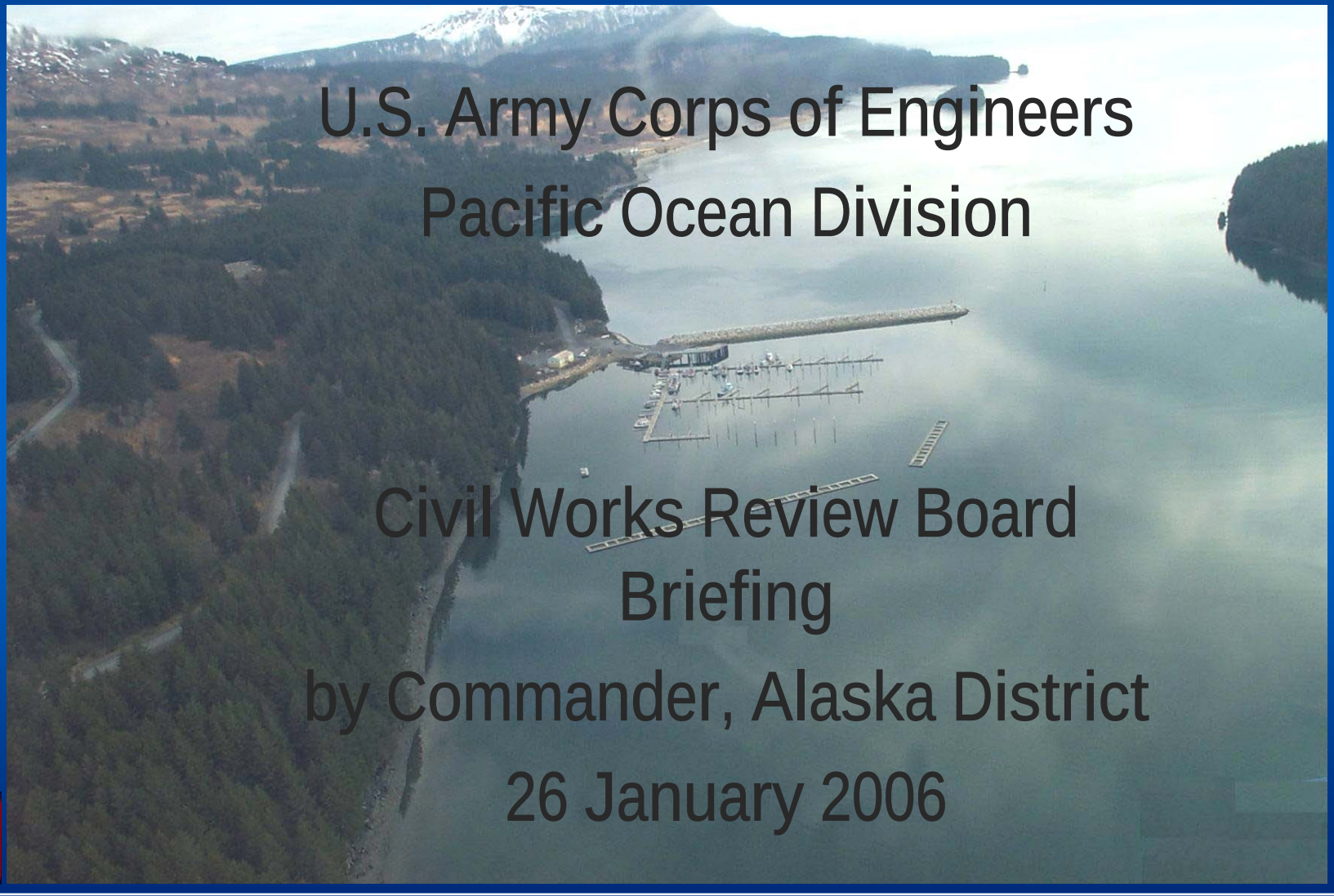


U.S. Army Corps of Engineers

Pacific Ocean Division

Civil Works Review Board Briefing

by Commander, Alaska District

26 January 2006

Briefing Agenda

- Existing Conditions
- Alternative Evaluation
- Environmental Operating Principles
- Technical and Policy Issues
- Recommended Plan

Purpose

The purpose of this briefing is to present the recommended plan for the Port Lions Feasibility Study

Corps Coastal Navigation Projects in Alaska

- No roads connect communities West of Anchorage
- Harbors vital to life in remote Alaska
- Alcan Highway - Only land link with Lower 48

