

**02/04/14**  
**OVERVIEW:**  
**ALASKA**  
**MARINE**  
**HIGHWAY**  
**SYSTEM**

<TARGET><BILL></BILL><SUBJECT>02-04-14 OVERVIEW ALASKA  
MARINE HIGHWAY  
SYSTEM</SUBJECT><COMM>HTRA28</COMM></TARGET>



# **Alaska Department of Transportation & Public Facilities**

## **AMHS Overview**

**House Transportation Committee**

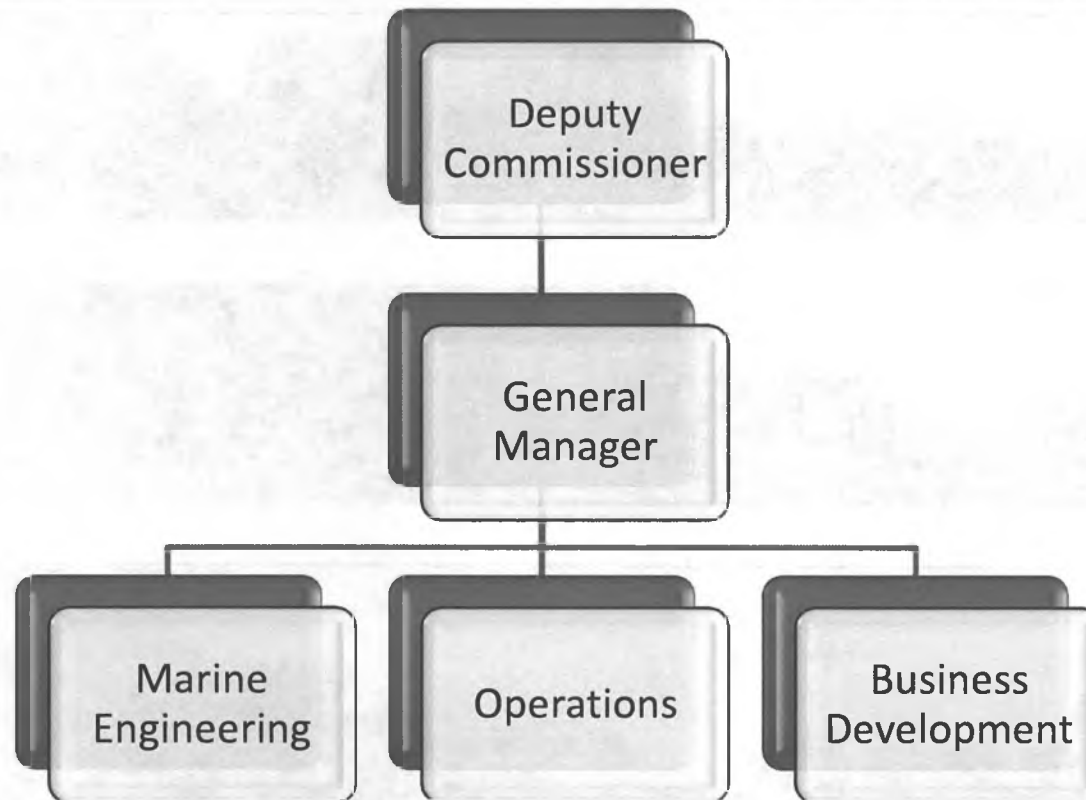
February 4, 2014



# Topics

- **System Background Data**
- **Fiscal Year 2014 Look Forward**
- **Fiscal Year 2015 Governor's Requested Budget**

# Organization/Leadership



1,030 Personnel

- Vessel Operations - 852
- Shore-side Facilities (Terminals) - 87
- Marine Engineering - 24
- Reservations & Marketing - 23
- Administration - 44

# Fleet Composition

## Mainliners

MV Malaspina - 1963

MV Taku - 1963

MV Matanuska - 1963

MV Tustumena - 1964

MV Columbia - 1974

MV Kennicott - 1998



## Aurora Class

MV LeConte - 1974

MV Aurora - 1977



## Shuttle Ferries

FVF Fairweather - 2004

MV Lituya - 2004

FVF Chenega - 2005





## Terminal Composition

- 35 ports of call ranging from Bellingham as the southern terminus, Valdez as the northern terminus, and Dutch Harbor as the western terminus.
  - 17 in Southeast Alaska, Canada, and Washington and 18 in Southcentral and Southwest Alaska
- Of the 35 ports of call:
  - 17 State owned facilities (12 manned / 5 unmanned)
  - 4 leased facilities (Bellingham, Prince Rupert, Seldovia and Kodiak)
  - 14 privately owned operating under a terminal use agreement
- Life extending capital projects managed by Southeast Region of DOT&PF
- Annual maintenance managed by AMHS

# Route Summary



## Alaska Marine Highway

Service Route:	3,500 miles
Passengers:	340,000
Vehicles:	115,000

## BC Ferries

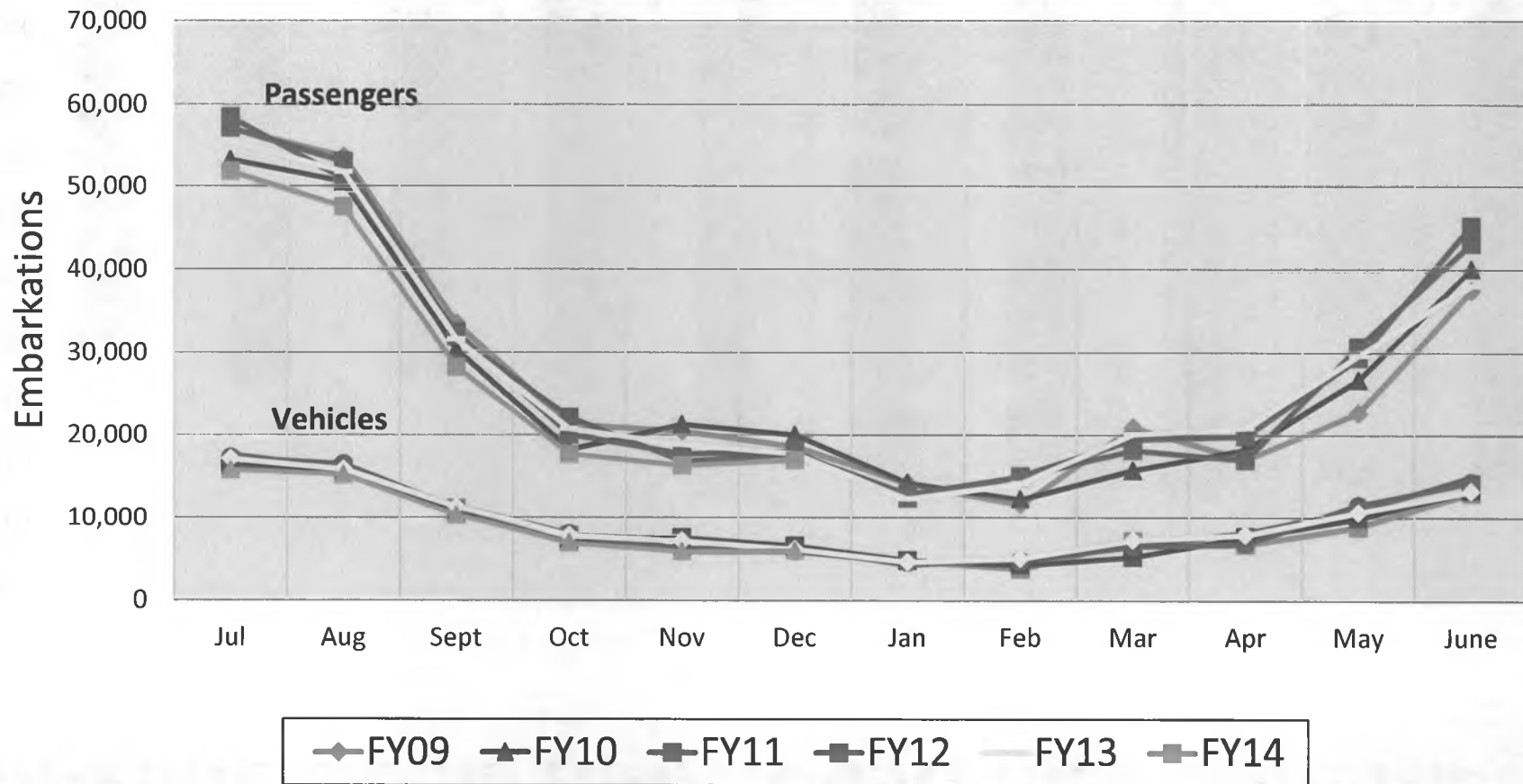
Service Route:	755 miles
Passengers:	13,000,000
Vehicles:	8,000,000

