

Surveillance and Broadcast Services

Briefing to Alaska Industry Council

By: Jere Hayslett

Date: March 14, 2007



Federal Aviation
Administration



Agenda

- **Air Traffic Organization (ATO) Metrics**
- **Organization**
- **Southwest Phase I Update**
- **Southeast Phase II / Segment One Update**
- **Memorandum of Agreement**
- **State Expansion Phase III / Segment 2 Update**
 - Joint Resource Council (JRC) Update
- **Performance Based Navigation**
- **WAAS**
- **Next Steps**



ATO Metrics

- **Sample Metrics Reviewed Daily**
 - Runway Incursions
 - Operational Errors
 - Adjusted Operational Availability
 - System Airport Efficiency Rate
 - Airport Average Daily Capacity

“To improve continuously the safety and efficiency of aviation, while being responsive to our customers and accountable to the public” source: ATO Online



SBS Organization

SBS
Program Management
Group

SBS Policy, Rulemaking,
Standards and Oversight
Group

SBS Systems Engineering
Group

SBS Ops Support Group

SBS Implementation
Group

Alaska SBS / Capstone Office
9 Positions

Southwest Phase I Update

- **Bethel Approach Control**
- **Expansion of Surveillance Services**
 - Awaiting Separation Standards Approval
 - 5 additional Y-K Delta Ground Stations
 - Requirements Request Letter in Process Sent on February 15, 2007



Southeast Phase II / Segment One Update

- **Wide Area Multilateration (WAM)**

- Multilateration (MLAT)

- Upgrade: December 2007
- Test: March 2008
- Separation Standards
 - MLAT to Radar: July 2008
 - MLAT to MLAT: July 2008
 - ADS-B to MLAT: August 2008

- **Ground Stations**

- Essential Services: August 2007
- Test: December 2007
- Critical Services: June 2008 (assumes MEARTS adaptation June 2008)



MOA

- **The FAA formalized a Memorandum of Agreement (MOA) on February 12, 2007 between the following parties:**
 - Federal Aviation Administration
 - Helicopter Association International (HAI)
 - Alaska Air Carriers Association
 - Alaska Airmens Association
 - Alaska Aviation Safety Foundation
 - Frontier Flying Service
 - Peninsula Airways



MOA Deliverables

Time	Milestone	Responsible Party
February 21, 2007 Completed	Attain JRC Segment 2 Approval	FAA
February 21, 2007 Completed	Establish Agreement Implementation Committee (AIC) Jere Hayslett Designated as the Agreement Implementation Co-chair for FAA	FAA, HAI, AK Aviation Organizations, AK Aircraft Operators
April 27, 2007	Deliver coordination and planning document detailed in the MOA	AIC
May 25, 2007	The coordination and planning document complete	AIC and FAA
July 2007	Attain JRC baseline funding approval for remaining fiscal years in Segments 1 and 2	FAA
February 21, 2012	Complete obtaining signed agreements for avionics equipage on approximately 5,000 aircraft	HAI, AK Aviation Organizations, AK Aircraft Operators
February 21, 2012	Complete ground station installation commensurate with aircraft equipage	FAA



AIC Next Steps

- **The April 27, 2007 coordination and planning document will outline:**
 - An avionics equipage assistance program
 - Avionics equipage financing options
 - A schedule of avionics equipage in aircraft
 - An evaluation of recommended sites and a process to re-evaluate the benefit to cost ratio for additional sites
 - A schedule for the development and implementation of aviation infrastructure improvements in support of the JRC approved baseline for the Alaska Service Delivery Volume
- **The FAA representative to the AIC must ensure the coordination and planning document is specific and measurable and that it conforms to FAA policies and the AMS process in order to sustain the government's business case in Alaska**
- **This document will be finalized by May 25, 2007 and is required for the basis of estimate for the July 2007 JRC.**

