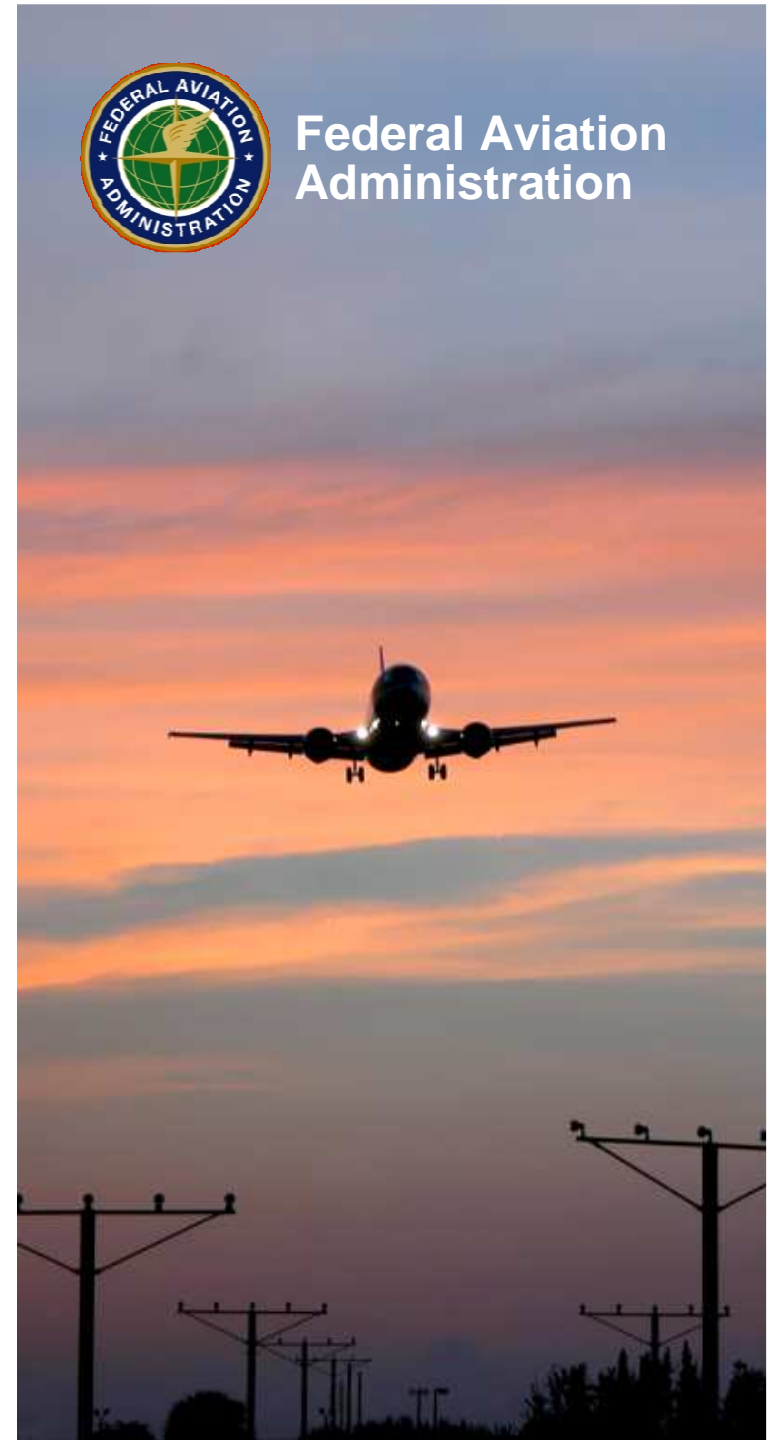
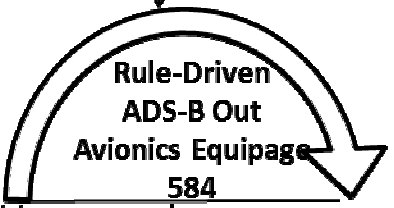


