work to locate the test holes, observe the excavation work, collect samples, and prepare a descriptive log for each hole. It is anticipated that 5 – 15 boreholes will be drilled at each potential material source location before a “Go or No Go” decision is made. If a site proves promising, additional boreholes will be drilled to more fully delineate the gravel available.

Perform laboratory tests on selected material samples to evaluate their behavior characteristics. Selected samples will be tested for natural water content, grain-size distribution, hardness, and durability.

Based on the results of the field explorations and laboratory testing, provide recommendations on a preferred material source. Prepare a geotechnical report that presents conclusions and recommendations concerning the quality, quantity, suitability of material for road and causeway construction, mine site planning, and other pertinent design information.

Along with the engineering recommendations, the report will also include site descriptions, summarize field explorations, laboratory test procedures and results, and present narrative description of the subsurface conditions encountered. This description will be supported by tabulated logs of all test holes.

Estimated Cost: \$300,000.

Survey Tasks to be Completed

Topographical Mapping from Aerial Photography

Purpose: Prepare a topographical map, with two foot contours, along the selected Evacuation and School Access Road alignment. This data will be used for the design of the road.

Scope of Work: Generate 2-foot contours from the aerial photography obtained as part of the earlier aerial photography task. The mapping extents will be limited to a corridor approximately 500 feet wide centered along the selected alignment.

Estimated Cost: \$50,000

Design Survey of Selected Road Alignment

Purpose: Field verify the topographical mapping produced from the aerial photography. Obtain sufficient data and set appropriate monumentation to control the design and construction work and to prepare right-of-way or easement documents.

Scope of Work: Complete a thorough records Investigation that includes all existing survey work and maintain copies of all pertinent survey plats and land ownership documents in the project file. Field survey the centerline of the alignment and compare it to the topographic mapping prepared in the above task. Make adjustments, as necessary, to the aerial mapping data.

Estimated Cost: \$30,000.

Right-of-Way Documentation

Purpose: Prepare the appropriate right-of-way (ROW) documents.

Scope of Work: Utilize the information obtained in the above design survey task to prepare the appropriate ROW document(s). Consult with the land owner(s) and funding agencies to determine what the ROW document will look like.

Estimated Cost: \$30,000.

Environmental Tasks to be Completed

Marine Mammal Studies

Purpose: Identify and understand the distribution and behavior of the marine mammals that inhabit Kivalina Lagoon. This information will be used to assist in the proper design of the bridge and causeway across the lagoon.

Scope of Work: The focus will be on ring seals. Conduct the study through analysis of previous reports, interviews with agency staff, shore-based observation, and collection of traditional knowledge from local residents. The study will include available data on the distribution (distance to shore, travel path) and behavior (travel speed, migration timing) of marine mammals in the area in and around Kivalina Lagoon. The objective is to develop the technical information to fully evaluate causeway and bridge alternatives, and to provide the design information necessary to satisfy environmental and

permit compliance. Consultation with the National Marine Fisheries Service (NMFS) during project scoping will determine potential impacts and data needs.

Data requirements for the project will be met utilizing existing studies and local knowledge, as much as possible, before completing a field survey. The cost estimate reflects a one-month field survey to determine the presence/absence of marine mammals in Kivalina Lagoon.

Estimated Cost: \$155,000

Biological Assessment - Essential Fish Habitat

Purpose: Identify and understand the distribution and behavior of the fish that inhabit Kivalina Lagoon. This information will be used to assist in determining potential adverse effects the causeway and bridge(s) may have and the proposed measures to minimize or mitigate the adverse effects.

Scope of Work: Conduct an Essential Fish Habitat Impact Analysis in the waters and substrate within Kivalina Lagoon important to fish for spawning, breeding, feeding, or growing to maturity. Document resources used, conduct interviews with residents in Kivalina, and consult with appropriate state and federal agency personnel. Determine potential adverse effects of the project and propose causeway and bridge design measures that can be implemented to minimize or mitigate any adverse effects identified.

Estimated Cost: \$100,000

Wetlands Delineation

Purpose: Identify the locations of all jurisdictional wetlands along the Evacuation and School Access Road alignment.

Scope of Work: Delineate and report on wetlands within a corridor approximately 500 feet wide centered along the selected alignment, using the methodology in the 1987 Corps of Engineers Wetland Delineation Manual and the Alaska Regional Supplement. Prepare a report in accordance with Corps of Engineers Anchorage District Special Public Notice 2010-45. Provide the wetland delineation report to the Corps of Engineers and coordinate and facilitate their concurrence.

Estimated Cost: \$60,000

Archaeological Survey

Purpose: Determine potential impacts to archaeological resources along the Evacuation and School Access Road alignment.

