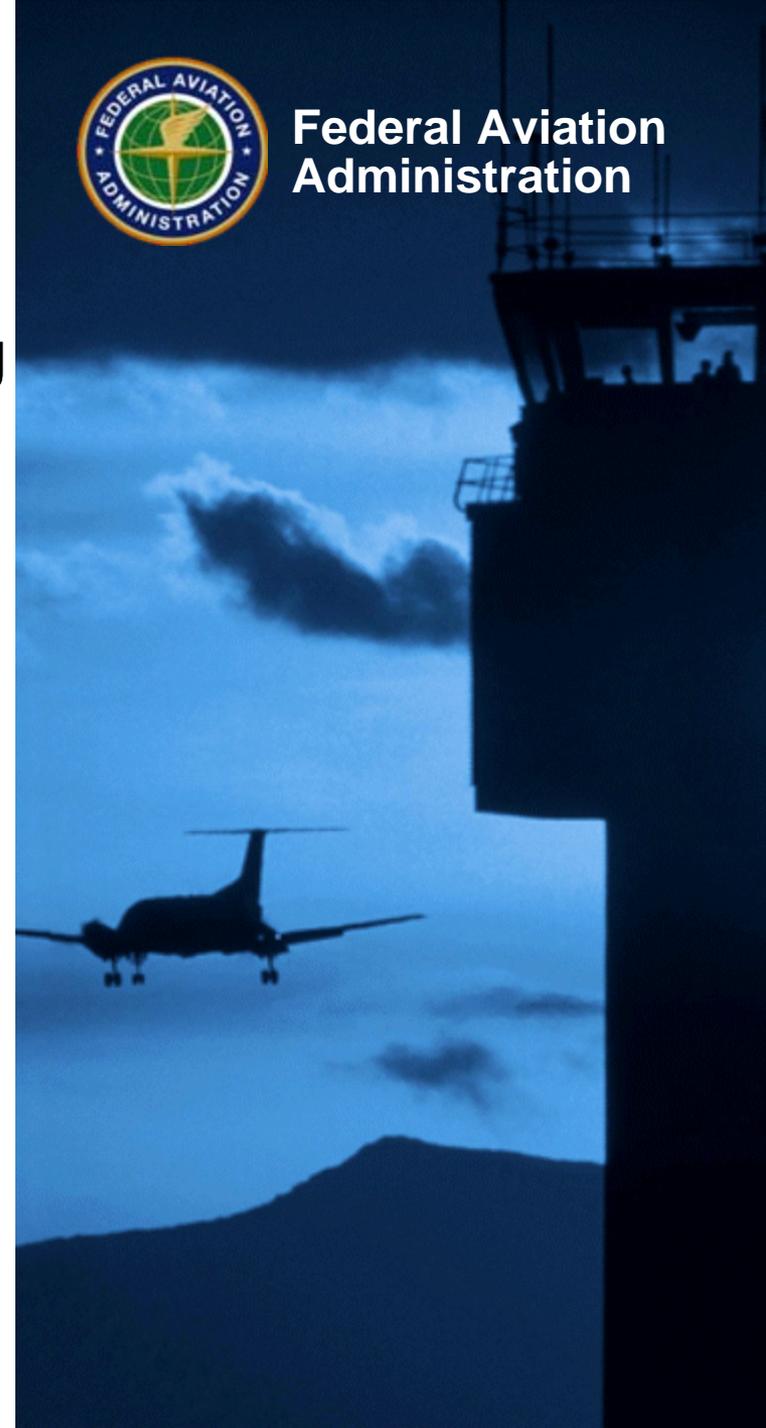


Acceleration of Surface Conflict Detection and Cockpit Alert Capabilities & Flight Deck Merging and Spacing



**Federal Aviation
Administration**



Date: September 03, 2008

Agenda

- **Introduction**
- **RTCA Roles and Responsibilities**
- **SBS Program Overview**
- **Acquisition Process and Timeline**
- **RTCA Process**
 - RTCA SC-186 Structure and Products
 - OSED – Enhanced Traffic Situational Awareness on the Airport Surface with Indications and Alerts (ATSA SURF IA) Application Description and Flight Deck Merging and Spacing
 - SPR – Safety, Performance and Interoperability Requirements Document for the In-Trail Procedure in the Oceanic Airspace (ATSA-ITP) Application
- **Request for Proposals (RFP) Review**
- **Next Steps**
- **Questions and Answers**



Speakers

Speaker	Topic	Time
Capezzuto, Vincent	Introduction	9:00
Jenny, Margaret	RTCA Roles and Responsibilities	9:00 – 9:15
Capezzuto, Vincent	SBS Program Overview	9:15 – 9:45
Manley, Steve	Acquisition Process and Timeline	9:45 – 10:00
Hammer, Jonathan	RTCA SC-186 Structure and Products	10:00 – 10:15
Moertl, Peter	OSD – ATSA SURF IA	10:15 – 10:45
Jones, Ken / Carreno, Victor	SPR – ATSA ITP	10:45 – 11:15
Manley, Steve	RFP Review and Next Steps	11:15 – 11:45
All	Questions and Answers	11:45 – 12:00



RTCA Roles and Responsibilities



RTCA - Overview

- **Mission:**
 - To advance the art & science of aviation for the benefit of the public
- **Operation:**
 - Serves as a Federal Advisory Committee
 - ~ 400 Members
 - Domestic, int'l, labor, suppliers, airports, academia
- **Products:**
 - Consensus-based recommendations that form the basis for complementary gov't & industry investments
 - Recommended performance standards that are used as the basis for TSOs



RTCA Mechanisms

- **Special Committees**

- Utilized Fed Adv Committee
- Open to public
- Government-driven TOR, deliverables

- **ATMAC**

- Utilized Fed Adv Committee
- Open to public

- **Working Groups**

- Select participation based on needs,
- Closed meetings
- Summary published on RTCA Web site
- Recommendations → ATMAC

- **Task Forces**

- Tough, near-term issues
- Participation Open
- Short duration
- Clear deliverables

SBS Program Overview



FY08 Conference Mark

- **Conference Language:**
 - *The conference agreement provides \$85,650,000 for ADS-B, instead of \$90,650,000 as proposed by the House and \$97,354,000 as proposed by the Senate. The conferees direct FAA to examine the frequency congestion issues associated with the ADS-B signal, and accelerate the effort to determine how existing aircraft separation standards can be safely reduced.*
 - *The conference agreement provides \$9,350,000 for the ADS-B program specifically to expedite air to air capabilities.*
- **The FAA received the funding in January 2008**



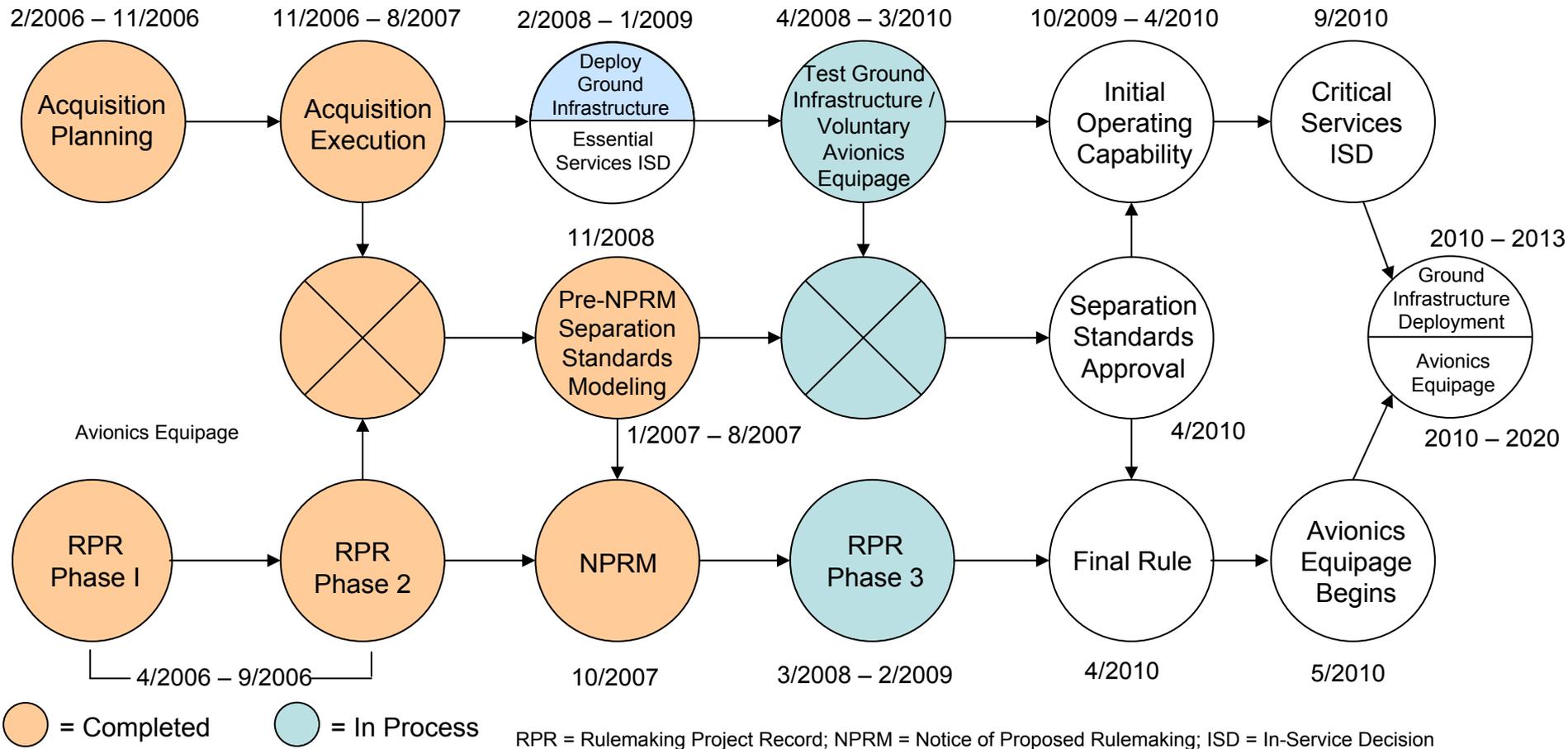
FY08 Conference Mark

- **After several discussions with the Senate Appropriations Subcommittee, it was decided that the funding would be used to accelerate air to air applications with a key focus on Runway Safety (Surface Applications and Conflict Detection / Alerting on the Surface) and Flight Deck Merging and Spacing.**