Roads in Alaska

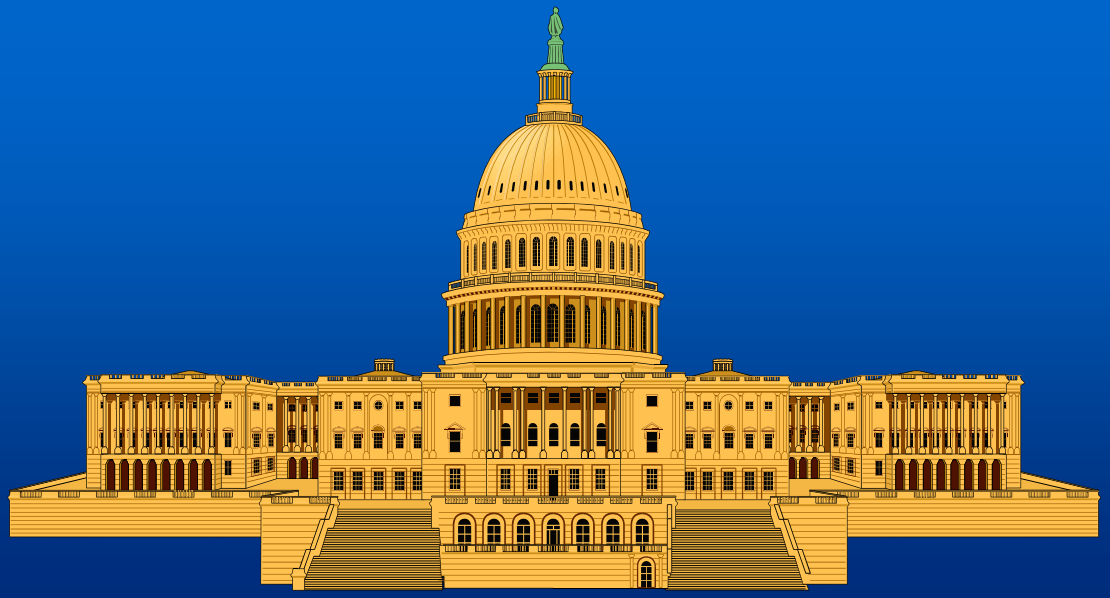
Port Lions

- Accessible only by air and water
- Population less than 300
- Commercial, subsistence, and charter fishing drive the local economy
- Harbor is the lifeline of the community

Legislative Authority

Study Resolution,
U.S. House of Representatives
Committee on Public Works
adopted 2 December 1970.

- “Rivers and Harbors in Alaska” Resolution
- Provides study authority throughout Alaska



Project Delivery Team

Federal Sponsor - Alaska District

- Julie Anderson - Project Manager
- Patrick Fitzgerald – Project Formulator
- Lizette Boyer – Environmental Specialist
- Larry Bartlett – Environmental Specialist
- Alan Jefferies – Hydraulic Engineer
- Ken Boire (consultant) – Economist
- Al Arruda – Cost Engineer
- Chuck Wilson – Geotechnical Engineer
- Karen Pontius – Realty Specialist
- Greg Vanagel – Office of Counsel

Non-Federal Sponsor - Alaska Department of Transportation and Public Facilities

- Ruth Carter – Acting State Harbor Engineer
- Harvey Smith – State Coastal Engineer

Partnering Agencies and Community Interests

Partnering Agencies

- U.S. Fish and Wildlife Service
- Alaska Dept. of Environmental Conservation
- Alaska Dept. of Natural Resources
- Alaska Dept. of Natural Resources, Habitat Division

Community of Port Lions

- Marvin Bartleson, Sr. – Mayor
- Port Lions Tribal Council
- Port Lions City Council

Existing Conditions

Lack of adequate wave protection at existing harbor has resulted in the following problems:

- Year-round use of the basin reduced from about 124 to 35 vessels
- Damages to commercial and subsistence fishing vessels
- Damages to moorage system
- Increased emergency cost to tend vessels during storm events
- Shortage of regional moorage resulting in lost income
- Reduced subsistence harvesting opportunities
- Increased search and rescue operations

Existing Conditions (cont'd)

Year-round moorage reduced from about 124 to 35 vessels

Area of usable year-round moorage

Area of unusable year-round moorage

Existing Conditions (cont'd)

Moorage floats damaged by excessive wave climate

Damaged segment of moorage float washed ashore

Existing Conditions (cont'd)

Many mooring floats damaged by waves and removed from basin (note piles but no floats)

Formulation Objectives

- Reduce wave damages
- Maintain nearshore fish passage
- Protect eel grass beds
- Maintain Settler Cove water circulation

Alternatives Considered

No Action

- Do nothing

Non-structural

- Remove vessels from water
- Seek shelter in other harbors

Structural

- Floating breakwaters
- Rubblemound breakwaters

Alternatives Considered (cont'd)