## Washington State Ferry

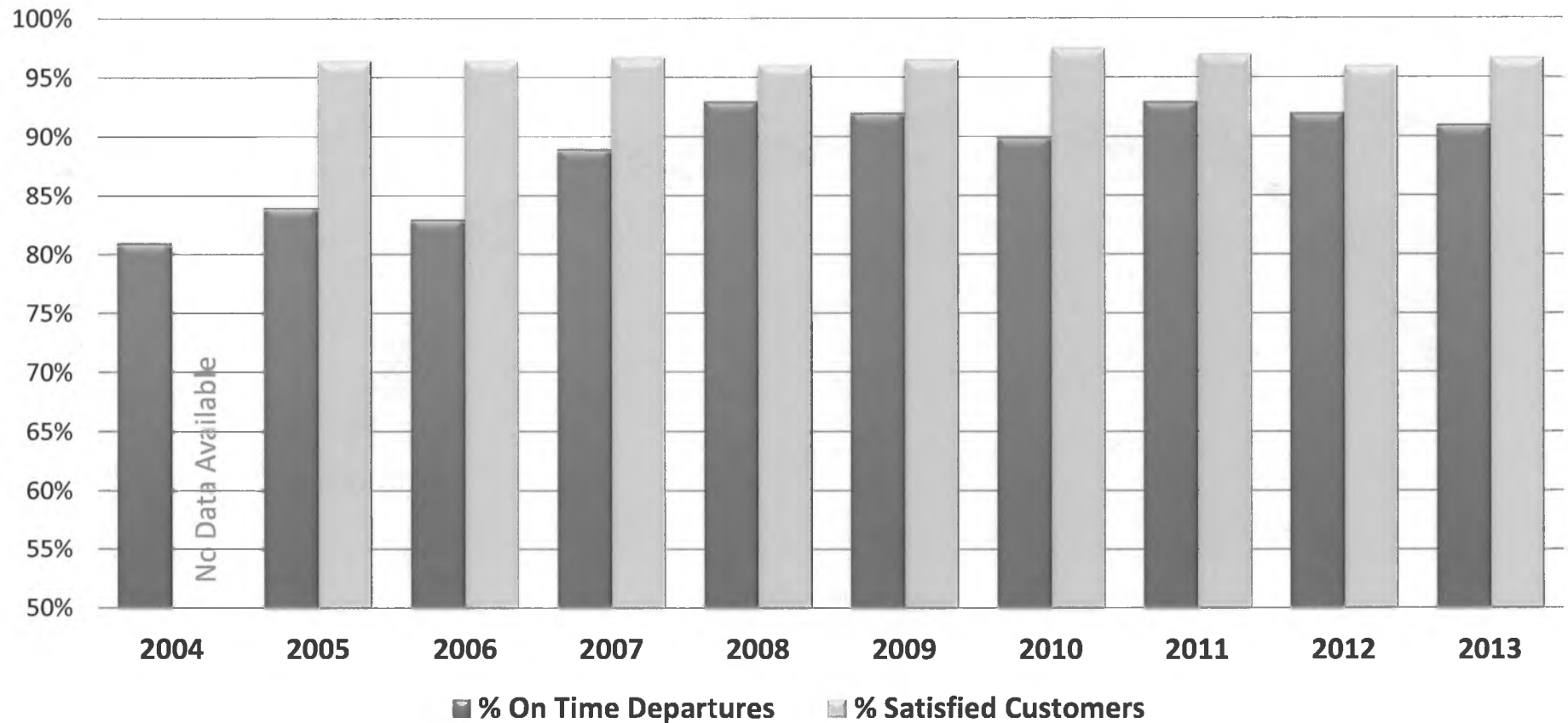
Service Route:	200 Miles
Passengers:	12,000,000
Vehicles:	10,000,000

# Monthly Traffic Activity

AMHS  
 FY09 – FY14 YTD  
 Monthly Embarkations  
 As of December 31, 2013



# On-Time Departures/Customer Satisfaction

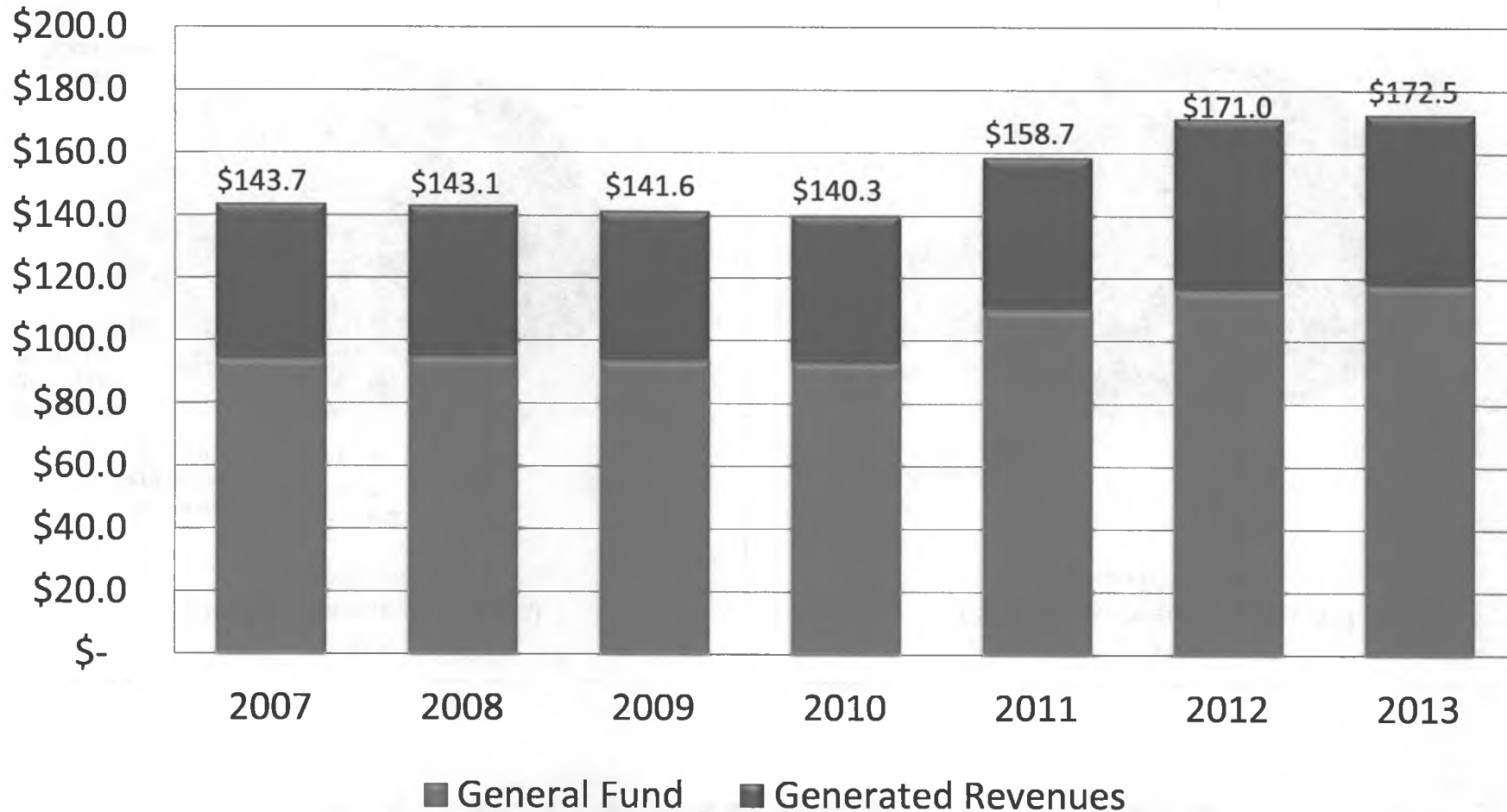


\* Online Automatic Reservations System (OARS) usage has increased from 14.5% - 40.0% for the period 2004 through 2013.