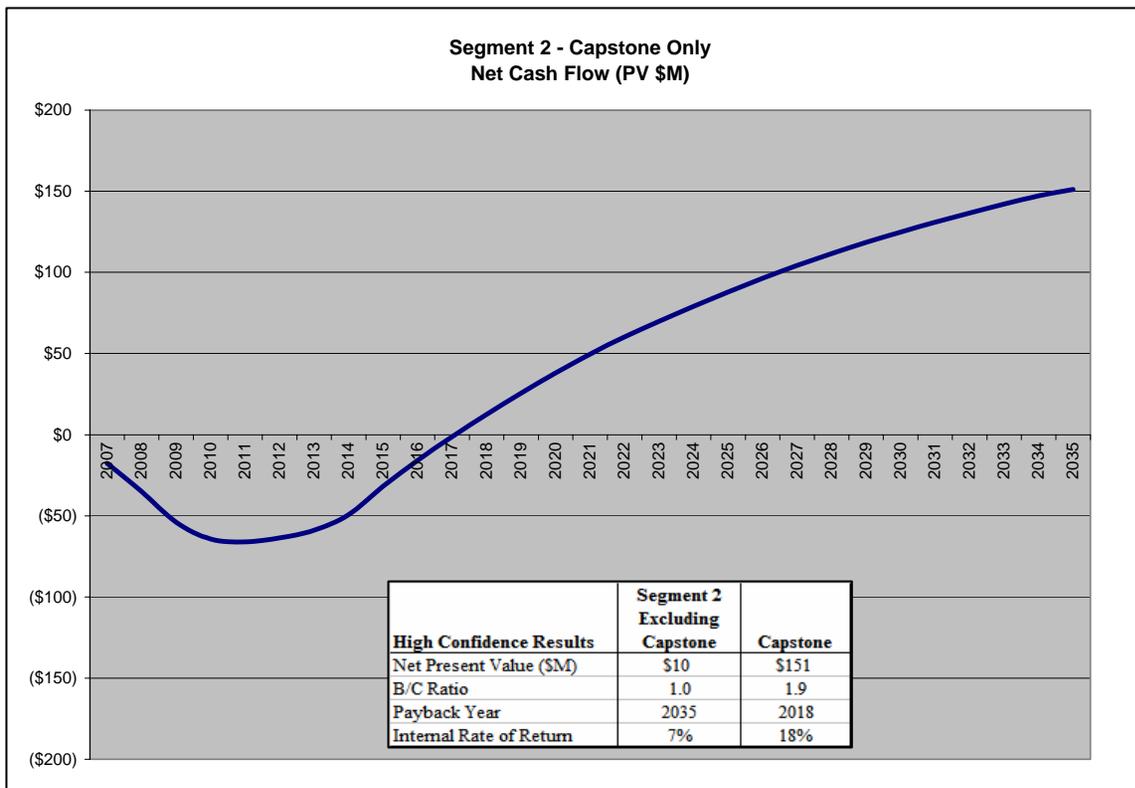
State Expansion Phase III / Segment 2 Update

Benefits Presented at the Joint Resource Council (JRC)

Location	Application	Outcome	Risk Adjusted Benefit (BY07 \$M)
CONUS, Hawaii, and Caribbean Surveillance	Radar Airspace ATC Surveillance	Surveillance cost avoidance	\$1,225.9
		More efficient spacing on approach in IMC and MVMC by reducing spacing buffer	\$1,519.3
		Increased safety on the surface by controllers	\$14.2
		More efficient ATC management of surface movement	\$87.0
CONUS, Hawaii, and Caribbean Broadcast Services	Enhanced Visual Acquisition and Conflict Detection	Fewer aircraft-to-aircraft conflicts	\$569.2
	Weather and NAS Status Situational Awareness	Fewer encounters with hazardous weather	\$1,052.6
		More efficient routes in adverse weather	\$12.2
CONUS, Hawaii, and Caribbean Aircraft Applications	Enhanced Visual Approach - Initial Application	Fewer aircraft-to-terrain conflicts	\$749.4
		More efficient spacing on approach in VMC	\$1,356.8
	Enhanced Visual Approach - CAVS	Continuation of Visual Approaches in marginal conditions	\$603.3
	Enhanced Visual Approach - Merging and Spacing	Increased ability to perform continuous descent approaches	\$2,329.6
	ADS-B ATC Automation Integration		
	Airport Surface Situational Awareness	More efficient movement on surface by pilots	\$782.7
Final Approach and Runway Occupancy Awareness	Increased safety on the surface by pilots	\$313.7	
Alaska Surveillance and Broadcast Services	Weather and NAS Status Situational Awareness	Fewer aviation accidents in Alaska	\$612.4
		Alaska NAVAID decommissioning	\$19.7
	Enhanced Visual Acquisition and Conflict Detection	Alaska broadcast service cost avoidance	\$52.3
		Access to lower altitude routes in Alaska	\$51.3
	Non-Radar Airspace ATC Surveillance	Improved search and rescue services in Alaska	\$10.8
Alaska Airport IFR Upgrade Services	Weather Automation upgrade and IFR Approach Development	Increased access to remote villages in Alaska	\$74.9
		Increased Medevac access to remote villages in Alaska	\$75.0
Total			\$11,512.2