# ADS-B Update

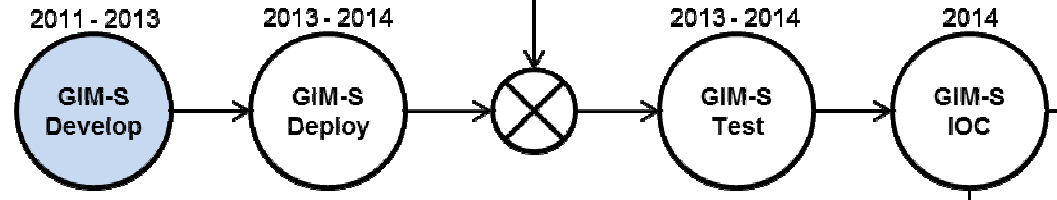
**Prepared by: Doug Arbuckle**  
**April 2013**



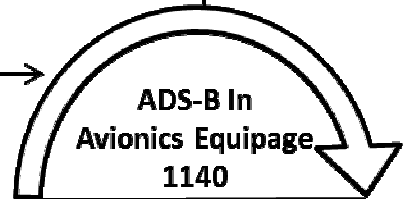
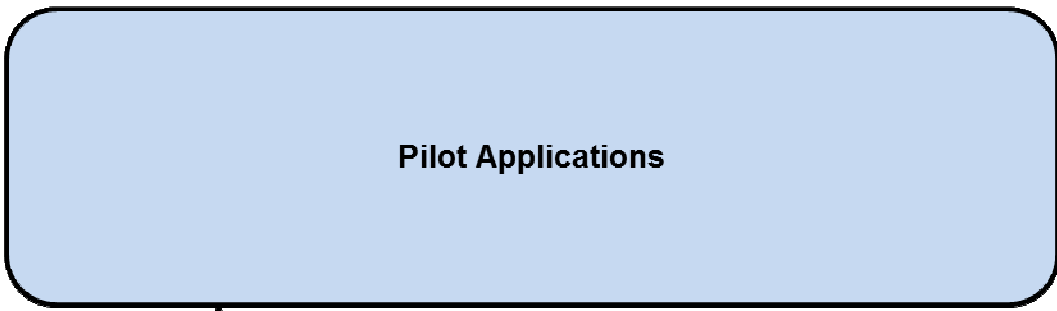
Service Delivery Points for ATC Separation Services									
	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Operational
En Route	2	0	4	1 of 12	6	0	0	0	7 of 24
Terminal	2	1	16	12 of 31	*	*	*	*	31 of 159
Surface (Advisory)	2	0	14	15	5	1	5	2	16 of 44



**ATC Spacing Services**  
Ground-Based Interval Mgmt - Spacing (GIM-S) (En Route only)



Flight Deck Based Interval Mgmt - Spacing (FIM-S)  
In Trail Procedures (ITP)  
Traffic Situation Awareness with Alerts (TSAA)



TIS-B  
FIS-B  
ADS-R

Pilot Advisory Services								
	FY08	FY09	FY10	FY11	FY12	FY13	FY14	Actual / Planned
Radio Station Installations	11	43	211	101	136	43 of 182	46	545 of 730
Operational Radio Stations	450							



