

BRIEF ON NON-PRECISION GPS APPROACHES TO RUNWAYS 13/31

July 2010

Situation:

There has been much confusion and discussion about the origination of Non-precision GPS Approaches assigned by FAA's Flight Procedures Office to Venice Municipal Airport. To assist with understanding the nomenclature and acronyms used below, numbered attachments have been added that reference the number noted in this text.

Research Findings:

Question 1 – How and why did non-precision GPS approaches for Runway 13/31 come into existence on September 25, 2008 in spite of removal by the City Council of Joint Automated Capital Improvement Program (JACIP) Item #28 (GPS Instrument Approach System) on March 25, 2008?

Answer 1 – Per City Manager Turner's request, on May 13, 2010 I contacted the National Flight Procedures Office and requested a dialogue with appropriate staff to help answer the above question. I received a telephone call that afternoon from Mr. John Haggerty of the Eastern Flight Procedures Office in Atlanta. He was very courteous and professional in attempting to share with me his knowledge of this situation. Mr. Haggerty explained that the Eastern Region office of the FAA was directly involved with non-precision GPS approaches being assigned to airports in the Eastern region of the United States. He also informed me that Gary Raymond, an Airspace Evaluation Program Specialist, with his office had been personally involved with the preparation of the non-precision GPS approaches for Venice's runway 13/31 beginning in early 2007.

The following comments are Mr. Haggerty's recollection of the history of how the non-precision GPS approaches generally evolved: Before 2000, pilots used non-directional beacons (NDBs) as navigation aids, per information provided by FAA flight procedures, for approaching airports that had such transmitters located near them. The National Flight Procedures Office sought to improve these procedures, initially, through an interim short-term program by overlaying GPS approaches onto the existing NDB procedures. [See #1, GPS system explanation].

This interim program was followed up by a National Initiative to update, nationwide, those airports that already had interim overlays and replace them with stand-alone RNAV (GPS) procedures for non-precision GPS approach procedures. [See #2, RNAV definition].

A unique circumstance involving Venice's runway 31 approach was that the VORTAC at Sarasota Bradenton International Airport (SRQ) was relocated around that time, which precipitated the Eastern Flight Procedures Office in Atlanta working on our runway 31 earlier than most. [See #2, VORTAC definition and #3, March 30, 2006 FAA

announcement of Sarasota VORTAC relocation].

Moving the Sarasota VORTAC caused the radials and distances from that point to other nearby airports, such as Venice, to change. [See #4, Radial definition]. That change required adjustments to the approach procedure for runway 31 at Venice airport. Thus, the Eastern Flight Procedures office had, by 2007, already assigned an approach project to Runway 31 at Venice due to the work they were doing with the Sarasota VORTAC move.

As part of their Runway 31 approach work, the Atlanta Flight Procedures Office staff contacted Venice Airport Manager, Fred Watts, early in 2007. At that time, Mr. Watts asked why they hadn't also developed a non-precision GPS approach for Runway 13 since it was the other end of Runway 31. Regional staff concurred with that request and, since no equipment on the ground was needed, provided a non-precision GPS approach procedure for both runway ends at the completion of their work in 2007.

This information was subsequently forwarded to other FAA offices for internal review and finally approved for development in December, 2007. It was then placed on the schedule for the same chart date (September 25, 2008) as the VORTAC relocation.

Following this, the RNAV procedures were developed, sent through Quality Assurance, corrected, sent for flight inspection, and forwarded to the National Aeronautical Charting Office for charting in the Sept 25, 2008 chart cycle. [See #5, published RNAVs and August 7, 2008 Final Rule].

The City Council's action on March 25, 2008 was to remove items from the airport's JACIP they felt were not needed. Removal of Item #28 (GPS Instrument Approach System) had no affect on the publication of the GPS approaches for Runway 13/31 because those procedures were federally produced and published. It should be noted that the JACIP is used as a planning tool and is not a contract obligating the FAA, FDOT or the airport financially.

Question 2 – How do non-precision GPS Approaches relate to the RPZs of Runway 13/31 (make them larger or smaller)?

Answer 2 – In simple terms, non-precision GPS Approaches do not make RPZs larger or smaller. Mr. Haggerty, FAA, offered an example to explain how these approach procedures relate to airports. He explained that cars with GPS systems in them provide the driver with directions when the driver inputs the destination address. The GPS then helps guide the driver to that destination through visual and audio aids while tracking the movement of the car. Similarly, the non-precision GPS approach procedures provide an aircraft pilot with directions to locate and land on a runway.

RPZ's are, by definition, fixed, one dimensional delineations of ground areas at the end of runways. They are determined by a different division of FAA that handles Airports,

Airport Layout Plans and any other activity that deals with the facilities on the ground. It is the Orlando Airports District Office that has oversight of the Venice Municipal Airport and its facilities on the ground. This office has already confirmed to the City Manager that the correct RPZs for Runway 13/31 should be trapezoidal shaped areas on the ground that have dimensions of 500' X 1700' X 1010'. Further conversations with the Airports Division staff reveal that the non-precision GPS approach plates published by the other division in the FAA do not enlarge or reduce the size of the RPZ.

Question 3 – (6/22/10 query from citizen) Why were RPZ standards of 1700' X 500' X 1010' applied to Runway 13, rather than the standard of 1,700' x 1,000' x 1,510', as required by Appendix 16, AC150/5300-13 for new non-precision instrument approaches?

Answer 3 – In response, Mr. Chris Hugunin, C.M., Senior Airport Planner for the FAA, offered his thoughts on this item in an email to Lisa Mastropieri of DY Consultants on June 22, 2010. In the email, Mr. Hugunin indicated "...There is no specific link between Appendix 16 and Table 2-4. RPZ dimensional standards are applied separately from the requirements in Appendix 16 and consider the current and/or planned approach visibility minimums. The airport more than likely cannot achieve <1 mile visibility minimums on Runway 13. Approach lights are required to get lower than one-mile visibility minimums on non-precision instrument approaches. Without an existing or planned approach lighting system, it is not appropriate to apply the 1700' X 1000' X 1510' RPZ dimension to Runway 13." Mr. Hugunin concluded that the RPZ of lesser dimensions was, therefore, correctly applied as shown in Table 2-4 attached as Exhibit Tab #6.

Question 4 – Why was Runway 13 not included on the Airport Design Standards Checklist for instrument approach procedures dated 10/01/2007?

Answer 4 – Mr. Hugunin also addressed this in his email to Ms. Mastropieri. He does not believe that it is significant that Runway 13 is not included on the form, as the FAA was probably only looking at Runway 31 at the time.

Summary:

While a discussion of non-precision GPS Approach Procedures and ancillary tables that apply to GPS approaches can be extensive and confusing, that information does not change the RPZ determinations made by the Airports District Office. The RPZ size for Venice is based upon Table 2-4 contained in FAA AC 150/5300-13 for Approach Category C - "Visual and not lower than 1-mile visibility minimums". [See #6, Table 2-4. Runway protection zone (RPZ) dimensions]. The FAA has indicated that prior planning documents have indicated that Venice is a C category airport and therefore the C RPZ is required. It is not based upon any information contained in Table A16-1C of the same AC.