

Lutak Dock Design and Development Concepts

2 September 2016



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Appendix A

Resumes

A. Letter of Transmittal

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September 2, 2016

Attn: Office of the Borough Clerk
Haines Borough
P.O. Box 1209
103 Third Ave. S
Haines, AK 99827

Subject: Lutak Dock Design and Development Concepts

AECOM Technical Services, Inc. (AECOM) is pleased to provide our proposal and qualifications to the Haines Borough (Borough) for Lutak Dock Design and Development Concepts. We have reviewed the scope of work and understand the required services.

AECOM is a global leader in ports and harbors work. Our local offices are able to leverage that experience, and our team combines some of the most experienced marine engineers in Alaska with expertise from the Lower 48. This team will provide the Borough with the knowledge, skills and experience necessary to provide design and development alternatives that will help guide the Borough to the best path forward.

For over 60 years, AECOM has provided engineering and planning services throughout Alaska related to port and harbor facilities. Craig Freas, PE SE, our Principal-In-Charge for this work, was project manager for design of the last major repairs performed at Lutak Dock. Elizabeth Greer, PE SE will be our Project Manager and has visited the site and met with local officials regarding the proposed work.

We understand the challenges faced by small Alaskan communities in developing and maintaining critical infrastructure. The challenges include constructability, economics, environmental influences, aging infrastructure and the need for community consensus. Currently, one of the greatest challenges is access to funding. With the drop in natural resource prices, the State is cutting funding. As a result, many ports and harbors are confronted with degrading facilities and limited resources to maintain them. The cost of a project is crucial to its advancement. We are confident our team will provide the Borough with cost effective alternatives, which will maintain the functionality of the dock for the next 50+ years and provide opportunities for future development.

We look forward to working with the Haines Borough.

Sincerely,



Joe Hegna, PE
Alaska Operations Manager
AECOM



Craig Freas, PE
Principal-in-Charge
AECOM



Elizabeth Greer, PE
Project Manager
AECOM

B. Evaluating Needs and Tailoring Designs

Description of how the consultant(s) will evaluate community and Borough needs and tailor conceptual designs to meet these needs.

We see this as a two-step process. The first is to identify an overall port concept (masterplan) based on future uses, needs and opportunities; and the second is to develop practical design alternatives based on the port concept, the existing structure and construction phasing.

Project Goals

The goal of the project is to provide the Borough with an asset which will serve the community's current and future needs for the next 50+ years, and to accomplish this goal before the remaining cells fail.

The purpose of the Design and Developments Concepts Study is to determine the best way to meet the goals with consideration to cost and financial opportunities to provide for these costs.

Project Approach

A key aspect of this effort is to perform a needs assessment. This will involve meeting with current and potential users to determine needs for uplands areas, utility support and berths. These would include land area, berth length and depth, cargo transfer systems and associated appurtenances. An important aspect of future needs is to determine timing and risk; what is realistic in terms of timing and what, if anything, are future users willing to contribute to the project. It will also address economic opportunities and resources focused on the potential users.

The ultimate plan must serve current community needs in a financially responsible manner and provide opportunities for future economic growth. This may involve a staged development program, based on resources and needs, similar to the program AECOM has recently completed with the Alaska Industrial Development and Export Authority (AIDEA) and Vigor Industries over the past decade to expand Ketchikan Shipyard, a very successful program.

Planning

The planning effort will focus on current and future needs. It will include analysis of the existing dock and operations and identify opportunities for growth. The existing facility has limited capacity which could be expanded; however, expansion must consider funds available. The development plan must follow a logical

sequence such that each element or stage is immediately functional should future funding be delayed.

The plan will look both at berths and uplands for both current and potential future users. We have seen a recent (past 10-15 years) tendency to design marine facilities in Alaska based on international trends in shipping that have little or no relevancy to the communities they serve, a "build it and they will come" approach.

Preliminary efforts will include identifying potential future users. Some of the opportunities we will consider include:

- Cruise Industry – and interface with Haines Tourism transport. AECOM has relationships with cruise lines and can solicit consideration from this industry.
- Mining – both American and Canadian mines. We have recently completed a study which included mining opportunities in Eastern Alaska, Yukon Territory (YT) and Northern British Columbia. Mines in Eastern Alaska and west of Whitehorse, YT are of particular interest. Haines offers a transshipment point for materials and equipment associated with mine development and operation and for mineral exports.
- Oil and Gas – Transshipment point for pipe, equipment and materials supporting construction of future gas pipelines.
- Support of Construction – Off-loading of equipment and materials for large construction projects in interior Alaska and the Yukon.

Investment opportunities will also be considered. Qualitative considerations will be provided based on available information as to the ability and potential to attract funding.

Deliverable: Preliminary concepts and opportunities analysis for Stakeholder and Public coordination. Master Planning Study which incorporates design and development concepts, and includes cost estimates with potential phasing.

Stakeholder Outreach

We plan to hold an outreach meeting early in the project after the design team has assembled preliminary data. The meeting be attended by the Borough, current users, stakeholders, other interested parties and our planners/designers.

The goal of the meeting will be to obtain input and build consensus on:

- Project Objectives,
- Establishing Priorities,
- Exchange of relevant available data (reports, studies and technical investigation findings) and
- Identifying Potential Funding Sources.

As part of this meeting we propose to engage the group in a planning session to discuss possible concepts, collaborate and offer immediate feedback to the design team. Concepts will then be vetted for feasibility with the group. Concepts deemed feasible will be incorporated into the planning efforts. The goal of this effort is to solicit input, take advantage of knowledge of the operators and promote joint ownership of the solutions.

Deliverable: Refined Project Objectives, Priorities and opportunities.

Public Involvement

AECOM has extensive experience working with a wide range of stakeholder groups on marine facility projects - from small communities in rural Alaska to large stakeholder groups and Federal agencies. Our public involvement strategies will include working with the Borough to identify key stakeholders in the project, providing accurate and timely information, educating target audiences, and developing project advocates.

We will work with the Borough to develop a Public Involvement Plan at the on-set of the project. We suggest three public involvement meetings with the first meeting being the project stakeholder outreach meeting. This meeting would include users and stakeholders. The AECOM team will work with the Borough to identify strategic participants for attending the stakeholder meeting. This meeting can be coordinated with one-on-one interviews to facilitate frank conversation regarding stakeholder objectives and concerns. To the extent possible, meeting dates can be coordinated to provide project briefings to other key stakeholders, such as the Borough planning commission, Borough Assembly, other advisory commissions, and the Chamber of Commerce.

The second meeting would be open to the public and will present the overall port concept and design alternatives. The third meeting will focus mainly on the refined design alternatives.

Prior to each public meeting we will advertise locally and provide informational flyers for Borough staff to print and post prior to meetings. We will provide graphics depicting each of the concept designs.

Following each meeting we will provide a summary of comments and suggestions.

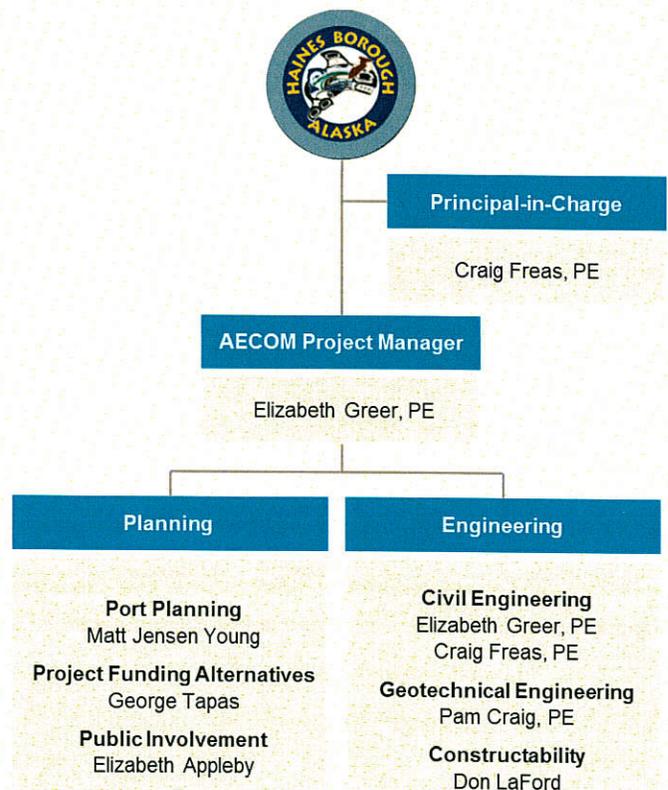
Deliverable: Public Involvement Plan, display graphics, flyers, summary of comments and assessment of these.

C. Engineering Team

Description of the engineering team and its ability to meet the above needs.

Qualifications and experience of key personnel are described below. Resumes are included as Appendix A.

Our Alaska marine group has recently completed three design projects which are all anticipated to be under construction by October 2016. We have more than sufficient resources to commit to the Lutak Dock Design and Development Concepts Study. We have the ability to augment our local expertise with our global ports planning and design expertise to bring significant value to this project and the Borough.



Principal-in-Charge

Craig Freas, PE

Professional Civil Engineer, Alaska, 3873;
Professional Structural Engineer, Alaska, 14269

Mr. Freas has more than 47 years of diversified engineering experience involving industrial complexes and other heavy civil works. His specialty

is foundations and structures, remote construction and facilities subject to extreme environmental conditions – wind, waves, currents, ice. He is responsible for management of heavy civil and marine projects with individual projects valued in excess of \$350 million. He was the project manager for the 2002 Lutak Dock Repairs through his previous employer. Craig has worked on projects throughout southeastern Alaska since 1972. He was the project manager for the: Alaska Marine Highway System (AMHS) Ward Cove Master Plan (2013), Skagway Ore Terminal Development Plan (2013), Skagway Small Boat Harbor Improvements (2012 and 2006), 2002 Lutak Dock Upgrades and \$150 million Ketchikan Shipyard Expansion Program.

Project Manager

Elizabeth Greer, PE

Professional Civil Engineer, Alaska, 13351;
Professional Structural Engineer, Alaska, 13350

Ms. Greer's experience includes over 25 years on transportation and waterfront projects. She has been responsible for all aspects of project development including: planning, design, preparation of construction documents, cost estimating and construction management. She has served as a subject matter expert evaluator for Value Engineering workshops.

Elizabeth has been responsible for planning and development of multiple marine and port development projects. She has an extensive background in the design and rehabilitation of marine facilities including structural analysis of docks using non-linear seismic performance methods. She has performed construction program management working onsite with contractors including 18 months on the Fairview Container Terminal construction project in Prince Rupert, BC. Elizabeth provides both a highly technical design background with valuable construction experience.

Port Planning

Matt Jensen Young

Mr. Jensen Young is a shipping, container terminal and project management professional with 26+ years of experience on both sides of the quay including 13 years ashore and 13 years as Merchant Marine Deck and Cargo Officer. Matt held a Master's Certificate of Competency (Unlimited Tonnage) and has attained extensive seagoing experience on all types of vessels including having served as Staff Captain aboard a passenger cruise vessel. Matt's planning experience includes port master planning, feasibility studies, and oversight of design and construction. In addition, Matt's hands-on experience includes working on

seven (7) container terminals on five (5) continents and has gathered extensive operational and stevedoring management experience, project management and operational excellence (continuous improvement) experience and has a reputation of minimizing costs and driving organizational efficiencies.

Geotechnical Engineering

Pam Craig, PE

Professional Civil Engineer, Alaska, 11127

Ms. Craig is a geotechnical engineer with 15 years of experience in geotechnical, civil and environmental engineering. Ms. Craig has performed geotechnical investigation, analysis and design for several development projects in Alaska, Washington and Oregon. Her project background includes geotechnical support in remoted communities throughout Alaska.