No Action

- Vessels and mooring system damages continue
- Year round use of basin will continue to be significantly reduced
- Over-crowding continues to cause increased operating and maintenance costs
- Vessels must travel to alternate harbors outside the region

No Action alternative eliminated from further consideration

Alternatives Considered (cont'd)

Non-structural

- Remove vessels from water
  - Dry storage can damage vessels and is expensive
  - No developable upland for boat storage exists near the harbor
  - Vessels not readily available for use
- Seek shelter in other harbors
  - Other regional harbors overcrowded with long wait lists
  - Cost of travel is high
  - Vessels not readily available for use

Non-structural alternatives eliminated from further consideration

Alternatives Considered (cont'd)

Structural

- Floating breakwaters
  - Preferred with regard to marine habitat
  - Suited for the smaller southwest waves
  - Inadequate against ocean waves from the northeast

- Rubblemound breakwaters
  - Adequate for larger northeast waves
  - Expect to be more cost-effective than a floating breakwater for protection from the southwest waves given the shallow water depths

Combination of structural measures would address navigation problems at Port Lions

Alternative Evaluation

Initial Alternatives

- 8 Alternatives
- Alternatives used combinations of floating and rubblemound breakwaters
- Evaluation based on preliminary designs and cost estimates
- Top 3 alternatives selected for further detailed evaluation

Final Array of Alternatives

Alternative 1A

- **700-foot rubblemound breakwater**
- **732-foot floating breakwater**
- **Extend existing main and stub breakwaters**
- **Repair/replace float system**

Alternative 1B

- **700-foot rubblemound breakwater**
- **860-foot rubblemound breakwater**
- **Extend existing main and stub breakwaters**
- **Repair/replace float system**

Alternative 3B

- **1,360-foot rubblemound breakwater**
- **Extend existing main and stub breakwaters**
- **Repair/replace float system**

NED Plan Selection

Item	Alt. 1A ($)	Alt. 1B ($)	**Alt. 3B ($)**
Project Cost	10,050,000	9,885,000	**9,831,000**
Interest During Construction	262,000	258,000	**257,000**
NED Investment Cost	10,312,000	10,143,000	**10,088,000**
Annual NED Cost	598,000	588,000	**585,000**
Annual OMRRR	35,000	25,000	**25,000**
Total Annual NED Cost	633,000	613,000	**610,000**
Annual Benefits	884,000	884,000	**884,000**
Annual Net Benefits	251,000	271,000	**274,000**
Benefits to Cost Ratio	1.4	1.4	**1.5**

Alternative 3B selected as NED Plan

NED Plan Selection (cont'd)

Alternative 3B selected as NED Plan

- Maximized net NED benefits
- Minimized project footprint
- Minimized adverse impacts to eel grass beds
- Minimized disruption to water circulation patterns

NED Plan ultimately carried forward as Recommended Plan

Mitigation

Key environmental factors designed into NED Plan

- Maintain existing nearshore gap
- Provide nearshore gap for the new breakwater
- Round corners of breakwater to provide adequate water circulation within harbor
- Configure breakwater alignment to minimize disruption of water circulation within Settler Cove

Additional mitigation

- Construction windows to avoid salmon migration
- Isolate in-water construction as necessary to minimize turbidity
- Harbor signage on safe operating practices (sponsor)
- Stationary light shields to reduce bird strikes (sponsor)
- Harbor Management Plan (sponsor)

Public Involvement Process

Public meeting May 2002

Teleconference with Port Lions City Council December 2003

Public meeting April 2004

Collaboration

Examples of project collaboration

Nearshore Gaps

- Alaska Dept. of Transportation
- U.S. Fish and Wildlife Service
- Alaska Dept. of Natural Resources, Habitat Division

Settler Cove Water Circulation

- Alaska Dept. of Transportation
- U.S. Fish and Wildlife Service
- Community interests, local fishers, and harbor users

Harbor Water Quality

- Alaska Dept. of Environmental Conservation
- Alaska Dept. of Transportation
- U.S. Fish and Wildlife Service
- Community interests, local fishers, and harbor users

Environmental Operating Principles

1. **Environmental Sustainability**
   - Self-flushing harbor – ensures adequate water quality
   - Breakwater design – minimal O&M

2. **Interdependence of life and the physical environment**
   - Minimized impacts to the marine environment
     - Avoided eel grass beds
     - Provided nearshore gaps for fish passage

3. **Seek balance and synergy between human and natural systems**
   - Coordinated alternative development with the community members, harbor users, and state and federal agencies

Environmental Operating Principles

4. **Continue to accept corporate responsibility and accountability**
   - Addressed agency and public concerns
   - Identified and mitigated all project impacts

