Surveillance and Broadcast Services

Industry Day #3

By: Surveillance and Broadcast Services
Program Office

Date: November 6, 2006

Version 1.1

Federal Aviation Administration

Briefing Changes

Version	Description of Changes	Date
Version 1.0	Original Industry Day Briefing Package	October 27, 2006
Version 1.1	Service Volume Description updated to reflect feedback and clarify assumptions; Business Evaluation Criteria updated to provide clarification. Summary change pages can be found within.	November 6, 2006

Agenda

- Opening Remarks / Objective
- Acquisition Clarification
- Screening Information Request
- Service Scenario Description
- Technical Criteria
- Business Criteria
- Closing Remarks

Opening Remarks &
Industry Day Objective

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Acquisition Clarification and Screening Information Request

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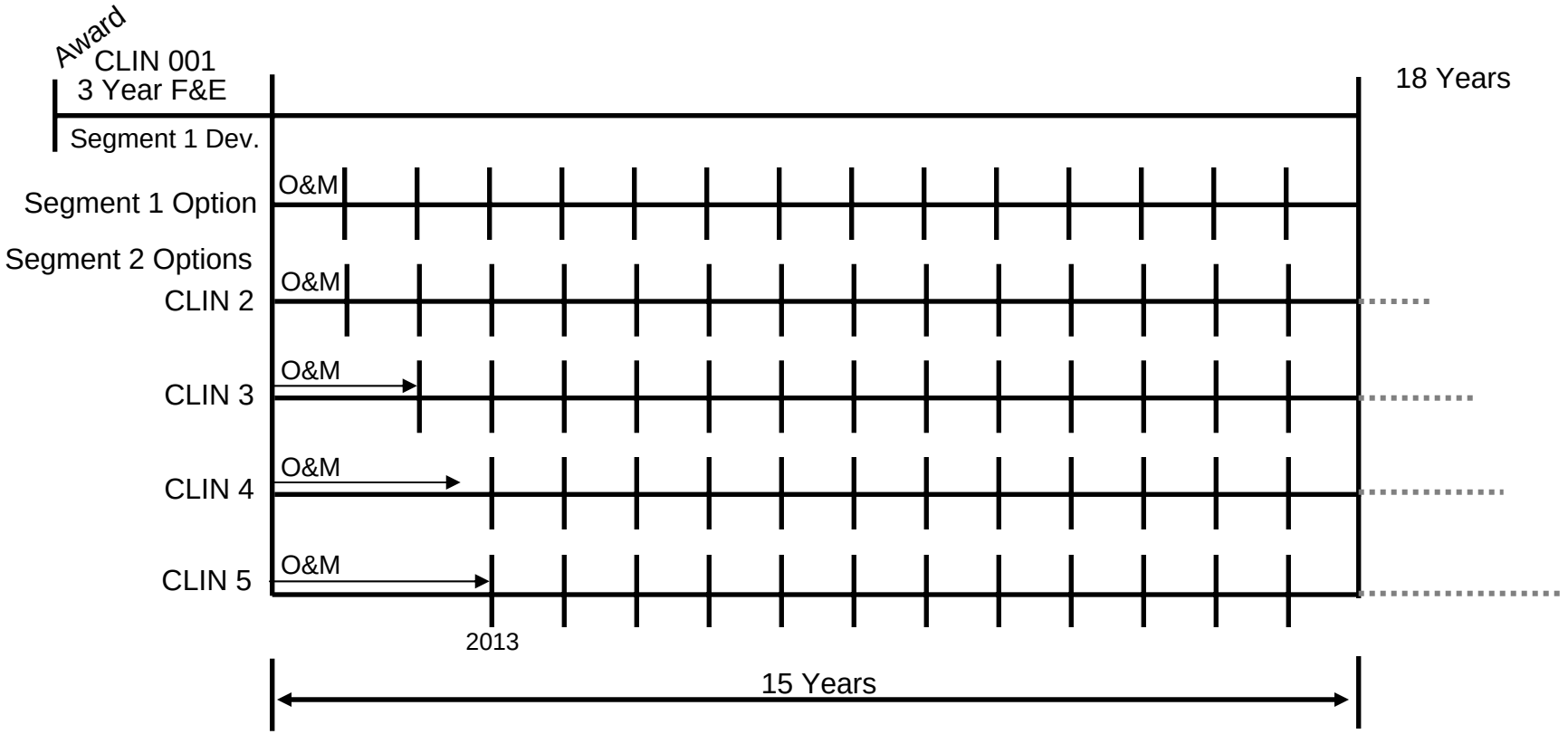
Contracting Officer

Acquisition Clarifications: Contract Rollout

- **Segment 1**
  - Commences at contract award
  - FAA totally funds Segment 1
  - After 3 year development period, option will be exercised for Segment 1 “Subscription” charges
- **Segment 2**
  - Options for the remainder of the NAS will be exercised concurrent with Segment 1 “Subscription” charges (2010)
  - Deployed at the vendor’s expense
  - Segment 2 consists of a 3 year deployment period through 2013, after which “Subscription” charges will occur

Acquisition Clarification: Contract Rollout

Propose the options are exercised concurrently



Segment 2 options could be exercised earlier depending on the status of Segment 1 (2009 earliest date)

Acquisition Clarification: Government Furnished Property (GFP)

- **General policy is that the vendor provides all labor and equipment**

- **Government property is usually offered for:**
  - Breakout of material to encourage greater participation, small business set asides, etc.
  - Facilities and equipment which require a large investment

Acquisition Clarification: Government Furnished Property (GFP)

- **Program will require the FTI lines be used for FAA internal communications from the Service Delivery Point**
- **The FAA has an agreement with HAI where transportation, space, power and communications will be provided in the Gulf of Mexico**
- **Vendors may request the use of other FAA property / equipment**
  - If GFP use is approved:
    - It will be offered to all downselected vendors
    - A monetary value and risk will be assessed for use in RFO proposal evaluation
    - If appropriate, a rental charge may be assessed
    - Agreement will be reached regarding the responsibilities of the parties
    - FAA installation requirements may apply, such as grounding, bonding, lightning protection, etc.