Constructability

Don LaFord

Mr. LaFord has more than 50 years of experience, including numerous public and private marina and harbor facilities. Before joining AECOM, Don served in a broad range of positions, from Field Engineer to General Superintendent of construction. He is a skilled manager on both large and small construction and engineering projects, and he provides extensive background in construction methodologies and cost control measures.

Public Involvement

Elizabeth Appleby

Elizabeth holds a Master's degree in Urban and Regional Planning and has extensive experience in public involvement, meeting logistics, comment analysis and coding, NEPA compliance, and community planning. She has worked closely to code comments, compose meeting summaries, create advertisements and flyers, and plan for public meetings. She has assisted to facilitate public meetings in a variety of locations across the state, ranging from rural communities on the North Slope to more populated areas within Alaska's Rail-belt region. Elizabeth's recent experience includes leading the public involvement task for the Juneau Airport Masterplan and facilitating focus groups for the Municipality of Anchorage's Joint Base Elmendorf-Richardson Force Reduction Economic Study.

Project Funding Alternatives

George Tapas

Mr. Tapas has over 28 years of professional engineering experience in infrastructure program and capital improvement projects. His work has included extensive experience in developing and managing large, multi-year Capital Programs and groundbreaking work with Alternative Financial Procurements (AFP) including Public-Private Partnerships (PPP). His technical AFP work includes: analysis and development of various financial model types and structures; Funding and Financing plan development; Value for Money Analysis (VfM); Operations & Maintenance forecasting; development of Concession and Project Agreements; authoring Performance Based Design, Construction, Maintenance, Operational, and Rehabilitation Standards; Risk allocation and mitigation strategies; organizing and running complex procurement processes; and support in the development of performance measures in a Payment Mechanism structures.

D. Process for Background Research and Data Analysis

Process for background research and data analysis to inform the conceptual designs.

Development of practical design alternatives will require an understanding of the existing dock structure. We will also engage our port planners to assist with more detailed planning of the proposed dock functions. In addition, we will continue to gather feedback from stakeholders and the public during development of the design alternatives.

Project Understanding

Lutak Dock was constructed by the military after WWII as part of a tank farm and pipeline system to supply fuel to the bases in interior Alaska near Delta and Fairbanks. The Army selected a cellular sheet pile structure for the wharf at Haines to receive the materials for the tank farm and pipelines. A separate tanker terminal (pier) was constructed adjacent to the wharf.

The sheet pile cells are capped with an L-shaped cast-in-place concrete structure that forms the top face of the wharf. The bottom of the cap extends inward and has several feet of fill on top of it to resist overturning. The original wharf had an induced-current cathodic protection system to protect the steel sheets from corrosion. The tank farm and pipeline system became obsolete over time, was decommissioned and the wharf was turned over to the Borough. The cathodic protection system that the

Army maintained and operated over the years was turned off after Haines Borough took possession of the wharf due to the associated operational costs. The tank farm, pipeline and associated structures became the focus of a major environmental cleanup project.

Years of operation without cathodic protection took a toll on the wharf. In particular, the closure arcs between the cells were corroded to the point where large perforations (primarily in the closure arcs) had formed and material was being washed out from behind the sheets. The original timber fender system was in an advanced state of disrepair. Around 2002, Haines undertook a project to repair the wharf and to dredge the area seaward of the wharf to allow deeper draft vessels to access it. At the time, AMHS was asked to participate in the project and they declined. As a result the repairs did not include the AMHS portion of the wharf. The project included the following major items:

- Demolition and replacement of the fender system,
- Partial demolition of the closure arcs,
- Underpinning of the concrete cap, and
- Dredging.

It was determined that a preliminary design had not taken into account regional rebound when they proposed a new dredge depth which would have undermined the cells. Following the 1964 Great Alaska Earthquake this region has been rebounding at a rate of about 1-inch per year (and continues to rise). The wharf deck elevation has risen almost 30 inches since construction. The final dredge depth was adjusted to provide 5 feet of soil above the cell bottoms. The rebound continues and must be addressed as part of future designs.

The condition survey found that although the steel sheet piles had lost thickness due to corrosion, the estimated stress levels in the sheets were within acceptable levels and could be maintained at those levels with proper cathodic protection. The project included installation of a passive (anodes) system.

The closure arcs between the main cells were cut off below the splash zone, the remaining tops of the arcs were filled with concrete and sheet piles were driven behind the tails of the L-shaped caps to keep material from being washed out behind the cells. Steel H-Piles were driven through openings cut in the bottom of the concrete cells and then tied into the concrete to help support the cap.

Several years after the work was completed, AMHS experienced a failure in one of their cells with the result that the cells had to be cut off, and a sloping fill

placed above them. To date none of the cells where repairs were done have failed.

Planning

Please reference *Section B. Evaluating Needs and Tailoring Designs Planning*. Section B above will focus on the overall port plan. We will seek input from our port planners during development of design alternatives on operational efficiencies and use versatility considerations.

Public Involvement

We will hold a minimum of two public meetings during alternative development. We will seek feedback on alternative designs from users and stakeholders, as well as the general public. Improvements to the Lutak Dock must be compatible with AMHS operations with regard to berthing and mooring of ferries.

Alternatives Development

The alternatives will be developed in conjunction with the planning layouts. These may include several methods and cost options. Staging and phased construction options will be incorporated in the various alternatives.

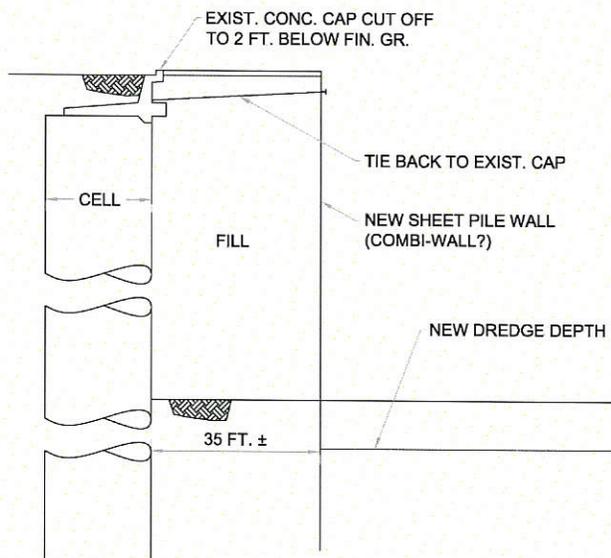


Figure 1 - Concept Alternative – Wall Enclose Existing Dock

While a complete removal and rebuild may be a technical solution, it may not be the most cost effective nor economically practical. There is a significant cost to remove the concrete cap and sheet piles. Abandoning the wharf in place is one of several options we will consider.

There are a couple ways this could be done: one is to construct a new bulkhead 30-50 feet (or further if

more uplands is required) seaward of the existing wharf and place fill between the new bulkhead and the cells. We would remove the top of the concrete cap to about 2 feet below finish grade and use the remaining concrete wall as a dead-man (anchor) to help support the new bulkhead. The new bulkhead would be designed to allow dredging to a greater depth than is currently possible with the existing cells. In extending the wharf seaward, consideration for AMHS's navigational needs be evaluated.

Another option is to place a sloping fill in front of and to within 5 or 6 feet of the top of the existing wharf. This will buttress the existing cells. We would then construct a pile supported wharf seaward of the cells.

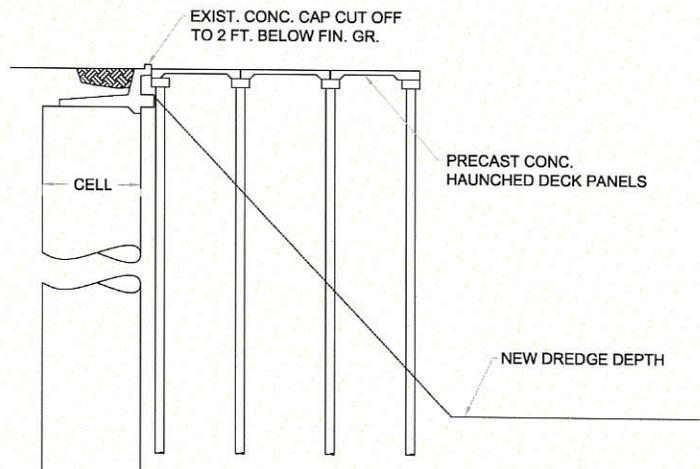
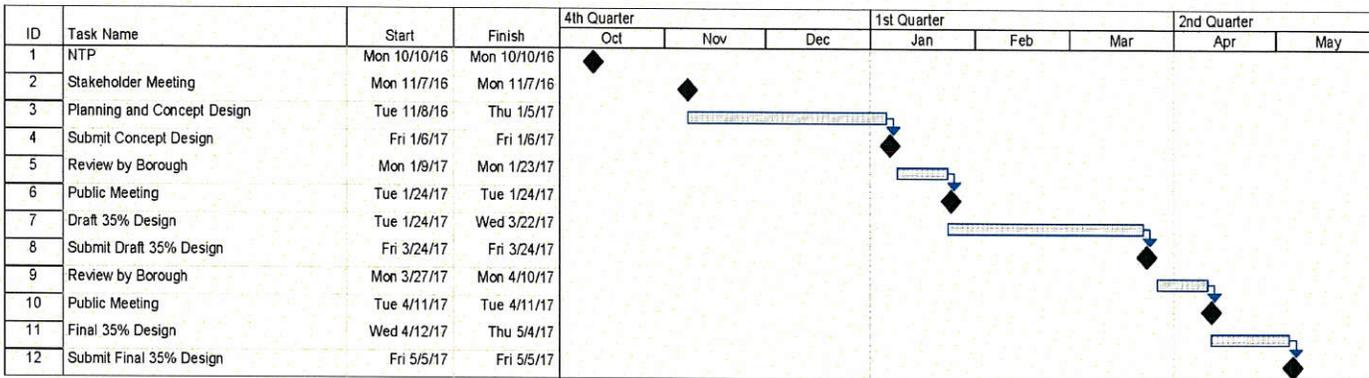


Figure 2 - Concept Alternative – Pile Supported Extension

This would be a precast concrete deck and cap system supported by steel pipe piles. The deck system can be designed for heavy loads, including cranes. We recently designed a similar system with a 2,000 pound per square foot deck load to support 250-ton crawler cranes at the face of the pier. The face of the new wharf would be about 50-75 feet seaward of the existing cells.

Deliverable: Draft and Final 35% Design, Cost Estimates and Development Concepts Study

Figure 3 - Project Timeline



E. Timeline and Completion Date for Conceptual Designs

Overall timeline and completion date for conceptual designs.

The schedule above illustrates our proposed timeline to complete the conceptual designs. Thirty days following Notice to Proceed (NTP) we will hold the Project Planning Meeting. Following this initial meeting our team will work with the Borough to develop an overall port concept and preliminary designs. We will submit the preliminary design approximately 60 days following the first stakeholder meeting. Following a two week review by the Borough we will present the concept design to the public and seek feedback from users and stakeholders. Following this meeting we will refine the concept design and develop a draft 35% design (three alternatives), then the final 35% design

F. Qualification Statement

Overall Qualifications

Our Anchorage office has deep Alaskan roots, as described in our company history below. AECOM is a leader in the planning, engineering and construction oversight of port and marine projects worldwide. Working with public and private owners and tenants of ports and marine terminals, AECOM plans, models, designs and manages a full range of port and terminal projects throughout the globe. To successfully execute this project we have assembled a cohesive team that includes extensive local engineering experience supported by national expert resources.

Our planners, simulation and logistics specialists, engineers, architects and economists are at the forefront of port, shipping, logistics and cargo trends. We have planned and designed some of the world's largest port facilities including dredging, landfill and waterfront projects to marine terminals, backland

facilities, intermodal transfer facilities and cruise terminals.