# Operating Expenditure Analysis\*

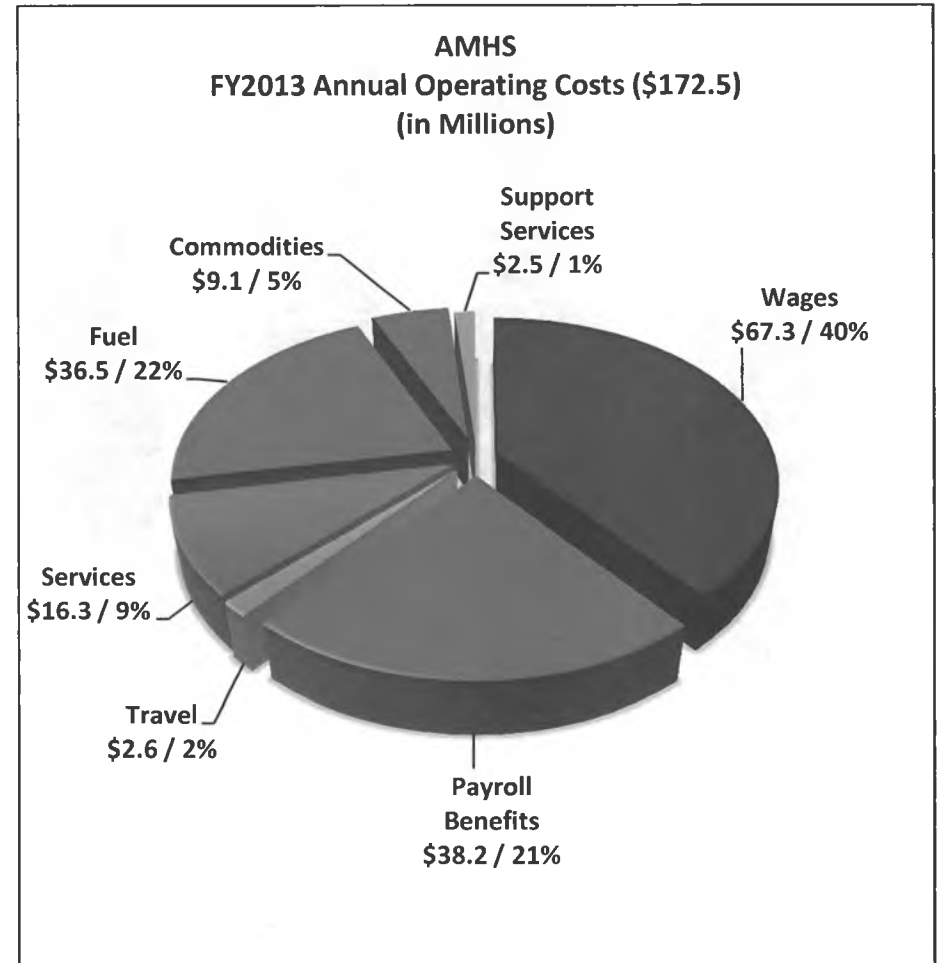
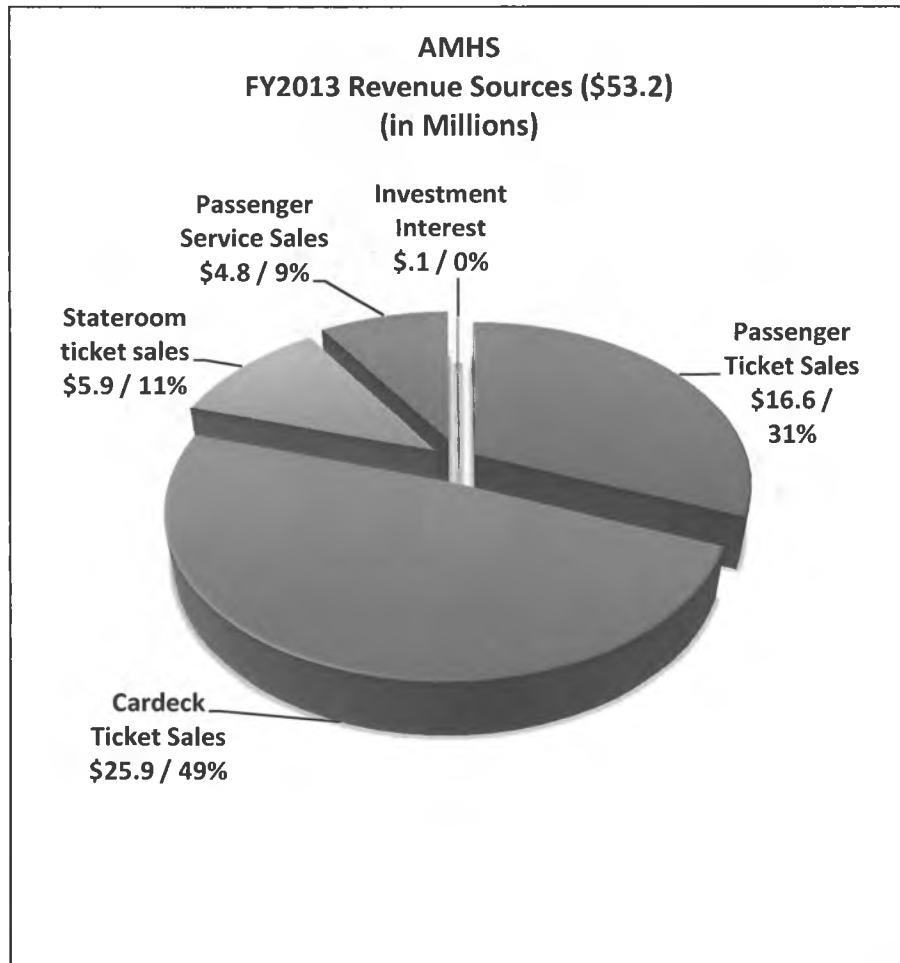
## FY07 – FY13

Millions



\*Does not include \$12 - \$15 M in annual overhaul and deferred maintenance funded through the GF Capital Budget.