Acquisition Clarification: Patents

- **Acquisition Management Clause 3.5-1 "Authorization and Consent (April 1996)" will be included in the resultant contract**
  - "The Government authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent…"
  - "The entire liability of the Government for infringement of a patent of the United States may be determined solely by the provisions of the 'indemnity' clause"

Acquisition Clarification: Patents

- **Acquisition Management Clause 3.5-3 "Patent Indemnity (April 1996)" will be included in the resultant contract**
  - "The Contractor shall indemnify the Government and its officers, agents, and employees against liability, including costs, for infringement of any United States patent arising out of the manufacture or delivery of supplies…"
- **A patent infringement suit may be brought against the U.S. in the Court of Federal Claims**
- **The indemnity clause provides that the vendor indemnify the U.S.**
- **Vendor is given the opportunity to help defend the suit against the U.S.**
- **FAA Public Announcement posted on May 16, 2006 requested patent information for ADS-B / TIS-B / FIS-B**
  - Allowed vendors to assess viability of selected architecture
  - Encouraged vendors to develop strategy which would not cause patent infringement
  - FAA did not validate or agree with the patent responses

Acquisition Clarification: Ownership of Data

- **Delivered data will be considered owned by the FAA as a condition of contract award**

- **FAA will have paid for development of the broadcast services capability and will have a vested interest in the data**

Acquisition Clarification: Vendor Communication Protocol

- **Vendors may communicate with FAA customers to discuss accelerated benefits and marketing of value added services**
- **Vendors should not discuss or interview FAA customers regarding the ADS-B baseline or suggested FAA ADS-B implementation strategies**
- **The Surveillance and Broadcast Services Program Office will provide requirements to vendors**

Screening Information Request (SIR)

- **Purpose of this Industry Day presentation is to outline potential content of the SIR and a proposed timeline**
- **SIRs are used to screen potential vendors to those who are likely to receive a contract award**
- **Technical and business capability attributes are assessed**
- **Goal is to avoid costly proposal preparation by those deemed not likely to receive an award**

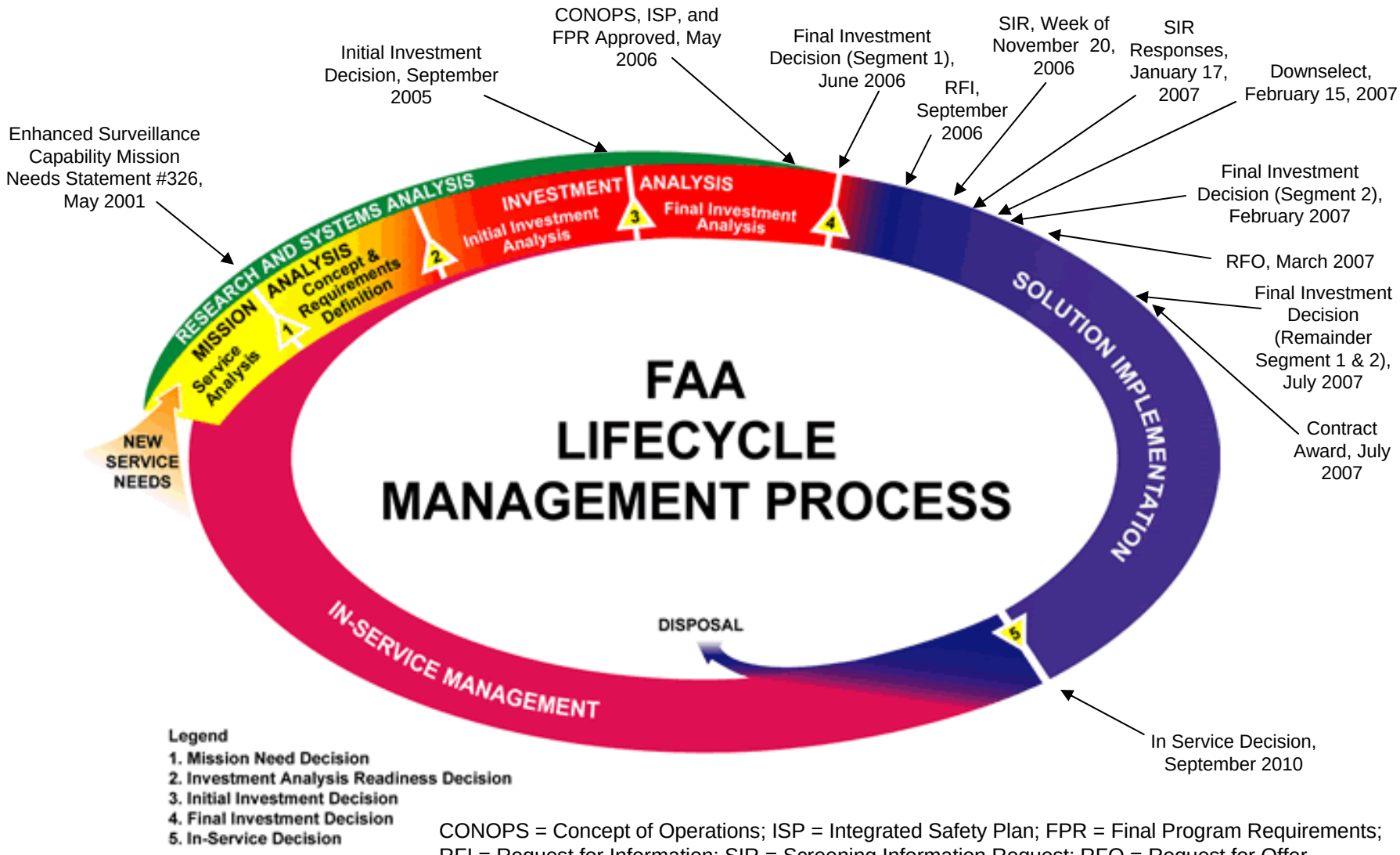
Screening Information Request (SIR)

- **Considered a gateway to further discussions**
- **Will not be used to "impute" or calculate projected program costs**
- **ADS-B program office has developed technical and business criteria which are intertwined with each other**
- **Vendors are expected to address the intertwining in their responses**
  - For example, ROM cost and schedule are intertwined with architecture

Screening Information Request (SIR)

- **Responses will be evaluated for “effectiveness” of approach as opposed to “best value” analysis**
- **Risk will be evaluated**
- **This initial SIR is not for the purpose of contract award**

Acquisition: FAA Life Cycle Management Process



CONOPS = Concept of Operations; ISP = Integrated Safety Plan; FPR = Final Program Requirements; RFI = Request for Information; SIR = Screening Information Request; RFO = Request for Offer