Scope of Work: Research, gather, and review existing information and published literature. Consult with the State Historic Preservation Officer (SHPO), BIA, the Village Council, and other parties knowledgeable with the history and prehistory of the project area. Review available literature and previous archaeological work in the project area, if applicable. Perform a pedestrian survey, within a corridor approximately 500 feet wide centered along the road alignment, with periodic shovel testing along the length of the project. Report the findings in accordance with the Alaska SHPO Standards.

Estimated Cost: \$35,000

Polar Bear Analysis

Purpose: Obtain information on polar bear use within the project area. This information will be used to assist in the Threatened and Endangered Species Section 7 consultation.

Scope of Work: Review existing reports that have surveyed the presence of polar bears in the coastal area around Kivalina. Analyze reports for current and forecasted movement of polar bears in the study area including denning, refuge from human disturbances, access to maternal dens and feeding habitat, and travel along the coast. Ensure that actions associated with the development of the Evacuation and School Access Road do not adversely modify or destroy designated critical habitat.

Estimated Cost: This cost is included in the cost to prepare the Environmental Document, discussed below.

Western Arctic Caribou Herd Analysis

Purpose: Obtain information on the Western Arctic Caribou Herd. This information will be used to determine the probable impacts the Evacuation and School Access Road will have on caribou migration.

Scope of Work: The Western Arctic Caribou Herd is a valuable local subsistence resource. It is anticipated that additional field studies will not be needed, but that existing data can be utilized. Gather existing data by conducting Interviews with local hunters and scientists, and by reviewing existing research from the Kivalina area, the Northwest Arctic Borough, and the North Slope Borough. Develop design criteria based on research and discuss cumulative impacts to the herd from the Red Dog Mine Road, the Ambler Mine Road, etc. Consider impact of snow fences, if those are anticipated, to the migration of the caribou.

Estimated Cost: This cost is included in the cost to prepare the Environmental Document, discussed below.

Threatened and Endangered Section 7 Analysis

Purpose: Analyze potential impacts to threatened and endangered species. This information will be used to assist in the Threatened and Endangered Species Section 7 consultation.

Scope of Work: Review engineering road design plans and various resources to analyze and evaluate potential impacts to listed species. Conduct presence/absence surveys for threatened and endangered species and habitats when required. Conduct field work to delineate and document the preliminary assessment of impacts by evaluating habitats, soil morphology and characteristics, landscape features, wildlife, and any other characteristics contributing to the presence of threatened and endangered species. Use GPS, Geographic Information Systems (GIS), and/or CADD to document field findings.

Prepare a report detailing field reviews, life history, habitats, or other technical requirements for threatened and endangered species. Prepare a Determinations of Effect, documenting the potential effects of the Evacuation and School Access Road project on threatened or endangered species. Prepare Biological Assessments or other documents as required under Section 7 of the Endangered Species Act. Use GIS data and other remote sensing tools to locate and investigate potential threatened and endangered species mitigation sites. Write site specific mitigation management plans.

Estimated Cost: This cost is included in the cost to prepare the Environmental Document, discussed below.

Visual Rendering

Purpose: Develop a computer-generated display that shows the visual impacts of the bridge and causeway. This rendering will be used to determine the finding of significance and effect.

Scope of Work: Prepare a computer-generated rendering showing the view of the bridge/causeway from the village. The rendering will contain enough information about the visual characteristics of the project for the residents to view the bridge and causeway. An evaluation of the visual impact will be supported by factual descriptions of proposed improvements and representative photographs of the area.

Estimated Cost: This cost is included in the cost to prepare the Environmental Document, discussed below.

Environmental Documentation

Purpose: Develop an appropriate environmental document to analyze and address the impacts of the Evacuation and School Access Road project.

Scope of Work: Funding sources have not been identified at this time. If Federal funding is utilized, then the project will be required to complete a NEPA document through a Federal lead agency. If State or private funding is utilized, then preparation of an Environmental Assessment (EA) style document is recommended as part of the environmental planning effort.

The cost estimate reflects the preparation of an EA-style document. If Federal funding becomes available after an EA has been prepared, the EA document could be used as the basis of a continued environmental process, if required by a Federal agency.

The environmental document will also be used as a process to coordinate public and agency scoping. Agency consultations relating to threatened and endangered (T&E) species that may be impacted during the project will also be conducted during the development of the environmental document. As stated above, it is not anticipated that polar bear or caribou specific biological assessment studies will be required for this project. Instead, existing data and reports, along with interviews with local residents, can be used to analyze and evaluate the effects of the project on their habitat. Along with the studies and surveys performed as part of this project's environmental process, previously collected environmental studies will also be reviewed and incorporated into the environmental document.