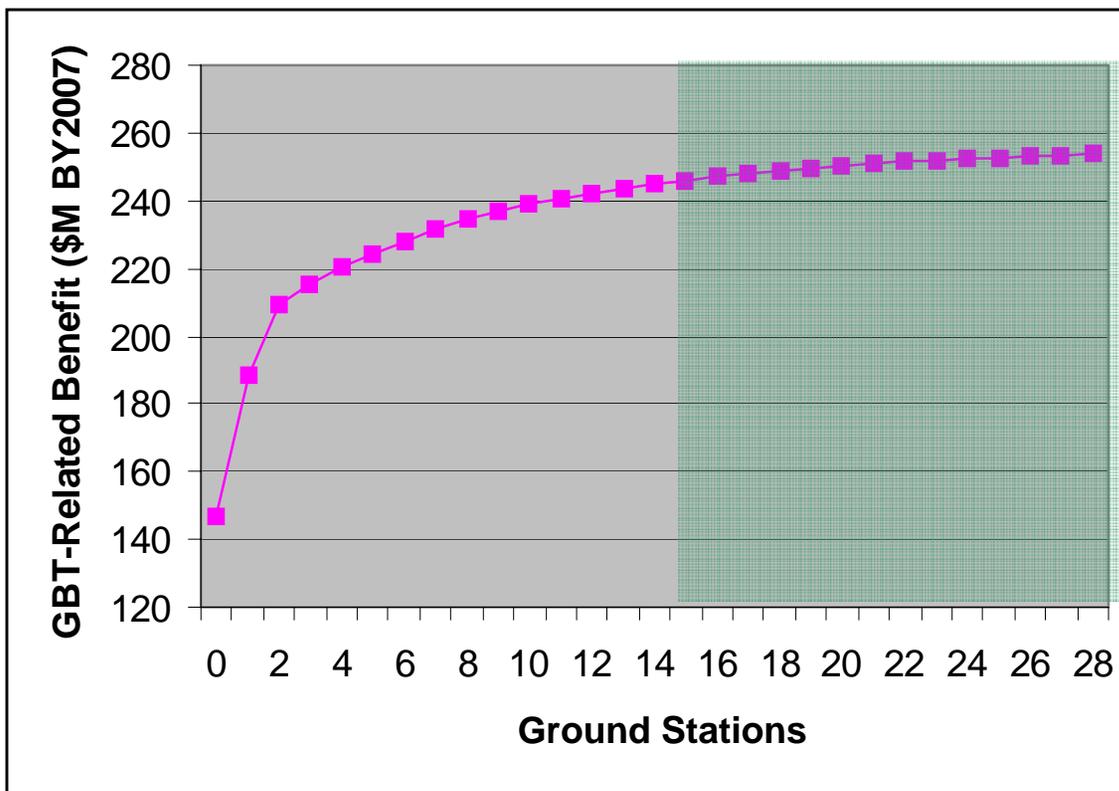
Benefits Contingent Upon Agreement Implementation Committee

State Expansion Phase III / Segment 2 Update (Continued)



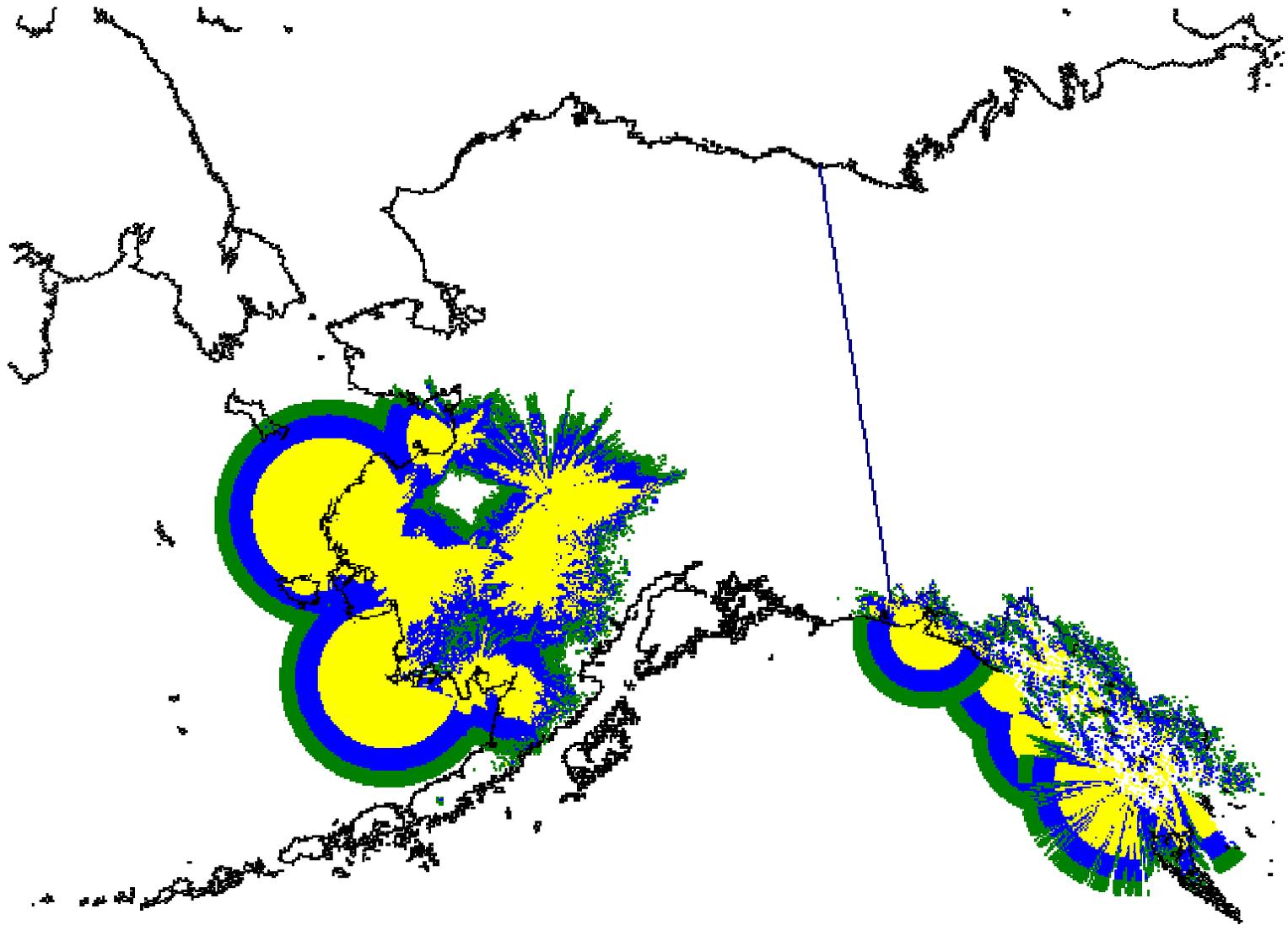
NPV is based on successful avionics assistance program implementation for 5000 aircraft within 8 years.