Service Scenario Description

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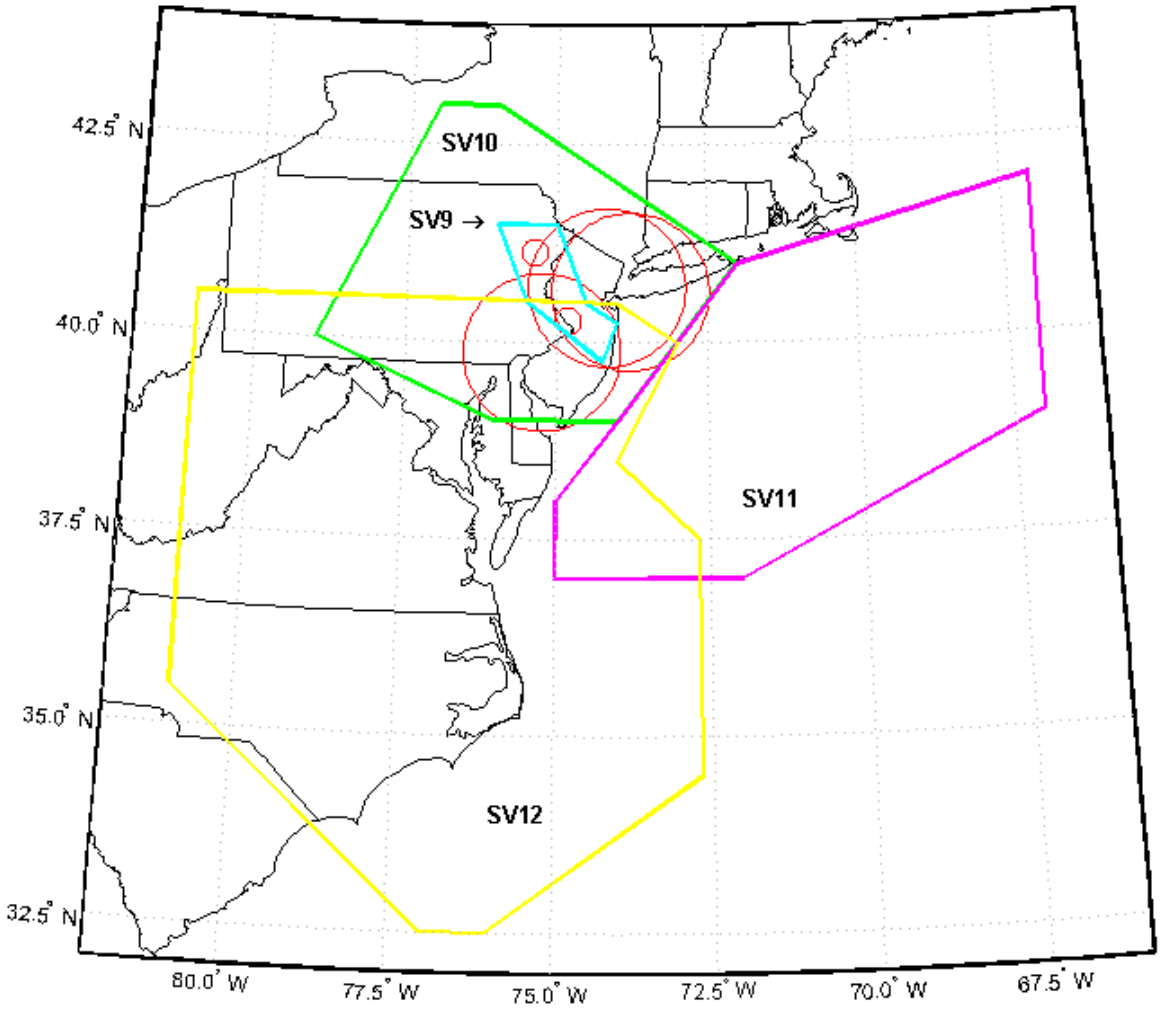
Service Volume Description Changes Since Industry Day Briefing

- **Validation**
  - No longer required for PHL surface SV
  - Validation added for JFK terminal SV
- **Radar Interfaces for TIS-B**
  - Identified interface types
  - Added assumption that radars are digital
  - Updated demarc points
  - Note: Lat / Long locations will be provided on request to FAA Contracting Officer
- **FIS-B product ranges updated for various SVs**
- **Service delivery requirements for ADS-B, ADS-R, TIS-B, and FIS-B clarified in the SV Assumptions**
- **Target loading**
  - Identified Terminal SV loading required for MPO
  - Clarified airspace volume for loading requirements