AECOM's expertise in ports and marine terminal projects includes:

- Port master planning
- Port policy and management consultation
- Financial and economic feasibility analysis
- Port and marine terminal models and simulations
- Program and project management
- Engineering design
- Construction management
- Liquid bulk terminals, pipelines and handling facilities
- Dry bulk terminal and handling facilities
- Container and general cargo terminals
- Freight rail and intermodal transfer facilities
- Passenger, cruise and ferry terminals
- Ship building and repair facilities
- Coastal structures
- Dredging and reclamation
- Defense facilities
- Shore-to-ship power design
- Terminal operations
- Environmental management
- Benchmarking performance

1. Consultant Name and Applicable Licenses

Consultant name (or names if joint effort) and applicable licenses.

AECOM Technical Services, Inc. (AECOM)

Professional Engineer license numbers are listed in staff bios in *Section C. Engineering Team*. AECOM has a current Alaska Business License and will register for a Haines Business License upon notice of intent to award.

2. Brief Firm History and Number of Years in Business

The number of years the consultant has been in business and a brief history of the firm.

AECOM is a national broad-based company, with a local engineering office practicing civil and waterfront engineering. Through our Alaska predecessor company, Tryck Nyman and Hayes, we have been providing civil, structural and waterfront engineering design since the 1960s. Tryck Nyman Hayes was acquired by URS Corporation (URS) in 2008. AECOM acquired URS in 2014. During this time, our office has continued to provide civil and waterfront engineering throughout the state. Projects have ranged in size from less than \$100,000 to \$40M in construction value.

AECOM's recent experience includes engineering services for marine facilities in similar communities including Skagway (three projects), Hydaburg, Sand Point, Seward, Homer, Nome, Kotzebue, Ketchikan and Old Harbor. In addition, AECOM provided full-time construction management at the Ketchikan Shipyard on multiple projects valued at over \$85M, including the \$40M Assembly Hall, Production Center and Steel Fabrication Shop.

AECOM has previously provided professional services in the Haines Borough including the 1998 Comprehensive Plan Update and remediation of contaminated soils at the Haines Fuel Terminal (TERC). We also performed emergency underwater inspection services for the Alaska Department of Transportation & Public Facilities (DOT&PF) at the AMHS Ferry Terminal at the far end of Lutak Dock.

Potential Conflicts of Interest

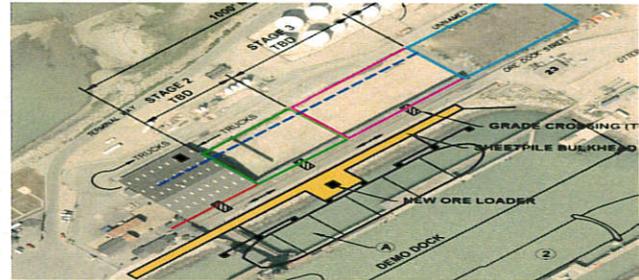
AECOM has not been recently involved with the Lutak Dock. We do not have any known conflicts of interest, nor have we reached any prior conclusions regarding the needs for this facility. We offer a fresh "set of eyes" backed by our technical proficiency.

3. Experience with Similar Projects

Experience with similar projects, including ability to deliver cost-effective solutions.

■ Skagway Ore Terminal Master Plan | Skagway, Alaska

- ✓ Similar project
- ✓ Community similar in size and character to the Haines Borough



AECOM recently assisted AIDEA in the preparation of the *Skagway Ore Terminal Development Plan*. The purpose of the plan was to expand the capacity of the facility and develop a multi-tenant management plan to operate the terminal. The work included evaluating maximum potential throughput, coordination of shipments for multiple tenants, evaluation of conflicts with seasonal cruise ship traffic and transport of mineral concentrates from potential mines in the Yukon Territory and Northern British Columbia.

AECOM looked at over a dozen proposed mine openings interested in using Skagway as a mineral export terminal. The evaluation looked at the existing stage of development, the mineral types, the estimated quantities and the target dates for production. From this, a master schedule was developed with an overall throughput by year for the various mines. The total throughput from multiple tenants was estimated at 750,000 tons per year. Various storage shed configurations were developed to accommodate the throughput. The work also looked at the level of truck traffic (truck size and frequency) to deliver 750,000 tons to the terminal annually and the size and number of ships to export it. Heavy truck traffic through Skagway was a major community concern. The work included looking at various truck unloading and conveying systems to be shared by multiple tenants. Included was consideration of handling lead/zinc concentrates and the associated environmental impacts and cross contamination of materials within the storage shed and conveyance systems. The plan looked at changes to berth and the ship loading equipment to reduce conflicts with cruise ships; over 100 ships visit Skagway annually between May and September.

Cost-effective Solutions: Four concepts were developed ranging in costs from \$50-75M, exclusive of a new berth. One option included moving the berth south with the cost of \$24M for a new ship loader and conveyor, again, exclusive of the berth.

■ Ward Cove Feasibility Study | Ketchikan, Alaska

- ✓ Similar project
- ✓ Community similar in size and character to the Haines Borough



AMHS acquired waterfront property on Ward Cove, just north of Ward Creek, on part of the old Ketchikan Pulp Mill site. The property is about 30 acres, of which 20 acres are tidelands.

AECOM was retained by the State to create a plan to develop an overflow and layup terminal at the Ward Cove site and share the site with the National Oceanic and Atmospheric Administration (NOAA) to home port the Vessel Fairweather. The study also called for moving the AMHS Headquarters Facility in the future to the new Ward Cove property. The study called for staging the program over a series of two or more projects.

At full build-out, the plan calls for four ferry berths (Columbia, Taku, Kennicott and AMHS Fairweather, a berth for the NOAA Fairweather and miscellaneous skiffs). In addition, when functioning as an overflow ferry terminal, provisions for ticketing and vehicular queuing are required. A major navigational obstacle, Bolles Ledge, requires excavation to a safe depth for vessel access and maneuvering. Several layouts were prepared to accommodate the facilities and meetings were held with adjacent property owners to obtain their input and concerns with the proposed development. The preferred option for the berth consisted of a pile-support trestle to the required water depth (to avoid dredging) to a linkspan and floating dock.

AECOM provided site planning, a traffic study related to ferry operations, navigational analysis, site utilities, environmental planning, marine structures, coastal engineering and uplands structures.

Cost-effective Solutions: The estimated cost of the entire complex was about \$33.5M. The funding is

limited and AECOM developed a plan to complete Phases of the project. The demolition was recently completed and dredging and associated waterfront fill is scheduled to begin 2017.

■ Port of Anchorage Master Plan | Anchorage, Alaska

- ✓ Similar project

This project consisted of producing a comprehensive master plan for the Port of Anchorage through the year 2020. The master plan included a detailed throughput capacity analysis and a phased facility upgrade and maintenance plan. AECOM worked together with a team of consultants from around the country to produce this comprehensive planning document for one of Alaska's largest port facilities. The facilities plan included producing an inventory of existing maritime facilities, performing a berth occupancy demand study, performing a present and future capacity demand study and advancing a recommended development plan. The recommended development plan included alternatives to improve the internal port circulation of freight, extending the existing wharf line to provide for deeper draft, developing/constructing additional uplands and constructing new pile supported docking facilities.

Cost-effective Solutions: The plan looked at future opportunities and costs to incorporate these.

■ West Basin Container Terminal Development Program, | Port of Los Angeles, California

- ✓ Similar project



The West Basin development consists of over 2,125 feet of wharf face with 53-foot water depth.

AECOM was the lead designer for the development of the existing West Basin in the Port of Los Angeles into a Mega-Container Terminal able to provide berthing, loading, and unloading of 9,100 TEU container ships. We provided planning, preliminary design, specifications, estimates and technical support services. The project consisted of extensive demolition, dredging and landfills, including dredging of the main channels within the Port of Los Angeles, concrete pile supported wharf, container terminal civil

infrastructure, railroad track and flood control structures.

Cost-effective Solutions: The facility was designed for future capacity needs within funding

■ Alaska Barge Landing System Assessment and Design | Alaska, Statewide

- ✓ Similar project
- ✓ Communities similar in size and character to the Haines Borough



The project initially involved conducting an assessment of barge mooring and fuel/freight transfer needs at over 111 of Alaska's coastal and river communities on the Alaska Peninsula; the Yukon, Kuskokwim and Kobuk rivers; and the Bering, Chukchi and Beaufort Sea coasts. The project identified infrastructure improvements needed at each community to improve barging operational efficiency, increase worker and environmental safety and improve fuel and freight delivery costs through system improvements. The assessment was conducted through a series of interviews with barge operators and representatives from regional community economic development organizations who represent local fishing fleets.

Based on the improvements identified, the project team prepared conceptual engineering designs for landing site improvements including mooring posts, staging areas, ramps and docks. In addition, a list of 34 priority projects was identified as being suitable for a first generation of capital improvements. Concept site plans were developed to identify the proposed type and location for the recommended improvements at each of these communities.

Budget-level cost estimates were developed to accompany the site plans and help funding organizations plan for these important infrastructure improvements throughout Alaska.

■ Harbor Navigation Improvements | Nome, Alaska

- ✓ Similar project
- ✓ Community similar in size and character to the Haines Borough

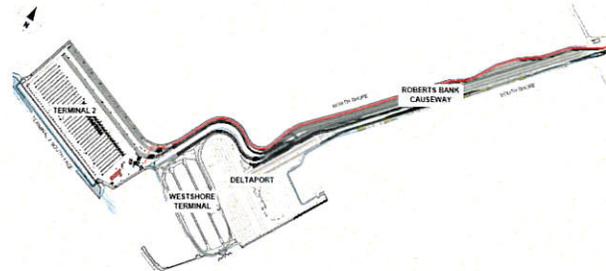
AECOM was tasked with looking at alternate designs for replacing badly deteriorated inner harbor bulkheads at the Port of Nome. Design documents were completed on the selected design alternative.

This project was accomplished as part of the layer Federal project to construct a new breakwater and entrance channel for the Nome Harbor. The project included 1,600 lineal feet of bulkhead and was completed in 2006.

Cost-effective Solutions: The project constructed the required facility within available funds with the ability to be expanded.

■ Terminal T-2, Planning and Preliminary Engineering, Port of Metro Vancouver | Vancouver, BC Canada

- ✓ Similar project



AECOM performed terminal planning and preliminary engineering of the new Terminal T-2 Port of Metro Vancouver. As part of the planning process, AECOM developed the terminal plan of this automated facility and performed terminal simulation modeling of the container yard and intermodal railroad facilities.

The preliminary engineering includes design of the caisson and wharf structures, dredged fill and backland infrastructure including paving, drainage, lighting, electrical and utilities. A navigation study to evaluate the berthing of container vessels was also performed. The evaluation included assessing the location, orientation and dimensions of the approach channel, turning basin and maneuvering basin. The AECOM team developed a set of scenarios to consider the operational and severe environmental conditions for wind, waves, current and number of tugs. The fast-time ship simulation was performed with SHIPMA to study a total of 64 cases. AECOM also performed an assessment of existing hydrodynamic studies and a dynamic mooring analysis to assess unloading and loading operations

at the new berths. The dynamic mooring analysis assessed potential downtime of container cranes due to environmental conditions, ship motions and provided critical input for the design of mooring and berthing facilities.

Cost-effective Solutions: Alternative Cost considerations

■ Pier S, Berths S102-S110 Container Terminal | Port of Long Beach, California

- ✓ Similar project



AECOM developed a new 160-acre container terminal with a 3,200 foot long wharf with crane rails and shore-to-ship power, 13 buildings, gate facility, container yard and associated structures and a 10 working track on-dock, double-stack intermodal rail yard with static capacity for two unit trains.

