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SatNavNews

FAA Navigation Programs AJM-32

The *SatNav News* is produced by the Navigation Programs AJM-32 branch of the Federal Aviation Administration (FAA). This newsletter provides information on the Global Positioning System (GPS), the Wide Area Augmentation System (WAAS) and the Ground Based Augmentation System (GBAS).

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Business Aviation Pilot Interview: "WAAS is Absolutely Huge. It is Critical."

At a recent aviation meeting, a corporate business aviation pilot volunteered an unsolicited and radiant testimonial for the Wide Area Augmentation System (WAAS). He explained that the Instrument Landing System (ILS) at his destination airport, Westchester County Airport (HPN) in White Plains, New York, had been down. Thanks to the availability of a WAAS-enabled Localizer Performance with Vertical guidance (LPV) approach, the pilot was able to easily and safely land at White Plains. We conducted an informal interview with that pilot to ask him more about his experience with WAAS.

Q: Tell us a little bit about yourself and your aviation background, please.
A: My name is Dean Saucier. I have been a licensed pilot since 1974 with an ATP and Boeing 737 rating and have been involved in business aviation since 2000. Over the years, I have helped to establish a number of corporate flight departments. I have been involved with National Business Aviation Association (NBAA) for the past 14 years. It is a terrific organization. (We learned that Dean is currently the Northeastern Regional Representative for NBAA.)

Q: When did you become aware of the Instrument Landing System (ILS) outage at White Plains? Was it when you filed your flight plan or while you were enroute? Did the availability of the WAAS LPV help in your flight planning?
A: I found out that the ILS was inoperative just prior to departing via NOTAM, and, yes, it did help in my planning.

Q: How did you become aware of the WAAS LPV at White Plains as an option to the out-of-service ILS?
A: Via the ATIS. The ATIS noted that the ILS was down and to expect an RNAV (GPS) approach.

Q: If it had become necessary to fly to an alternate airport, where would you have landed (how far away) and how would this have affected your trip?
A: Due to the time of day, surface traffic was heavy and congested and so my alternate would have been Sikorsky Memorial Airport (BDR) in Bridgeport, Connecticut. It is approximately 30 miles away. Teterboro Airport (TEB) in New Jersey may have been suitable were it not for the time of day. I would have been extremely late for my meeting.

Q: Have you had positive experiences with WAAS LPVs at other airports?
A: Yes, I've had to avail myself to an LPV approach at airports other than White Plains. As an example, the ILS on runway 24 at Bradley International Airport in Windsor

Tell Us Your WAAS Story

We're collecting testimonials about the benefits of Wide Area Augmentation System (WAAS) navigation from users. If you are a pilot, passenger, airport manager, airline employee, or are involved in aviation in any capacity - whether you fly fixed-wing or vertical flight aircraft - we want to hear from you! Please send your stories and contact information to Mary Ann Davis at maryann.ctr.davis@faa.gov

Locks, Connecticut (BDL) was out of service on one of my trips. Instead, I used the RNAV (GPS) approach to runway 24 which included an LPV line of minima.

Q: How did you begin flying WAAS approaches?

A: I heard about WAAS LPV and decided to make an approach in VFR conditions to see if it really worked as advertised. If it did, it would open up more and better options for me at airports with LPV approaches, and it did! It also appears to be tighter than an ILS approach. You can definitely notice a difference between ILS and LPV. With an LPV, it seems like you are right on the centerline all the way down while with an ILS, it not always appears to be the case.

Q: How is WAAS supporting business aviation?

A: WAAS is absolutely huge! It is critical. With lower approach minima we are able to deliver passengers to their destinations with fewer weather related delays. WAAS is also an enabler of RNP approaches, thus providing constant rate descents, and in many cases, saving time and fuel while increasing safety.

Q: Anything else you would like to add about WAAS?

A: Personally, I like using LPV approaches since they are satellite rather than ground based, thus not prone to the variances on an ILS approach due to infringements at runway ILS critical areas or other factors. Also, there is a certain amount of comfort in knowing that rather than stepping down at waypoints, you can follow the glide slope. For those, that may not have yet flown an LPV, I recommend they give it a try. Maybe try it on a VFR day just to see how effective it is and to increase your initial comfort level. Once you try it, I expect that LPV will very quickly become your preference.

Special thanks to Mr. Dean Saucier for his time and enthusiasm for WAAS.

- David Kerr (FAA AJM-321/NAVTAC)/ Mary Ann Davis (FAA AJM-321/NAVTAC)

WAAS Dual Frequency Operations Contract Award

On Sept 26, 2014, Mrs. Joyce Edwards-Williams, FAA Contracting Officer (AAQ-340) posted to the FAA website the contract award result for the WAAS Dual Frequency Operations, Segment 1, Contract DTFAWA-14-C-00060:

"The Federal Aviation Administration has awarded the Wide Area Augmentation System (WAAS) Dual Frequency Operations (DFO) Segment 1 contract to Raytheon Company located in Fullerton, CA. The contract award value is $131,422,794 and has a five (5) year base period of performance with two-one year options.