Dual Track Strategy

Ground Infrastructure



RPR = Rulemaking Project Record; NPRM = Notice of Proposed Rulemaking; ISD = In-Service Decision



FY08 Accomplishments

Milestone	Planned Date of Completion
Preliminary Design Review (PDR)	November 2007 ✓
Critical Design Review (CDR)	February 2008 ✓
Factory Acceptance Test for Essential Services	May 2008 ✓
Service Acceptance Test for Essential Services	June 2008 ✓
End to End System Test	August 2008 ✓
Operational Test	August 2008 ✓
Initial Operating Capability (IOC) for Essential Services	August 2008 ✓



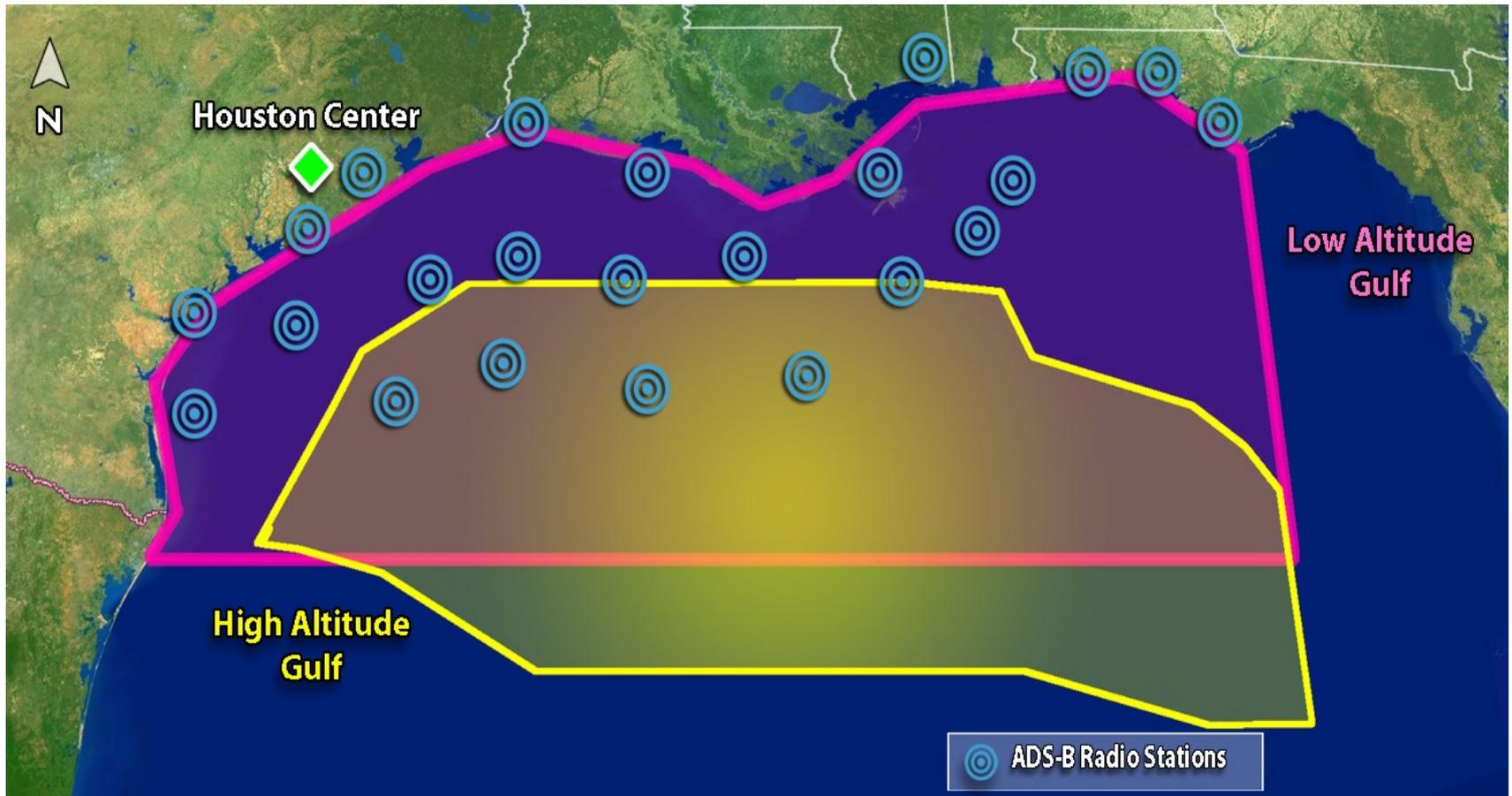
Critical Services: FY2009 / FY2010 Schedule

Milestone	Planned Date of Completion / Status
FY2009	
In Service Decision for Broadcast Services	November 2008
Gulf of Mexico Weather Service Acceptance Test (SAT)	March 2009
Louisville Service Acceptance Test (SAT)	April 2009
Gulf of Mexico Service Acceptance Test (SAT)	June 2009
Philadelphia Service Acceptance Test (SAT)	August 2009
Gulf of Mexico Comm. and Weather Initial Operating Capability (IOC)	September 2009
FY2010	
Juneau Service Acceptance Test (SAT)	October 2009
Louisville IOC of Surveillance Services	October 2009
Gulf of Mexico IOC of Surveillance Services	December 2009
Philadelphia IOC of Surveillance Services	February 2010
Juneau IOC of Surveillance Services	April 2010
Final Rule Published	April 2010
Surveillance Services ISD for ADS-B	September 2010

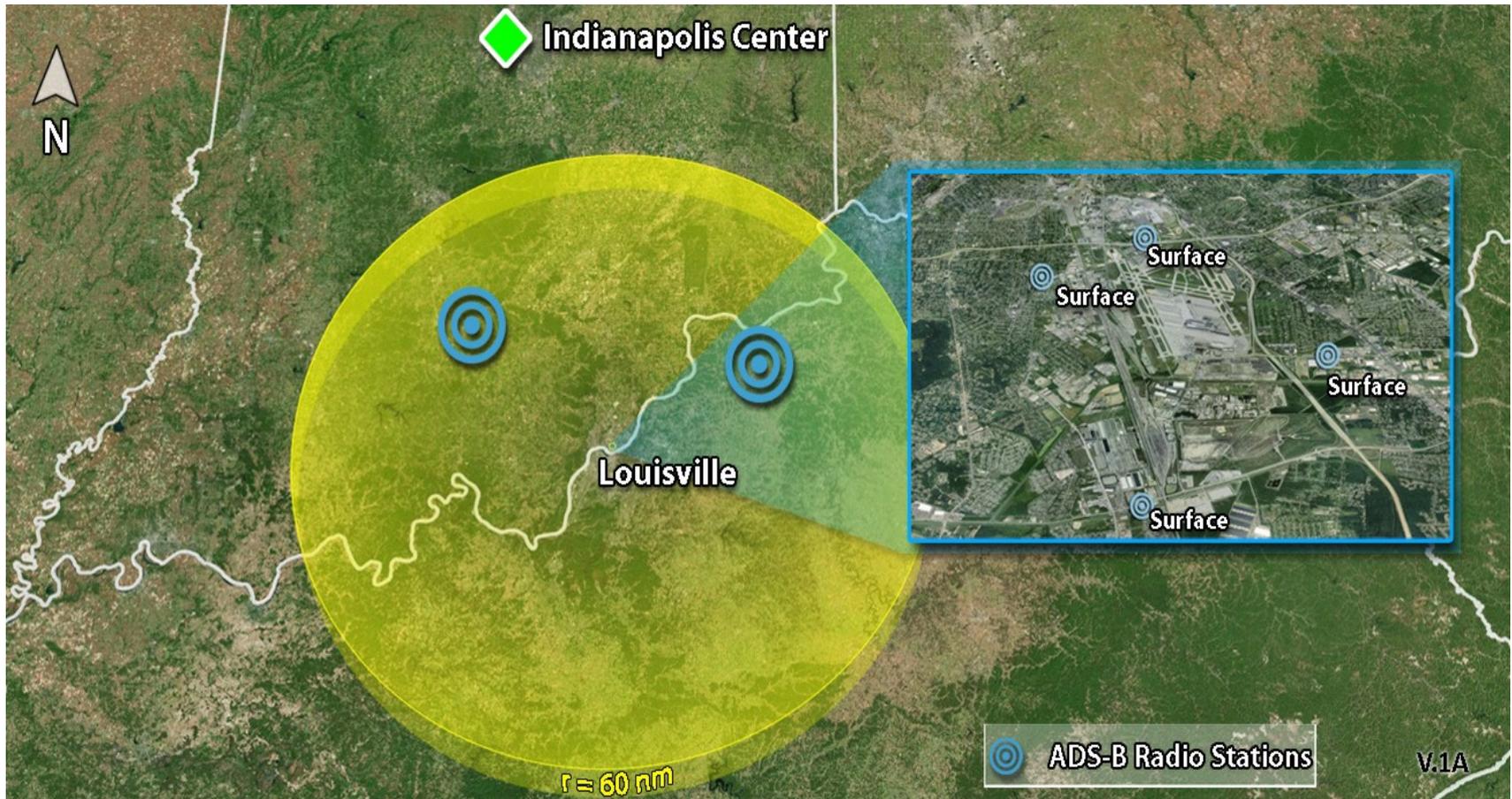
Note: Updates to the RTCA MOPS / MASPS (if needed) are planned for February 2010 – February 2012