5. **Assess and mitigate cumulative impacts to environment**
   - Project designed to minimize impacts
     - Minimize project footprint
   - Unavoidable impacts fully mitigated
   - Construction windows to avoid salmon migration
   - Isolate in-water construction as necessary to minimize turbidity

Environmental Operating Principles (cont'd)

6. **Build and share knowledge**
   - Multi-partner effort to obtain study information to arrive at a recommended plan
   - Utilized local knowledge of wind and wave conditions
   - Utilized local and regional knowledge of vessel practices

7. **Respect the views of individuals and groups**
   - Listened to and incorporated views of others through public and team meetings

Independent Technical Review

ITR Conducted January - March 2005

ITR Certification April 1, 2005

ITR Issues and Resolution

- All comments resolved through discussion or further clarification within the report
- No significant revisions or analyses required to resolve comments

Policy Compliance

Alternative Formulation Briefing May 25, 2005

Policy Issues and Resolution

- No significant revisions or analyses required to resolve comments
- Multiplier for Donated Labor - Recognized that some aspects of volunteer labor may be valid for determination of benefits. However, a standard evaluation procedure has not been developed. Report revised to include only actual expenses for the harbormaster and city employees that can be avoided in the with-project condition.

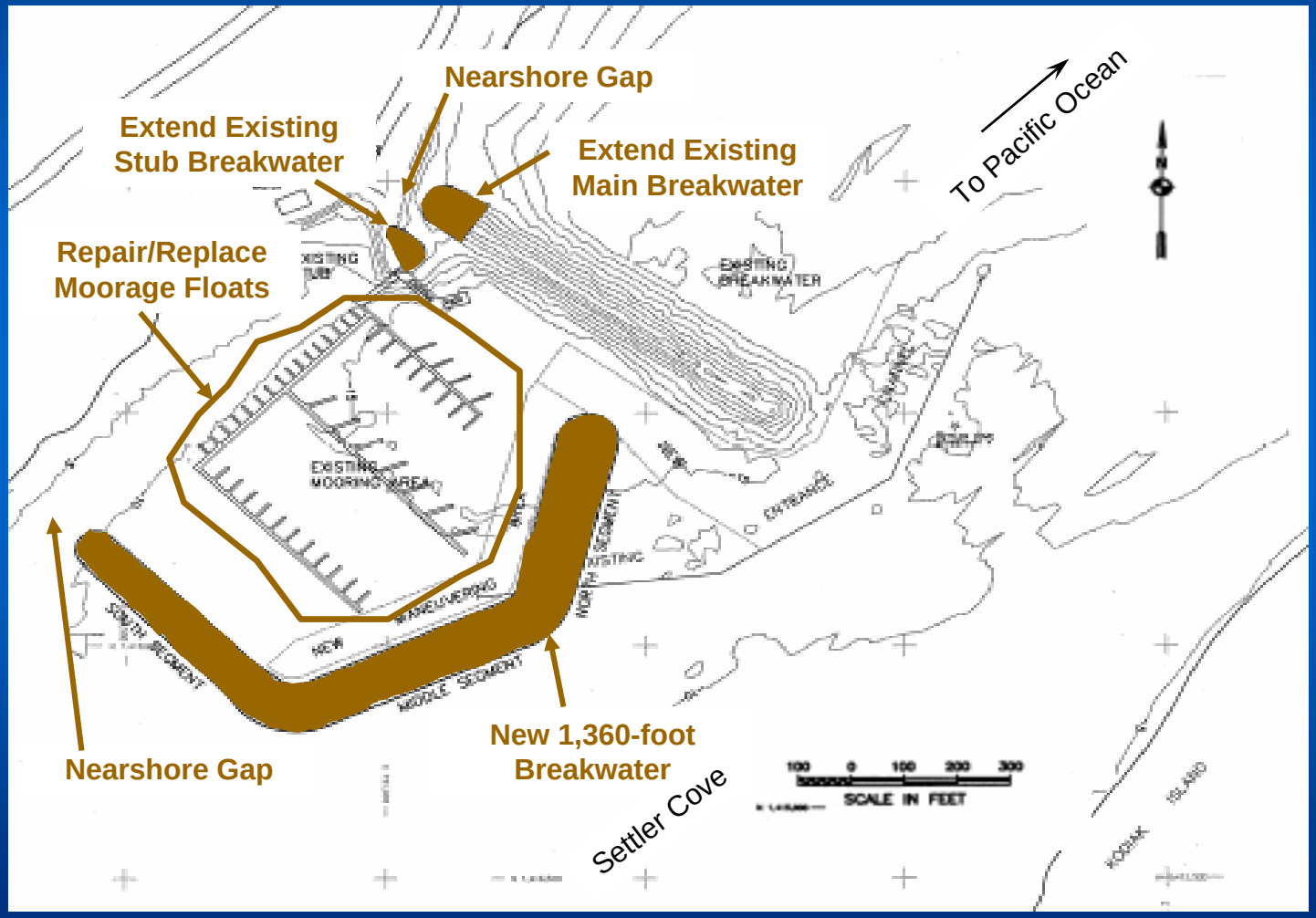
Policy Compliance (cont'd)

