

Localizer Performance with Vertical Guidance (LPV)

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Federal Aviation
Administration



LPV

- **How**
- **Why**
- **When**
- **Next**
- **Questions**



How

- **How**

- How did we get to where we are today?

- **History Snap Shot**

- Every 20 years?

- 1918 (Act in 1925 – 30 & 34)

- Civil Aeronautics Act of 1938 (A/P Act of '46)

- Federal Aviation Act of 1958 (A/P/Airway Act of '70)

- Deregulation Legislation 1978



HOW (Presidential Policy: March 29, 1996) (Regan era concept)

- 1. Strengthen and maintain our national security.**
- 2. Encourage acceptance and integration of GPS into peaceful civil, commercial and scientific applications worldwide.**
- 3. Encourage private sector investment in and use of U.S. GPS technologies and services.**
- 4. Promote safety and efficiency in transportation and other fields.**
- 5. Promote international cooperation in using GPS for peaceful purposes.**
- 6. Advance U.S. scientific and technical capabilities.**



How

- **Mid 1990's**
 - GPS (Global Positioning System) GPS RWY 18
 - RNAV (Area Navigation) RNAV (GPS) RWY 18
 - LNAV (Lateral Navigation) 1 line of minima
 - VNAV (Vertical Navigation)
 - » LNAV/VNAV (Vertical “Information”) 2 lines of minima
- **Midnight, May 1, 2000**
 - Selective Availability (SA) Degradation Ends
 - What begins?



How

- **GLSGPSRNAV LNAV VNAV RNP LPV**
- **Why?**



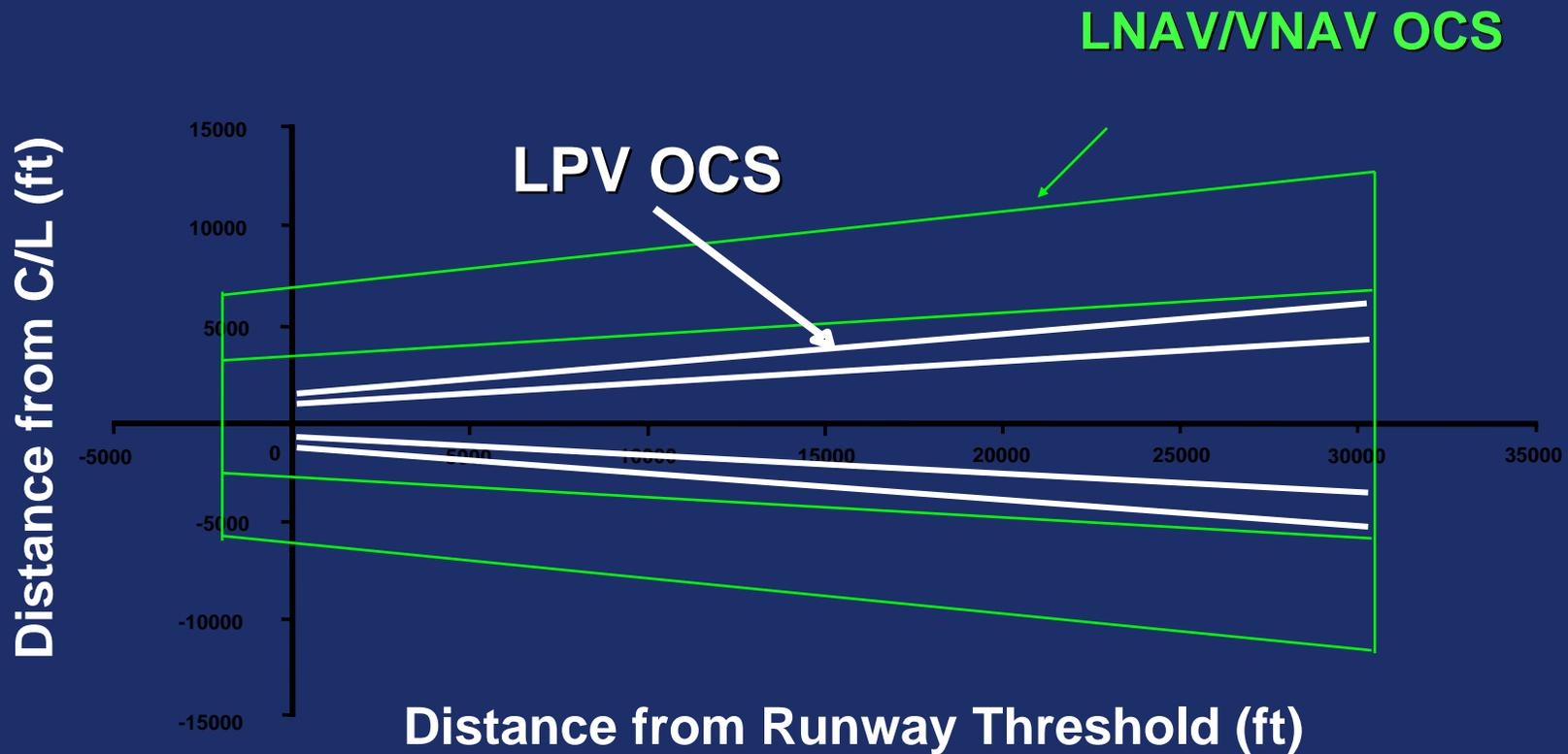
Why

- **NAS Modernization**
- **Efficiency**
 - Airspace is finite
- **Accuracy**
- **Safety**
- **Reliability**
- **Cost**
 - 1 Receiver *versus* Multiple
 - Maintenance of the NAS



Why

A Comparison of Lateral Obstacle Clearance Criteria (LNAV/VNAV vs. LPV)



When

- **NW Mountain Region**
 - Between April 13, 2006 and December 31, 2020
 - 186 RNAV (GPS) with LPV Minima
 - CO 16, ID 28, MT 28, OR 28, UT 7, WA 58, WY 21
 - 23 Published prior to April 13, 2006
 - List growing
 - Input from
 - ADO
 - Individual Airport
 - Users
 - FAA Program Office



When

- **See**

- <http://avnweb.jccbi.gov/schedule/production>

- I.e.

- A search on Utah will return 31 items
- A search on Salt Lake City will return 2 items
 - One for SLC – Salt Lake City Intl
 - One for U42 – Salt Lake City Muni 2

- Can search by:

- Airport ID, Airport Name, State, Region, Pub Date, Type
 - May include historical data
 - » I.e. UT search returns 60 items



When

- **December 31, 2020**

Placeholder Only



Next

- **April 23, 2004 WAAS Benefits Register***
 - “WAAS (LPV) will ultimately achieve the International Civil Aviation Organization’s approach standards for a Global Navigation Satellite System (GNSS) Landing System (GLS); equivalent to a Category I precision approach.”
 - Precision minimums are 200 HAT and ½ mile visibility
 - Currently, LPV limited to 250 HAT and ¾ mile visibility
 - GLS PA DA NA

*Available: <http://gps.faa.gov> (Site Map, then WAAS Benefits)



Next

- **Category I ILS limited to 200 HAT and 1/2 Mile Visibility (RVR)**
- **LPV Limited 250 HAT and 3/4 Mile Visibility (RVR)**



Next

- If current ILS has 200 & $\frac{1}{2}$ (or RVR Equivalent)
- And RNAV (GPS) has 250 & $\frac{3}{4}$ (or RVR Equiv.)
- Then a candidate for LPV to 200 - $\frac{1}{2}$
 - If no current RNAV (GPS) with LPV still could be a candidate



LPV

- Questions