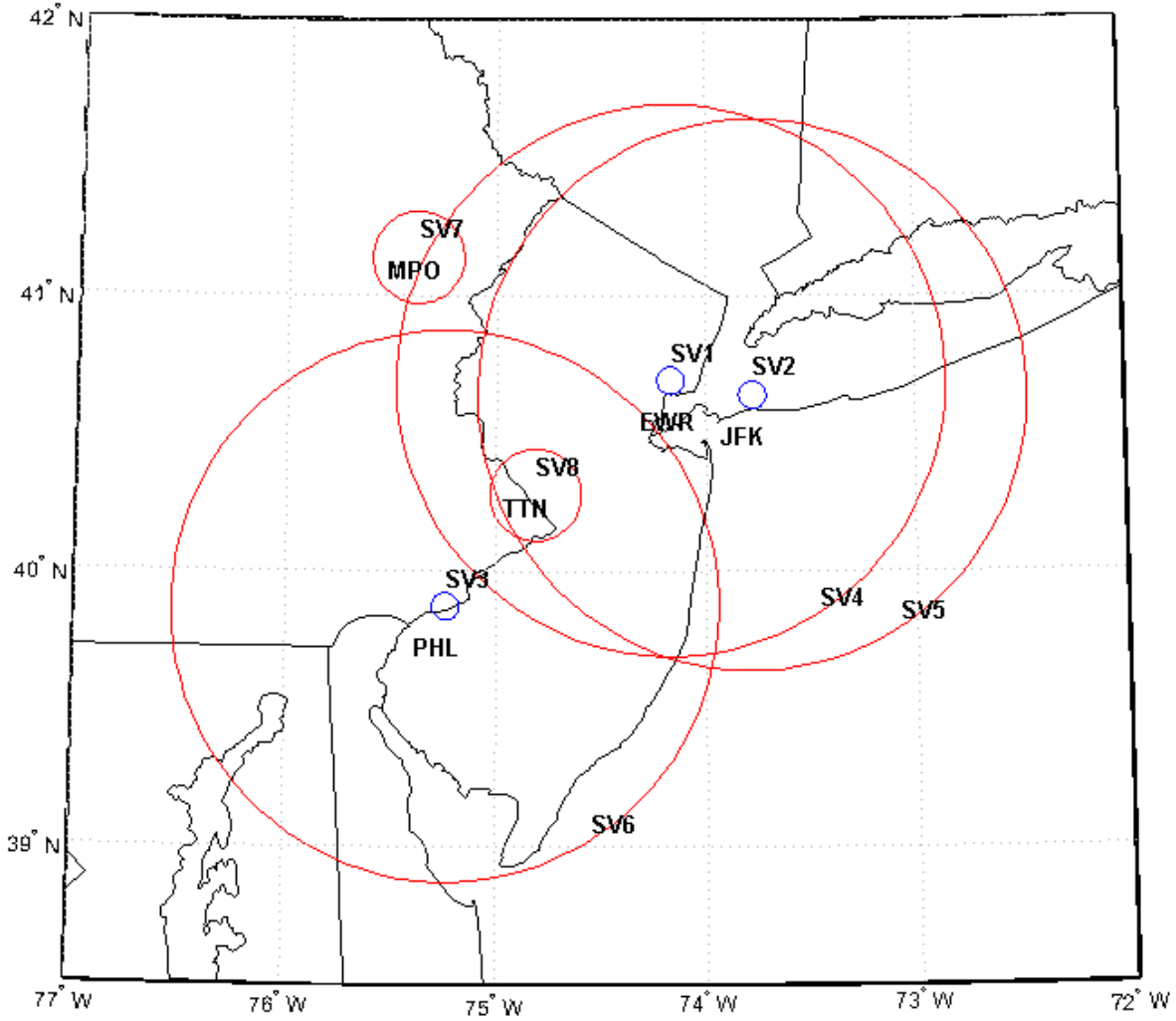
SIR Sample Problem

- **Philadelphia – New York Airspace**
  - 12 Service Volumes
    - 3 Surface: Newark (EWR), Kennedy (JFK), Philadelphia (PHL)
    - 5 Terminal: EWR, JFK, PHL, Mount Pocono (MPO), Trenton (TTN)
    - 4 En Route (includes Oceanic / Offshore environment): New York ARTCC (ZNY), Washington ARTCC (ZDC), ZNY Offshore / Oceanic, ZNY Low Altitude GA TIS / FIS

SIR Sample Problem: En Route Service Volumes



SIR Sample Problem: Surface and Terminal Service Volumes



Surface Service Volumes

SV ID	Site ID	Domain	Service Volume Dimensions					Services	TIS Links	ADS-B, ADS-R	Target Load	1090 I/F Environ	Validation		FIS-B Products
			Shape	Latitude	Longitude	Radius (NM)	Altitude (Ft)						UAT	1090ES	
1	EWR	Surface	Cylinder	40.6925	-74.1686667	8	0 to 1000 AGL	TIS-B, FIS-B, ADS-B, ADS-R	UAT, 1090	UAT, 1090	High	High	No	No	METAR:100nm, TAF:100nm, WA/T:1,000nm, R-NEXRAD:250nm, NOTAM:100nm, AIRMET:100nm, SIGMET:100nm, TIS-B SvcStat
2	JFK	Surface	Cylinder	40.6397511	-73.7789256	8	0 to 1000 AGL	TIS-B, ADS-B, ADS-R	1090	1090	High	High	No	No	N/A
3	PHL	Surface	Cylinder	39.8719444	-75.2411389	8	0 to 1000 AGL	TIS-B, FIS-B, ADS-B, ADS-R	UAT, 1090	UAT, 1090	High	High	No	No	METAR:100nm, TAF:100nm, WA/T:1,000nm, R-NEXRAD:250nm, NOTAM:100nm, AIRMET:100nm, SIGMET:100nm, TIS-B SvcStat

Surface Service Volume Service Delivery Points (SDPs)

SV ID	Site ID	Domain	SDP 1				SDP 2				SDP 3			
			LID	FAC	SvcLvl	I/F	LID	FAC	SvcLvl	I/F	LID	FAC	SvcLvl	I/F
1	EWR	Surface	EWR	ATCT	Essential	CAT 033	ZNY	ARTCC	Critical	CD-2	N/A	N/A	N/A	N/A
2	JFK	Surface	JFK	ATCT	Critical	CAT 033	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	PHL	Surface	PHL	ATCT	Essential	CAT 033	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Terminal Service Volumes

SV ID	Site ID	Domain	Service Volume Dimensions					Services	TIS Links	ADS-B, ADS-R	Target Load	1090 I/F Environ	Validation		FIS-B Products
			Shape	Latitude	Longitude	Radius (NM)	Altitude (Ft)						UAT	1090ES	
4	EWR	Terminal	Cylinder	40.6925	-74.1686667	60	500 AGL to 14K MSL	TIS-B, FIS-B, ADS-B, ADS-R	UAT, 1090	UAT, 1090	High	High	No	No	METAR:500nm, TAF:500nm, WA/T:1,000nm, R-NEXRAD:250nm, PIREP:500nm, NOTAM:100nm, SUA:500nm, AIRMET:500nm, SIGMET:500nm, TIS-B SvcStat
5	JFK	Terminal	Cylinder	40.6397511	-73.7789256	60	500 AGL to 18K MSL	TIS-B, ADS-B, ADS-R	1090	1090	High	High	Yes	Yes	N/A
6	PHL	Terminal	Cylinder	39.8719444	-75.2411389	60	500 AGL to 14K MSL	TIS-B, FIS-B, ADS-B, ADS-R	UAT, 1090	UAT, 1090	High	High	No	No	METAR:500nm, TAF:500nm, WA/T:1,000nm, R-NEXRAD:250nm, PIREP:500nm, NOTAM:100nm, SUA:500nm, AIRMET:500nm, SIGMET:500nm, TIS-B SvcStat
7	MPO	Terminal	Cylinder	41.1374775	-75.3788783	20	500 AGL to 7K MSL	TIS-B, FIS-B, ADS-B, ADS-R	UAT, 1090	UAT, 1090	Low	Medium	Yes	Yes	METAR:500nm, TAF:500nm, WA/T:1,000nm, R-NEXRAD:250nm, PIREP:500nm, NOTAM:100nm, SUA:500nm, AIRMET:500nm, SIGMET:500nm, TIS-B SvcStat
8	TTN	Terminal	Cylinder	40.2766911	-74.8134683	20	500 AGL to 5KMSL	TIS-B, FIS-B, ADS-B, ADS-R	UAT, 1090	UAT, 1090	High	High	No	No	METAR:500nm, TAF:500nm, WA/T:1,000nm, R-NEXRAD:250nm, PIREP:500nm, NOTAM:100nm, SUA:500nm, AIRMET:500nm, SIGMET:500nm, TIS-B SvcStat