Policy Issues and Resolution – New HQ comments Jan 2006

- CWCCIS – Ensure use of latest cost indices
- MCACES narrative – Provide cost estimate narrative

Revisions to report will be addressed in a February 2006 addendum

Recommended Plan



General Navigation Features (GNF)

Item	Cost ($000)
Mobilization & Demobilization	946
Breakwaters	6,552
Preconstruction, Engineering, & Design	597
Construction Management	697
LERR(GNF) - Administrative Cost	1
TOTAL GNF	$ 8,793

Non-Cost Shared Items

Item	Cost ($000)
Aids To Navigation (Federal)	10
Local Service Facilities	
Floats (Non-Federal)	1,038

Total First Cost: $9,841,000

Item	Total ($000)	Federal ($000)	Non-Federal ($000)
General Navigation Features	8,793	7,914	879
Aids to Navigation	10	10	0
Local Service Facilities:	1,038	0	1,038
LERR Credit	0	0	0
Additional Funding Requirements:		(879)	879
GNF LERR Credit		0	0
Total	$9,841	$ 7,044	$ 2,797

Investment Costs:

General Navigation Features	8,793,000
Local Service Facilities	1,038,000
LERR	0
Interest During Construction	257,000
Total Investment Cost	$10,088,000

Annual Costs:

Interest and Amortization	585,000
Amortized OMRR&R	25,000

Total Average Annual Cost $ 610,000

Annual NED Benefits $884,000

Primary benefits from additional wave protection at Port Lions:

- Reduced harbor damages
- Reduced vessel damages
- Reduced harvest cost
- Reduced local emergency cost
- Reduced water taxi service

Other direct benefits include

- Increased subsistence opportunities
- Harbor of refuge
- Reduced search and rescue

Total Project First Costs	$9,841,000
Average Annual Benefits	$ 884,000
Average Annual Costs	$ 610,000
Benefit-Cost Ratio	1.5

(Price Level = October 2004; Discount Rate = 5 3/8%)

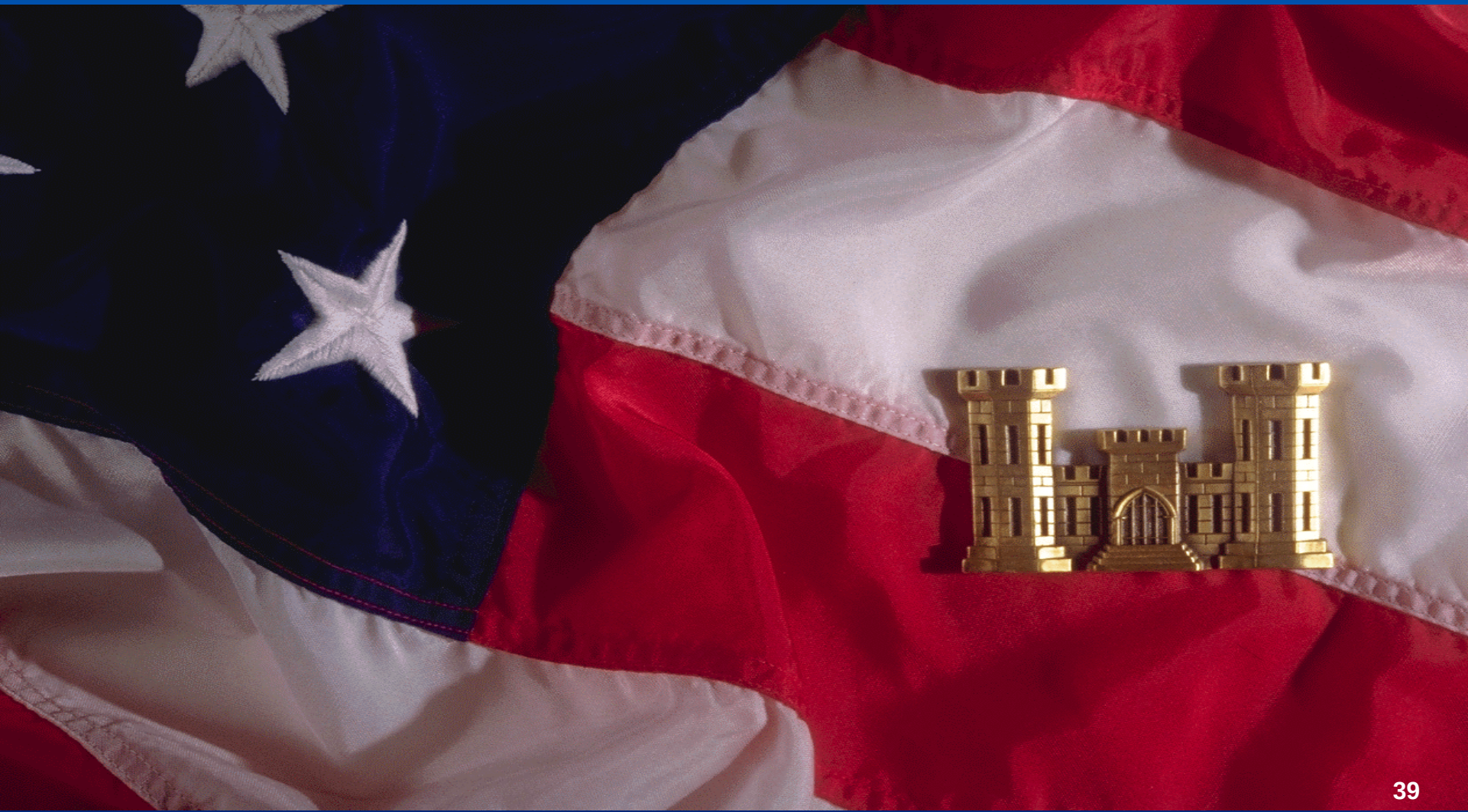
Navigation Improvements
Port Lions, Alaska