Estimated Costs: \$160,000

Pre-Design Tasks to be Completed

Preliminary Engineering Report (Design Study Report)

Purpose: Evaluate and recommend design criteria and alternatives for the Evacuation and School Access Road. This document will be used by the engineers to perform the road, causeway, and bridge designs and to prepare the construction documents.

Scope of Work: Gather all investigations, studies, and reports that have been performed for the Evacuation Road project to-date and summarize the critical components of each. Perform the following additional studies: hydrologic and hydraulic study, traffic study, utility conflict study, and

right-of-way analysis. Determine the appropriate design criteria and parameters for the road, causeway, and bridge(s). Design parameters will include design speed, final road alignment, road prism geometry (width, thickness, sideslopes, etc.), bridge type, causeway openings, etc.

Provide draft and final Preliminary Engineering Reports that recommend proposed road design parameters based on the geotechnical reports, environmental studies, and all other applicable studies or assessments that have been completed.

Conduct a meeting with the IRA Council and present the draft Preliminary Engineering Report. Incorporate Council comments into the final Preliminary Engineering Report.

Estimated Cost: \$150,000

Design Tasks to be Completed

Road Design

Purpose: Prepare complete bid-ready plans and specifications documents for construction of the road portion of the Evacuation and School Access Road project.

Scope of Work: Utilize the information contained in the Preliminary Engineering Report to design the road portion of the Evacuation and School Access Road project. Prepare plans for Council and agency reviews at the 35%, 65%, 95%, and 100% stages of completion. Respond to all questions and comments and record any changes required in the plans, specifications, or other deliverable items.

Use the ADOT&PF's *Standard Specifications for Highway Construction 2004 (English)* as the reference specifications.

Determine the pay items and estimate the quantities and unit costs. Provide documentation of detailed calculations and references used in preparing the Engineer's Estimate.

Estimated Costs: \$250,000

Causeway Design

Purpose: Prepare complete bid-ready plans and specifications documents for construction of the causeway portion of the Evacuation and School Access Road project.

Scope of Work: Utilize the preliminary (35%) causeway design, prepared by the USACE, to complete the design of the causeway portion of the Evacuation and School Access Road project. Prepare plans for Council and agency reviews at the 65%, 95%, and 100% stages of completion. Respond to all questions and comments and record any changes required in the plans, specifications, or other deliverable items.

Use the ADOT&PF's *Standard Specifications for Highway Construction 2004 (English)* as the reference specifications.

Determine the pay items and estimate the quantities and unit costs. Provide documentation of detailed calculations and references used in preparing the Engineer's Estimate.

Estimated Costs: \$100,000

Bridge Design

Purpose: Prepare complete bid-ready plans and specifications documents for construction of the bridge portion of the Evacuation and School Access Road project.

Scope of Work: Utilize the preliminary (35%) bridge and abutment design, prepared by the USACE, to complete the design of the bridge portion of the Evacuation and School Access Road project. Prepare plans for Council and agency reviews at the 65%, 95%, and 100% stages of completion. Respond to all questions and comments and record any changes required in the plans, specifications, or other deliverable items.

Use the ADOT&PF's *Standard Specifications for Highway Construction 2004 (English)* as the reference specifications.

Determine the pay items and estimate the quantities and unit costs. Provide documentation of detailed calculations and references used in preparing the Engineer's Estimate.

Estimated Costs: \$150,000

Permitting Tasks to be Completed

Permitting

Purpose: Prepare applications and acquire the required permits for the construction of the Evacuation and School Access Road project.

Scope of Work: Prepare permit applications. Provide support to the lead agency and other regulatory agencies during the permit/determination review process. Anticipated permits and determinations include:

- U.S. Army Corps of Engineers (USACE) Section 404 Wetlands permit
- Alaska Department of Environmental Conservation (ADEC) Section 401 Water Quality Certification permit
- U.S. Coast Guard (USCG) Section 9 Bridge permit
- Alaska Department of Fish and Game (ADF&G) Title 16 Fish Habitat permit
- Alaska State Historic Preservation Office (SHPO) Section 106 consultation
- Northwest Arctic Borough (NAB) Title 9 Land Use permit
- Federal Aviation Administration (FAA) Airspace Obstruction Evaluation
- National Marine Fisheries Service (NMFS) incidental Harassment Authorization

Additional permits and/or determinations may be identified during research and communications with regulating agencies.

Estimated Costs: \$50,000

Schedule

The following schedule shows a possible timetable for the design and construction of the Evacuation and School Access Road project. This schedule assumes no delays or unanticipated problems. It also assumes that funding is available and that contracting with consultants and contractors is not prolonged. The schedule shows completion of the project in 2017.

**Kivalina Evacuation and School Access Road
Estimated Schedule through Construction
Revision Date: May 23, 2014**