Terminal Service Volume SDPs

SV ID	Site ID	Domain	SDP 1				SDP 2				SDP 3			
			LID	FAC	SvcLvl	I/F	LID	FAC	SvcLvl	I/F	LID	FAC	SvcLvl	I/F
4	EWR	Terminal	N90	TRACON	Critical	CAT 033	ZNY	ARTCC	Critical	CAT 033	EWR	ATCT	Essential	CAT 033
5	JFK	Terminal	N90	TRACON	Critical	CAT 033	ZNY	ARTCC	Critical	CD-2	N/A	N/A	N/A	N/A
6	PHL	Terminal	PHL	TRACON	Critical	CAT 033	ZNY	ARTCC	Critical	CD-2	ZDC	ARTCC	Critical	CD-2
7	MPO	Terminal	ZNY	ARTCC	Critical	CD-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	TTN	Terminal	PHL	TRACON	Critical	CAT 033	TTN	ATCT	Essential	CAT 033	ZNY	ARTCC	Critical	CD-2

En Route / Oceanic Service Volumes

SV ID	Site ID	Domain	Service Volume Dimensions					Services	TIS Links	ADS-B, ADS-R	Target Load	1090 I/F Environ	Validation		FIS-B Products
			Shape	Latitude	Longitude	Radius (NM)	Altitude (Ft)						UAT	1090ES	
9	ZNY	EnRoute	Polygon	39.75 40.25 40.50 41.50 41.50 40.50 39.75	-74.25 -74.00 -74.50 -75.00 -76.00 -75.50 -74.25	N/A	500 AGL to 5K MSL	TIS-B, FIS-B	UAT	UAT	N/A	N/A	No	No	METAR:100nm, TAF:100nm, WA/T:1,000nm, R-NEXRAD:250nm, NOTAM:100nm, AIRMET:100nm, SIGMET:100nm, TIS-B SvcStat
10	ZNY	EnRoute	Polygon	41.00 43.00 43.00 40.00 39.00 39.00 38.00 41.00	-72.00 -76.00 -77.00 -79.00 -76.00 -74.00 -75.00 -72.00	N/A	5K MSL to 60K MSL	TIS-B FIS-B ADS-B, ADS-R	UAT, 1090	UAT, 1090	High	High	No	No	METAR:500nm, TAF:500nm, WA/T:1,000nm, R-NEXRAD:250nm, PIREP:500nm, NOTAM:100nm, SUA:500nm, AIRMET:500nm, SIGMET:500nm, TIS-B SvcStat
11	ZNY	EnRoute	Polygon	39.00 37.00 37.00 39.00 42.00 41.00 39.00	-74.00 -75.00 -72.00 -67.00 -67.00 -72.00 -74.00	N/A	18K MSL to 60K MSL	TIS-B, ADS-B, ADS-R	1090	1090	High	High	No	No	N/A
12	ZDC	EnRoute	Polygon	40.50 35.50 32.50 32.50 34.50 37.50 38.50 40.00 40.50 40.50	-81.00 -81.00 -77.00 -76.00 -72.67 -72.67 -74.00 -73.00 -74.00 -81.00	N/A	3K MSL to 60K MSL	TIS-B, FIS-B ADS-B, ADS-R	UAT, 1090	UAT, 1090	High	High	Yes	Yes	METAR:500nm, TAF:500nm, WA/T:1,000nm, R-NEXRAD:250nm, PIREP:500nm, NOTAM:100nm, SUA:500nm, AIRMET:500nm, SIGMET:500nm, TIS-B SvcStat

En Route / Oceanic Service Volume SDPs

SV ID	Site ID	Domain	SDP 1				SDP 2				SDP 3			
			LID	FAC	SvcLvl	I/F	LID	FAC	SvcLvl	I/F	LID	FAC	SvcLvl	I/F
9	ZNY	EnRoute	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	ZNY	EnRoute	ZNY	ARTCC	Critical	CD-2	DoD1	SOCC	Critical	CD-2	N/A	N/A	N/A	N/A
11	ZNY	EnRoute	ZNY	ARTCC	Critical	CD-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	ZDC	EnRoute	ZDC	ARTCC	Critical	CAT 033	DoD2	SOCC	Critical	CD-2	N/A	N/A	N/A	N/A

Service Volume (SV) Definitions

- **SV ID: Identification number of the Sample Problem Service Volume**
- **Site ID: 3 letter identifier for the site location of the SV**
- **Domain: air traffic domain of the SV**
- **Shape: layout of the SV – cylinder or polygon**
  - Cylinders are defined in terms of a fixed point and radius from the point
  - Polygons are defined in terms of the vertices that comprise the polygon
- **Latitude / Longitude: a fixed point that defines the center of the cylinder SVs or a series of vertices that define the polygon for the SV**
- **Radius: defines the radius of cylinder type SVs in nautical miles**
- **Altitude: delineates the minimum and maximum altitude for the SV**
- **Services: defines the set of services applicable to the SV**

Service Volume (SV) Definitions

- **TIS Links:** identifies the data links within the SV that support TIS-B
- **ADS-B, ADS-R Links:** identifies the data links that support these services within the SV
- **Target Loading:** defines the target loading environment for the SV
- **Interference Environment:** identifies the interference levels applicable to the 1090 environment for the SV
- **Validation:** identifies whether validation is required in the SV for ADS-B reports for each data link
- **FIS-B Products:** defines the FIS-B products to be delivered in the volume as the minimum required set of products for the FIS-B Service

Service Volume (SV) Definitions

- **LID: location identifier for the SDP**
- **Facility: identifies the facility type at which the SDP demarc is located**
- **SvcLvl: indicates the level of service to the SDP (critical or essential)**
- **I/F: defines the interface type for data provided to the SDP (ASTERIX CAT 033 or Common Digitizer Version 2)**

SV Assumptions

- **TIS-B Radar Data**
  - Available radar sites
  - FAA will provide a demarc point for the vendor to obtain this radar data
  - TIS-B Service Ceiling max altitude is 18K ft or max altitude of SV (whichever is lower)
  - All radars have digitized outputs (CD or ECG-IP format)