Critical Services Key Site: Gulf of Mexico



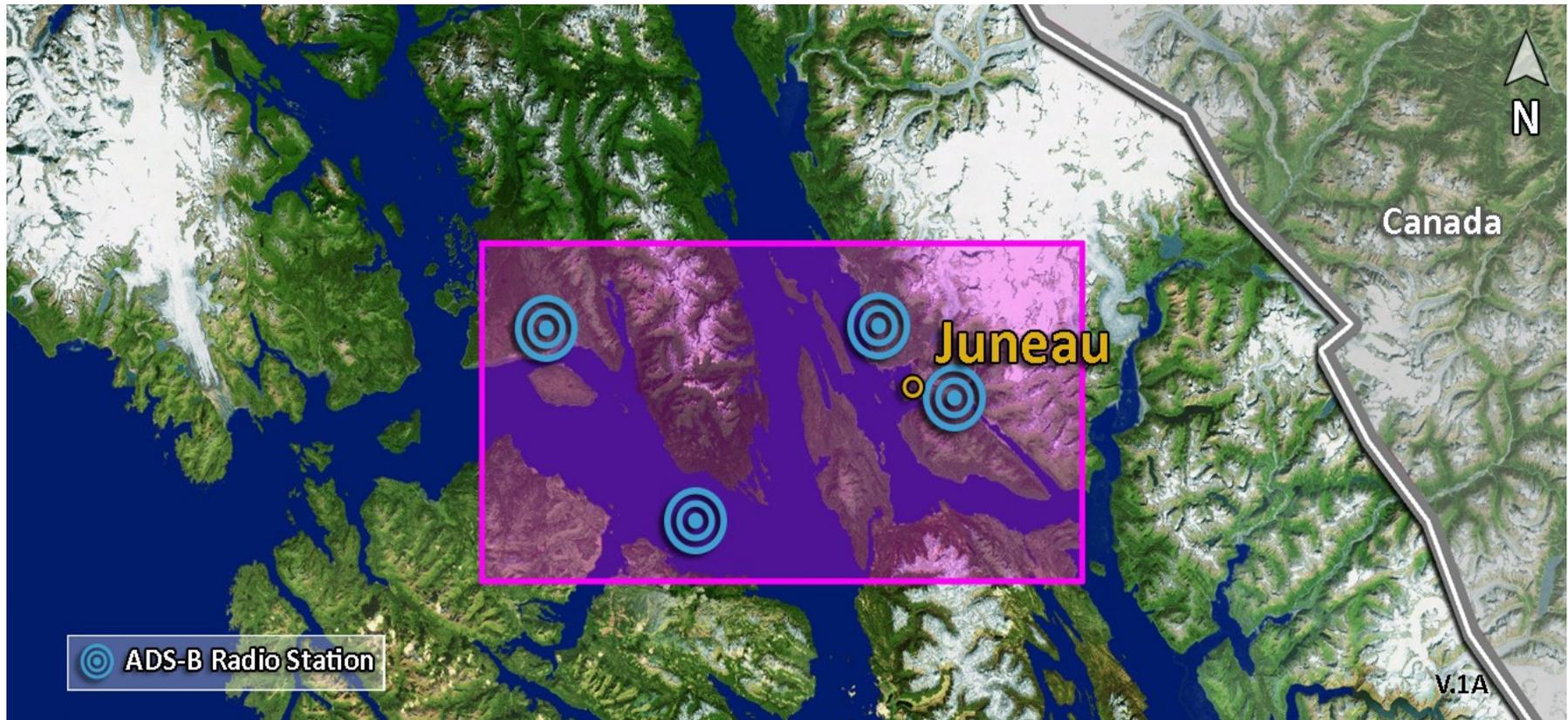
Critical Services Key Site: Louisville



Critical Services Key Site: Philadelphia



Critical Services Key Site: Juneau



ASDE-X Waterfall

ID	Airport	IOC	ORD
MKE	General Mitchell International Airport (Milwaukee, WI)	6/5/03	10/30/03
MCO	Orlando International Airport	9/1/04	9/30/04
PVD	Theodore Francis Green State Airport (Providence , RI)	7/2/04	5/16/05
HOU	William P. Hobby Airport (Houston, TX)	8/4/05	8/31/05
SEA	Seattle-Tacoma International Airport	1/27/06	2/24/06
STL	Lambert-St. Louis International Airport	10/21/04	5/24/06
ATL	Hartsfield-Jackson Atlanta International Airport	5/5/06	6/7/06
BDL	Bradley International Airport (Hartford, CT)	6/7/06	6/21/06
SDF	Louisville International Airport – Standiford Field	3/11/07	7/19/07
ORD	Chicago O'Hare International Airport	7/29/07	8/29/07
CLT	Charlotte Douglas International Airport	7/6/07	8/30/07
IAD	Washington Dulles International Airport	2/15/08	4/1/08
DTW	Detroit Metro Wayne County Airport	6/28/08	8/13/08
PHX	Phoenix Sky Harbor International Airport	8/6/08	



ASDE-X Waterfall

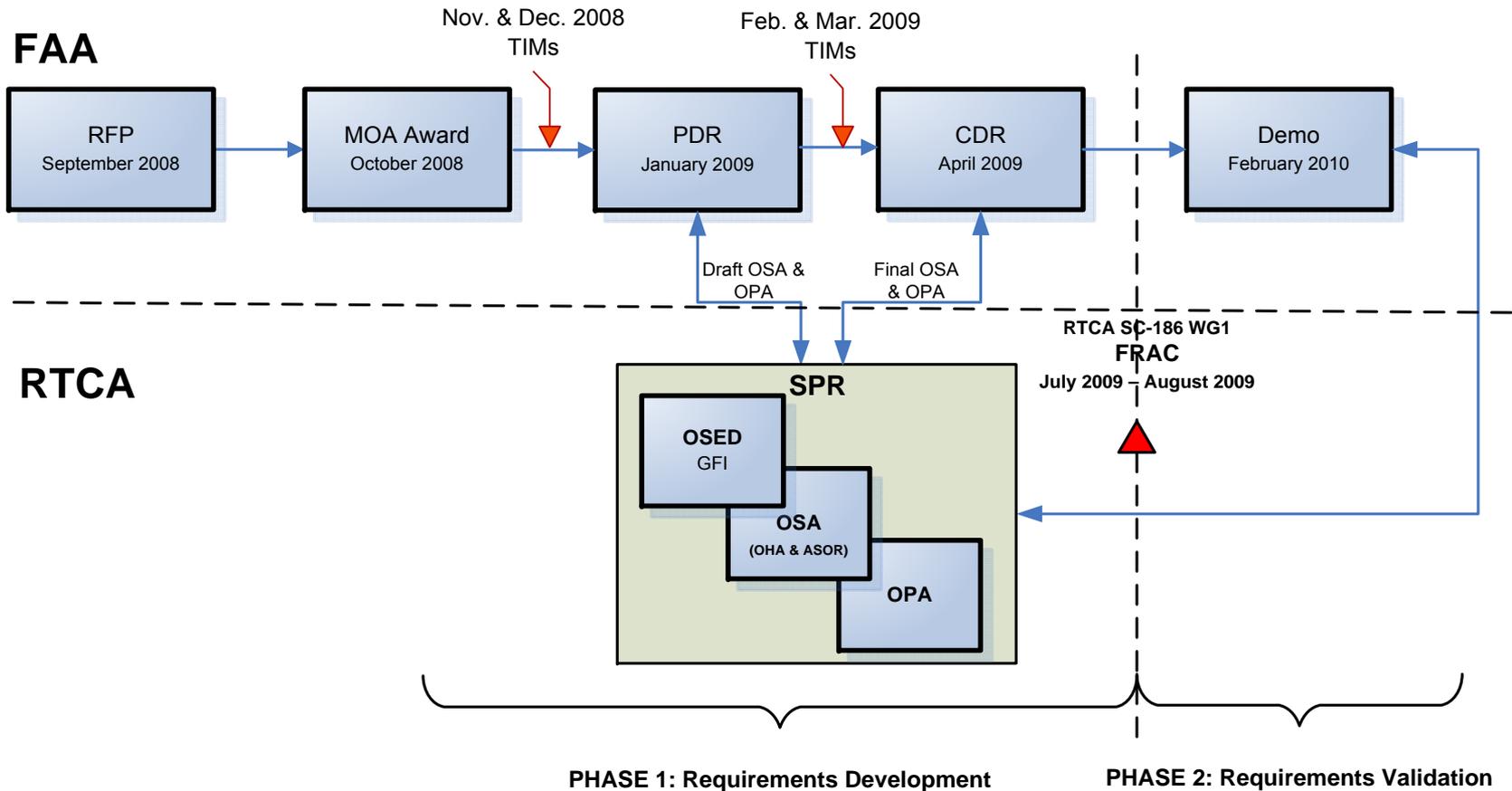
ID	Airport	IOC	ORD
JFK	John F. Kennedy International Airport	8/28/08	
FLL	Ft. Lauderdale / Hollywood Airport	April 2009	
LAX	Los Angeles International Airport	June 2009	
BOS	Boston Logan International Airport	July 2009	
EWR	Newark International Airport	July 2009	
DEN	Denver International Airport	November 2009	
IAH	George Bush Intercontinental Airport (Houston, TX)	November 2009	
PHL	Philadelphia International Airport	December 2009	
SNA	John Wayne – Orange County Airport	February 2010	
MSP	Minneapolis – St. Paul International Airport	March 2010	
MIA	Miami International Airport	March 2010	
DFW	Dallas / Ft. Worth International Airport	April 2010	
BWI	Baltimore Washington International Airport	April 2010	
HNL	Honolulu International Airport	May 2010	
SLC	Salt Lake City International Airport	May 2010	
DCA	Ronald Reagan Washington National Airport	June 2010	
SAN	San Diego International Airport	August 2010	