# FY13 Revenues & Costs



# FY14 Look Forward

- **Current Status:**

- Managing to the budget

- Traffic numbers have softened – currently 9% below FY13

- Minimal mechanical casualties – some weather cancellations

- Reservations System – RFP on the street

- FY14 General Fund appropriation savings strategy update

- Service Reductions
    - Revenue Enhancements
    - Administrative Cost Reductions



# Service Reductions

- Lituya –
  - Operates 5 days per week. In FY14 operations were reduced from 12 hours/day to 9 hours/day. Estimated GF savings = \$200,000
- Fairweather –
  - 2014 service will begin mid-May rather than late February. Estimated GF savings = \$800,000
- Taku –
  - In previous years Prince Rupert – Juneau service began on June 1<sup>st</sup>, but will not begin this year until July 1<sup>st</sup>. Estimated GF savings = \$1,000,000
- Outsource Service –
  - This funding provided “out-sourced service” when vessel overhauls/capital projects created gaps in service. This funding will no longer be used. Estimated GF savings = \$200,000



# Revenue Enhancements

- **Travel Agent Commissions –**
  - Commencing with the Summer 2014 schedule (May 2014), commissions will no longer be paid for Alaska residents on in-state travel, or for authorized military travel. Estimated offset to GF in FY14 is \$100,000 (estimated future offset to GF is \$448,000 annually).
- **Discontinued Seasonal Discount Programs –**
  - Winter “30% Roundtrip Discount” (November-March travel). Estimated offset to GF in FY14 is \$650,000.
  - Summer “Driver Goes Free” (May-September travel). Estimated offset to GF in FY14 is \$450,000.
- **Tariff Study –**
  - AMHS is conducting a 3<sup>rd</sup> party tariff review with the intent to produce a more equitable tariff structure. The study is to be completed by April 2014 for Department review and potential public process.

## FY15 Governor's Requested Budget

- Operating Budget: \$165.0M (fuel at base price) provides for 399 weeks of service with 7,280 ports of call (Equivalent to FY14 service level) maintaining:
  - Twice monthly Bellingham-Whittier summer runs
  - Twice monthly summer chain runs
- Capital Budget includes
  - FVF Chenega Propulsion Replacement
  - Vessel Overhauls required to maintain US Coast Guard Certificates of Inspection (COI's)
  - Terminal and Vessel Life extending projects (LeConte)
- Anticipated Revenue is \$55.8M with GF appropriation of \$109.2M



# Questions?

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# Alaska Department of Transportation & Public Facilities Tustumena Replacement

House Transportation Committee

February 4, 2014



## VESSEL SPECIFICATIONS M/V TUSTUMENA REPLACEMENT

- Vessel Type – Roll On – Roll Off (RO-RO) Passenger/Vehicle Ferry
- USCG Classification:
  - Subchapter H
- Classed by American Bureau of Shipping (ABS) as:
  - ⌘A1
    - ⌘ – Constructed under survey by ABS
    - A1 – Compliance with the Hull requirements of the ABS Rules for unrestricted ocean service
  - AMS
    - Machinery, boilers and systems not constructed and installed under ABS survey but meet ABS requirements
  - Vehicle Passenger Ferry
    - Vessel transports vehicles and more than twelve (12) passengers



## VESSEL SPECIFICATIONS M/V TUSTUMENA REPLACEMENT CONT.

- Service:
  - Domestic Voyage
- Service Route Type:
  - Oceans, no further than 50 nautical miles from shore
- Southeast Alaska Stability Policy:
  - Exposed Routes

Specifications	Existing	Replacement
▪ Length Overall	296'-0"	325'-0"
▪ Beam (Main Deck)	59'-0"	68'-0"
▪ Depth (molded)	21'-9"	23'-0"
▪ Draft (Full Load)	14'-4-1/2"	15'-0"



## VESSEL SPECIFICATIONS M/V TUSTUMENA REPLACEMENT

Specifications (Cont.)	Existing	Replacement
▪ Passenger Capacity	174	250 (Berths for 108)
▪ Staterooms (4 Berth)	8	10
▪ Staterooms (2 Berth)	17	15
▪ Roomettes (2 Berth)	-	17
▪ Staterooms (ADA – 2 Berth)	1	2
▪ Crew Capacity	38	42 (Estimate)
▪ Vehicle Capacity (Lane Feet)	720'	1,135'
▪ Vehicle Quantity	36	52
▪ Van Quantity	12 (20')	12 (40')
▪ Vehicle Loading Ability		Stern and Side (Port & Starboard)
▪ Cruise Speed	13.8 knots	15 knots
▪ Operation – Oceans, not on international voyage; Exposed Waters		
▪ Manning Level – Minimum Manning Regulatory Requirement – Manned Engine Room		
▪ ADA Compliant – Americans with Disabilities Act (ADA) with Passenger Elevator		



## **DELIVERABLES TO FINAL DESIGN**

- Reconnaissance Report - develop and refine the operating requirements (operating characteristics) for the vessel. The Reconnaissance Report will include a rough cost estimate and recommendation to proceed with a particular vessel under a specific procurement method.
- Environmental Analysis - prepare the required Federal Highway Administration (FHWA) environmental document based on the project scope as defined in the draft Reconnaissance Report.
- Design Study Report (DSR) - develop and refine various alternatives to accomplish the project. Each proposed solution will be analyzed to determine how well it satisfies the project purpose. The DSR will conclude with a recommendation to proceed with a particular vessel design under the preferred procurement method.



## DELIVERABLES FOR FINAL DESIGN

- Plans, Specifications & Estimates (PS&E) – Major Components
  - Regulatory Research
  - General Arrangement and Profiles
  - Lines Plan
  - Intact and Damage Stability
  - Scantling Calculations
  - Structural Plans/Elevations
  - Structural Sections
  - Superstructure
  - Speed and Power Calculations
  - Major Equipment List
  - Mechanical System
  - Vibration Analysis
  - Electrical Load Analysis
  - Weight Estimate
  - Cost Estimate



## PROJECT MILESTONES

### Tustumena Replacement Project 70062

### AMHS Ketchikan Alaska

Awarded Consultant Professional Services Agreement (PSA)  
The Glosten and Associates Team, Seattle WA

November 2013

AMHS Terminal Sight Visits (Project Team and Southeast Region  
Terminal Design Section)

December 2013

Reconnaissance Report

February 2014

Public Participation (Homer, Kodiak, Dutch Harbor, etc.)

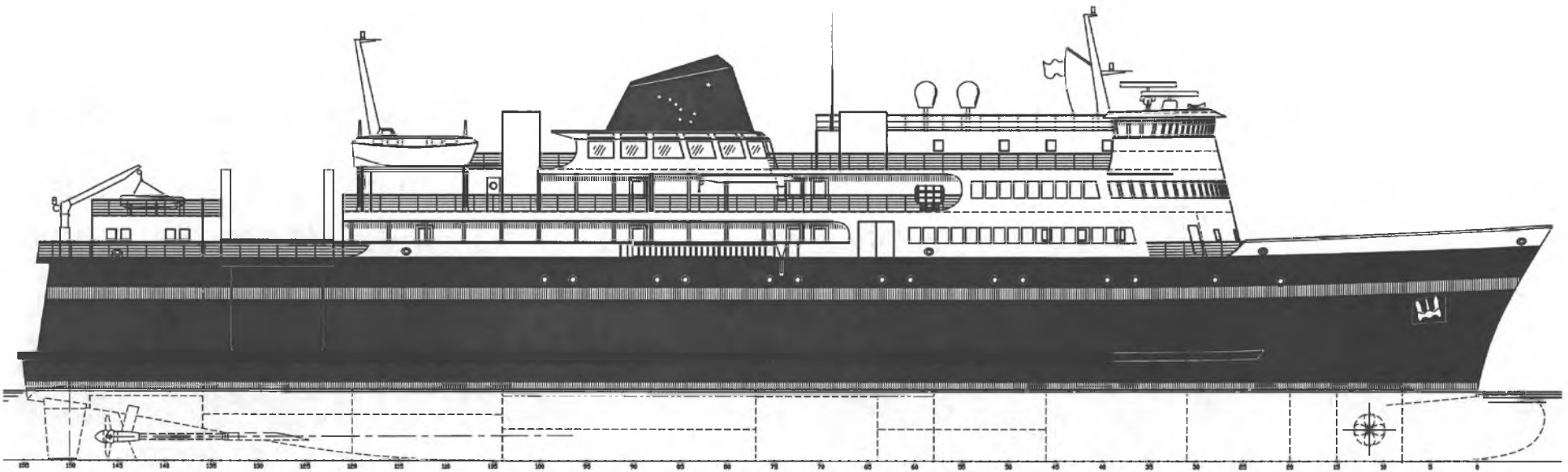
March-April 2014

Environmental Document

May 2014

Design Study Report

June 2014





# Alaska Department of Transportation & Public Facilities Day Boat ACF

House Transportation Committee

February 4, 2014



# Day Boat ACF

- Vessel Mission Requirements
  - Payload – 53 vehicles and 300 passengers
  - Speed – 15.5 knot schedule speed
  - 16 knot service speed @ 85% Maximum Power
  - Single ended, with drive through loading/unloading (Bow and Stern Doors)
  - Rapid load/unload of passengers/vehicles
  - Highly maneuverable