Terminal planning involved development of options for a viable terminal that could provide future expansion opportunities, maximum efficiency of acreage and flexible container storage, all within a relatively small site with multiple constraints that included numerous oil production pipelines and utilities, multiple cells of remediated oil sump material and approximately 400 abandoned oil wells.

Cost-effective Solutions: Alternative Cost considerations

■ Port of Hueneme | Port Hueneme, California

- ✓ Similar project
- ✓ Funding Support

Beginning in 2012, AECOM has provided a comprehensive suite of planning services to enable the Port of Hueneme, a niche RoRo (roll-on roll-off) and breakbulk port which is vital in the intermodal logistics supply chain and significantly contributes to the economic health of Ventura County and Southern California. Services were designed to position itself to grow the business of existing customers, market and capture new business, secure state and federal grants and define its long-range development vision, including:

- 2020 Strategic Plan - The 2020 Strategic Plan included significant stakeholder outreach, public workshops, Port Operators Group interface and direct collaboration with Port staff and elected officials. The effort created a long range vision and 5-year action plan, including a comprehensive Capital Investment Plan, Competitive Analysis, facility development strategy and policy recommendations.
- Transportation Management Study – providing an operations-based marine terminal programming and circulation strategy to increase overall marine terminal throughput and velocity while elevating safety and situational awareness.
- Grant Writing – With the planning and operational understanding developed over the course of the TMS and Strategic Planning processes, AECOM provided grant writing services that resulted in a recent \$1.5M Economic Development Administration grant award, and pending TIGER round VII grant consideration.

Cost-effective Solutions: Developed a project that could be funded by available grants.

■ Hovensa, LLC Refinery Docks Rehabilitation Design | Saint Croix, U.S. Virgin Islands

- ✓ Similar project

AECOM performed in-depth inspection of all marine facilities and developed modifications to upgrade existing structures. The Hovensa refinery is a petroleum refinery covering approximately 1,500 acres. It is the third largest refinery in the Western hemisphere. Operations at the facility began in 1965. The Hovensa Marine Facilities encompass nine oil tanker docks and dry cargo, tug boat, coke and roll-on/roll-off docks. Most of these dock showed signs of significant deterioration.

The inspections found significant deterioration of the steel and concrete elements of the 1970s era docks and AECOM prepared contract documents for the rehabilitation of the docks. Design work included repairs to steel cellular breasting dolphin cofferdams using concrete "girdles". The dolphins were also retrofitted with floating foam filled fenders. Other repairs included pile jacketing, recoating of steel members and shotcrete repairs to concrete. Design work included:

- Rehabilitation and reconstruction of breasting circular cell dolphins and fender system. The dilapidated sheet piling was repaired using concrete encasement with hoop

reinforcement to enhance the structural integrity of the cells. The deteriorated fender steel framing and aging Raykin fenders were replaced with foam filled marine fenders which are more reliable and easily replaceable. The use of these fenders allowed significant savings to be achieved by eliminating steel framing and piling.

- Rehabilitation of Loading Platforms. A new fender system was introduced using an easy replaceable fender frame backing a foam filled marine fender. The design enhances corrosion protection of piles in the splash zone by encasing them in the frame's steel jackets. It also reduces lateral load on the existing platform structure.
- Repairs of existing concrete and steel platform structures, steel tubular and sheet piling. Work included steel sheet pile and pipe pile strengthening with welded plates and concrete encapsulation, shotcreting of soffits, deteriorated rebar replacement, crack repairs, steel beam encasement and concrete beam face repairs.

As funding allowed, AECOM continued services to update the condition survey on the docks not previously repaired and prepare/update construction documents for rehabilitation of the dry cargo dock, ro-ro dock, and the south mooring dolphin. Repairs included:

- Structural jacketing of the south mooring dolphin including doweling into the existing concrete cap where the connection had been compromised by corrosion.
- Replacement of deteriorated Raykin fenders and steel fender frames at the dry cargo dock. Raykin fenders were replaced with molded cell fenders.
- Shotcrete repairs to concrete, timber/concrete facing to steel sheet piling and cathodic protection to steel structures.

AECOM was engaged to design the additional dock rehabilitation plans. AECOM progressed on a fast-track basis to continue with the repair of the waterfront and avoiding contractor remobilization.

Cost-effective Solutions: Developed phased plan based on availability of funding

■ Haines Fuel Terminal (TERC) | Haines, Alaska

- ✓ Similar project
- ✓ Haines Borough project

The Haines Fuel Terminal (HFT) was used to off-load various fuel products from tankers, store fuel and pump fuel to Fairbanks until 1988. After decommissioning, on-site contamination was confirmed during an investigation. The Army selected AECOM (Radian) to prepare the construction plans and specifications for these activities and to provide construction oversight services during remedial action.

After planning and oversight of the excavation, we prepared the plans for a treatability study at the area of highest off-site migration of benzene. This treatability study used up and down gradient monitoring wells to test the dispersion and effect of oxygen releasing compounds (ORC®) on benzene concentrations in groundwater. Construction has been completed on both of these sites.

The Army agreed with our assessment, and then focused their resources to Tank 107, an area of known contamination with the potential for off-site migration. As a final interim solution to control off-site migration, AECOM designed, constructed and operated an HVE system in one of the most heavily contaminated sections of the terminal.

Cost-effective Solutions: Evaluation of the effectiveness of the treatability study indicated that the Army could use cleanup money more effectively by remediating areas posing greater risks to off-site receptors.

4. Past Performance on Similar Contracts

Quality of Work

AECOM has policies and procedures in place to ensure project deliverables undergo a thorough technical review prior to submittal. Review includes calculations, cost estimates and specifications.

Schedule and Budget Maintenance

The AECOM accounting system (Oracle) provides weekly budget status information. Our Project Manager provides a design schedule at the onset of design development and establishes a budget for each design phase. Every quarter we develop an Estimate-to-Complete, which is tracked against project budget. This is required project protocol by AECOM.

■ Small Boat Harbor Rehabilitation | Hydaburg, Alaska

- ✓ Similar project
- ✓ Community similar in size and character to the Haines Borough



AECOM has been providing professional services to the City of Hydaburg since 2008 for the planning, repairs, rehabilitation and development of their Boat Harbor. The Hydaburg small boat harbor is the economic center of the community, and is the only harbor on the south side of Prince of Wales Island. Storm damage and deterioration afflicted the harbor; however, funding is inadequate for total float replacement repair or to further develop this facility.

The first phase of work included a Condition and Needs Assessment, Phased Repair and Replacement Projects. This included site inspections and resulted in recommendations to secure the float system against further damage, turn off shore power to Float B and prevent moorage and pedestrian access from unsafe areas.

Continuing efforts included support of the City staff to develop future harbor plans and assistance to secure funding. Efforts included establishment of moorage demands for the sizes of slips in the harbor based on current fishing permits and demand and the needs of target groups such as charter fishing boats and transient cruisers.

Costs for the proposed development were used to develop funding requests. As funding was achieved, AECOM prepared the design plans, specifications and estimates; obtained construction permits and administered the advertisement and bidding of the Construction Contract with direction from the City.

Quality/Schedule/Cost Performance: The project had very few construction issues and associated Change Orders. The result was the budgeted contingencies were not needed and the City was able to install a skiff ramp as part of the project.

■ AIDEA Ketchikan Shipyard Inspection and Maintenance Program | Ketchikan, Alaska

- ✓ Similar project
- ✓ Community similar in size and character to the Haines Borough

AIDEA, in their financial agreement with Vigor Industries, is required to provide a comprehensive condition assessment, maintenance program and cost estimate of maintenance of the facilities. This project included all building conditions, site conditions, marine infrastructure (including the sheet lining and pile piles), site utilities and surfaces, mechanical and electrical and AIDEA supplied equipment. AECOM provided site inspections, recommendations and estimates to maintain the life cycle of the equipment.

Quality/Schedule/Cost Performance: By tracking expenditures, we were able to adjust the scope to meet the remaining budget as the project developed to best meet the needs of the client/owner and user/operator.

References

1. Karl Reiche, Projects Development Manager, AEA/AIDEA, 907.771.3017
2. Kirk Miller, AMHS Design Engineer Chief, ADOT&PF, 907.465.1215
3. Jason Jessup, Capital Projects Manager, City of Kotzebue, 907.442.5204
4. Anne Bailey, Project Manager, Aleutians East Borough, 907. 274.7580
5. Mark Taylor, Director of Operations, White Pass & Yukon Route. 907.983.9800

5. Experience Working with Communities Similar in Size and Character to the Haines Borough

In Alaska, many small waterfront communities rely on waterfront facilities to sustain the economy of the area. Often, these small communities have limited financial resources and must rely on funding grants or investment from users/operators. Multiple Interest groups have varying concerns and needs.

We have worked with our clients to “package” projects into phases to accommodate funding, allow project growth, facilitate constructability and provide for future expansion.

Two recent examples include Kotzebue’s Swan Lake Boat Harbor and Akutan Small Boat Harbor. The Swan Lake project was broken into two phases to allow for construction based on available funds, and construction elements that best fit the communities’ needs and budget. This project’s Phase 2 is currently under construction and schedule to be complete in October 2016 on schedule and on budget. The Akutan project concept was a full build out of docks; however, due to limited funding the project scope was reduced. Several alternatives were developed based on use and cost. This project was bid with the low bid under the estimated cost and is substantially completed as of August 2016.

■ Swan Lake Boat Harbor | Kotzebue, Alaska

- ✓ Similar project
- ✓ Community similar in size and character to the Haines Borough



AECOM is providing planning, design, engineering and construction management services to the City of Kotzebue for the development of the Swan Lake Small Boat Harbor. The Harbor was designed for the arctic environment and includes removable mooring floats with approximately 350 slips for small boats, an upland parking area, concrete boat launch ramp, sheet pile loading facility, new navigation lighting and light around the upland area and slope protection around the basin.

The first phase of the project involved dredging the lake to an elevation of -8’, importing fill to build an

upland parking area, installing guardrail traffic control, concrete boat launch ramp and shore stabilization and protection around the lake. It was constructed during the winter months utilizing an ice dam to excavate in the dry, and installing water-filled coffer dams to complete the slope construction during the spring.

The design of the second phase of the project is under construction. This phase includes the installation of the chain anchored mooring floats, a load-out area and development of a recreation/swim area to redirect non-boaters from the docks and launch ramp. The floats are designed to be removed during the winter. This phase also includes a lighting system around the upland area and connection to existing power systems.

■ Akutan Small Boat Harbor | Akutan, Alaska

- ✓ Similar project
- ✓ Community similar in size and character to the Haines Borough



The project included the planning, preliminary design, development of bid documents and construction administration for the small boat harbor construction of floating docks, piling, gangway and access approach platform and the safety equipment.

The contract was developed as a performance specification for timber floats to be designed for double-berthed side-tie moorage of vessels ranging in length from 50 to 165 feet. Floats are equipped with chaseways and other provisions for future potable water, fire suppression and metered electrical service.

■ AECOM Projects in other Alaska Communities

AECOM has worked in similar communities throughout Alaska. The map on Figure 5 - AECOM Waterfront and Riverine Project Locations identifies some of the communities where we have provided professional services related to marine and riverine projects.

Conclusion

We have assembled a team of highly qualified individuals for the Lutak Dock Design and Development Concepts project. Our Anchorage maritime staff has extensive experience with similar projects; and our specialty staff professionals are experts who will provide support to our Anchorage engineers.

We will develop alternatives which:

- 1) Maintain the Current Operations
- 2) Identify Cost Saving Alternatives
- 3) Determine the Best Values
- 4) Provide for the needs of potential users

We see this not only as an opportunity to reestablish our relationship with the Haines Borough, but as an exciting challenge for which we can utilize our comprehensive expertise to develop a cost effective path forward.

We would be extremely pleased to provide our services to support the Borough on this project.