Wide Area Augmentation System (WAAS) Dual Frequency Operations (DFO) will utilize Department of Defense Global Positioning System (GPS) L1 Coarse Acquisition and L5 signals to maintain existing Single Frequency User Service and provide a new Dual Frequency User Service. WAAS DFO Segment 1 contract will upgrade the WAAS infrastructure to enable reception and collection of the L5 signal with the WAAS reference station network and implement system changes required to sustain the WAAS. The specific objectives of the WAAS DFO Segment 1 effort are: 1) Update WAAS infrastructure to support DFO; and 2) Sustain the WAAS Geostationary Earth Orbit (GEO) satellite constellation by integrating up to two new GEO satellites. WAAS will continue to support legacy Single Frequency Users without interruption or degradation of service during DFO Segment 1 activities."

- Steve Mulloy (FAA AJM-321/NAVTAC)

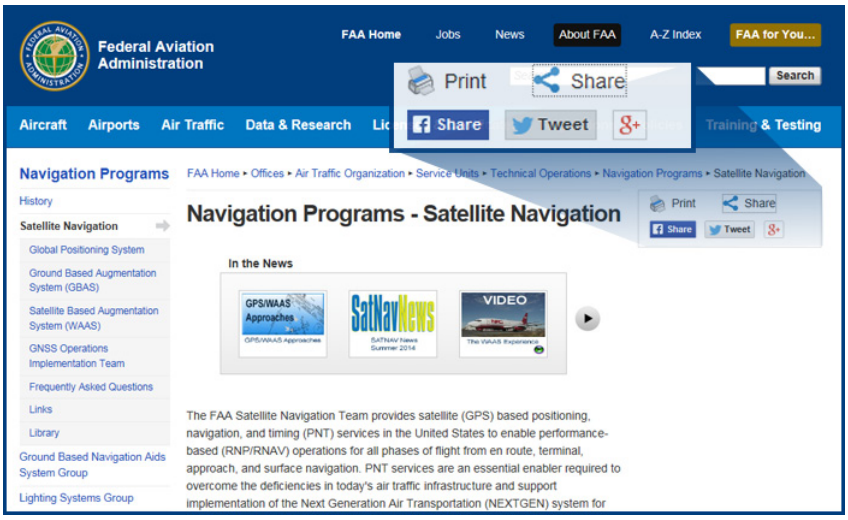
Where Were You in 1974?

Here is a fun look back at navigation. An aviation enthusiastic posted this 1970s video about Area Navigation. It is interesting to see how much things have changed … and also not changed. Many of the challenges noted in this video are not unlike those we face today as new capabilities are integrated into the National Airspace System. Enjoy!
http://www.youtube.com/watch?v=YlU9NXOzu7I

- Mary Ann Davis (FAA AJM-321/NAVTAC)

On the Web

Where can you find FAA Satellite Navigation program information between editions of the SATNAV News? Please visit our website - http://gps.faa.gov. On our website, you can learn how GPS, WAAS, and GBAS work; browse through an archive of past SATNAV News editions; or read about a number of other satellite navigation topics. You can also download a variety of fact sheets available on our website. http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/library/factsheets/



Also, did you know that you can share content from our web pages via Facebook, Twitter, and Google? Check out the Share box to the right of the web page titles when you visit our website. Click on this Share box to display your options and begin sharing with others.

We are always looking for ways to improve the website and love your suggestions, so please feel free to send them to Mary Ann Davis at maryann.ctr.davis@faa.gov -

Mary Ann Davis (FAA AJM-321/NAVTAC)

Satellite Navigation Approach Procedures Update

The satellite navigation approach procedures table reflects the continuing growth of satellite-based approach procedures.

For comparison purposes, we also include a table showing the recent inventory of instrument approach procedures based on conventional NAVAIDs. For more detailed information about satellite-based instrument approach procedures, please visit our GPS/WAAS Approach Procedures page at http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/approaches/index.cfm

- Mary Ann Davis (FAA AJM-321/NAVTAC)

Satellite-based Approach Procedures (by Procedure Type)

	Procedures (Part 139 Airports)	Procedures (Non-Part 139 Airports)	Total Number of Procedures
LNAV Procedures	1,763	4,154	5,917
LNAV/VNAV Procedures	1,367	2,005	3,372
LPV Procedures *(LPV w/200' HAT)*	1,373	2,125	3,498 *(895)*
LP Procedures	80	491	571
GLS Procedures	11	0	11
GPS Stand-Alone Procedures	11	109	120

Note: Number of GPS Stand-Alone will continue to decrease as they are replaced by RNAV procedures
(Data as of November 13, 2014)

Instrument Approach Procedures (IAPs) Based on Conventional NAVAIDS

ILS	1,275
ILS (CAT II)	153
ILS (CAT III)	118
NDB	734
VOR	1,249
VOR / DME	935

(Data as of November 13, 2014)

More information is available on the FAA Inventory Flight Procedures (IFP) Inventory Summary at https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/ifp_inventory_summary/