LID	RADAR	Location	State	Demarc ID	Facility	Format
QDP	ARSR	TREVOSE	PA	ZNY	NY ARTCC	ECG-IP
PIT	ARSR	OAKDALE	PA	ZOB	CL ARTCC	ECG-IP
QCF	ARSR	CLEARFIELD	PA	ZOB	CL ARTCC	ECG-IP
QRC	ARSR	BENTON	PA	ZNY	NY ARTCC	ECG-IP
PHL	ASR	PHILADELPHIA	PA	PHL	PHL TRACON	CD
NXX	ASR	WILLOW GROVE NAS	PA	PHL	PHL TRACON	CD
MDT	ASR	MIDDLETOWN	PA	PCT	PCT TRACON	CD
RDG	ASR	READING	PA	ZNY	NY ARTCC	ECG-IP
PIT	ASR	PITTSBURGH	PA	ZOB	CL ARTCC	ECG-IP
ABE	ASR	ALLENTOWN	PA	ZNY	NY ARTCC	ECG-IP
AVP	ASR	AVOCA	PA	ZNY	NY ARTCC	ECG-IP
ERI	ASR	ERIE	PA	ZOB	CL ARTCC	ECG-IP
JFK	ASR	NEW YORK	NY	N90	NY TRACON	CD
ALB	ASR	ALBANY	NY	ZBW	BOS ARTCC	ECG-IP
BUF	ASR	BUFFALO	NY	ZOB	CL ARTCC	ECG-IP
HPN	ASR	WHITE PLAINS	NY	N90	NY TRACON	CD
ISP	ASR	ISLIP	NY	ZNY	NY ARTCC	ECG-IP
ROC	ASR	ROCHESTER	NY	ZOB	CL ARTCC	ECG-IP
SWF	ASR	NEWBURGH	NY	ZNY	NY ARTCC	ECG-IP
SYR	ASR	SYRACUSE	NY	ZBW	BOS ARTCC	ECG-IP
BGM	ASR	BINGHAMTON	NY	ZNY	NY ARTCC	ECG-IP
ELM	ASR	ELMIRA/CORNING	NY	ZNY	NY ARTCC	ECG-IP
UCA	ASR	UTICA	NY	ZBW	BOS ARTCC	ECG-IP
QVH	ARSR	RIVERHEAD	NY	ZNY	CL ARTCC	ECG-IP
DSV	ARSR	DANSVILLE	NY	ZOB	CL ARTCC	ECG-IP
QXU	ARSR	UTICA	NY	ZBW	BOS ARTCC	ECG-IP
ACY	ASR	ATLANTIC CITY	NJ	WJHTC	WJHTC	CD
MMU	ASR	MORRISTOWN	NJ	ZNY	NY ARTCC	ECG-IP
QIE	ARSR	GIBBSBORO	NJ	ZNY	NY ARTCC	ECG-IP
EWR	ASR	NEWARK	NJ	PCT	PCT TRACON	CD
ADW	ASR	ANDREWS AFB	MD	ZDC	DC ARTCC	ECG-IP
BAL	ASR	BALTIMORE	MD	ZDC	DC ARTCC	ECG-IP
ORF	ASR	NORFOLK	VA	ZDC	DC ARTCC	ECG-IP
ROA	ASR	ROANOKE	VA	ZDC	DC ARTCC	ECG-IP
CHO	ASR	CHARLOTTESVILLE	VA	ZDC	DC ARTCC	ECG-IP
LYH	ASR	LYNCHBURG	VA	ZDC	DC ARTCC	ECG-IP
PHF	ASR	NEWPORT NEWS	VA	ZDC	DC ARTCC	ECG-IP
RIC	ASR	RICHMOND	VA	ZDC	DC ARTCC	ECG-IP
QVR	ARSR	VIRGINIA BEACH	VA	ZDC	DC ARTCC	ECG-IP
QBN	ARSR	BINNS HALL	VA	ZDC	DC ARTCC	ECG-IP
QBE	ARSR	BEDFORD	VA	ZDC	DC ARTCC	ECG-IP
QPL	ARSR	THE PLAINS	VA	ZDC	DC ARTCC	ECG-IP

SV Assumptions

- **ADS-B, ADS-R, and TIS-B data is only provided for targets within the SV. Data beyond the SV perimeter is not reported / provided.**
- **FIS-B product ranges are from the center point of cylindrical SVs and from the perimeter of polygon type SVs**
- **Terminal SV coverage floor is the lowest defined altitude for the SV out to a range of 10nm then may increase based upon earth curvature effects**
- **1090-ES ADS-B "out" is required above flight level 240**
- **Minimum performing avionics in all SVs**
  - 1090-ES Class A1 per DO-260A
  - UAT Class A1 per DO-282A
- **For offshore en route ADS-B, ADS-R, FIS-B and TIS-B services need to extend 200nm from coast**
- **FIS-B Data Products are the responsibility of the Vendor**
- **Target Loading and Interference Environment**
  - Derived from Critical Specification (RFI Version) Section 3.3.1.4 Operating Environment and section 3.3.1.4.1 Interference Environment

SV Assumptions

- **Target Loading of "High" for SVs 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12**
  - Surface: The Airport Surface High-Density Environment consists of 200 maximum aircraft and surface vehicles, with up to 200 UAT equipped aircraft / vehicles or up to 200 1090-ES equipped aircraft / vehicles
  - Terminal: The Terminal Airspace High-Density Environment consists of 400 aircraft and surface vehicles, with up to 85% 1090-ES equipped aircraft / vehicles and up to 60% UAT equipped aircraft / vehicles within a 70nm radius from the center of the SV.
  - En Route: The En Route Airspace High-Density Environment consists of 2,000 aircraft, with up to 85% 1090-ES aircraft and up to 40% UAT equipped aircraft in a 300 nm radius from the center of the SV.

SV Assumptions

- **Target Loading of "Low" for SV 7**
  - Terminal: The Terminal Airspace Low- and Medium-Density Environment consist of 250 maximum aircraft / vehicles, with up to 250 1090-ES or up to 250 UAT equipped aircraft / vehicles for a 70 nm radius terminal environment.
  - For MPO (SV #7), the terminal airspace loading in the SV consists of 75 maximum aircraft / vehicles, with up to 40 1090-ES or up to 75 UAT equipped aircraft / vehicles.

SV Assumptions

- **1090-ES Interference Environment of "High" for SV 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12 per figures 3-7 and 3-8 of Critical Services Specification**