Project Sponsor Presentation to the Civil Works Review Board

By Ruth Carter, PE
Alaska Department of Transportation and Public Facilities

- The State of Alaska, Department of Transportation & Public Facilities strongly supports completion of the Port Lions Navigation Improvements project. This is evidenced in the departments budget and priority listings.
- Currently the state owns and maintains the harbor, which is operated by the local community. The floats within Port Lions harbor have sustained severe damage due to the lack of adequate wave protection. The state is committed to repairing these inner harbor facilities once the wave protection identified in this study is built.
- The department has worked cooperatively with the Alaska District Corps and City of Port Lions to select the preferred Alternative 3B from eight initial layouts.

Questions?



Civil Works Review Board

MSC Commander's Briefing

Port Lions, Alaska Navigation Improvements Final Feasibility Report & EA

COL(P) John W. Peabody
Commander, Pacific Ocean Division
Represented by
COL Raymond K. Scrocco
Acting Commander, Pacific Ocean Division

26 January 2006

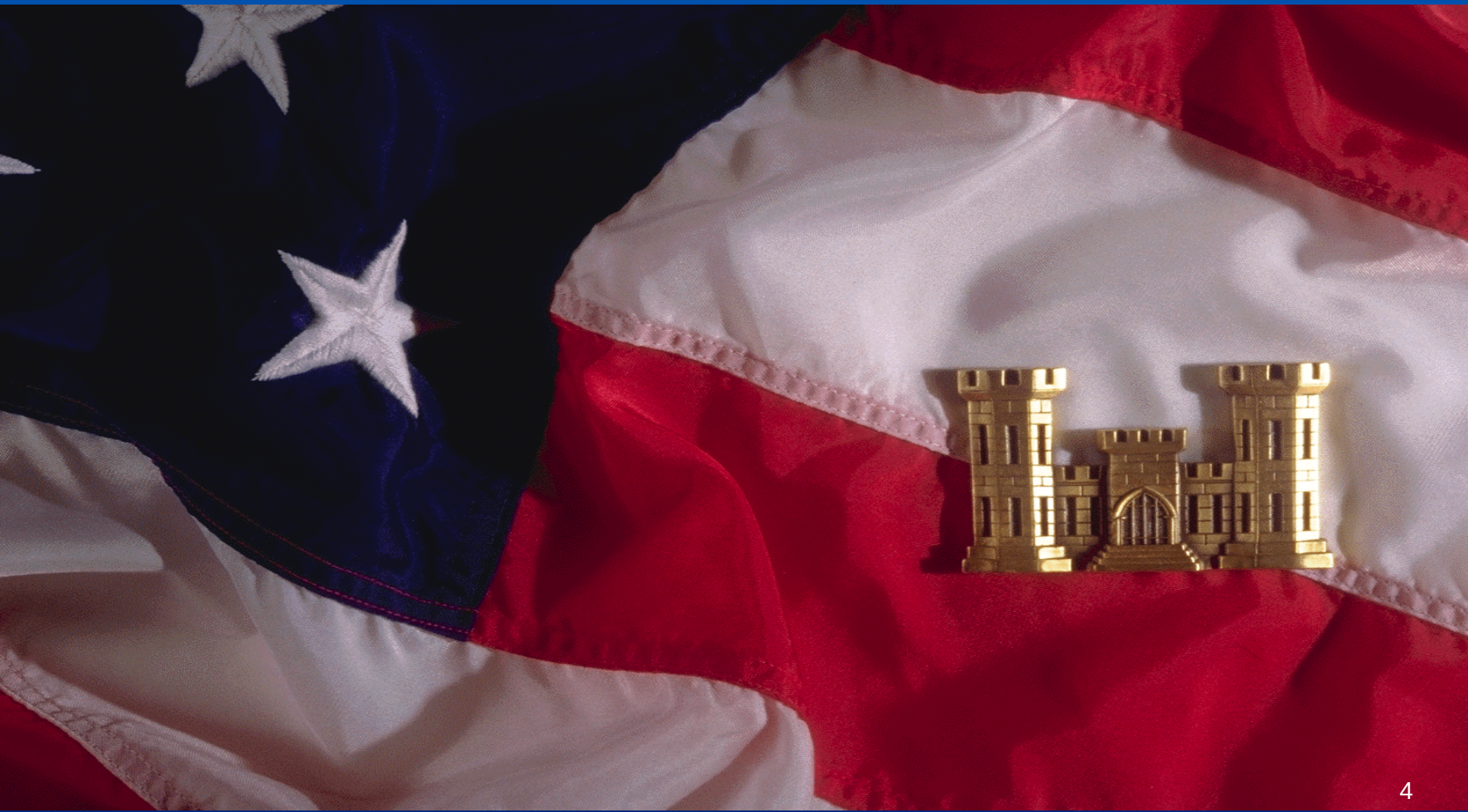
Quality Assurance

- Participated in milestone meeting during report development and coordinated with RIT
- Confirmed proper certification: ITR, Legal, Policy Compliance
- Determined that public, key partners, and stakeholder input considered

Pacific Ocean Division Position

- Concur with Alaska Engineer District Commander's findings and recommendations
- Confirmed that report complies with applicable laws and policies
- Meets CW Strategic Plan goal of balanced solution to water resource need
- Positive response to draft Report of Chief of Engineers expected
- Recommend approval of the report for State and Agency Review

Questions?



Civil Works Review Board

Significant Policy Review Concerns

Port Lions, Alaska
Navigation Improvements
Final Feasibility Report & EA

Robert McIntyre
Office of Water Project Review
Policy and Policy Compliance Division

Washington, DC – January 26, 2006

Port Lions, Alaska, Navigation Improvements

Areas of Policy Concern:

- Moorage Capacity Limits
- Multiplier for Donated Labor
- Associated Costs - Expansion Berths
- Incremental Justification - Plan Features
- Outdated Inflation Factors
- MCACES Cost Display

Moorage Capacity Limits