# Day Boat ACF – Design Study

- Proposed Routes
  - 1<sup>st</sup> Priority – Lynn Canal
  - 2<sup>nd</sup> Priority – Short Existing AMHS Routes
  - 3<sup>rd</sup> Priority – Juneau Access Routes, if required
- Operational Constraints
  - Terminal configuration
  - Vehicle loading
  - Walk on passenger loading
  - Overnight mooring



# Day Boat ACF

- Major Design Decisions
  - Closed Aft Deck vs Open
    - Pros:
      - ♦ Increased weather protection, potential lower maintenance
    - Cons
      - ♦ Slightly increased cost – materials, ventilation
- Conclusion
  - Car deck will be completely enclosed



# Day Boat ACF – Design Study

- Major Design Decisions
  - Bow Loading, Side Opening Doors







2/4/2014

Integrity · Excellence · Respect



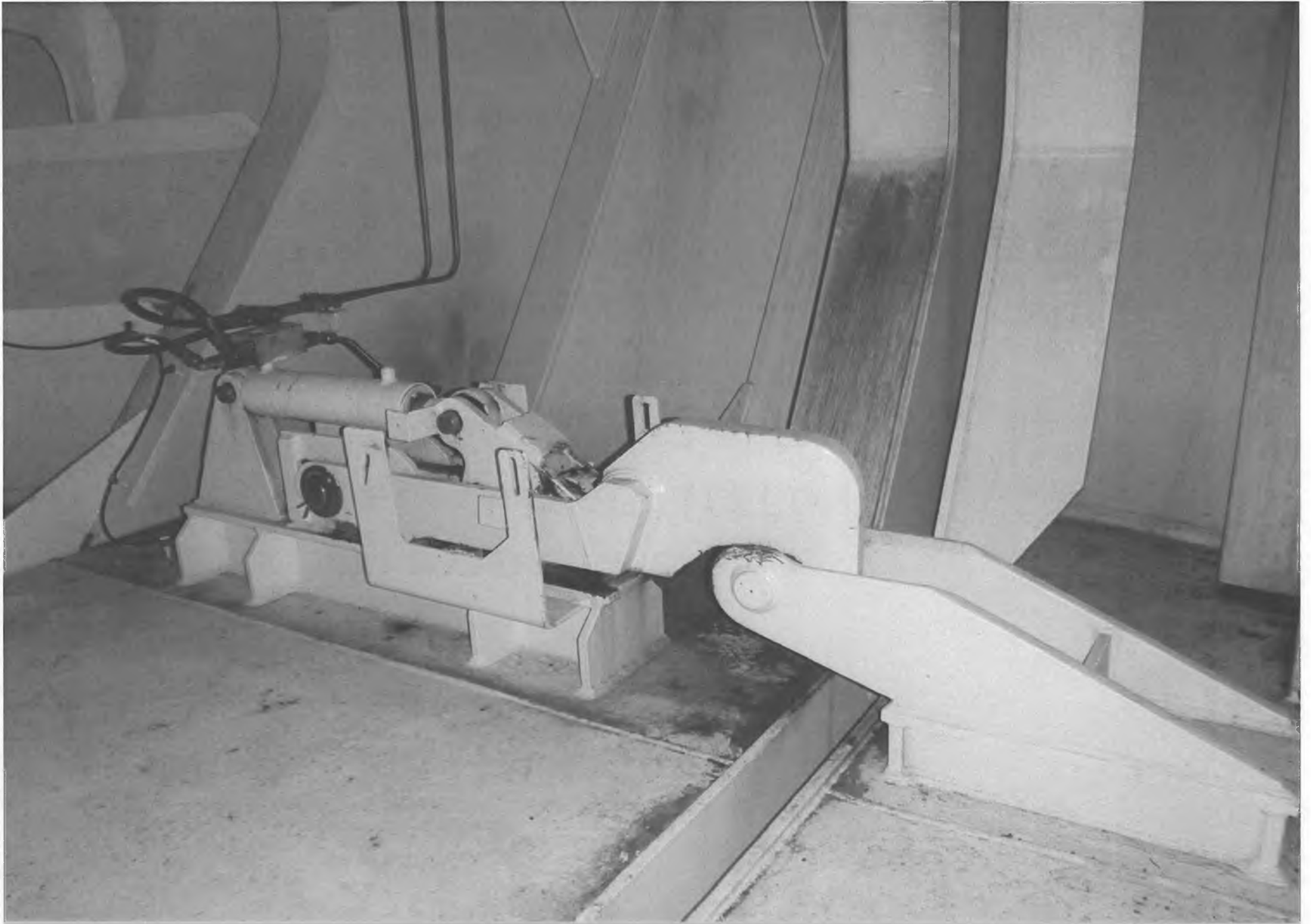




2/4/2014

Integrity · Excellence · Respect

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# Day Boat ACF

- Major Design Decisions
  - Seakeeping considerations
    - Length greater than 235 Ft LÉCONTE
    - Eliminate forward guard sponsons
    - Optimize bow shape – reduce spray
    - Shelter important equipment from ice accumulation
    - Current Concept Design is 280 Ft length overall



# Day Boat ACF

- Major Design Decisions
  - Seakeeping analysis
    - Wind, Wave & Seakeeping Studies (Glosten)
      - ◆ Used historical wind speeds, directions & wave heights
      - ◆ Used series of hulls – LECONTE to TAKU size
      - ◆ Calculated Motion Sickness Indices (MSI) using wave data



# Day Boat ACF – Design Development

## Model Testing

- Model Test Program
  - Hull Optimization
  - Model Construction
  - Bare Hull Resistance
  - Appended Resistance
  - Seakeeping
  - Maneuvering
- Conducted October 2013 at Force Technology in Lyngby, Denmark