Thank you for considering AECOM.

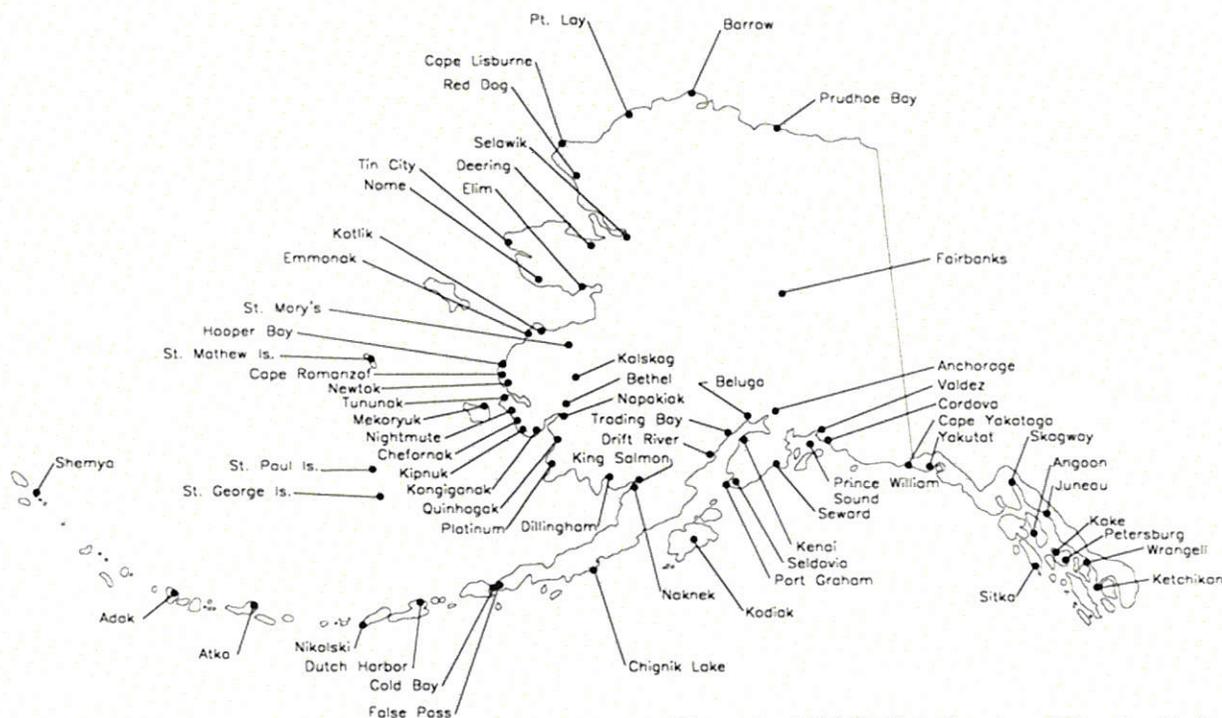


Figure 5 - AECOM Waterfront and Riverine Project Locations

Appendix A – Resumes

Craig Freas, PE

Principal-In-Charge, Civil Engineer

Education

B.S., 1969, Civil Engineering,
Pennsylvania State University

Licenses/Registrations

Professional Engineer, 1975, Alaska
(3873)
Professional Engineer, 2014, Alaska,
(Structural), (SE14269)

Years of Experience

With AECOM	20
With Other Firms	25

Professional Associations

American Concrete Institute, Member

Mr. Freas has more than 47 years of diversified engineering experience involving industrial complexes and other heavy civil works. His specialty is foundations and structures, remote construction and facilities subjected to extreme environmental conditions – wind, waves, currents, ice. Mr. Freas is responsible for management of heavy civil and marine projects with individual projects valued in excess of \$350 million.

Experience

Improvements to Lutak Dock, Haines, AK, Project Manager. Project Manager for design of repairs and upgrades to a cellular sheet pile wharf. Work included geotechnical and geophysical investigations, underwater inspection, topographic and bathymetric surveys and design. Improvements included dredging of 13,000 cubic yards of material, installation of new fenders, repair of severally corroded closure arcs, installation of a passive cathodic protection system, grading and surfacing of the marshalling yard and modifications to an existing RO-RO ramp.

Confidential Client, Straight of Canso, Nova Scotia, Project Manager. The scope of work includes rock excavation and fill to create a 16 acre uplands laydown area, dredging (including rock), wharf 133m x 18m x 30m (h), asphalt paving, stormwater collection and treatment, shore protection and associated appurtenances. The wharf is constructed of multiple, precast concrete caissons that are wet-towed to the site, sunk and ballasted with rock. The caissons are designed to support heavy loads from self-propelled module transporters (SPMTs), and point loads from heavy industrial components. Loads will be transferred onto the wharf dynamically from barges using SPMTs or from vessels using onboard cranes. The design involved detailed analysis of the load transfer processes and the resulting soil-structure interaction, overturning forces and global stability.

Confidential LNG Project, British Columbia, Canada, Project Manager. Project Manager for multi-office team supporting a major international engineering and construction company for design of marine structures as part of a \$15B LNG project. The services included geotechnical, coastal and structural engineering for the materials offloading facility (MOF), a temporary construction jetty and linkspan to offload construction equipment and personnel, and an LNG Jetty. The MOF will be used to offload about 150 modules up to about 6,000 tonnes each. The site is remote, subject to large tidal fluctuations (over 6 meters), inaccessible by road and with no uplands laydown or support areas. Soft marine deposits over relatively shallow steeply sloping bedrock resulted in challenges for pile foundation designs. The estimated cost of the marine structures is \$350M.

Alaska Marine Highway System (AMHS) Ward Cove Master Plan, Ketchikan, AK, Project Manager. Project Manager for a preparation of a Master Plan to replace AMHS's South Perth facility on Tongass Avenue with a facility at Ward Cove. The complex includes the AMHS administrative headquarters, warehouse space, an overflow ferry terminal and layup berths for two ferries. In addition, the plan called for sharing the site with NOAA, including berths for two of its vessels. The Ward Cove property is the site of a pulp mill that operated in Ketchikan for over 40s but which when it ceased operations, became a Super Fund site.

Ketchikan Shipyard Expansion Phase II, Ketchikan, AK, Project Manager. Managed all AECOM work on the \$150M Ketchikan Shipyard Expansion program since 2003. The plan involves major utility upgrades, construction of two large (250-ftx100-ft by 100 ft high) repair and assembly halls, steel fabrication shops, machine and electrical shops, administrative offices and employee spaces. The Ketchikan Shipyard is owned by the Alaska Industrial Development and Export Authority, a state agency, and operated by Alaska Ship and Drydock, a private company. Accordingly, the expansion program represents a public-private partnership. In addition to identifying needed tooling and equipment, the master plan included sections on shipyard management and employee training systems.

Ketchikan Shipyard Expansion Phase I 2500-Ton Land-Level Transfer System, Ketchikan, AK, Project Manager. Project Manager for design transfer system to move vessels between the water and shore for repair and new construction. The work involved a concept study, field investigations, permitting, design and construction administration. The improvements include dredging 55,000 cubic yards of material, construction of sheet pile bulkheads, major utility relocations, a 2500-ton ship lift (floating dry dock), grounding grid, and a large, heavy duty onshore slab with a post-tensioned, precast-concrete rail system to support cradles upon which to roll vessels on and off the ship lift. The ship lift was constructed in China and required overseas surveillance of the fabrication and outfitting; all construction documentation was maintained electronically. The work was accomplished on a congested site within an operating shipyard. The cost of improvements for this federally funded project, including the dry dock, is about \$25M. A \$40M ship assembly hall and production center is currently under construction with future improvements valued at \$75M.

Skagway Ore Terminal Master Plan, Skagway, AK, Project Manager. Project Manager for Redevelopment Plan for an existing ore terminal at Skagway, AK owned by the Alaska Industrial Development and Export Authority. The terminal is a transshipment point for mines in the Yukon Territory. It is a congested site, with a marine berth that competes with cruise ship vessels during the summer tourist season. Mineral concentrates are trucked to Skagway in 50 tonne loads, where they are placed in a storage shed and then conveyed to and loaded on ships.

Waterfront Improvements, Nome, AK, Project Manager. Project Manager for design of 1600 lineal feet of sheet pile bulkheads in the Nome harbor. The work was prepared for the US Army Corps of Engineers under a multi-year term contract. The design was a replacement for one prepared by the USACE with the objective of cost reduction and improved constructability. Two designs were prepared, one for the east side of the harbor which involved a tied-back wall and the other for the south harbor which used a combination of alternating pipe piles and Z-shapes (comb-wall); the east wall did not require tie-backs. These walls replaced existing sheet pile bulkheads built in the 1950s and timber bulkheads which dated back to the Gold Rush near the turn of the century.

Cook Inlet Ferry, Upper Cook Inlet, AK, Project Manager. Project Manager for design of two ferry terminals, one at Point Mackenzie on the west side of Knik Arm and the other near Ship Creek on the east side of Knik Arm. These terminals are to serve a year-around ferry service between downtown Anchorage and the Matanuska-Susitna Borough. The terminals involve 160-foot long linkspans (hinged ramps) that must accommodate a tidal range of over 40 feet. In addition to the linkspans, the terminals include mooring and breasting dolphins, the synchronized winch systems for the linkspans, access trestles, shore power connections for the ferry, terminal buildings, access roads and associated utilities. Work included concept studies, field investigations, permitting assistance and design. The estimated construction cost is about \$30-million, including the Port Mackenzie terminal building which has been completed. The balance of the facilities are under design.

Preliminary Design, Kachemak Bay Multi-Purpose Ocean Dock, Homer, AK, Principal-in-Charge. Principal-in-Charge and Project Manager for preliminary design of a dock to serve the US Coast Guard buoy tender, Alaska Marine Highway System ocean-going ferries, cruise ships and fuel barges. Work included evaluation of on-shore infrastructure, vehicular access and associated support facilities. Need for project was based upon replacement of an existing timber dock. Solution had to maintain existing ship traffic during construction. The estimated cost of the facility was \$10.5M.

Elizabeth Greer, PE

Project Manager, Civil Engineering

Education

M.S. 1992, Civil Engineering,
Structures Option, California
State University, Long Beach
B.S. 1987, Civil Engineering,
California State University, Long
Beach

Licenses/Registrations

Civil Engineer:
Alaska, No. 13351
California, No. C46635
Washington, No. 49076

Structural Engineer:
Alaska, No. 13350
California, No. 3932
Illinois, No. 081-005596
Washington, No. 49076

Security: Transportation Worker
Identification Credential
(TWIC®)

FHWA-NHI Certified Bridge
Inspector

Years of Experience

With AECOM 4+

With Other Firms 25

Professional Associations

American Society of Civil
Engineers
American Concrete Institute
Women's Transportation Seminar

Areas of Expertise

Project Management
Marine Engineering
Structural Design
Project Management
Transportation Engineering

Elizabeth Greer's experience includes over 25 years on transportation and waterfront projects. Her expertise is in design and management of civil works projects. She has been responsible for all aspects of project development including: planning, design, preparation of construction plans, specifications, and cost estimating (PS&E); and construction management. She has worked both in design management, and on construction sites. Ms. Greer has served as the client representative on several large program management teams and has been responsible for development of Basis of Design/Criteria documents for transportation and Port development projects. She has served as a team member evaluator on Value Engineering workshops.

Ms. Greer is experienced with the latest applicable design codes including PIANC recommendations, US Navy (NAVFAC) and Uniform Facilities Code (UFC) design procedures, ASSHTO, and ASCE 7. A structural engineer by technical training, she has been directly responsible for the analysis of waterfront facilities using non-linear performance based analysis methods.