Related Benefit Per Additional Ground Station

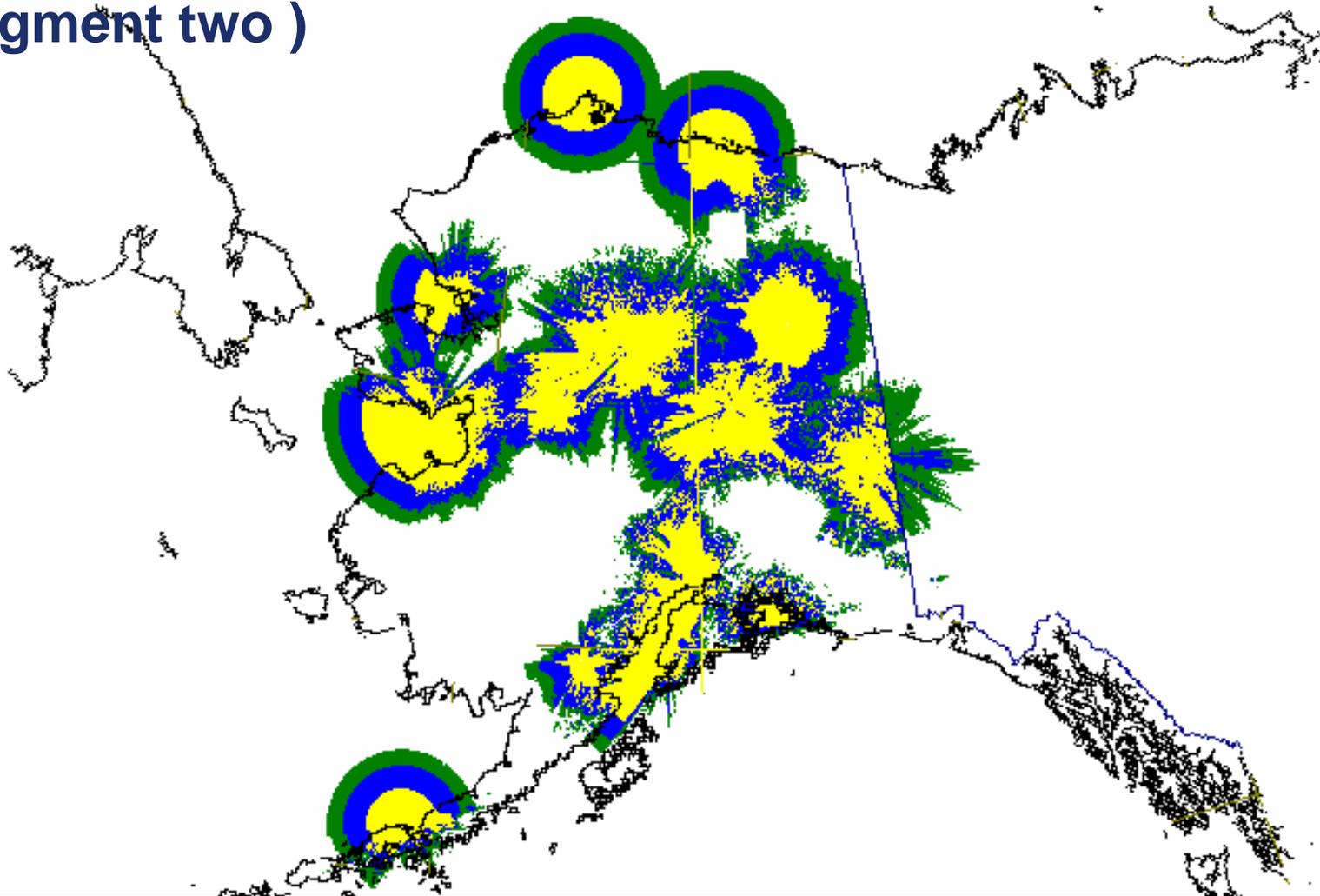


Per Coordination
and Planning
Document
Additional Benefits
May Be Found

1000/3000/5000 AGL (Ph I & II / Segment One)