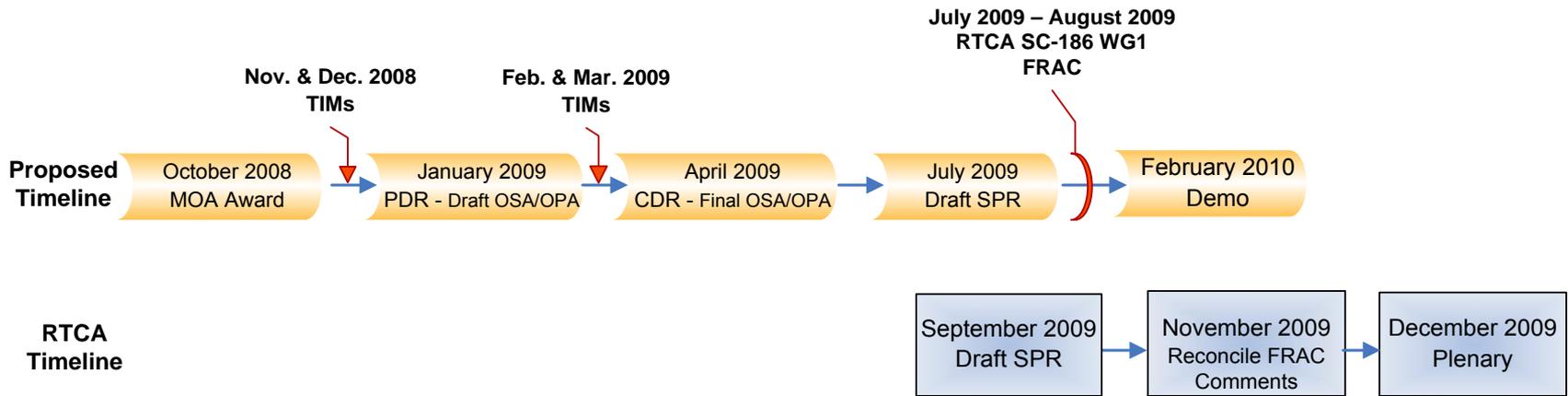
Acquisition Process Proposed and RTCA Timeline



Acquisition Process Diagram



Timeline



Acquisition Strategy

- **Competitive award of multiple Memorandums of Agreements (MOAs) within budget constraints**
- **Acquisition Goals**
 - Accelerate ADS-B surface conflict detection / cockpit alert applications to support the ADS-B program office's goal of incentivizing and facilitating aircraft avionics equipage and ADS-B applications (including arrival applications)
 - Provide industry perspective for document development
 - Enable manufacturers to rapidly produce production ready avionics at lower costs



Acquisition Strategy: Vendor Deliverables

- **Review and comment on the draft Operational Service and Environment Description (OSED) after award, at Preliminary Design Review (PDR), and Critical Design Review (CDR), if necessary**
- **Deliver draft Operational Performance Assessment (OPA) and Operational Safety Assessment (OSA) at PDR**
- **Deliver final OPA and OSA at CDR**



Acquisition Strategy: Vendor Deliverables (continued)

- **Support SC-186 Work Group 1 development of Safety and Performance Requirement (SPR) subsequent to CDR**
- **Demonstrate performance requirements at an operational airport (may include arrival applications)**
- **Participate in refining documentation based on demonstration results**



Acquisition Strategy

- **FAA will designate specific representatives (SMEs) to participate in Technical Interchange Meetings (TIMs), PDR, CDR, and Demo**
- **All deliverables at PDR and CDR become government property and may be shared with other vendors participating in this effort**



Acquisition Milestones

Milestone	Planned Date of Completion / Status	Responsible
Release of Draft RFP	August 29, 2008 / Complete	FAA
Industry Day	September 3, 2008	FAA
Release Final Request for Offer (RFO)	September 10, 2008	FAA
RFO Responses Due	October 10, 2008	FAA
Agreements in Place	October 31, 2008	FAA
TIM (Post Award Conference) <i>-Discuss vendor OSED comments</i>	November 2008	FAA
TIM (optional)	December 2008	FAA
PDR <i>-Draft OPA/OSA submittal one week prior</i> <i>-Vendor demonstration of knowledge</i> <i>-Robust documentation</i>	January 2009 <u>(Constraint)</u>	FAA
TIM	February 2009	FAA
TIM (optional)	March 2009	FAA



Acquisition Milestones (continued)

Milestone	Planned Date of Completion / Status	Responsible
CDR (Final OSA and OPA, Draft Demonstration Plan) <i>-Final OPA / OSA submittal one week prior</i> <i>-Refined / Become Non-controversial documents</i>	April 2009 (Constraint)	FAA
SPR Development	May – July 2009	RTCA
Final Review and Comment (FRAC) Begins	July 2009	RTCA
FRAC Comments Due	August 20, 2009	RTCA
FRAC Comment Resolution	August 20 – 31, 2009	RTCA
SC-186 Plenary Approval	August 2009	RTCA
Final Demonstration Plan	September 2009	FAA
Demonstration	September 2009 – February 2010	FAA
Demonstration Report Provided to FAA to be provided to RTCA	February 2010	FAA
Demonstration Results to be incorporated into SPR (if applicable)		RTCA