Concern: AFB materials did not show a detailed layout of docked boats after breakwater construction. From AFB material not apparent how 124 fishing vessels could fit into basin.

Reason: Guidance for CW projects requires accurate presentation of project features in order to determine benefits, and overall justification

Resolution: District revised the report to include a float layout for the 124 fishing vessels.

Resolution Impact: Concern resolved

Multiplier Donated Labor

Concern: AFB materials included 3,000 hours of donated labor at $14 per hour plus a 2.5 fringe benefit factor for benefits of $114, 500. No procedure for using donated labor as a benefit. No administrative or fringe benefit savings since there is no payroll.

Reason: A standard evaluation procedure for evaluation of volunteer labor has not been developed. Highly questionable NED benefit category.

Resolution: Draft and final report have been revised to include only actual expenses in preventing storm damages to existing dock and moored fleet.

Resolution Impact: Concern resolved

Associated Costs - Expansion Berths

Concern: The AFB materials pointed out that 100 berths were built but only 35 vessels can safely use the current moorage. Have the associated float costs of 124 expansion berths been included in the analysis?

Resolution: The district verified that the costs of the float expansion were included in the project.

Resolution Impact: Concern resolved

Incremental Justification - Plan Features

Concern: AFB materials did not show incremental justification for the new breakwater and two breakwater extensions to the existing project.

Reason: Incremental justification is required for all plan features.

Resolution: District explained that plan features were determined by design criteria for a safe harbor. While the various breakwaters are physically separable, they are not functionally separable. All are needed to attain the benefits, therefore incremental justification of each element is not warranted.

Resolution Impact: Concern resolved

Outdated Inflation Factors

Concern: The final report Total Project Cost Summary stated that the Civil Works Construction Cost Index System (CWCCIS) dated 27 Mar 98, was used for the calculation of the Fully Funded Estimate. The project costs could be understated due to the application of outdated inflation factors.