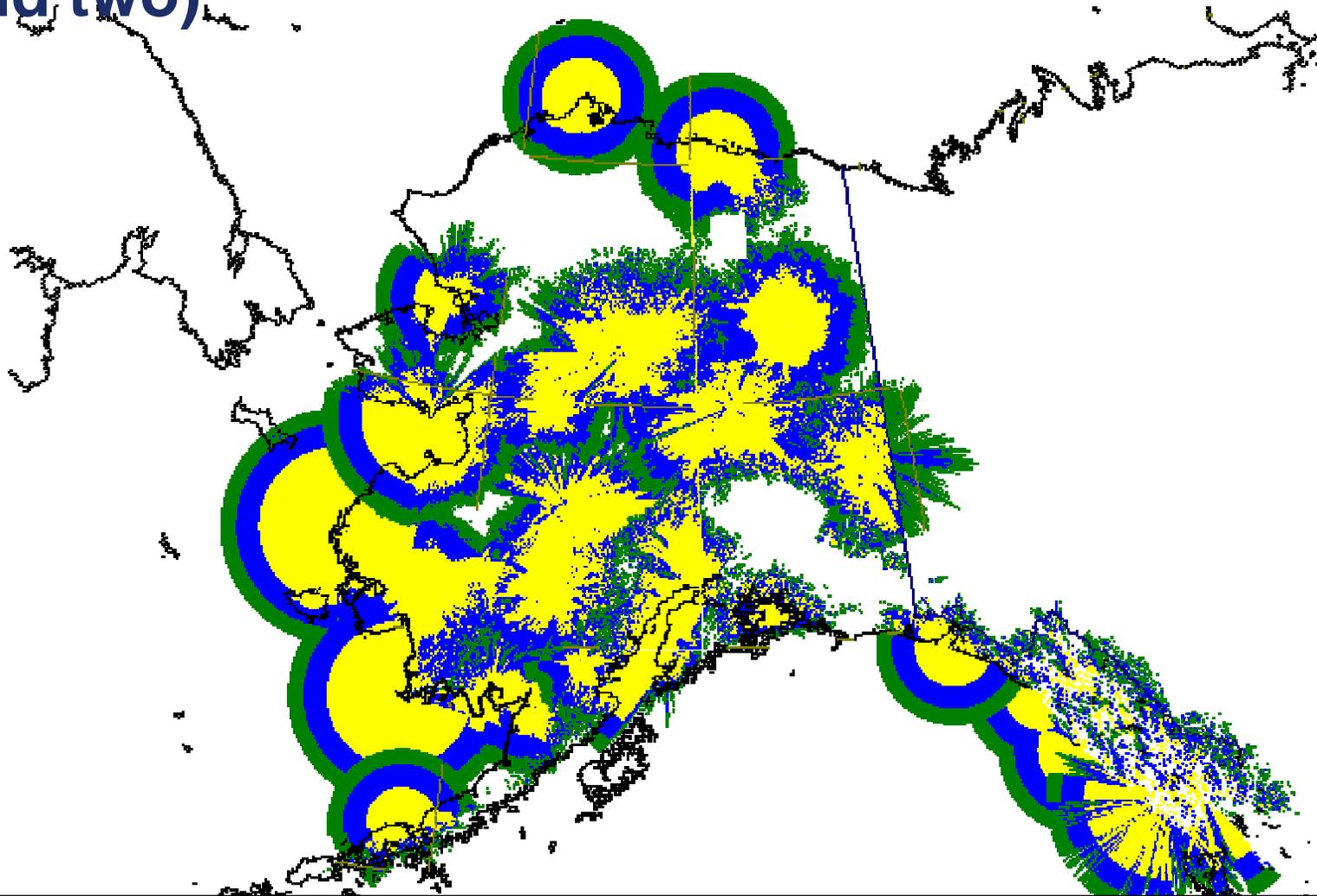


1000/3000/5000 AGL (PH III / Statewide expansion segment two)



Service Volume selection can be modified per AIC

1000/3000/5000 AGL (Combined Segment one and two)



Service Volume selection can be modified per AIC

Statewide Expansion Ground Stations

Name	ID
Site Summit	QAH
Murphy Dome	MPY
Indian Mountain	UTO
Kotzebue	OTZ
Homer	HOM
Johnston Point	JOH
Fort Yukon	FYU
Cape Darbey	AH1
Port Moller	Z71
Barrow	BRD
Horn Mountain	QP1
Dead Horse	SCC
Illiamna	ILI
Galena	GAL

Statewide IFR Upgrades

February 2007 JRC included 25 airports based on following two benefit elements:

Reduced IFR Cancellations - assumes increased access to remote villages during IMC conditions because of lower IFR approaches due to installation of appropriate AWSS, lighting, communication and approach development. An average cancellation cost was used to monetize benefit.

Increased Medevac Access - assumes increased access to remote villages during IMC conditions described above. Reduced time for medical evacuation during IMC leads to avoided fatalities. Assumes that with prompt medical care, remote village preventable death rates will be similar to city (Anchorage) average rates. Takes alternate access to medical care into account.