Experience

Ward Cove Alaska Marine Highway System Feasibility

Planning/Dredging and Demolition, Ketchikan, Alaska. Project Manager. The AMHS developed a feasibility plan for a new ferry terminal and homeport facility. The Ward Cove marine terminal will serve as an overflow terminal for the ferry system, as well as the winter "hotel" ferry housing for non-seasonal personal. The project includes a floating dock and marine facilities for AMHS ships, a pile supported timber approach bridge designed for HS20 loading, uplands terminal vehicle check-in and staging areas, ferry terminal ticketing, offices for the AMHS & NOAA staff, and a "slip" elevated off-ramp and intersection at a new highway entrance. Prepared demolition plans for existing in water facilities including a marginal wharf and dolphins. The work is currently progressing into preliminary design.

City of Kotzebue, Swan Lake Small Boat Harbor, Kotzebue, Alaska.

Project Manager. Design and construction of the lake dredging and reconstructed Boat Harbor. Construction was completed utilizing an innovated ice dam during cold months and a water-filled cofferdam to allow excavation in the dry conditions to achieve the dredge profiles. It includes pile supported mooring floats, a load-out area, and a lighting system. The floats are designed to be removed during the winter. The project is currently under construction.

Alyeska (APSC) Marine Terminal Berth 1, Valdez, Alaska. Project

Manager. Developed alternatives for the decommissioned Marine Oil Terminal berth and prepared Bid documents. Analysis included options for removal, resale, demolition and sinking. Factors for assessment included cost, risk and feasibility. Demolition is pending.

Akutan Boat Harbor, Akutan, Alaska. Project Manager. Project involved development and administration of a Design-Build contract of a harbor facility for a commercial fishing harbor. Special challenges included managing

diverse public and stakeholder interests towards a preferred harbor layout, and developing a remote geotechnical survey to address both hard driving and liquefaction-susceptible soils. Due to limited budget, several alternatives were developed to best meet the project goals within the available funds

Prince Rupert Port Authority, Fairview Container Terminal Phase 1, Prince Rupert, British Columbia Deputy Program Manager. Program management of a new marine to rail intermodal container terminal with 500,000 TEUs capacity per year. The project included complete demolition and reconstruction of an existing dry bulk facility including all site utilities, infrastructure, and pavement. The new facility included maintenance and administration buildings, a precast concrete wharf structure supported by large diameter steel piles socked into hard material, and 5km of transmission line to power the site. As DPM, Ms. Greer was responsible for management of the five prime contractors including project scope compliance and contract negotiations. She was directly responsible for coordination with the City and utilities, regulatory agencies to assure permit compliance and the Canadian National Railway (CN) for mainline rail realignment.

AIDEA, Skagway Ore Terminal Master Plan, Port of Skagway, Alaska. Project Engineer. The Project identified potential tenants, operational improvements and a terminal development plan to accommodate approximately 1.2 million tons of ore a year of various ore exports through Skagway. She was responsible for development of the transportation options (truck/rail) and preliminary design of the waterfront facilities, including berthing and mooring structures. The Terminal Development Plan includes: increased storage capacity to meet potential user demand; layout and sequence of construction of the expanded facility including types and locations of ship loaders, docks based on likely vessel requirements, concentrate storage requirements; and potential environmental impacts and mitigation measures. This plan also incorporates truck (transportation options) traffic, marine traffic, and harbor depth.

Middle Harbor Development, Pier E, Port of Long Beach, California, Assistant Project Manager / Project Structural Engineer. The new container wharf replaced an outdated wharf and bulkhead. The project was designed for three stage construction as the terminal fully develops. Responsibilities included coordination of the design team, development of plans and specifications, and administration of the design team through construction support for the demolition and construction of a pile supported wharf. The project design developed a new pile pattern to avoid the demolished facilities and account to hard driving condition on the south end of the facility.

City of Hydaburg, Boat Harbor Float Replacement; Hydaburg, Alaska. Project Manager for the Construction Management of the new boat harbor. Responsibilities included ensuring Contractor construction Contract compliance, administration and analysis of change orders, coordination with the future construction.

THUMS Islands Vehicle Barge Ramp Rehabilitations, Long Beach, California. Project Manager and Structural Designer for the rehabilitation of the barge landing facilities on the THUMS oil islands and shore facilities. The two shore ramps and island landings facilities provide the sole vehicle access to the four island facilities. Project included inspection and rehabilitation design of waterfront access to extend life for 50 years.

Sea-Launch USA, Navy Mole, Long Beach, California, Project Manager. The project involved rehabilitation of a former Navy pier in with repairs and replacement of several deteriorated elements of the pier including the approach bridge and portions the concrete deck, and the addition of a new fendering system.

Khalifa Port and Industrial Zone (KPIZ) Abu Dhabi Container Terminal, UAE, Project Engineer. Design of a 2.0M TEU Port Container Terminal. Provided the planning and design for this facility. The project includes a 3.7km wharf, mooring and berthing systems for post Panamax vessels, and associated terminal facilities.

Port Hueneme South Terminal Rehabilitation |Oxnard, California, Project Manager. The Project involved rehabilitation design and construction management of South Terminal, Berth 1 as well as inspection of the entire Port's operating terminal wharves. The rehabilitation included repairs to the concrete wharf structure, bulkhead, pile jacketing, and replacement of a damaged section of the wharf.

Alameda Corridor Consolidated Transportation Corridor Project, Los Angeles, California. Member of the *Program Management Team* for over seven years on a \$2 billion corridor dedicated to rail traffic traveling between the Ports of Los Angeles/ Long Beach and inland cities. Ms. Greer provided planning, engineering design and management. She assisted in the development of Project Standards and Procedures, and associated Performance Specifications for the Design Build portion of the project. She then served as the *South End Area Manager* where she was directly responsible for the delivery of projects with the south third of the Corridor. She directed and coordinated the activities of design consultants and ACTA's engineering, right-of-way, utilities, environmental; as well as ACTA field construction management staff and construction Contractor management.

Matt Jensen Young

Port Planning

Education

Diploma in Terminal Management
National Sea Training Centre,
University of Greenwich

Diploma in Nautical Science
Australian Maritime College, 1988-
1991

Training, Registrations, & Certifications

Project Management APMT
Certification, Project Management
Institute (PMI), 2007
Master Mariner, Australian Certificate
of Competency Unlimited Tonnage,
Endorsement for Square-Rigged
Sailing Vessels
APM Terminals Management and
Leadership Program MAGNUM
Black Belt, Lean Six Sigma, George
Group / Accenture Consulting
(APMT Cert.)
Management Coaching Techniques,
The Coaching Company

Years of Experience

With AECOM	1.5
With Other Firms	26

Professional Associations

Institute Chartered Shipbrokers (ICS)

Mr. Jensen Young is a shipping, container terminal & project management professional with 26+ years of experience on both sides of the quay including 13 years ashore and 13 years as Merchant Marine Deck Officer.

Matt has held a Master's Certificate of Competency (Unlimited Tonnage) and has attained extensive seagoing experience on all types of vessels including container, bulk, general cargo, LNG tankers, square-riggers and passenger vessels. Matt has 'Command Navigation' and vessel maneuvering experience during his seagoing career, most recently in his position as Staff Captain of an Expedition Cruise vessel navigating remote locations including polar latitudes north and south.

Matt has a broad background in the Americas, Europe, Africa, Middle East, Australia and Asia having worked on 7 container terminals on 5 continents in challenging international environments and cultural contexts and has gathered extensive operational management, project management & operational excellence (continuous improvement) experience. Matt displays a wide range of expertise in terminal and general management, port operations, stevedoring and various forms of project management. He is recognized as a strong leader and efficient communicator, with a history of minimizing costs, driving organizational efficiencies and steering high-caliber teams to deliver world-class service. Matt's diversity of experience contributes to his ability to serve AECOM and their clients at multiple levels, through multiple dimensions and disciplines. Culturally and context sensitive, he has experience collaborating and interfacing with owners, customers, port authorities, government agencies, contractors, terminal operators, transportation advisors and the private and public investment community. Matt's vast and relevant experience on sea and land, from qualified Master Mariner, to project leader, through senior terminal leadership to board chairmanship can be seen below.

AECOM Project Experience

Shoreham Deep Water Port Feasibility Study. Execution of a Feasibility Study for a competitive and self-sustaining deep water port on Long Island at the site of the abandoned nuclear power plant in Shoreham, Long Island. The Final Feasibility Study Report will form the basis for the subsequent phases of concept through final design.

Strategic Master Plan for the Diamond State Port Corporation. AECOM was engaged to develop a Port Master Plan to serve as the primary document to guide the DSPC to its desired pattern of growth and development. The Master Plan identified and incorporated the changing business trends and adjustments of the maritime port industry over the next five years and include ten and twenty-year projections and plans that were integrated into the Master Plan.

Port Newark Container Terminal Phase 2 Expansion & Optional Work. Port Newark Container Terminal (PNCT) facility was an operating straddle-carrier terminal which sought to expand the existing terminal and provide modern facilities and improved functionality to increase the capacity and productivity of the cargo handling operations. The Phase 2 Expansion project when completed will increase the terminal capacity from 850,000 to 1.4 million vessels lifts per year and included the design of a state-of-the-art gate facility.

AECOM was subsequently awarded optional tasks including the Phase 3 expansion project and the Marsh St. off-dock expansion project. Matt served in a dual role as Operations Expert and Deputy Project Manager and assisted in the management of the project and the development of the terminal's Conceptual designs through to Intermediate Design submission.

Port of Virginia South Norfolk International Terminal Optimization Project. Port of Virginia's Optimization Project involved the conversion of container terminal operations from straddle carrier to automatic stacking cranes (ASC) operations, with resulting impacts to the terminal layout at the South Norfolk International Terminal (SNIT). AECOM was tasked to provide peer review comments to 60% Design documents and 95% Design documents. As Task Lead for Port Planning Design Peer Review Team recommendations for design improvements for terminal efficiencies were provided including 'AutoTURN' analysis for truck turns.

USAID Haiti - A&E Services and QC for Cap-Haitien Port Urgent Works. AECOM was tasked to provide such engineering oversight during the investigation, design, and construction in accordance with the technical direction given from USAID Office of Infrastructure, Energy and Environment (USAID/OIEE). Matt performed various technical specification reviews for a variety of USAID's bids including marine port and terminal CCTV systems, Automatic Identification System (AIS) for Vessel Traffic System (VTS) and a marine pilot launch. The project scope was subsequently increased to conduct a tug requirements analysis for the port.

Peirce Island WWTF Upgrade Project. The City of Portsmouth required the incorporation of several bid alternates into the project for construction of the WWTF Upgrade on Peirce Island. The alternates involved requiring the Construction Contractor to use barges to deliver some or all construction materials to the site, and remove demolition debris and excess excavated materials from the site. Due to the added complexity of the logistical chain, subject matter expertise was sought on nautical and logistical issues.

Atlantic City Dredging Project. The City of Atlantic City (CoAC) required investigation into the dredging requirements needed for a cruise terminal at the mouth of the Absecon Inlet. As PM for this project, Matt sought channel alternatives that were the most advantageous to the CoAC by incorporating the USACE funded channel works and proposed cross section cuts and estimated quantities to be removed.

Terminal Industry and Shipping Experience

Panama Ports Company (PPC), Port of Balboa. Operations Manager (Interim Consultancy). Oversaw all operations within PPC Port of Balboa encompassing a 3M TEU container terminal transshipment facility, local cargo and general cargo activities. Managed operating budget in excess of \$370M.

Terminal Investment Limited (TiL), Bergen op Zoom, The Netherlands. Operations Manager (Terminal Director). Managed financial welfare of container terminal companies within TiL's terminal portfolio and guided/monitored business affairs of each entity; personal terminal portfolio contained both operating terminals and brown and greenfield projects on various continents. Served as chairman of the Board of Europe's largest straddle carrier terminal. Acted as shareholder's representative on the Board of Directors for each terminal.