# Day Boat ACF – Design Development

## MSI vs. Vessel Length & Longitudinal location

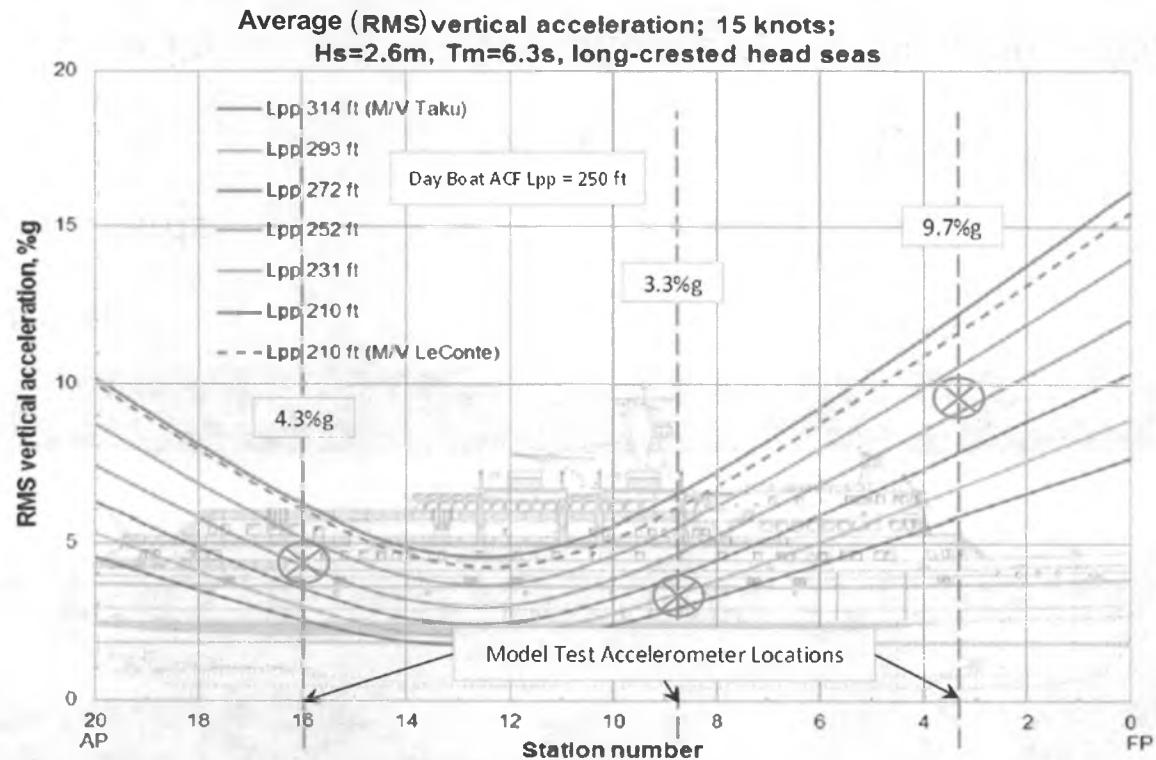


Figure 5 RMS vertical acceleration in head seas

(courtesy: The Glosten Associates)



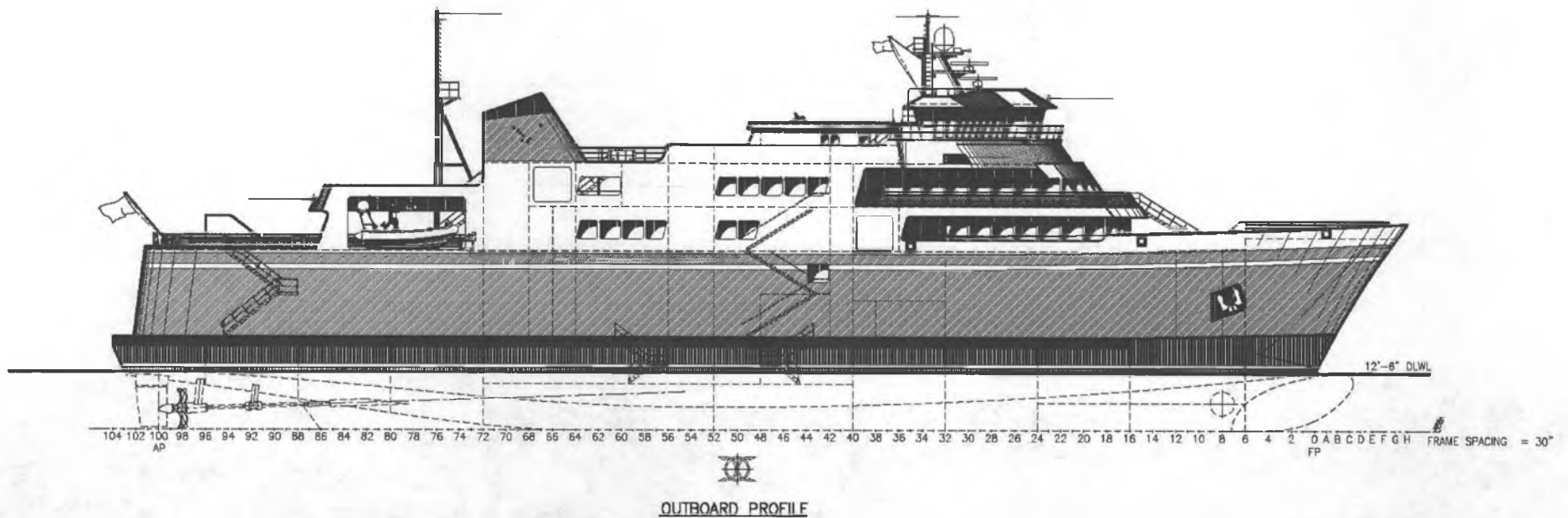
# Day Boat ACF – Design Development

Principal Design Element	Day Boat ACF	M/V Leconte
Length Overall	280'	235'
Beam Over Guards	67'	57'
Draft	12' – 6"	13' – 11"
Passenger Capacity	300 (326 seats)	247 (230 seats)
Vehicle Capacity	53 ASV	34 ASV
Propulsion Horsepower	6,000	4,300
Speed	16.0 Kts	14.5 Kts

Note: Tustumena overall length is 296'