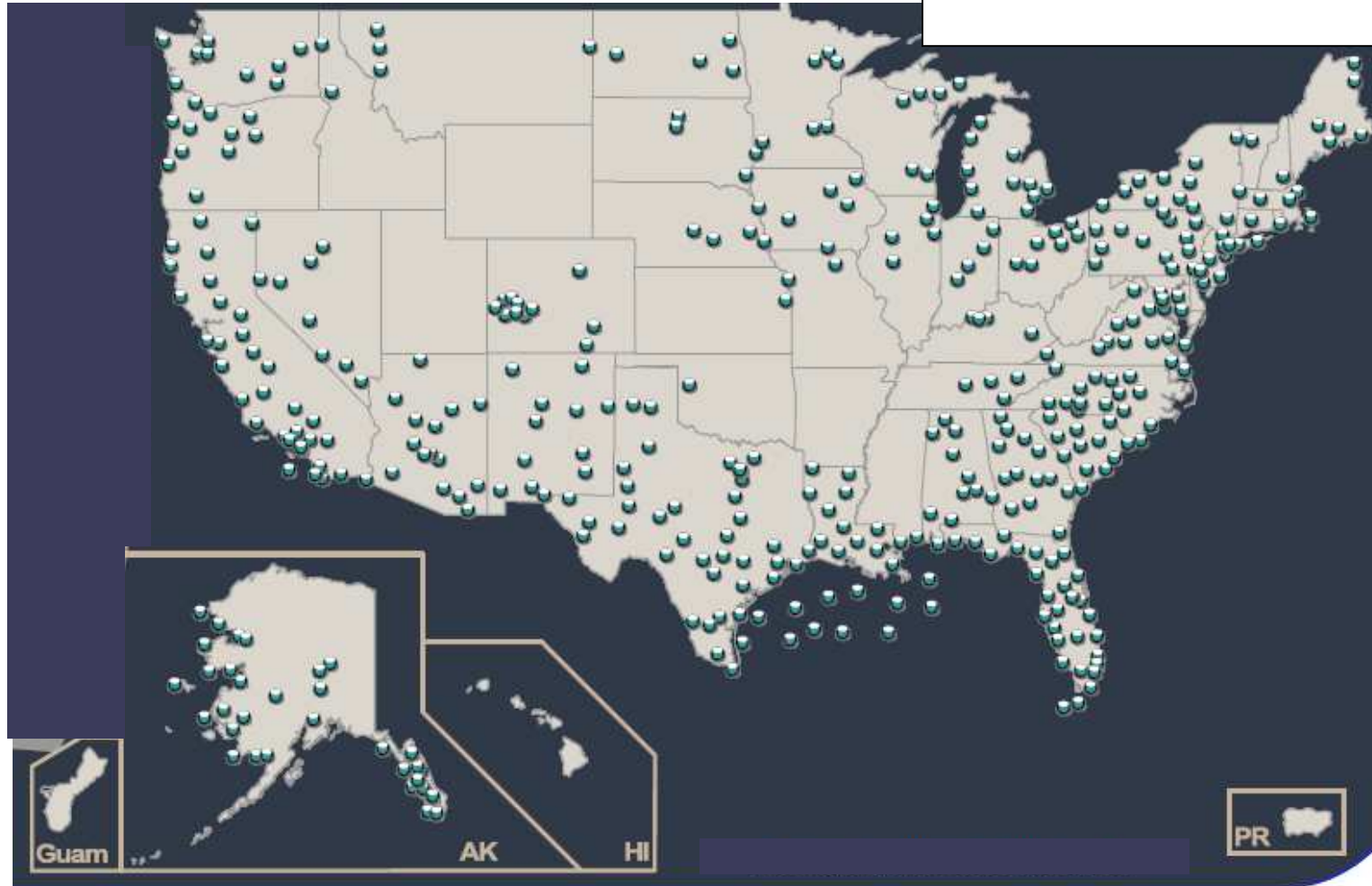
As of 3-6-2013

# Implementation Status

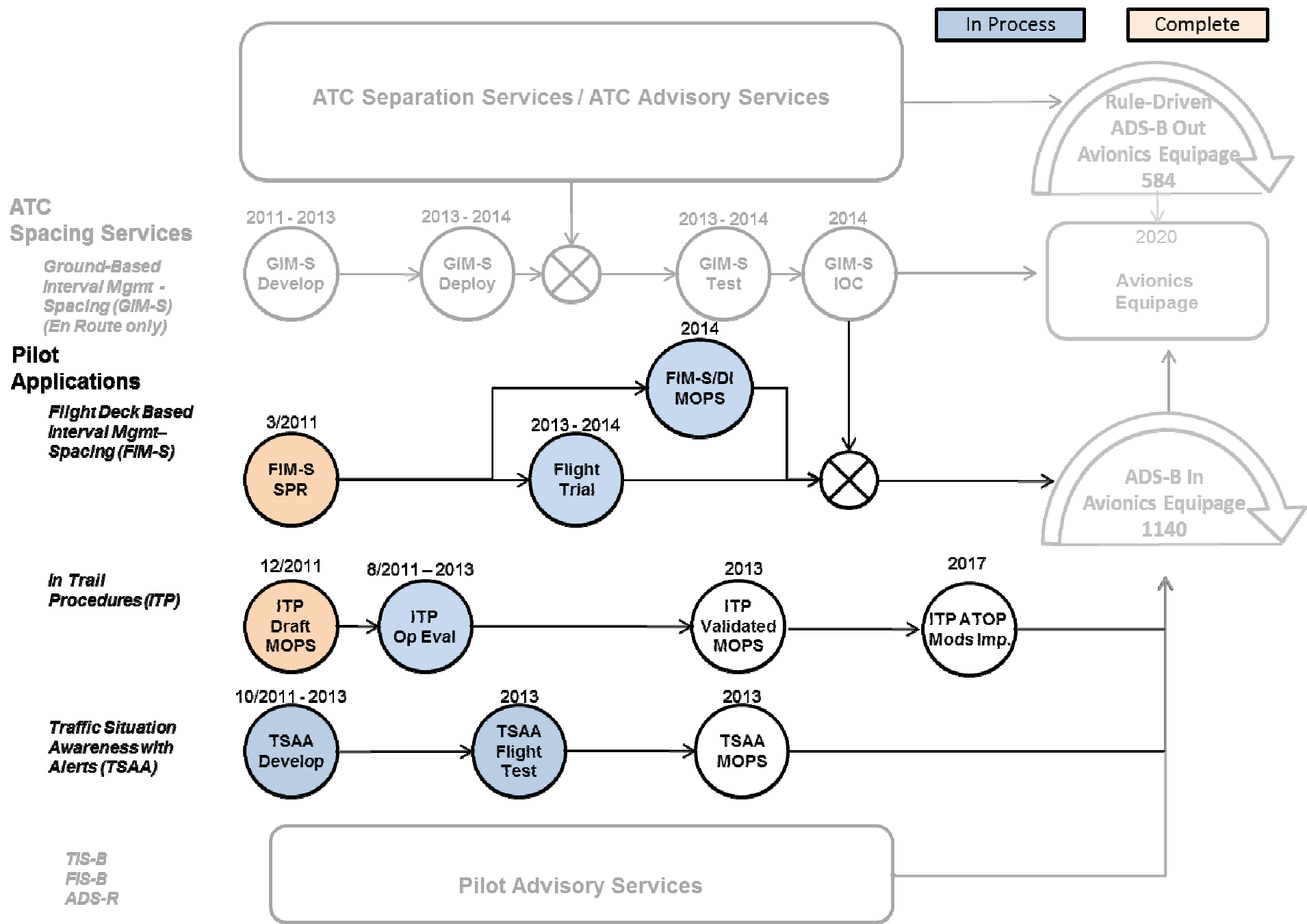
March 6, 2013

<http://www.faa.gov/nextgen/flashmap/>

- 450 Operational Radio Stations



Federal Aviation  
Administration



As of 3-6-2013

# FAA Funded Avionics Upgrades (as of 04-Apr-2013)



- ADS-B Out
- Aircraft: 35 A320
- STC approved July 2012
- ✓ **All 35 modifications complete**