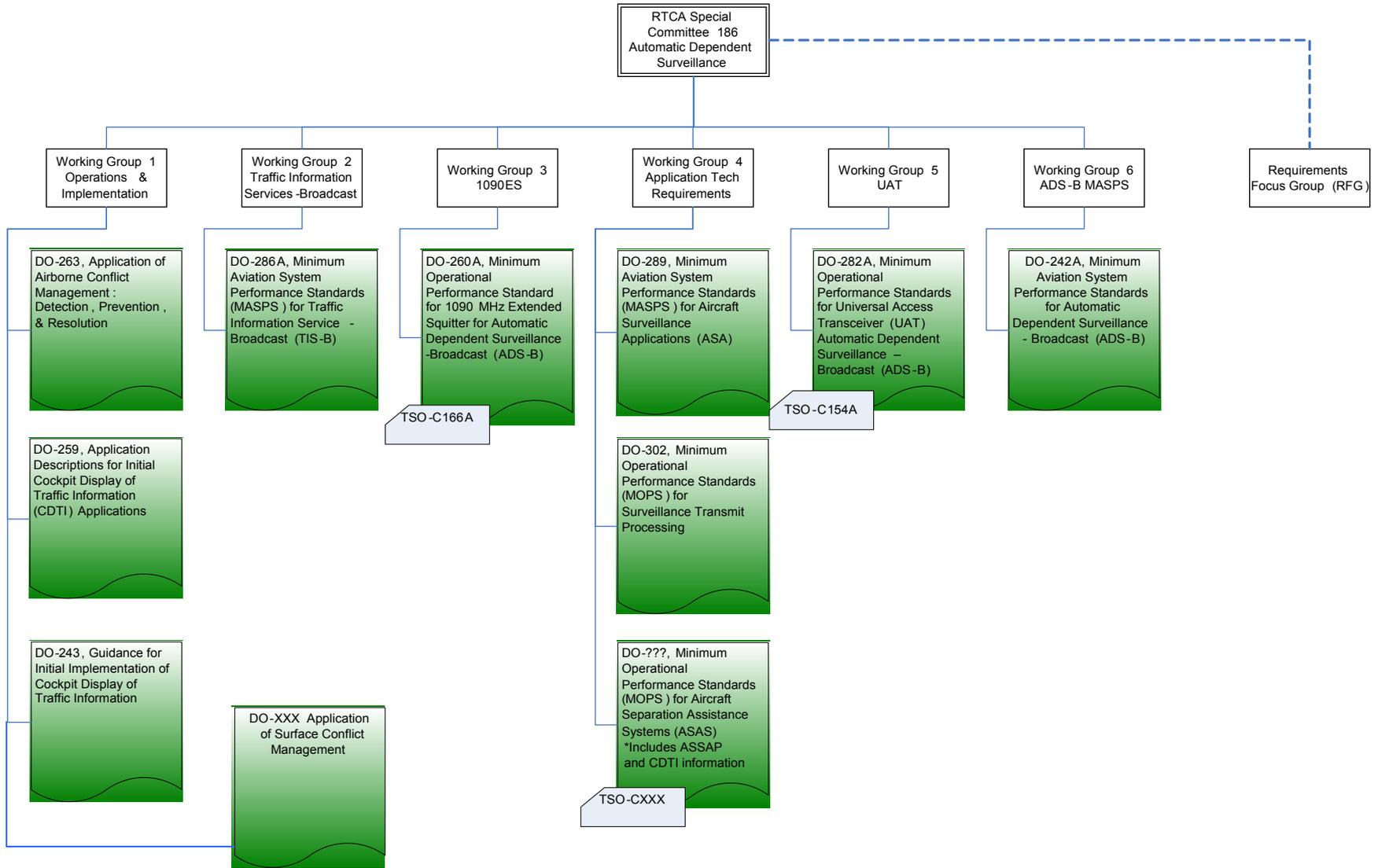


RTCA SC-186 Structure and Products

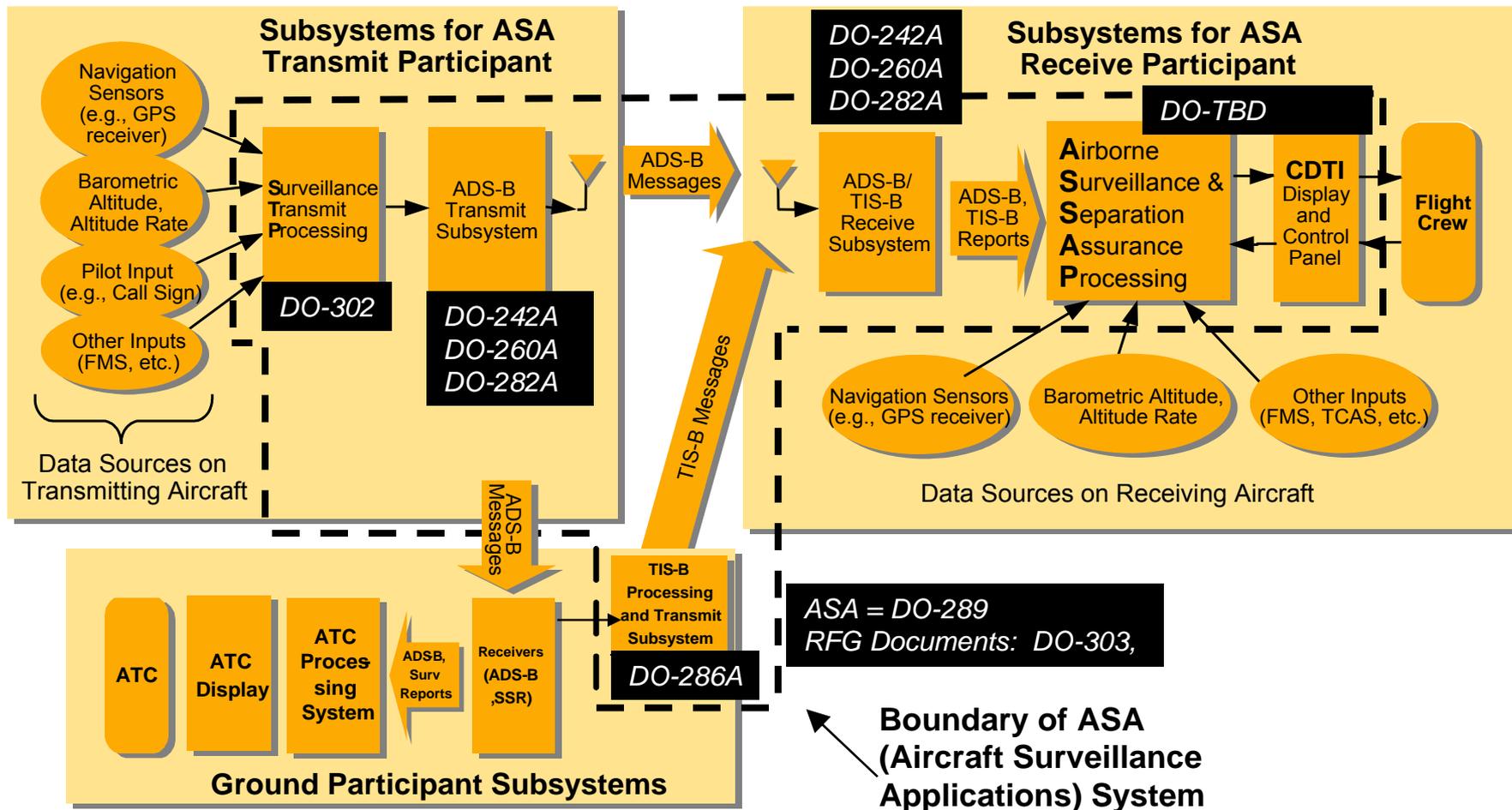
ADS-B Architecture and Related Standards



RTCA SC-186 Structure and Products



ADS-B Architecture and Related Standards



Status of ATSA SURF with Indications and Alerting Operational Services and Environment Description (OSED) Development



Overview

- **Objective**
- **OSD Development**
- **Participants**
- **Approach**
- **General Assumptions**
- **Indications**
- **Alerting**
- **Draft Display Requirements**
- **Development Status**
- **Schedule**
- **Next meetings and participation**



Objective

- **The ATSA SURF (Enhanced Traffic Situation Awareness on the Surface) with Indication and Alerting (IA) sub-group of RTCA SC-186, WG 1 is developing an application that uses traffic surveillance information to provide flight deck indication and alerting in reference to a potential or actual traffic conflict on or near the airport surface**



Operational Services and Environment Description (OSED) Development

- **Draft version 1.0: 9/2007**
- **Draft version 1.1: 1/2008**
- **Draft version 1.2.1: 4/2008**
- **Interim draft version 1.3: 8/2008**
 - Current version
 - Incorporates comments from April review and contains updates from group progress
- **Draft version 1.4: 10/2008**
- **Final draft version 1.5: 05/2009**
- **Final version 1.6: 07/2009**



ATSA SURF IA Participants

- **About 50 different participants, 20-30 at any meeting**
- **Participating Organizations:**
 - ACSS, Air Line Pilots Association (ALPA), Boeing, ERA, FAA flight standards, FAA certification, FAA SBS, Garmin, Honeywell, MITRE CAASD, National Aeronautics and Space Administration (NASA), National Transportation Safety Board (NTSB), Rockwell Collins, Sensis, UPS, VOLPE, etc.
- **Meets every 2-3 months**
 - 7 meetings so far



General Assumptions (1)

- **ATSA SURF IA builds on existing guidance about the traffic display in RTCA DO-289**
 - Airport Surface Situational Awareness (ASSA)
 - Final Approach Runway Occupancy (FAROA)
- **Application assumes a cockpit display of traffic information (CDTI)**
 - Implementations without CDTI may be possible but is not focus of this version of the OSED
 - No assumption on implementation, such as class II or class III EFB or integrated installation



General Assumptions (2)

- **No ground-based surveillance requirement**
 - Application needs to be operable at all airports
 - However, ground-based surveillance such as TIS-B and ADS-R will be utilized if available
 - Expected to increase benefits significantly, especially in short term
- **Current draft does not involve communication of alerts to ATC**
 - Alerting design needs to be coordinated with other ground-based solutions such as RWSL* or AMASS**
 - ATSA SURF alerting occurs later than controller alerting and is intended as “last safety net”

* Runway Status Light

** Airport Movement Area Safety System



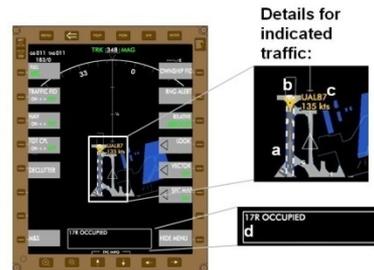
General Assumptions (3)

- **ATSA SURF IA is applicable only for traffic on runways, entering runways, or on approach to runways**
 - Traffic: vehicles or aircraft
 - No alerting or indications of conflicts on taxiways or in ramp areas
 - No inclusion of non-traffic such as animals
- **No consideration of runway closure, obstruction or condition**
- **No taxi intent**



Approach

- **Indicate** safety-relevant information on the Cockpit Display of Traffic Information (CDTI) for normal operational conditions



- **Alert** flight crews about non-normal operational conditions



Examples of CDTI implementations that were used in Human-in-the-loop simulations to evaluate the OSED

Indications

- **Facilitate pilots' perception and processing of runway safety relevant traffic information to reduce likelihood of conflicts**
- **Consist of highlighted, or otherwise emphasized relevant traffic and runways on a CDTI**
- **Two types:**
 - Primary: runway unusable
 - Secondary: runway usable
- **Intended for normal operational conditions**



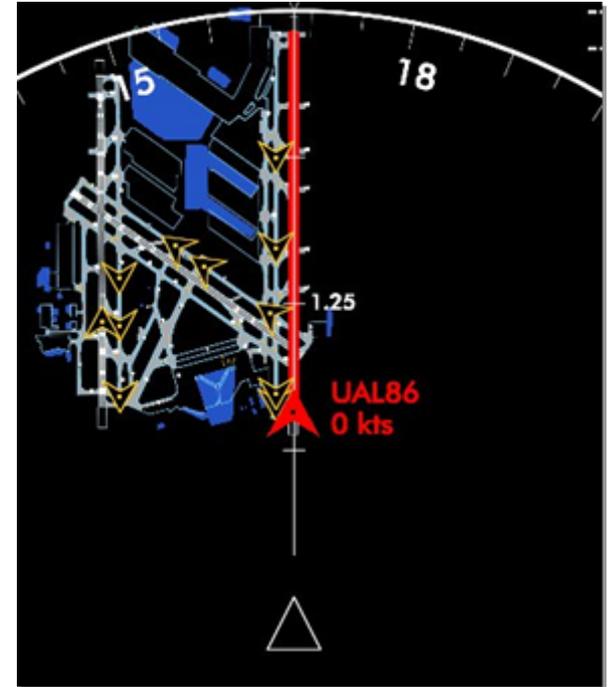
What's in the OSED on Indications?