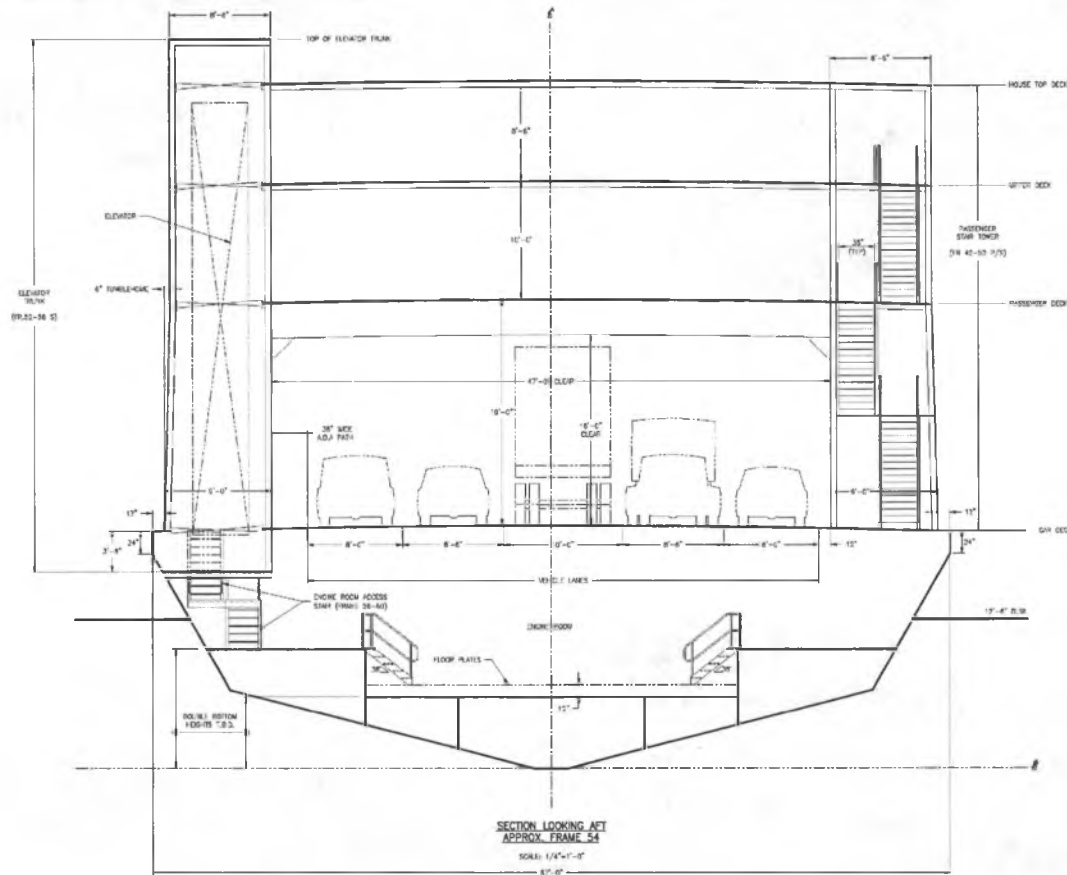


# Day Boat ACF





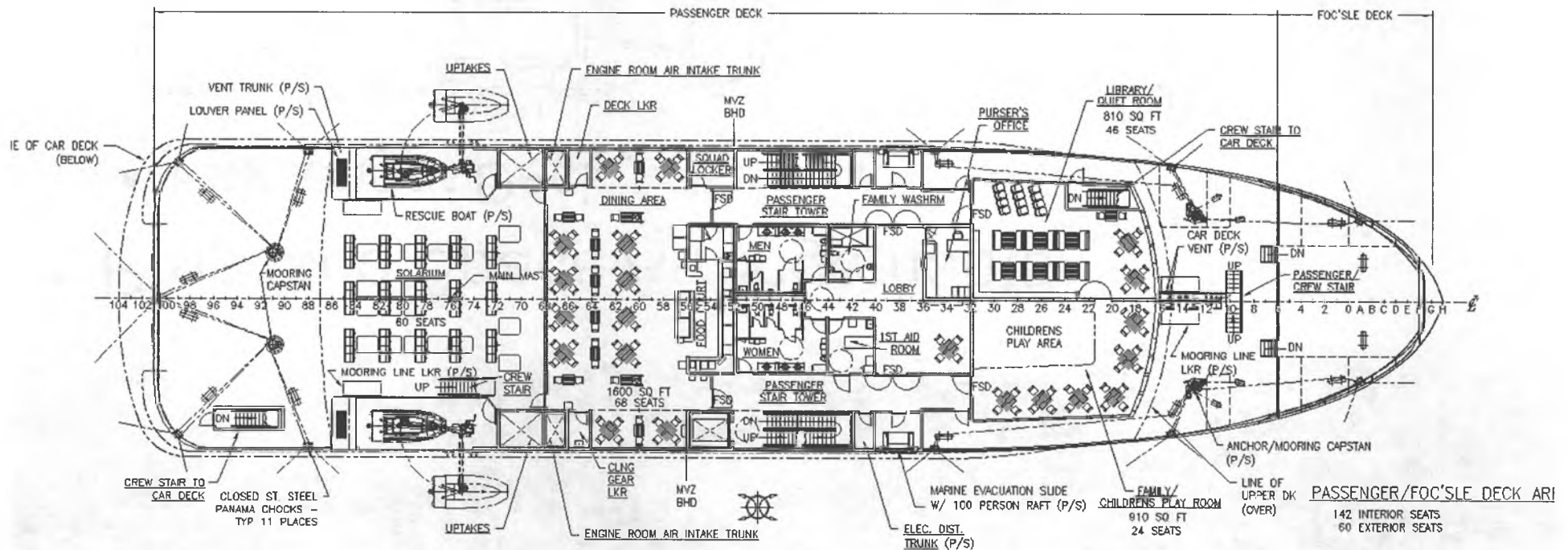
# Day Boat ACF





# Day Boat ACF – Design Development

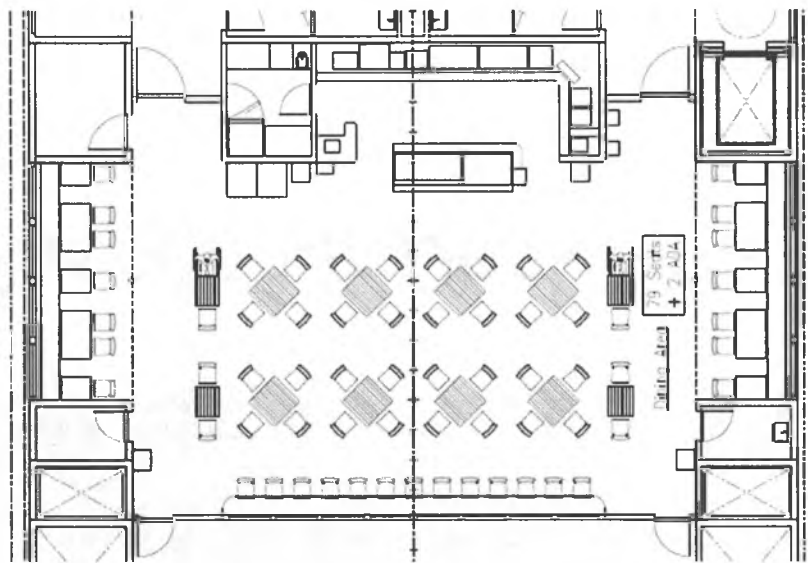
- Passenger Deck Arrangement



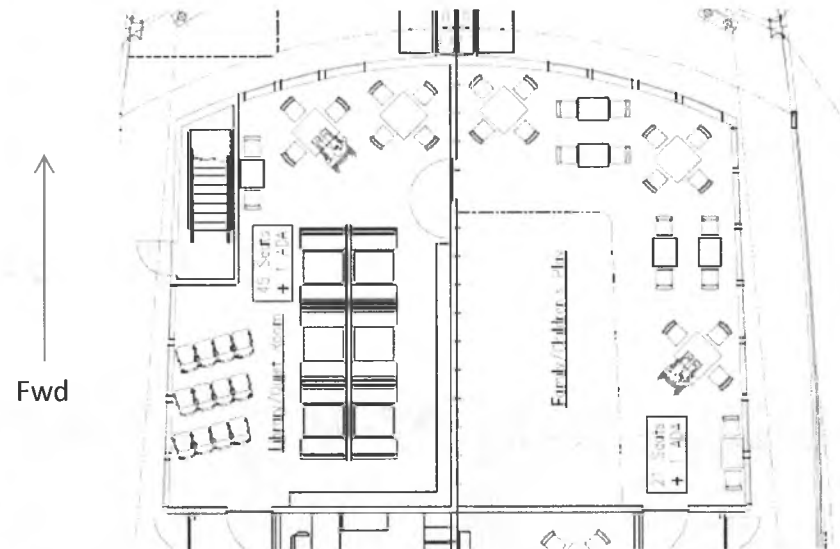


# Day Boat ACF

- Proposed Space Arrangements
  - Passenger Deck



Food Service and Dining

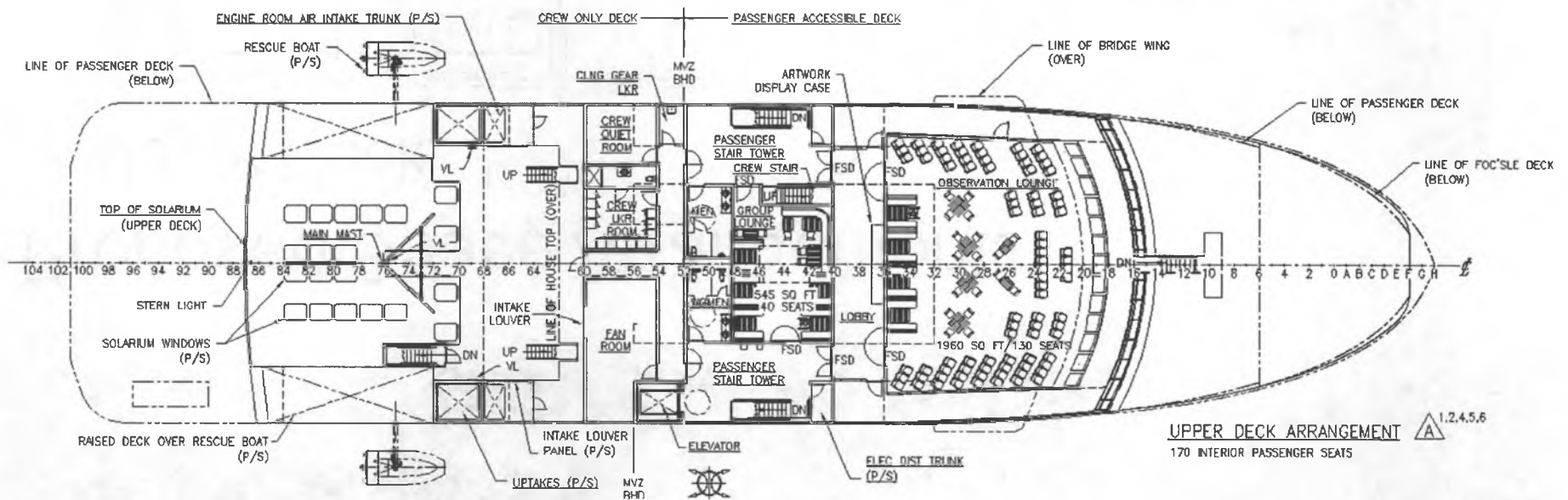


Library and Family Area



# Day Boat ACF – Design Development

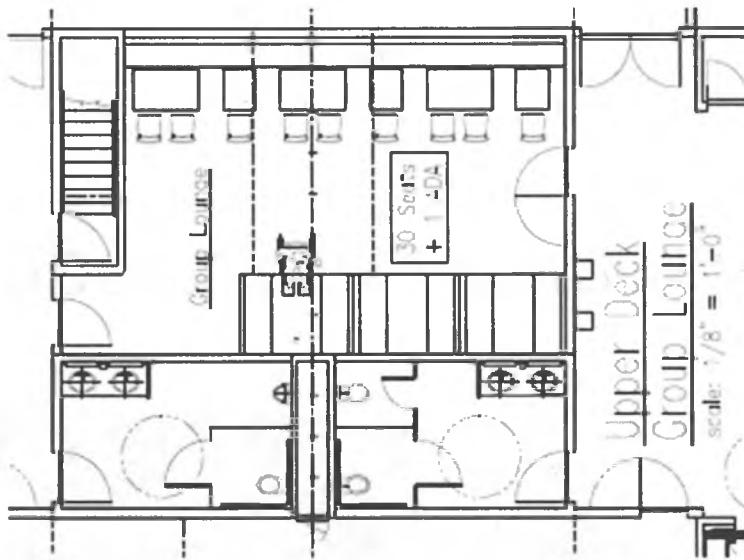
- Upper Deck Arrangement





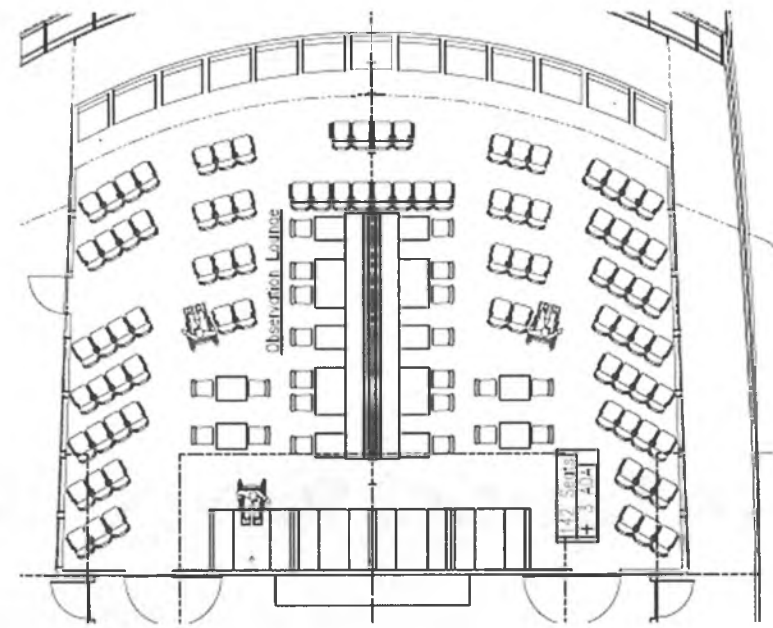
# Day Boat ACF

- Proposed Space Arrangements
  - Upper Deck



Group Lounge

Fwd ↑



Forward Observation Lounge



# Day Boat ACF

- Remaining Schedule
  - Final Contract Design – February 2014
  - Final Estimates: Vigor & Elliott Bay– March 2014
  - Negotiate Guaranteed Maximum Price or Advertise – April 2014
  - Award Shipyard Contract – June 2014
  - Delivery of Vessels:
    - 1<sup>st</sup> Vessel Target Date Mid 2016
    - 2<sup>nd</sup> Vessel Target Date May 2017



## Rural System Scope and Scale

- **252 DOT&PF owned/operated airports & seaplane bases**
- **172 gravel & 47 paved airports; 32 seaplane bases & 1 heliport**
- **19 Part 139 certificated airports**
- **Airports provide only practical access for 82% of Alaskan communities that are off the contiguous road system**



## Major Rural System AIP Construction Projects Expected to be Funded in FFY'14 & '15

### Runway Safety Areas

- Kodiak

### Pavement Rehab

- Bethel
- Gulkana
- Haines
- Nome
- Petersburg
- Shishmaref
- Wrangell
- Yakutat

### Rural Access

- Ambler
- Aniak
- Coldfoot
- Hooper Bay
- Koliganek
- Pilot Station

### Buildings

- Barrow
- Bethel
- Deadhorse
- King Salmon
- Ketchikan
- Unalaska

- Alaska Airport Needs Directory published

<http://dot.alaska.gov/airport-portal-newsres.shtml>



# Alaska Aviation System Plan (AASP)

## **2008**

AASP Phase I, Stage I Report

Public Website ([www.AlaskaASP.com](http://www.AlaskaASP.com))