- ADS-B Out and In
- Aircraft: 12 747
- STC approved June 2011
- **12 ADS-B In equipped;** Upgrades to DO-260B ADS-B Out TBD



- **ADS-B Out**
- **Aircraft: 110 737NG**
- **Boeing Service Bulletin expected Apr 2014**
- **Upgrades to DO-260B complete by December 2017**



- ADS-B Out and In
- Aircraft: 20 A330-300/200
- STC for ADS-B Out approved August 2012; STC for Merging & Spacing approved January 2013
- **11 ADS-B Out installs complete**
- Upgrades complete by October 2013

- ADS-B Out
- Aircraft: 143
  - 13 747
  - 39 767
  - 53 A300
  - 38 MD11
- STC for 767, 747/767 AML, and A300/MD11 AML approved (Dec 2011, Jan 2012, and Jan 2013 respectively)
- **45 installs complete;** Upgrades complete by June 2014



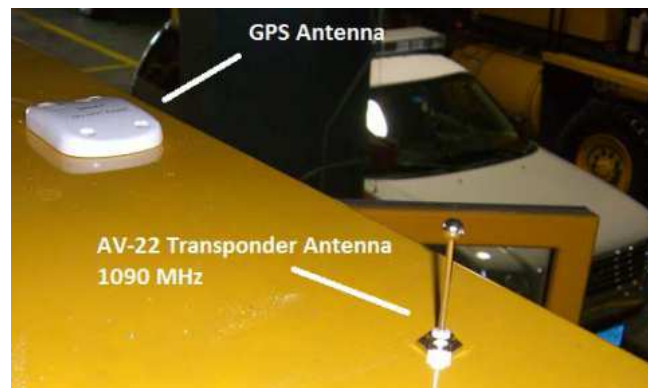
- ADS-B Out
- Aircraft: 54 helicopters (9 Chevron and 45 PHI)
- STC for Chevron approved June 2012; Approval expected summer 2013 for PHI
- Upgrades to complete by 2015

- ADS-B Out
- Aircraft: Up to 400 legacy Capstone aircraft
- Request for Offer released September 2012 and contract award in spring 2013
- Upgrades expected completion by December 2014



# Vehicle ADS-B Summary

- June 2011 – Development of MOA partnership with Massport
- November 2011 – First article Vehicle ADS-B unit delivered to FAA for performance testing at WJHTC
- May 2012 – Production unit FAA testing completed
- September 2012 – AC updated with approved unit
- September 2012 – \$1.2M in AIP grants for Chicago, Denver, and San Francisco for Vehicle ADS-B units
- December 2012 – Completed 37 total installations at Boston
- February 2013 – Testing of mod to continue transmission with loss of GPS at Boston
- Sites Pending – St. Louis and Milwaukee



# FAA-Approved Version 2 ADS-B Out Avionics

*\* multiple STC dates; only earliest shown*

as of 11-Apr-2013

Surveillance Manufacturer	Model #	Approved Position Source(s)	Aircraft	Approval Date	AML Approved
ITT Exelis / FreeFlight	FDL-978-TXG		VEHICLE	May 2012	Massport
ACSS	XS-950	RCI GLU-925	B767, B747	STC Jan 2012	Yes
Honeywell	XS-852	CMA-4024-1 SBAS	N/A	Jan 2012	No
Trig-Avionics	TT-31	FreeFlight WAAS 1201, Accord Technology NexNav™ Mini GPS unit	Mooney M20B-M20G, M20J & M20K	STC May 2012*	Yes
FreeFlight	FDL-978-TX	FreeFlight WAAS 1201	Agusta Westland 139	STC Jun 2012	No
ACSS	XS-950	RCI GLU-920 (A320), Thales TLS8755-01-0101A/0102B (A330)	A320, A330	STC Jul 2012*	No
Honeywell	ISP-80A.1		A380	EASA TC Jul 2012	Yes via Production
Trig-Avionics	TT-22	FreeFlight WAAS 1201	King Air C-90A, Aviat/Pitts (aerobatic) S-76C	STC Nov 2012*	No (King Air) Yes (Aviat/Pitts) No (S-76C)