- **Guiding principles on ATSA SURF indications**
 - General guidance in what situations to provide safety relevant indications
- **33 examples for traffic situations with primary and secondary indications**
- **Five sample scenarios demonstrating how ATSA SURF indications and alerts work in combination**
- **Display information requirements**



Alerting

- Facilitate pilots' appropriate compensatory response once a conflict is imminent
- Consist of highlighted traffic and runways on a CDTI and an auditory signal
- Cautions require subsequent pilot response
- Warnings require immediate response (draft FAA AC 25.1322)
- Intended for non-normal operational conditions



WARNING TRAFFIC ON 17R

What's in the OSED on Alerting?

- **Guiding principles on alerting**
 - General guidance in what situations to provide alerting
- **8 examples for traffic situations with alerting**
- **Five sample scenarios demonstrating how ATSA SURF indications and alerts work in combination**
- **Display information requirements**



Draft Display Requirements

		Indication Requirements		Alerting Requirements	
		Primary Indication	Secondary Indication	Caution	Warning
A combination of at least two of these feature types is required.	Highlighting of target, e.g. color, shape, size, outline, etc.	R	R	R (Color: Yellow/amber)	R (Color: Red)
	Highlighting of runway (if used)	R	O	R	R
	Textual Information Area (if used)	R	O	R	R
Target identification		D	D	R	R
Target ground speed		D	D	O	O
Target heading+		D	D	D	D
Distance / Time Ownship to Traffic		O	O	O	O
Target on ground / in air		D	D	D	D
Visual attention getter (e.g. flashing, Master Caution / Warning; display in primary field of view)		No	No	R	R
Auditory attention attracting, non-speech signal		No ⁺	No	O	O
Auditory (speech) information		No ⁺	No	R	R
Off-scale traffic position information		R	R	R	R
Ownship symbol		TBD	TBD	TBD	TBD

Notes:

R: Required for minimal implementation

D: Desired

O: Optional – depends on implementation

+ Not applicable for ground vehicles

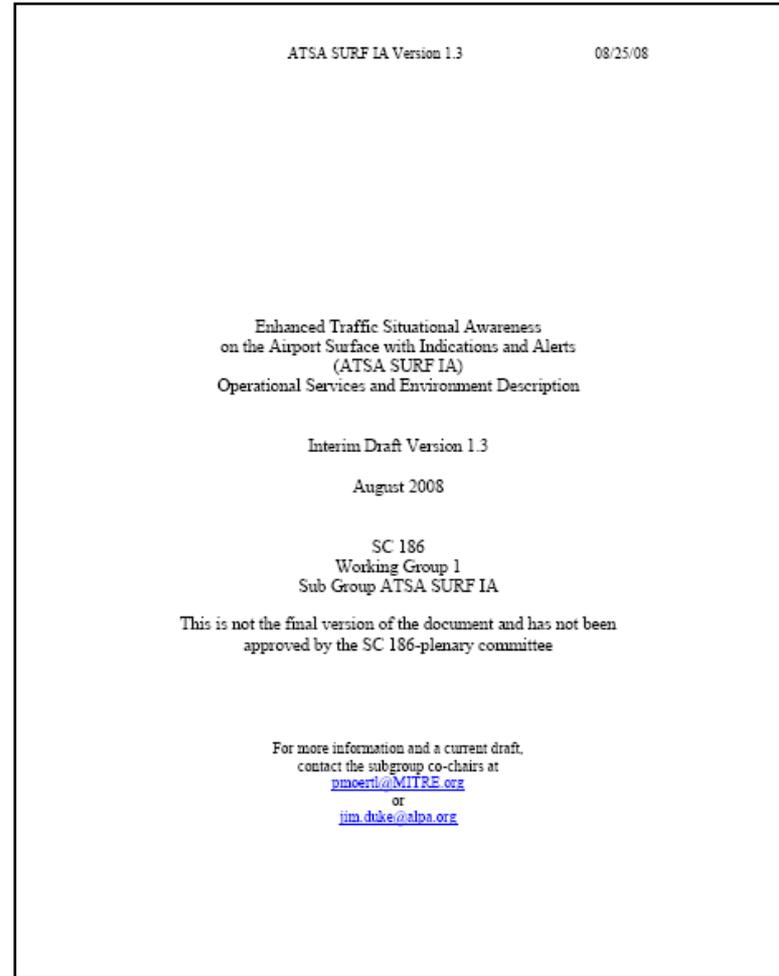
* Except in scenarios where ownship taxies toward a runway with high speed converging traffic. In that scenario, auditory signals and auditory (speech) information are desired.

OSED Status

- **Estimated completion status of OSED:**
 - Indication principles and examples: 80%
 - Alerting principles and examples: 60%
 - Display requirements: 70%
- **Related work**
 - Performed two HITL simulations to evaluate OSED
 - Additional HITL simulations are planned:
 - October 2008: NASA Langley, MITRE CAASD
 - Spring 2009: Boeing, MITRE CAASD

ATSA SURF IA OSED Draft 1.3

- **Draft 1.3 is currently open for review by group**
- **Comments due by September 10**
- **Comments and resolutions will be reviewed in September 22-24th meeting**



Next Meetings and Telecons

- **Next ATSA SURF IA OSED meeting: Sept 22-24, 2008**
- **Next ATSA SURF IA OSED telecon: Thu Sept 4, 1:00 pm EDT**
- **To join WG-1 ATSA SURF IA distribution list**
Send email to: listserv@mitre.org
(*body of message=*) SUBSCRIBE sc186-surface-alert-list@LISTS.MITRE.ORG *your FIRST LASTNAME*
Or contact Peter Moertl (pmoertl@mitre.org)

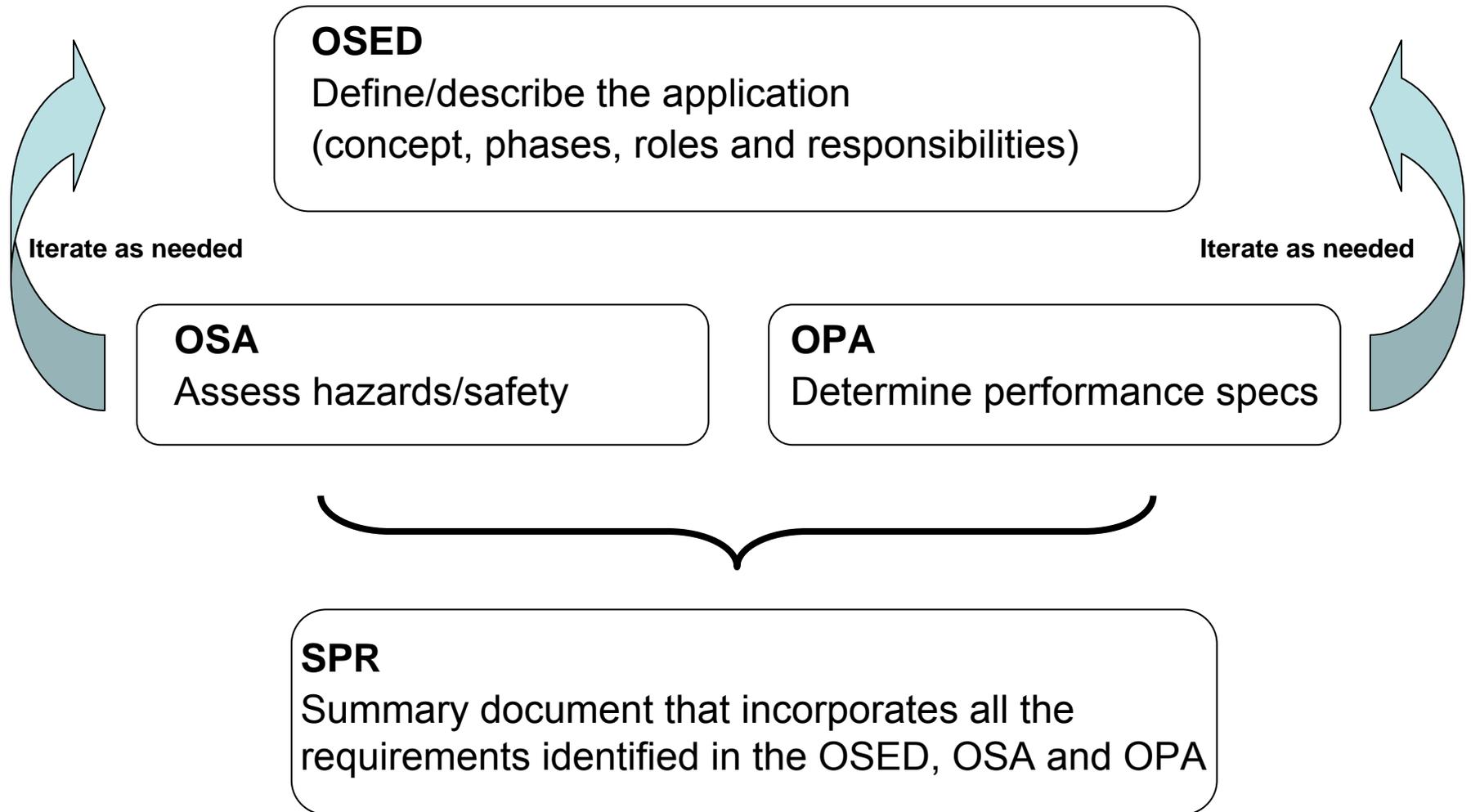


Airborne Traffic Situational Awareness – In-Trail Procedures (ATSA-ITP) Safety, Performance and Interoperability Requirements (SPR)