## **2009**

The Economic Contribution of the Aviation Industry to Alaska's Economy (study)

Intra-Alaska Mail Service by Air (white paper)

Impacts of Rising Airport Commodity Prices (fact sheet)

Rural Airport Deferred Maintenance (fact sheet)

Cost of Federal Regulatory Requirements (fact sheet)

Extending Operational Hours at Bethel (fact sheet)

## **2010**

An Economic Analysis of Runway Extensions (study)

Aviation Functions within State of Alaska DOT&PF (study)

DOT&PF Aviation Organization Structure Review

Web-based Aviation Facility Information Directory

## **2011**

Alaska Aviation System Forecasts (report)

AASP Mission, Goals, Measures, & Classifications (report)

Economic and Community Contributions of 12 Selected Alaska Airports (study)

Airport Emergency Plan Updates for 18 Part 139 Certificated Airports

AASP Executive Summary 2011 (brochure)

## **2012**

Aviation – Alaska's Lifeline (video & fact sheet)

Public Aviation Facility Information Directory Update

Airport Emergency Plan Quick-Reference Flipbooks

## **2013**

Alaska's Lifeline – Counting the Costs (video & fact sheet)

Airport Needs Inspection Pilot Project (fieldwork & report)

Capital Improvement & Maintenance Program

Development for 18 Individual Airports (web-based)

Alaska Bypass Mail: Preparing for Change (study)

Essential Air Service in Alaska (study)

Yukon-Kuskokwim Region Air versus Roads Access: Construction & Maintenance Baseline Cost Comparison (study)

Flight Approach Procedures Coordination Work Group Summary



## Aviation Challenges

- **Evolving federal agency relationships**
  - Increasing regulatory pressure (FAA, TSA, EPA)
  - Lessening awareness of, and appreciation for, Alaska realities not present in lower 48
  - FAA AIP funding uncertainty – ~\$30M decrease in 2013
- **The increasing cost of winter maintenance chemicals and the federal ban on a common chemical (UREA) used at the largest airports – replacement chemical is almost 2x as expensive**