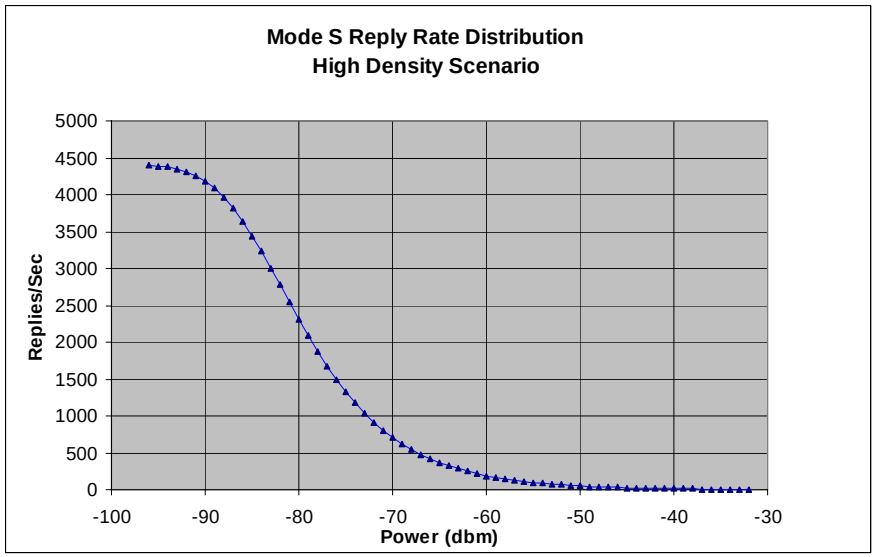


Figure 3-7: Mode S Reply Rate Distribution High Density Scenario

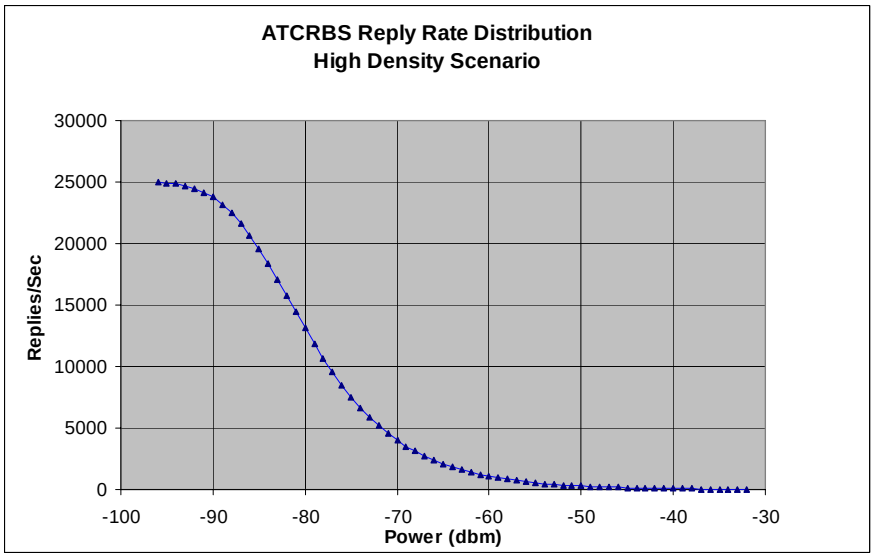


Figure 3-8: ATCRBS Reply Rate Distribution High Density Scenario

SV Assumptions

- **1090-ES Interference Environment of “Medium” for SV 7 per figures 3-7 and 3-8 of Critical Services Specification**

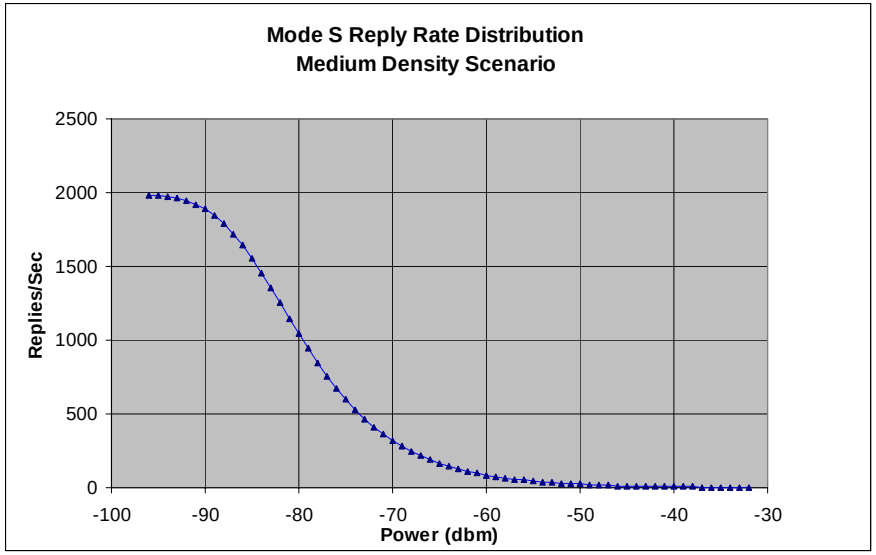


Figure 3-9: Mode S Reply Rate Distribution Medium Density Scenario

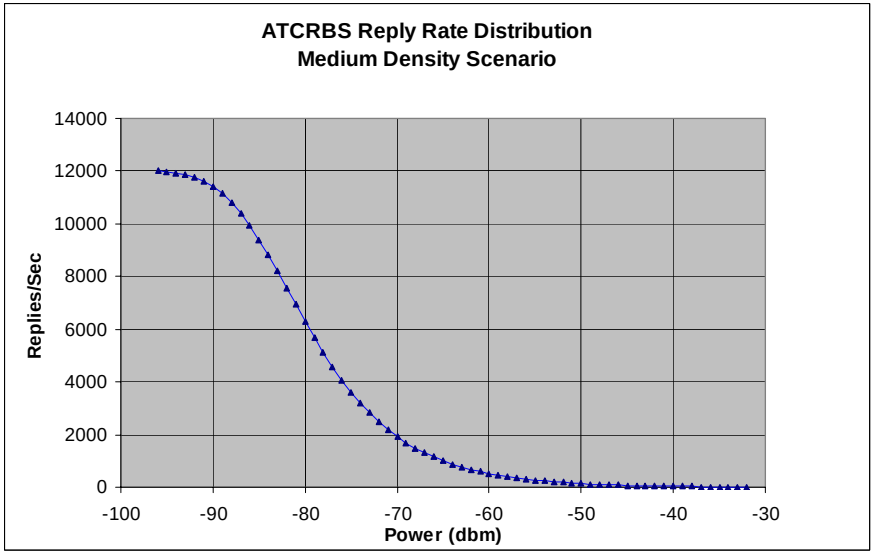


Figure 3-10: ATCRBS Reply Rate Distribution Medium Density Scenario

SV Assumptions

- **Deployment Schedule**
  - FIS-B / TIS-B Service Acceptance Testing complete within 12 months After Receipt of Order (ARO)
  - ADS-B / ADS-R Service Acceptance Testing complete within 20 months ARO

- **ADS-B Backup Strategy**
  - Secondary Surveillance radars at PHL, JFK, EWR
  - Secondary Surveillance radar for En Route service volumes above 18K feet MSL
  - CENRAP with en route radars at MPO
  - PHL secondary radar for TTN

Technical Evaluation Criteria

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Technical Evaluation Criteria

CRITERIA	DESCRIPTION
1	System Performance: Discuss the system design in relation to conformance with the functional and performance requirements of the SBS critical and essential services performance specifications, focusing on key performance requirements including: 1. latency for ADS-B, ADS-R, TIS-B, and FIS-B Service 2. update interval for ADS-B, ADS-R, TIS-B, and FIS-B Service 3. data link management and spectrum management for scheduling transmissions and avoiding interference from proximate sites
2	Availability: Discuss the features and capabilities of the service and equipments utilized for the ADS-B services to meet the critical service availability and essential service availability in the appropriate service volumes where these are ordered. Identify key characteristics of your service such as architecture, power, telecommunications, and implementation approaches that support achieving the requisite availability.
3	Service Monitoring and Maintenance: Please provide details on your approach to monitoring the performance of the service and your maintenance approach to maintain the required availability. Identify any plans for scheduled service outages for preventive maintenance or service enhancement/expansion activities. Discuss service status and outage reporting that will be provided to support the FAA's monitoring and certification of the ADS-B critical and essential services.