Development Overview



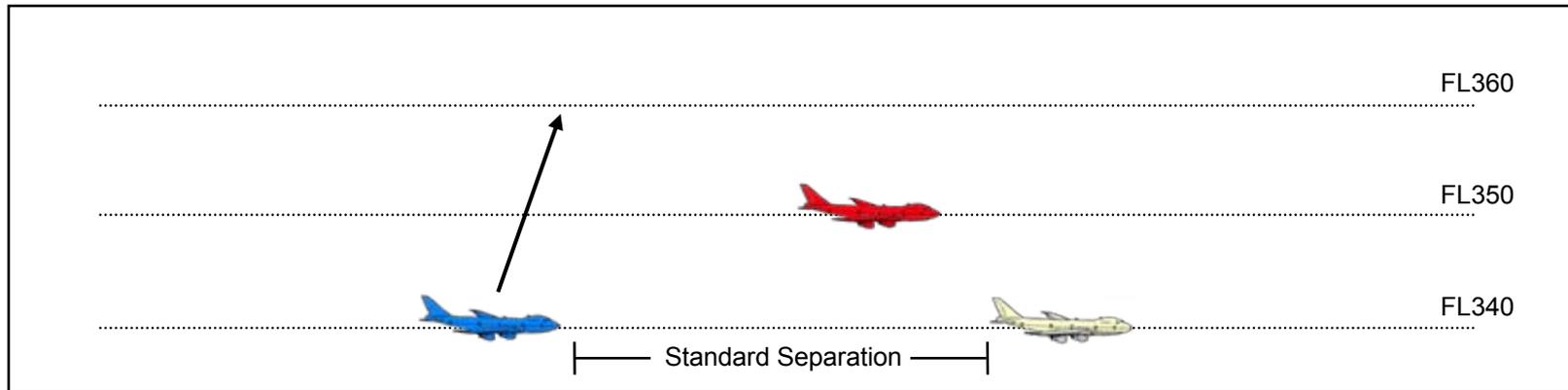
ATSA In-Trail Procedures SPR Process



ATSA In-Trail Procedures

Following Climb Example

- **ADS-B In-Trail Procedures are airborne ADS-B enabled climbs and descents through otherwise blocked flight levels**



- **ADS-B In-Trail Procedures**
 - Based on an approved ICAO procedure
 - Controller separates aircraft using information derived from cockpit sources and relayed by the flight crew to the controller
 - Receipt of ADS-B data from surrounding aircraft; use of a cockpit display and software provides data to qualify the aircraft for the maneuver
 - No airborne monitoring during climb required; Controller retains responsibility for separation and approves or disapproves the request based on the controller's awareness of the traffic picture

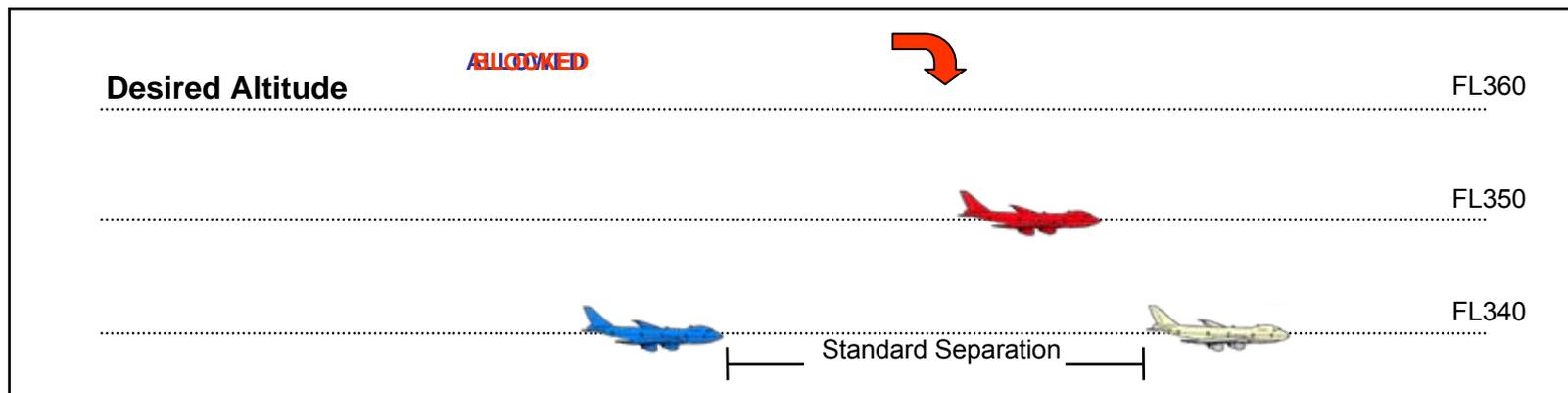
blue = ADS-B transceiver and onboard decision support system

red = ADS-B out minimum required

ATSA In-Trail Procedures

Standard Climb vs ITP Climb

Current Separation Trail Procedure (ITP)



blue = ADS-B transceiver and onboard decision support system

red = ADS-B out minimum required

white = no ADS-B requirements

Sequence of Events Status

Pilot requests following climb

ATC verifies std climb criteria **Unable**

Pilot verifies ITP climb criteria Valid

Pilot requests ITP climb from ATC

ATC verifies ITP climb criteria Valid

ATC grants ITP following climb **Approved**

Pilot ITP Speed/Distance Criteria

	Ground Speed Δ	Range Δ
or	< 20 kt	> 15 nm
	< 30kt	> 20 nm

ATC ITP criteria

- Closing Mach ≤ 0.04
- Available target altitude

ATSA In-Trail Procedures SPR

Annex A - OSED

- **Annex A – Operational Service and Environment Definition**
 - OSED describes:
 - Services, intended functions, and associated procedures for ATSA ITP
 - Characteristics and assumptions about the environment envisioned for ATSA ITP
 - Procedure is broken into phases: Initiation, Instruction, Execution, and Termination
 - Detailed descriptions and diagrams were developed for each phase
 - Required information elements identified for each phase
 - OSED forms the basis for the Operation Safety Assessment (OSA), Operational Performance Assessment (OPA) and Collision Risk Model
- **An expanded version of the OSED was developed and is available as background material**



ATSA In-Trail Procedures SPR

Annex C - OSA

Annex C – Operation Safety Assessment (OSA) consists of two major processes

- Operational Hazard Assessment (OHA)
 - Hazards identified by operational personnel using as reference the application description and associated phases and actions
 - The hazards are identified at the boundary of the application, between the application and the envisioned ATSA ITP environment
 - Effects of the hazards are defined and the probabilities of the effects, given the hazard has occurred, are calculated
- Allocation of Safety Objectives and Requirements (ASOR).
 - Identifies each basic cause and abnormal event leading to a hazard
 - Fault trees are developed which calculate the probability of a hazard occurring based on the basic causes
 - From the safety objectives and fault trees, a safety requirement and safety assumption allocation is performed

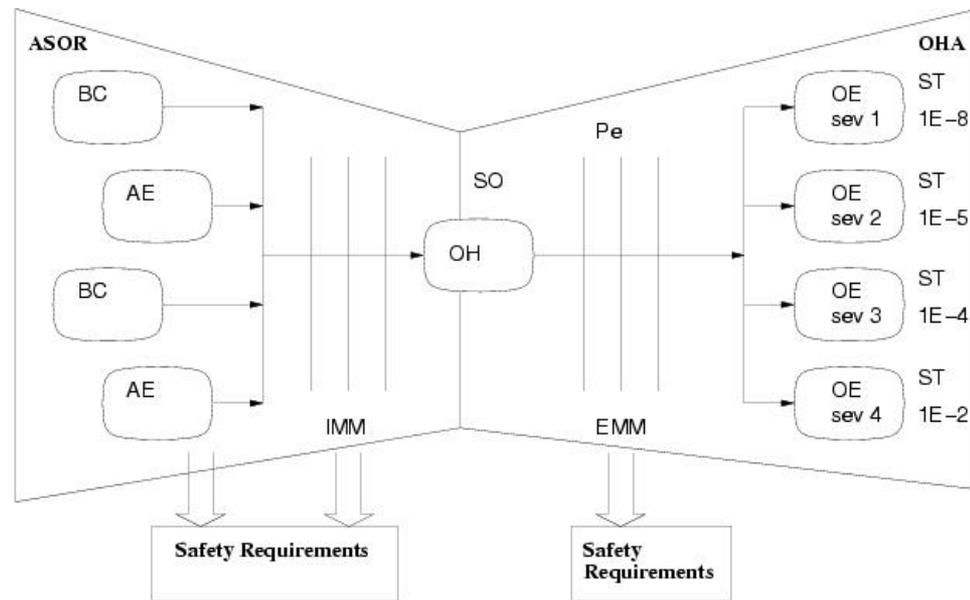


ATSA In-Trail Procedures SPR

Annex C - OSA

Operational Hazards (OH)