Name	
Quinhagak	Shaktoolik
Birchwood	Larson Bay
Tununak	Port Lions
Kasigluk	Wales
South Naknek	Teller
Eagle	Allakaket
Kwethluk	Willow
Grayling	Chalkyitsik
Brevig Mission	Tok Junction
Robert Bob Curtis	Kwigilingok
Healy River	Beaver
White Mountain	Point Lay
Sleetmute	

PBN/WAAS

- **Performance Based Navigation**
- **WAAS Update**





**Federal Aviation
Administration**

Capstone

Industry Council Meeting

Navigation Services Update

March 14, 2007

JoAnn Y. Ford

Navigation Systems Engineering



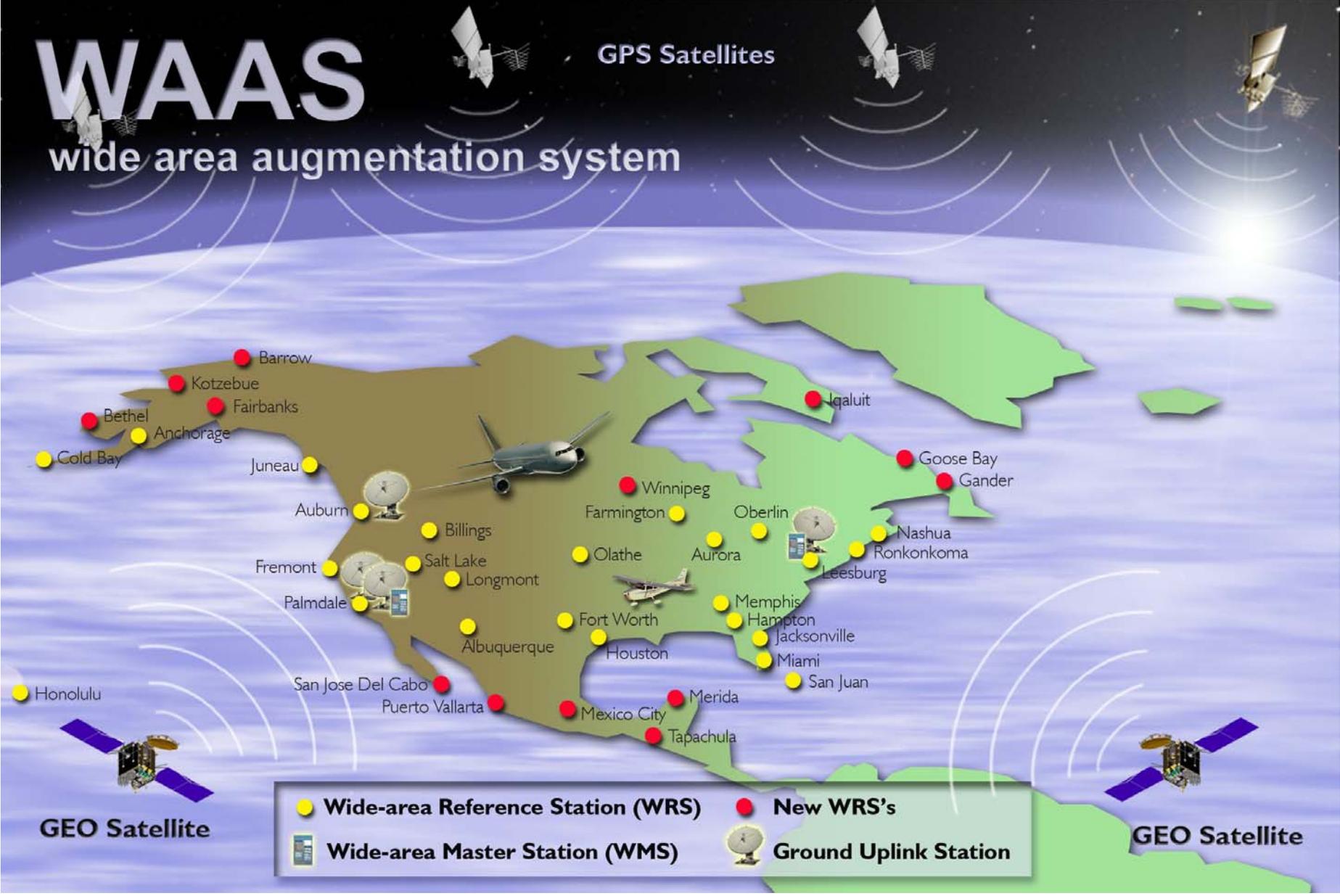
Vertical Flight Initiatives

- **2006 / 2007 HAI TOPS request for published VFR routes in Juneau area for Juneau Tour Operators**
 - Briefed HAI 2007 TOPS/HTOC/OGC
 - Published VFR advisory routes in Alaska Supplement January 18, 2007
 - Administrator's 2007 Flight Plan Goal achieved ahead of schedule
 - Investigating the plausibility of VFR Helicopter Chart for Juneau area (also 2007 Flight Plan Goal)
- **Administrator's Vertical Flight Committee – April 2007**