Orion Expeditions, Sea Going, Australia, Asia & Antarctic. Staff Captain / Chief Officer. Served as second in command of an expedition cruise vessel operating in remote, wilderness destinations.

APM Terminals Rotterdam, Rotterdam, The Netherlands. General Manager Business Processes. Orchestrated implementations of Lean Six Sigma and PMI Project Management methodologies.

LCMT / APM Terminals, Laem Chabang, Thailand. Project Operations Manager. Led operational design, construction and implementation of a new \$51M joint venture multi-purpose marine terminal services company in Laem Chabang, Thailand. Developed and managed operational, IT and superstructure project budgets to support strategic plan. Maintained close collaboration with project's civil engineer to incorporate functional requirements with technical specifications throughout the construction phase.

Pam Craig, PE

Geotechnical Engineer

Education

MS, Civil and Environmental Engineering, University of Washington
BS, Environmental Engineering, University of Florida
BA, Engineering Sciences and Certificate in Environmental Studies, Dartmouth College

Licenses/Registrations

Professional Civil Engineer/Alaska/#11127

WSDOT Certified Erosion and Sedimentation Control Lead (CESCL 5170611)

Years of Experience

With AECOM	3
With Other Firms	12

Professional Associations

Member of American Society of Civil Engineers, Geotechnical Group, Seattle Chapter

Ms. Craig is a geotechnical engineer with 18 years of experience in geotechnical, civil and environmental engineering investigations, analysis and design, and construction management, monitoring and oversight. In addition to the specific experience presented below, Ms. Craig has worked on several other land improvement and development projects in Alaska, Washington and Oregon.

Experience

Matanuska-Susitna Borough, Port MacKenzie Deep Draft Dock, AK.

Monitored installation of the steel displacement pipe piles supporting the steel access trestle and dock (22,000 square-foot with a moorage length of 1,200 feet) for consistency with geotechnical recommendations.

Shell Puget Sound Refinery, Micropile Design and Installation

Monitoring, Anacortes, WA. Designed micropiles to support the additional weight of a proposed new vessel located in a limited overhead area. Provided geotechnical construction services associated with installation and testing of the micropiles. The scope included monitoring the verification test on a non-production pile, the installation of 8 production piles to ensure concurrence with plans, specifications and industry standards, and the proof testing of the production piles.

Glacier Ridge Properties, Matanuska River Revetment, Palmer, AK.

Design of an approximate 1000-foot long riprap revetment for river erosion control of a bluff below the River Bend subdivision development. The structure was buried into the bluff and the bluff was regraded and vegetated.

Alaska Department of Transportation and Public Facilities, Iliamna Regional Transportation Corridor Analysis, Anchorage, AK.

Performed geological and hydrologic assessments for areas in the Iliamna region to assist in the comparison of alternative transportation corridors being considered for development.

Swan Lake Harbor Facility Improvements, Kotzebue, AK. Provided guidance on pile design and performance analysis for new boat harbor upgrade.

Phillips Petroleum Co., Kuparuk River Ice Breakup and Bridge

Monitoring, North Slope Borough, AK. Monitored the performance of submersible bridges crossing two river channels in the 2-mile wide Kuparuk River flood plain during ice breakup. The ice was up to 5-feet thick and the bridges' sheet pile abutments were subject to scouring and undercutting. Performed aerial reconnaissance of the river several miles

upstream of the bridge to identify possible impacts to infrastructure downstream. The bridges are heavily monitored because they are critical to the transport of supplies to the oil fields.

Alyeska Pipeline Service Company, Strategic Reconfiguration Project – Trans-Alaska Pipeline, Anchorage, AK. Worked with oil spill response experts, personnel and vendors to develop cost effective resource preparedness and deployment options for potential oil spills along the Trans-Alaska Pipeline corridor. Developed spill scenarios and modeled deployment and travel times.

Alyeska Pipeline Service Company, Right-of-Way Assessment, Fairbanks, AK. Participated in the most extensive linewise right-of-way (ROW) assessment to-date for identifying and prioritizing desired maintenance for workpads, access roads, low water crossings, appurtenances, pipeline river crossings, etc. Developed the 2002–2003 scope of work and standards for linewise maintenance of appurtenances. Monitored the construction of river erosion control structures. Trained to manage and oversee pipeline and ROW maintenance activities and lead oil spill response.

Alyeska Pipeline Service Company, Facility Engineering – Pump Station 3 Asset, North Slope, AK. Served as point of contact for engineering projects performed in the Pump Station (PS) 3 area. Developed engineering packages for projects including fuel gas line (FGL) reburial, wastewater system upgrades, workpad expansions and low water crossings. Project, Field, and Design Engineer for the reburial of several miles of FGL along the Dalton Highway for two construction seasons. Contributed significantly to a complex conceptual study for an upgrade to a unique stack injection wastewater system to increase capacity at two remote arctic locations. Worked directly with managers, regulatory agencies, consultants, drafters, surveyors, inspectors and implementers. Identified and brought to closure several non-conformances involving transportation and environmental regulations.

Walgreens Store, Geotechnical and Limited Phase II Environmental Study, Anchorage, AK. Directed geotechnical investigation for new 14,000 square foot retail building to be supported by shallow footings on dense sand over stiff Bootlegger Clay. Prepared report with recommendations for allowable soil bearing pressures, estimated settlements of footings and slab, appropriate lateral earth pressures for resisting lateral loads on foundation elements, and subgrade preparation requirements during construction.

ConocoPhillips LNG Plant, Aeration Pond Leak Detection and Liner Design, Kenai, AK. Designed and monitored construction of a leak detection system and liner as an upgrade to an existing unlined aeration pond.

Timber Manufacturing Plant Upgrade, Roseburg Forest Products, Coquille, OR. Provided planning and evaluation of explorations and foundation improvements design and construction at a timber products manufacturing facility commercial uses. Evaluated required depth of embedment of steel pipe foundation piles, prepared pile driving requirements and performed field monitoring of the pile installation process.

Westlake/Mercer Development Site Cleanup, Seattle, Washington, Confidential Client . Assisted with design and installation monitoring of shoring and barrier systems for excavation support, dewatering control, and subsequent fill placement at a contaminated soil excavation site at a major intersection where commercial building development is planned. Project included construction scheduling, traffic control, structural shoring support system design, permitting and construction support.

Seattle Cancer Care Patient Alliance Housing/Fred Hutchinson Cancer Research Center, Seattle, WA. Monitored the foundation excavation process and the installation of the shoring system, including installation of soldier pile walls, installation and testing of tieback anchors, and installation and backfilling of lagging. Reviewed survey data and monitored crack gages to assess whether deformation of the shoring system and surrounding ground was within reasonable limits. Monitored the installation of drainage systems including drains associated with the shoring walls and the perimeter footings. Monitored the excavation and preparation of footing subgrades to ensure that the design allowable bearing pressures could be achieved. Provided guidance on the need to over-excavate and replace unsuitable soils or to place controlled density fill for footing support. Reviewed results of compacted fill density testing. Prepared daily field reports and provided consultation and assistance to the design team.

WSDOT, Interstate-90 Snoqualmie Pass East – Hyak to Keechelus Dam, Kittitas County, WA. Performed onshore and offshore subsurface investigation, including Rock Quality Designation (RQD) logging, for the Slide Curve Bridge and retaining wall design.

H. Donald Laford, PE, CCM

Constructability

Education

M.S., 1967, Engineering Management, Rensselaer Polytechnic Institute
B.S., 1957, Mechanical Engineering, Rensselaer Polytechnic Institute

Licenses/Registrations

Professional Engineer, Washington, 1983, 0023413; New York, 1964, PE 039023;

Years of Experience

With AECOM 24
With Other Firms 26+

Training and Certifications

Certified Construction Manager, June 15, 1996/Certification Number 950016
AHERA Certifications Inspector Underground Storage Tank Supervisor, Alaska, 1994
40-hour health and safety training for work at hazardous waste sites, 1994/2014

Areas of Expertise

Project and Construction Management
Maritime and Transportation Projects

Mr. Laford has more than 55 years of experience, including numerous public and private marina and harbor facilities. Before joining AECOM he served in a broad range of positions, from Field Engineer to General Superintendent of construction. He is a skilled Manager of both large and small construction and engineering projects, including design/build facilities contracts and private/public partnerships. Mr. Laford is proficient in the use of the latest planning, scheduling, cost control, and budgeting techniques. He has performed constructability reviews for multiple projects resulting in cost savings and improved project long term efficiency for the Client. He developed and managed a successful corporate quality control (QC) program.

Experience

Dock Outfitting Project, Kitsap Transit, Bremerton WA, Construction Manager (CM). Construction Manager for developing an existing concrete floating dock into a new passenger only ferry facility for Kitsap Transit. The project includes new fender assemblies for three ferry berths, gangways, guardrails and ramps for passenger loading/unloading. Also included is a 5,200 gal diesel fuel tank, associated double wall piping with leak detection. Potable water and sewage disposal is provided for the vessels. Power is extended to new power pedestals for the vessels and lighting. Mr. Laford provided constructability reviews, developed the bid package, chaired the bidding/award (\$1.6M) and managed construction for the client.

Port of Bremerton Marina Expansion, Bremerton, Washington, Construction Manager. Served as CM for this \$27 million Marina expansion which featured a 1,400 linear foot floating concrete breakwater (each section 800 Tons) to protect the marina from ferry traffic wakes and installed 284 new concrete docks/slips with pedestals for power, water telephone TV, and lighting. Other features included fire protection, pump-out stations, and a security system. The project was completed on time, within the \$27.4 million budget and on schedule, phased using three contracts. The project received a CMAA project of the year (2007) award.

Port Orchard Intermodal Terminal, Washington, Owner's Representative. The construction of this facility was performed on a fast-track basis to beat the fish closure window. Mr. Laford worked with the Owner to find ways to expedite construction schedule and managed/coordinated the work to a successful completion. The floating concrete dock was built in a graving facility, and the ADA accessible platforms for passenger access were installed prior to launch and tow to the site. The 133 feet long gangway was shop fabricated, painted and moved to the site by barge and set using the pile driving rig. The \$2.7 million was completed in record time.

Surry Power Plant; Surry County, Virginia, Resident Engineer. Responsible to install a barge unloading facility at the power plant site on the James River. The project included the installation of a 500 foot long tied back sheet pile bulkhead with concrete anchors. The 1000 foot long access channel was hydraulic dredged with materials deposited upland. A special barge rake access feature installed. The facility was used to successfully off load 2 reactor vessels (600 Tons) and 6 steam generators (300 Tons/ea.) from shipping barges.

Elizabeth Appleby

Public Involvement, Risk Assessment, Plan Development

Education

Master of Urban and Regional Planning,
2014, Concentration in Environmental
Planning, University of Minnesota
B.S., 2007, Biological Aspects of
Conservation, Undergraduate Certificate
in Environmental Studies, University of
Wisconsin, Madison

Years of Experience

With AECOM 3
With Other Firms 2

Professional Associations

American Planning Association
Alaska Association of Environmental
Professionals

Presentations

Using the Disaster Resilience Scorecard to
Support Community Preparedness and
Resilience, Alaska Forum on the
Environment, Feb. 2016

Areas of Expertise

Stakeholder Engagement
Comment Analysis
Logistics
Hazard Mitigation Planning
Community Planning
National Environmental Policy Act (NEPA)
Compliance
Recreation Resources
Ecology, Biology, Limnology, Geology,
Sustainability studies

Ms. Appleby's work with AECOM includes public outreach, logistics, community planning, and evaluation of social resources for National Environmental Policy Act (NEPA) documents. She has served as deputy manager and deputy task lead for projects. Ms. Appleby has led focus groups, coordinated logistics and publicity for meetings, and summarized public comments. Ms. Appleby wrote hazard mitigation plans with the communities of Tuntutuliak and Chitina in 2015. She holds a Master's degree in planning.