Reason: The latest CWCCIS dated 31 March 2004 should be used to update unit prices and project cost features.

Resolution: The Total Project Cost Summary should be revised and corrected base on the latest CWCCIS.

Resolution Impact: Concern to be resolved by revisions to final report

MCACES Cost Display

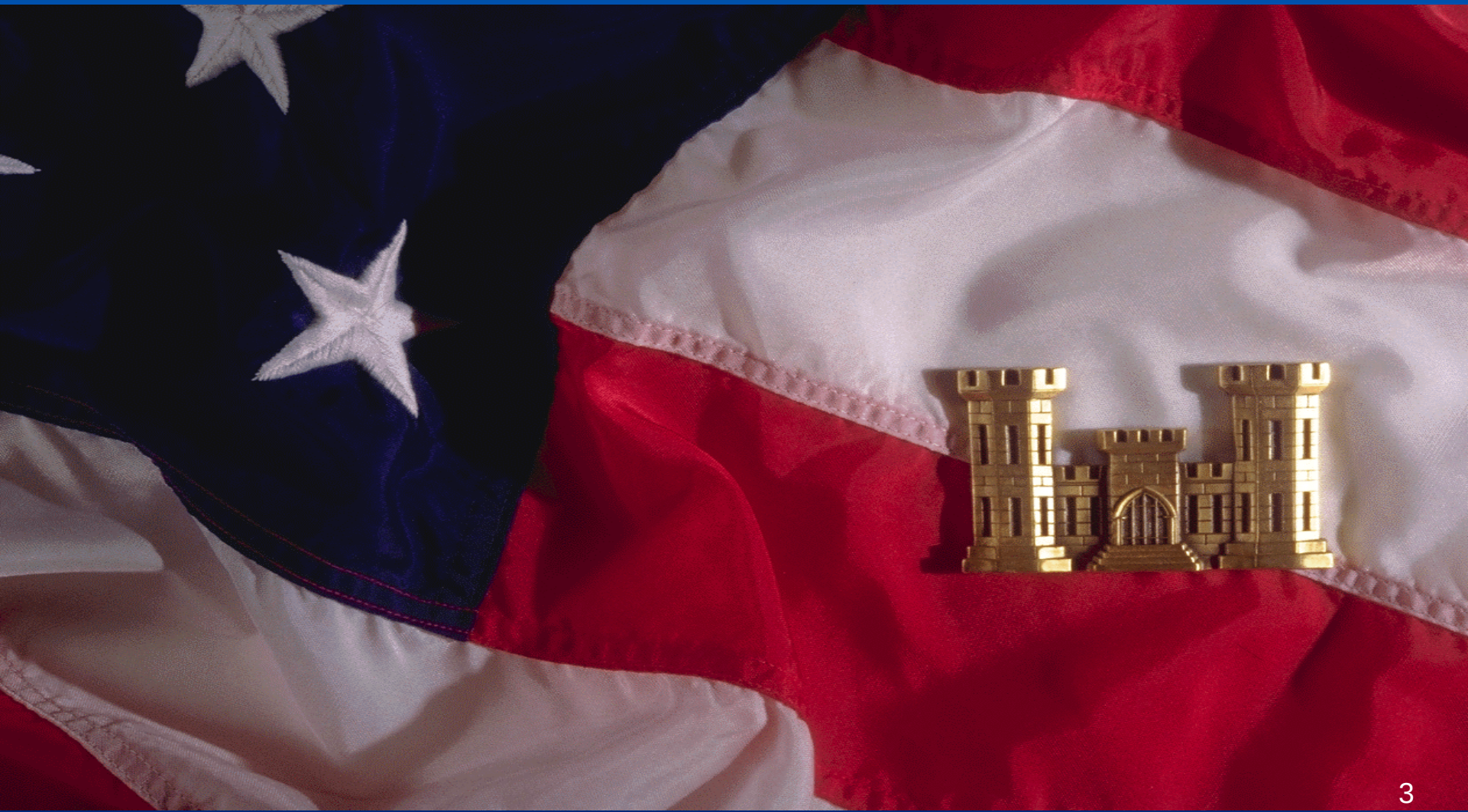
Concern: The final report MCACES estimate did not include a narrative to support the development of costs, assumptions, construction duration, and contingency development.

Reason: Without a narrative the reviewer has difficulty understanding the basis and assumptions used in the development of the estimate. Also, the narrative provides the district with a historical basis as the project proceeds and would bring it into conformance with ER 1110-2-1302.

Resolution: The cost development narrative should be included in the final report MCACES estimate.

Resolution Impact: Concern to be resolved by revisions to final report

HQUSACE Policy Compliance Review Team RECOMMENDATION

Release the report and EA for S&A Review

Questions?