WAAS

wide area augmentation system

GPS Satellites



GEO Satellite

GEO Satellite

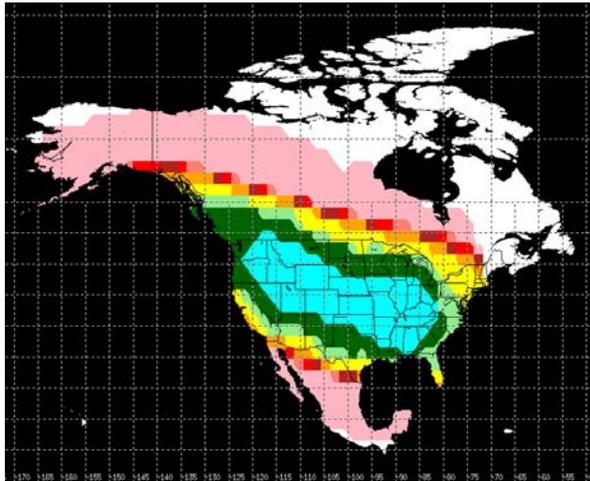


WAAS Schedule

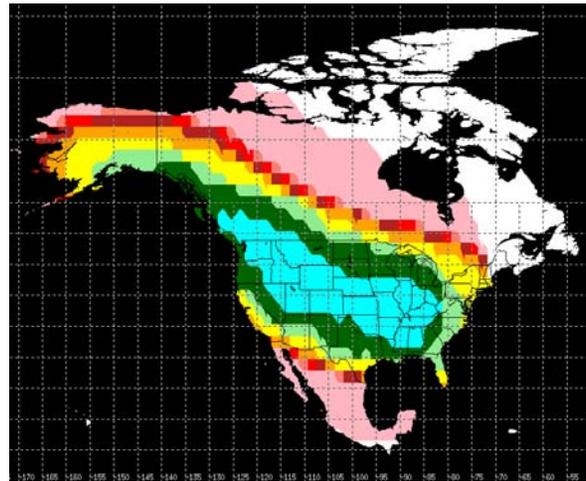
- **Improvements to obtain full LPV performance**
 - Four new WRS operational August 4, 2006 for a total of 7 in the state
 - Replace GEO communication links
 - Launched in September and October
 - Operational 2nd Quarter FY07
 - Software integrity improvements to be introduced by Dec 2007 will result in greater availability of service for Alaska