Technical Evaluation Criteria

- **Guidance for Criteria 1**
  - The vendor should identify their overall system architecture both functional and physical, as well as define the signal and data flow throughout the system to explain how the system complies with the service specifications and the objectives of the SBS program
  - Specific requirements are identified in the Request for Information (RFI) released specifications
  - ADS-B Service
    - Latency <= 700msec per Critical Spec Para 3.3.2.2.3
    - Update interval per Critical Spec Para 3.3.2.2.2

Technical Evaluation Criteria

- **Guidance for Criteria 1**
  - ADS-R Service
    - Latency <= 1 sec per Critical Spec Para 3.3.2.3.2
    - Update Interval per Critical Spec Para 3.3.2.3.4
      - Most stringent application of Airport Surface Situational Awareness and Final Approach and Runway Occupancy Awareness for Surface SVs
      - Most stringent application for Terminal SVs is Enhanced Visual Approach
      - Most stringent application to En Route SVs is Conflict Detection
    - Data Link / Spectrum Management per Critical Spec Para 3.2.4.1 and associated subparagraphs

Technical Evaluation Criteria

- **Guidance for Criteria 1**
  - TIS-B Service
    - Latency <= 1.5 sec per Essential Spec Para 3.3.2.6
    - Update Interval per Essential Spec Para 3.3.2.7
      - Surface <= 2 seconds
      - Terminal <= 6 seconds
      - En Route <= 12.1 seconds
    - Data Link / Spectrum Management
      - UAT per Essential Spec Paragraph 3.3.2.11.6.1 and associated subparagraphs
      - 1090-ES per Essential Spec Paragraph 3.3.2.11.5.2 and associated subparagraphs

Technical Evaluation Criteria

- **Guidance for Criteria 1**
  - FIS-B Service
    - Latency <= 10 sec per Essential Spec Para 3.3.3.3
    - Update Interval and Transmission Interval per Essential Spec Table 3-10
    - Data Link / Spectrum Management for UAT only per Essential Spec Paragraph 3.3.2.11.6.1 and associated subparagraphs
  - Other requirements: While the focus of the response should be for key requirements, the vendor should also include information on the ability of their solution to meet the other functional and performance requirements defined in the specifications

Technical Evaluation Criteria

- **Guidance for Criteria 2**
  - Availability: the provided information should identify the capabilities of the system and infrastructure to support the required critical service operational availability of 0.99999 and the essential service availability of 0.999. The information should include an RMA assessment of the proposed infrastructure being deployed to meet the service needs.

Technical Evaluation Criteria

- **Guidance for Criteria 3**
  - Service Monitoring and Maintenance: the vendor should key upon their maintenance approach and philosophy. In addition, the vendor should provide information that forms a basis for how the FAA can monitor and certify the operation of both the critical and essential services.

Business Evaluation Criteria

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Business Evaluation Criteria Clarification

- **The following SIR business evaluation criteria apply to the sample scenario only**
  - ROM Costs
  - Implementation Schedule / Strategy

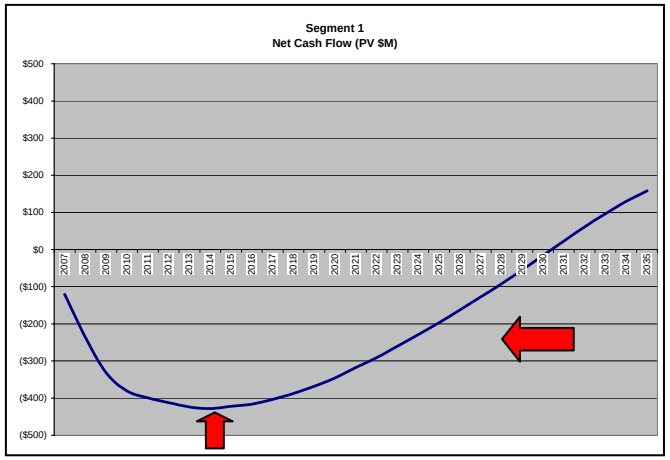
- **The following SIR business evaluation criteria are applicable to NAS implementation capabilities**
  - Business Model
  - Program Organization
  - Relevant Past Performance
  - Risk

Business Evaluation Criteria

- **Rough Order Magnitude (ROM) Costs for SIR sample coverage volume**
  - Developmental Costs
    - Provide ROM costs for the sample coverage volume with adequate support
    - Explain what is available as COTS equipment, inventory or land / facilities and associated pricing
    - Explain what development efforts will be necessary and related costs
  - Recurring Costs
    - Provide a summary of recurring costs for the sample coverage volume with adequate support
      - Assume 180 month subscription for TIS-B / FIS-B and 160 month subscription for ADS-B

Business Evaluation Criteria

- **Business Model**



  - Lower costs
    - What innovations are the vendors going to employ to lower costs?
    - Value added services, subscription services, etc.
  - Increase benefits
    - Discuss vendor ideas for accelerating benefits in the NAS and concurrently improving the ADS-B program's Return on Investment
  - The vendor is not limited in the number of ideas proposed in this section

Business Evaluation Criteria

- **Implementation Schedule / Strategy**
  - Assume a deployment schedule for the sample coverage volume within 12 months after receipt of order for TIS-B / FIS-B services to Service Acceptance Testing and within 20 months after receipt of order for ADS-B services to Service Acceptance Testing
  - Discuss physical locations of equipment
  - Discuss plans for coverage analysis
  - Provide an explanation of interim milestones from contract award to Service Acceptance Testing, including site survey and site preparation for both government and non-government sites
  - Asset usage
    - Provide a summary of your asset rollout plan
    - Discuss use of COTS and purchase / build options with associated lead times
  - Discuss resource allocation in order to deploy the required capability within the allotted schedule

Business Evaluation Criteria

- **Program Organization**
  - Discuss the proposed organization
    - Key personnel and responsibilities
    - Discuss teaming / subcontractor arrangements and related responsibilities during development and operation
  - Discuss subcontractor / teaming partner performance monitoring
  - Maturity of teaming relationships
- **Relevant Past Performance**
- **Risk**

Closing Remarks

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