OH Reference	OH Description
OH 1	Interruption of ITP maneuver (interruption that prevents the successful completion of ITP; flight crew abandons the maneuver)
OH 2	Execution of an ITP clearance not compliant with ITP criteria
OH 3	ITP request not accepted by ATC (flight crew requests ITP but the request is denied by ATC)
OH 4	Rejection by the flight crew of an ITP clearance not compliant with the ITP criteria
OH 5	Rejection by the flight crew of an ITP clearance compliant with the ITP criteria
OH 6	Incorrect execution of an ITP maneuver



Operational Effects (OE)

Hazard Class	1 most severe	2	3	4	5 least severe
	Normally with hull loss. Total loss of flight control, mid-air collision, flight into terrain or high speed surface movement collision.	Large reduction in safety margins or aircraft functional capabilities	Significant reduction in safety margins or aircraft functional capabilities	Slight reduction in safety margins or aircraft functional capabilities.	No effect on operational capabilities or safety

ATSA In-Trail Procedures SPR

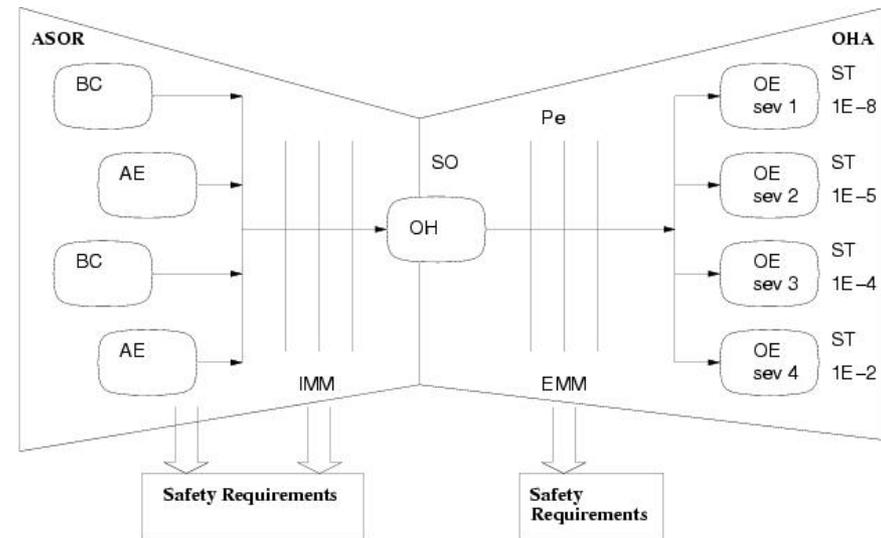
Annex C - OSA

Probability of Effects (PE)

- Given that a hazard occurs, what is the probability that it leads to an operational effect
- The probability is calculated taking into account:
 - Operational environment
 - Geometries
 - External mitigation means

Allocation of Safety Objectives and Requirements (ASOR)

- What is the probability that the hazard occurs
- Abnormal events
- Basic causes
- Fault trees
- Internal mitigation means



ATSA In-Trail Procedures SPR

Annex D - CRM

Collision Risk Model

- Developed using a method and format familiar to the ICAO Mathematics Sub-Group (MSG) of the Separation and Airspace Safety Panel (SASP)
- Provides a collision risk safety assessment of ATSA ITP operating under nominal conditions
 - Calculates the probability of aircraft longitudinal overlap based on given values of accuracy for GNSS/ADSB, altitude error, latency error, initiation criteria parameters for the ITP, and a wind model.
- A parametric analysis was performed to determine the sensitivity of collision risk to accuracy, integrity and initiation criteria
- The CRM was used to refine the ITP initiation criteria on which the OSA and resulting safety requirements (tagged “SR#”) are based
- The analysis within the CRM, demonstrates that the ITP initiation criteria (15 NM, 20 knots, etc.) and the ITP separation minima (10NM) meets the target level of safety for the considered environment



ATSA In-Trail Procedures SPR

Annex B - OPA

- **Annex B – Operational Performance Assessment**
 - Sets minimum performance requirements for the surveillance data, associated processing, and the traffic display for the receive aircraft domain
 - Also derives a set of assumptions on the transmit aircraft domain and ground domain
- **Scope of the OPA:**
 - Sets minimum operational requirements for ATSA ITP operating under nominal conditions
 - Identifies the minimum data set necessary for ATSA ITP
 - Sets requirements on the use of transmit aircraft and receive aircraft surveillance data in deriving the initiation criteria
 - Ensures the usability of the ITP equipment by the flight crew to determine the initiation criteria and the acceptability of an ITP maneuver
 - Draws those parameters and assumptions from the CRM that are relevant to operational performance under nominal conditions.
 - Performance requirements are set to ensure that assumptions of the CRM are met
 - Documents design considerations deemed important by the operational community, but not as minimum requirements



ATSA In-Trail Procedures SPR

- **Safety, Performance and Interoperability Requirements (SPR) Document for ATSA-ITP**
 - A summary of all the performance requirements (from OPA), safety requirements (from the OHA) and the operational requirements (from the OSED) into a single document as results
- **Document layout**
 - Chapters 1 & 2 – Intro and Approach/Methodology
 - Chapter 3 – Safety and Performance Requirements (SPR)
 - Chapter 4 – Interoperability Requirements
 - Annexes
 - Annex A: Operational and Service Environment Description (OSED)
 - Annex B: Operational Performance Assessment
 - Annex C: Operational Safety Assessment
 - Annex D: Collision Risk Model



ATSA In-Trail Procedures SPR

Chapters 3 and 4

- **Chapter 3 - Safety and Performance Requirements (SPR)**
 - Result of SPR assessment for ATSA ITP
 - Based on DO-264/ED 78A process
 - Developed from most stringent values contained in the OPA, OSA and CRM
 - Summarizes all assumptions and SPR requirements
 - For the transmit (reference) and receive (ITP) aircraft domains three types of requirements identified: operational, functional and performance
 - Ground domain requirements are limited to operational requirements only
 - Requirements satisfied by NPRM implementation
- **Chapter 4 – Interoperability Requirements**
 - Provides the data-link independent Interoperability Requirements
 - Identifies minimum interface requirements between transmitting (reference) and receiving (ITP) aircraft
 - No ground domain requirements beyond what minimally exists today (e.g., assume a minimum of High Frequency (HF) communication)



Request for Proposals (RFP) Review



RFO (SIR RFO) Review

- **Planned issuance of SIR RFO is September 10, 2008**
- **Responses due October 10, 2008**
- **Memorandum of Agreement format is different than uniform contract format**



RFO (SIR RFO) Review (continued)

- **The RFO Statement of Objectives (SOO) reflects deliverables and constraints**
 - Vendors required to respond with a performance work statement in the agreement template, which includes:
 - Scope (Article 2)
 - Specific goals and objectives to be accomplished
 - Vendor assumptions required for performance, such as GFE requirements
 - Management of the project
 - Roles and responsibilities
 - Milestones (Article 4)
 - Points of Contact (Article 8)
 - Funding and Payment (Article 9)
 - Other RFO response material, such as proposal content and evaluation strategy are defined in draft RFO



RFO (SIR RFO) Review (continued)

- **Reasonable fee percentages are expected, consistent with associated vendor risk**
- **Goal is to award based on initial responses**
- **There is no requirement to open discussions with all vendors if discussions are held with specific vendors**
- **Realism of cost is important**



RFO (SIR RFO) Review (continued)

- **Program Office will not continue funding if dollar ceiling is reached during performance**
- **Responses will be evaluated in accordance with an evaluation plan and award made to those responses deemed to be in the best interest of the FAA, within budget limits**
- **Some RFO reference documents are copyrighted by RTCA and may be ordered from them**



Evaluation Criteria

Volume 1 - Technical	
Criteria	Description
Criteria 1 – Depth of knowledge and experience	<ul style="list-style-type: none"> - Knowledge and experience related to performance assessment and analysis - Knowledge and experience related to safety assessment and analysis - Knowledge of OSED requirements and review - Understanding of NAS requirements for solution implementation
Criteria 2 – Approach	<ul style="list-style-type: none"> -Utilization of baseline existing capabilities - Approach to avionics integration into the cockpit - Interfaces to multiple existing equipment - Maturity of avionics for certification
Criteria 3 – Demonstration Environment	<ul style="list-style-type: none"> - Arrival and runway operations - Normal - Alerting



Evaluation Criteria

Volume 2 – Schedule	
Criteria	Description
Criteria – Schedule	<ul style="list-style-type: none">- Propose milestones- Unique team advantages contributing to acceleration of schedule
Volume 3 – Cost	
Criteria	Description
Criteria – Cost	<ul style="list-style-type: none">- Cost reduction strategy- Estimate- Confidence



Next Steps

- **Final RFP out September 10, 2008.**
- **The Contracting Officer will be the single point of contact for receipt of questions.**
 - Please send email to steve.manley@faa.gov
- **Questions should be submitted by the end of this week.**
- **Formal responses will be communicated before the release on the RFP September 10, 2008.**
- **Copies of the briefing will be available at the FAA web site at www.adsb.gov**



Questions and Answers