*Note: "N/A" indicates equipment has received TSOA, but has not received any other certification*



# FAA-Approved Version 2 ADS-B Out Avionics

\* multiple STC dates; only earliest shown

as of 11-Apr-2013

Surveillance Manufacturer	Model #	Approved Position Source(s)	Aircraft	Approval Date	AML Approved
Garmin	GDL-88	Garmin GNS 430W/530W, GTN 650/750, or internal	King Air C-90	STC Dec 2012	Yes
FreeFlight	FDL-978-TX	FreeFlight WAAS 1201	Cessna 172S	STC Dec 2012	Yes
ACSS	XS-950	RCI GLU-920	A300/MD11	STC Jan 2013	Yes
Honeywell	MRC XPDR w/ADS-B Out	CMC CMA-3024 SBAS GNSSU MK II and CMA-4024 SBAS GNSSU	AW-139	EASA TC Feb 2013	Yes via Production
Rockwell	TDR-94D	Universal UNS-1Fw	N/A	April 2013	No

Note: "N/A" indicates equipment has received TSOA, but has not received any other certification





# FAA-Sponsored Projects that will result in Version 2 ADS-B Out Avionics

Surveillance Manufacturer	Model #	Planned Position Source(s)	Aircraft	Planned STC Availability	Operator
Rockwell	TDR-94D	Universal UNS-1Fw	Sikorsky 76/92	STC Q2 2013	PHI
FreeFlight	FDL-978-XVR	FreeFlight WAAS 1201	Bell 206	STC Q4 2013	University of North Dakota
Rockwell	TPR 901-205	RCI GLU 925-001 RCI GLU 925-330	737-700/800/900	Boeing Service Bulletin Q2 2014	United
Honeywell	??	TBD	747-400	TBD	United
TBD	TBD	TBD	Various	TBD (goal is by 2014)	Various (approximately 400 aircraft in Alaska)



# FAA-Approved Version 2 ADS-B In Avionics

as of 11-Apr-2013

Manufacturer	Model #	Aircraft	STC Date	AML Approved
Honeywell	TPA-100B	B747-400	June 2011	No
Honeywell	TPA-100B	A330/340	Dec 2011*	Yes via Production
ACSS	TCAS3000SP	A330/340	Dec 2011*	Yes via Production
Honeywell	TPA-100B	A318/319/320/321	Feb 2012*	Yes via Production
ACSS	TCAS3000SP	A318/319/320/321	Feb 2012*	Yes via Production
ACSS	TCAS3000SP	B767-300	May 2012	No
Garmin	GDL-88	King Air C-90	Dec 2012	Yes
ACSS	TCAS3000SP	A330	Jan 2013	No

\* Airbus ATSAW (with and without ITP) received EASA approval in May 2011 as TC amendment; all A330/340s produced since Jan 2011 and all A320s produced since mid-2011 are ATSAW/ITP-capable



# FAA-Sponsored Projects that will result in Version 2 ADS-B In Avionics

<b>Manufacturer</b>	<b>Model #</b>	<b>Aircraft</b>	<b>Planned STC Availability</b>	<b>Operator</b>
FreeFlight	FDL-978-XVR	Bell 206	Q4 2013	University of North Dakota
TBD	TBD	Various	TBD (goal is by 2014)	Various (approximately 400 aircraft in Alaska)



# Next Steps

- **Complete ground infrastructure deployment**
- **Reassess FY13 ADS-B deployment schedule based on Sequestration**
- **Continue Requirements Development & Validation for ADS-B-In Applications (i.e. In Trail Procedures, Traffic Situation Awareness with Alerts, and Flight deck Interval Management)**
- **Complete MOA plans for aircraft equipage**
- **Prepare for additional ADS-B-In applications**