Experience

Hazard Mitigation Plans. Planning. AECOM was contracted by the State Division of Homeland Security and Emergency Management to write Hazard Mitigation Plans for 11 rural Alaska communities and update plans for 10 communities. Ms. Appleby managed all aspects of the Hazard Mitigation Plans for the communities of Tuntutuliak and Chitina, including research of historical hazards, climate change considerations, community involvement, and document preparation.

Juneau Airport Sustainability Master Plan. Planning, Public Outreach, Sustainability. In progress. AECOM is preparing an airport sustainability master plan for the Juneau Airport. Ms. Appleby is assisting with stakeholder outreach, including public involvement events and strategic communication tools planning. Ms. Appleby created posters, flyers, and other advertisements for all public meetings. She is also writing the Environmental Inventory section.

Assessment of Personnel Reduction Impacts at Joint Base Elmendorf Richardson on the Municipality of Anchorage and Surrounding Region. Public Outreach, Comment Analysis. In progress. Ms. Appleby led focus groups and interviewed individuals to gather qualitative input for an economic assessment of a reduction in military forces. Ms. Appleby also organized and analyzed input received at public meetings. She developed a report summarizing all qualitative input and its applications to an economic analysis.

U.S. Bureau of Land Management (BLM) Bering Sea-Western Interior Resource Management Plan and Environmental Impact Statement (RMP/EIS). Public Outreach, Administrative Assistance, Team Coordination. In progress. AECOM is assisting the BLM in developing an RMP/EIS for a planning area in western Alaska. Ms. Appleby is developing the administrative record, summarizing internal and external comments for the RMP/EIS, and coordinating the work resource specialist authors. She is also assisting with public outreach, including a newsletter, web content, flyers, and logistics for public meetings to be held in remote communities.

Alaska Liquefied Natural Gas (LNG) Project. *Public Outreach, Comment Analysis.* In progress. AECOM is conducting stakeholder outreach for a proposed liquefied natural gas line to run from Prudhoe Bay to the Cook Inlet. Ms. Appleby serves as deputy task lead for public involvement. Her work includes preparing for meetings and analyzing stakeholder input. She provides technical review for public meeting notes and strategic process planning for the stakeholder team.

Donlin Gold Mine Environmental Impact Statement. *NEPA Social Resources, Public Outreach, Comment Analysis.* In progress. AECOM is preparing an EIS for the proposed construction of a gold mine in the Yukon-Kuskokwim region of Alaska. Ms. Appleby is deputy task lead for social resources, with a focus on recreation. She has also assisted in safety plans for travel to remote communities.

BLM Bering Sea-Western Interior Resource Management Plan and Environmental Impact Statement Preliminary Alternatives Logistics. *Public Outreach, Comment Analysis.* AECOM planned logistics and summarized a series of meetings in 14 communities mostly in western Alaska for preliminary alternatives meetings for the BLM. Ms. Appleby served as Deputy Project Manager for this project. She contributed to logistics planning, created advertising and public outreach visual tools, recorded comments at meetings, and created a report summarizing and analyzing public comments.

Unicom/GCI TERRA-Yukon Environmental Assessment. *Technical Writer.* AECOM is preparing an EA for the proposed construction of microwave repeater towers to extend broadband internet through interior Alaska. Ms. Appleby is writing the Recreation Resources section, as well as several of the introductory sections.

Susitna–Watana Hydroelectric Project. Recreation Resource Report. *Recreation Research, Stakeholder Interview Analysis.* AECOM conducted several studies for AEA in conjunction with their Federal Energy Regulatory Commission license application. Ms. Appleby was most involved with a study that analyzed recreation uses and projected demand/capacity for facilities. Ms. Appleby reviewed comprehensive plans for recreation components. She contributed to the public involvement effort through preparations and analysis of one-on-one stakeholder interviews. Ms. Appleby also conducted field work to map, classify, and assess the condition of trails and facilities.

2013 Hazard Mitigation Plans, *Hazard Research.* AECOM was contracted by the State Division of Homeland Security & Emergency Management to write Hazard Mitigation Plans for 15 rural Alaska communities. Ms. Appleby assisted in gathering historic hazard data for the plans.

Previous Experience

University of Minnesota, Humphrey School of Public Affairs, Minneapolis, MN, *Graduate Assistantship.* Ms. Appleby worked on a project connecting people, land, water, and vegetation. Ms. Appleby conducted a literature review, assessed zoning codes and ordinances pertinent to storm water and land use practices, and analyzed comprehensive plans.

Matanuska-Susitna Borough, Palmer, AK, *Environmental Planning Division Intern.* Ms. Appleby met with partner organizations and recruited citizens for a storm water management cost-share program. She created public outreach materials for low impact development projects, including web content. Ms. Appleby taught construction of rain gardens and restored shorelines through stream and lake bioengineering projects.

Care Wisconsin, Madison, WI, *Quality Improvement Coordinator, Administrative Assistant.* Ms. Appleby conducted quality assurance for healthcare services provided to Medicare and Medicaid recipients. She created tracking databases that were used company-wide, and wrote quarterly and annual reports summarizing incidents and complaints. Ms. Appleby also distributed and analyzed quality surveys.

U.S. Fish and Wildlife Service–Kodiak National Wildlife Refuge, Kodiak, AK, *Environmental Interpreter and Educator.* Ms. Appleby interpreted educational exhibits, answered visitors' questions, ran a weekly nature program for preschool children, and managed assisting volunteers. She created advertising materials and promoted the program in the community.

George Tapas, PE

Project Funding Alternatives

Education

BS, Civil Engineering, Honors, Illinois Institute of Technology, 1987

Licenses/Registrations

Professional Engineer, Illinois, #062-051702
Structural Engineer, Illinois, #081-006013

Years of Experience

With AECOM	12
With Other Firms	16

Areas of Expertise

Strategic Advisory Services; Procurement; Public-Private Partnerships; Alternative Financial Procurements; Innovative Project Delivery and Finance; Program Management; Design-Build; and Bridge & Structure Design

Mr. Tapas has over 28 years of professional engineering experience in infrastructure program and capital improvement projects. His work has included extensive experience in developing and managing large, multi-year Capital Programs; and groundbreaking work with Public-Private Partnerships (PPP), and Alternative Financial Procurements (AFP).

As the Business Line Lead, his PPP/AFP work has included actively leading work for the Owner (Government), private consortia, and work with Legislative bodies. His technical PPP/AFP work includes: analysis and development of various financial model types and structures; Funding and Financing plan development; Value for Money Analysis (VfM); Operations & Maintenance forecasting; development of Concession and Project Agreements; authoring Performance Based Design, Construction, Maintenance, Operational, and Rehabilitation Standards; Risk allocation and mitigation strategies; organizing and running complex procurement processes; and support in the development of performance measures in a Payment Mechanism structures.

Experience

PPP/AFP Procurement and Strategic Advisory Experience

Overall Procurement Lead for the Ottawa Light Rail Transit (OLRT) Project, from Tunney's Pasture to Blair Station, delivered as a Design-Build-Finance-Maintain (DBFM) Procurement (Commercial & Financial Close Reached February 12, 2013): Procurement Lead of to the consultant services team of Capital Transit Partners (CTP) to the City of Ottawa's Rail Implementation Office (RIO) for the procurement of this proposed 12.5-km east-west Light Rail Transit Project through the heart of Canada's national capital. The project will replace, enhance and extend the existing Bus Rapid Transit service corridor, and will serve over 9 million passengers annually. The project will also include 13 new stations, 2.5-km of twin tunnels (including 3 stations), and is estimated to possess a capital construction of cost of approximately \$2.1- Bn (Cdn). In overseeing and managing the procurement team, the direct responsibilities include: assisting in the preparation of delivery structure analysis, and reports to City Committees and Council; Risk analysis and mitigation modeling; inputs, analysis and development of financial model; Operations & Maintenance forecasting; development of the Project Agreement; Project Specific Output Specific Design, Construction, Maintenance, Operational, and Rehabilitation Standards; authoring the RFQ for potential respondents; creation of the RFQ Evaluation Framework; as well leading the technical and process aspects of the RFP document.

This project's whole life value is over \$5.2 Bn and represents the largest PPP/AFP in the history of Canada.

Technical Advisor to Infrastructure Ontario (IO) for the AFP Procurement of the Highway 407 East Tollroad Extension Project (Financial Close Reached in March 2012): Procurement Lead for the technical work associated with the extension of existing 407ETR from its current terminus near Brock Road eastward to Highway 35/115; and the West Durham Link (WDL) connecting the new 407 to Highway 401; all of which consist of approximately 70km of new 10 lane toll highway. Responsible for all procurement document supporting both the Request For Qualifications (RFQ), and the Request For Proposals (RFP).

Technical and Procurement Advisor to the Government Development Bank of Puerto Rico (GDB) for the Concession Lease of Toll Road PR-22 and PR-5 on behalf of the Puerto Rico Highway and Transportation Authority (PRHTA) (Financial Close Reached in May 2012): Program Manager responsible for leading the AECOM team in the procurement of a long-term lease of Toll Roads PR-22 (83 Km) and PR-5 (5 Km), which experiences over 200,000 vehicles daily. Responsibilities included authoring the Maintenance and Operating Standard Manuals, inventory of the transferred physical assets, Economic Useful Life Expectancy analysis, assistance with the Concession Agreement, environmental background research, and participation in Due Diligence presentations and tours with the potential bidders. (This Project received the 2012 Project Finance North American Deal of the Year).

Owner's Engineer for the Procurement of the Public-Private Partnership of a Concession Agreement for the LaGuardia Airport Central Terminal Building Project, for the Port Authority of New York and New Jersey, New York, New York (on-going transaction): Project Director and Overall Procurement Manager for the planned \$3.6 Bn replacement of New York LaGuardia's Central Terminal Building, its 6 concourses, all concessions, ticketing area, baggage pick-up, curb-side pick-up/drop-off, and relocation of the parking garage. Critical to this PPP Project, will be operational and mobility matters as the airport and airlines will need to maintain the current passenger flows throughout the reconstruction. Mr. Tapas is chairman the Technical Subcommittee, and also serves on the Operational, Financial and Legal Committees. This PPP is to be structured so that a Concession P3 Structure is in place, but also include a cost-sharing, annuity and payment penalty/award mechanism.

Additional PPP/AFP Procurement and Strategic Advisory Experience:

State of Texas, Department of Transportation, Texas Turnpike Authority, Procurement Engineering for the Development and Implementation of Comprehensive Development Agreements (Multiple Projects – In-Progress)

Concession Lease Sale of the Chicago Skyway Toll Bridge System for the City of Chicago (Financial Close Reached in October 2004): (This Project received the 2005 Project Finance North American Deal of the Year).

Owner's Engineer for the procurement of the Design-Build-Finance-Maintain (DBFM) PPP Transaction of the Windsor-Essex Parkway as part of the Detroit River International Crossing (DRIC) for the Ministry of Transportation (MTO), Ontario, Canada (Financial Closed Reached December 2010)

Station Concession' Lease, and Availability Structure of the PPP Program for the AMTRAK Keystone Lone, Pennsylvania Department of Transportation (On-Going)

Michigan Department of Transportation, Detroit-Metro Area Interstate Highway and Tunnel Lighting Conversion, PPP Program, (On-Going)

Prince George's County, Maryland Urban Storm-Water P3 Program (Financial Close achieved in June 2015)

Public-Private Partnership Consultant to the Senate Select Committee on Innovative Transportation Financing of the Commonwealth of Pennsylvania (Enacted as Act 88 in 2012)