Predicted WAAS LPV Availability Gains

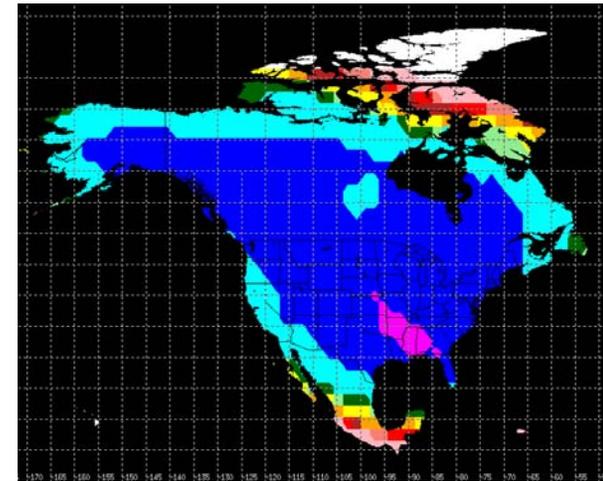
Commissioning - 2003



August - 2006



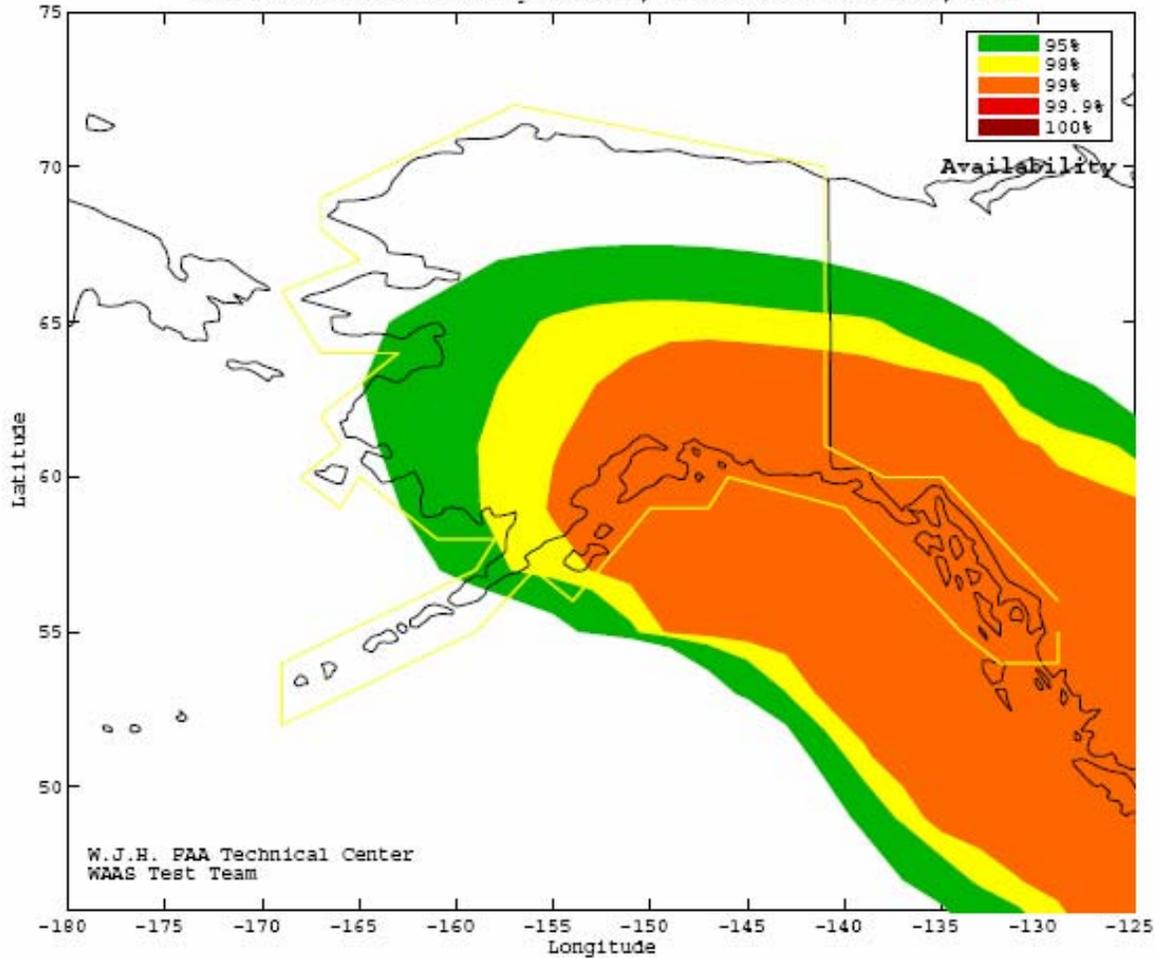
December 2008



- **Availability predictions performed by Mitre**
 - Assumptions in this analysis are of a conservative nature, and can not completely predict actual or observed performance
- **LPV availability in Alaska from commissioning to present was less than 75% with the exception of the lower southeastern portion of the state**
- **LPV availability increased to 95% in the central portion of the state once the Alaskan sites were operational August 2006**
- **Alaskan availability will increase incrementally as the Canadian sites are brought online and software enhancements are made, providing 99 - 99.5% coverage to the entire state by Dec 2008**



WAAS LPV Alaska Availability Contours, October 1 - December 31, 2006



Alaska Coverage at 95% Availability - 24.7%
Alaska Coverage at 99% Availability - 10.53%
Alaska Coverage at 100% Availability - 0%

SL - LPV

NAS Instrument Approach Update

- **LPV Update**

- Published 351 LPVs in FY06
- As of Feb 15, 2007, “676” LPVs
 - 355 at non-ILS runways
- Preliminary plans to publish over 450 LPVs in FY07
 - Over 350 of which will be at non-ILS runway ends

- **(Source – AVN)**

Alaska WAAS LPV Status

- **Alaskan Airports VFR – IFR Improvements**

- Capstone/SBS initiative: Dec 2006 Alaska RAPT approved list of 22 airports for surveys TBC NLT Sept 2007 (resulted in substitution of two airports from the original list due to FAA & AK Airports Divisions rec.) (list follows on subsequent slide)
 - Awaiting letters/documents from Alaska DOT ref approval of airports
- FAA Airports Div scheduling addtnl LPV surveys, to be funded thru Airport Improvement Plan funding:
 - Galena (GAL) Rwy 7 & 25
 - Illiamna (ILI) RWY 17 & 35
 - King Salmon (AKN) RWY 29
 - Point Hope (PHO) RWY 19



Alaska WAAS LPV Status (cont)

- **List of 22 Airports**

- Birchwood, Brevig Mission, Central, Chuathbaluk, Clarks Point, Eagle, Elim, Healy River, Hughes, Kasigluk, Koyukok, Kwethluk, Larsen Bay, Napakiak, Pilot Station, **Port Lions, **Quinhagak, Robert/Bob/Curtis/Noorvik, Shageluk, Shaktoolik, South Naknek NR 2, White Mountain
- Procedures will be developed only after thorough coordination, with ALL parties, is completed
- (** additional coordination/substitution warranted)

Alaska WAAS LPV Status (cont)

- **Surveys submitted to FAA thru 3rd party survey program**
 - 3rd party survey providers to the FAA TPSS (ATO-R, AJW-32) web site:
 - PROSPECT CREEK (PPC)
 - GALBRAITH LAKE (GBH)
 - ALLAKAKET (6A8)
 - NIKOLSKI AS (IKO)
 - RED DOG (DGG)
 - RUBY (RBY)



Alaska WAAS LPV Status (cont)

- **3 LPV at Anchorage**
 - Rwy 7L, 7R, 14
 - NOTAM'd out awaiting flight check May 2007
- **Addtnl Flight Check May 2007: Homer, Emmonak, St. Michaels**
- **(previously scheduled Feb 2007; FAA budget (Continuing Resolution) warrants combining flight inspections in Hawaii w/ Alaska flight inspections)**

Next Steps / Summary

- **Preparing for July JRC**
- **Agreement Implementation Committee Coordination**
 - Planning Document

Success through program governance focused on a collaborative FAA / industry / international relationship