

# GPS LPV APPROACH ESTABLISHMENT

## A Dakota Update of the Process

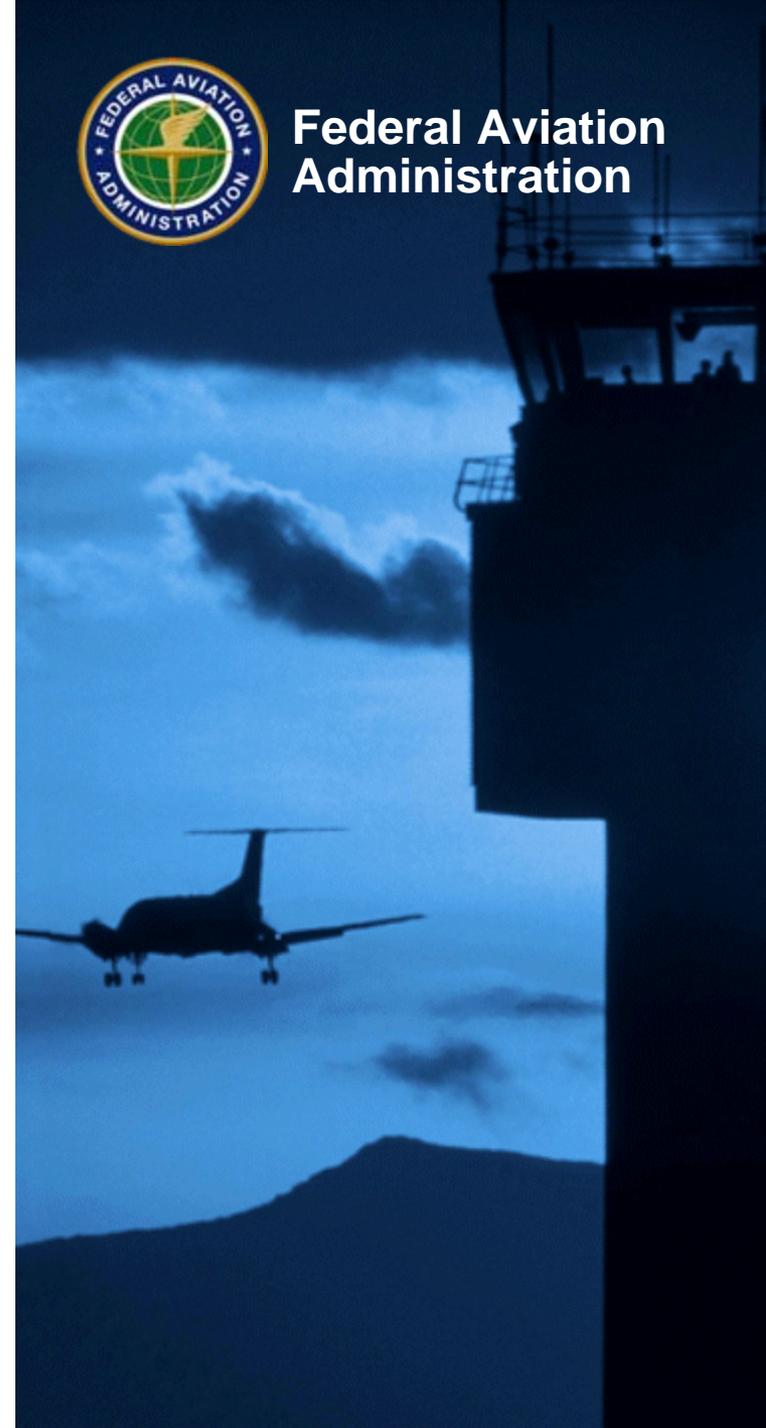
Presented to: ND-SD Airport Sponsors/Consultants

By: Mark J. Holzer, Program Manager

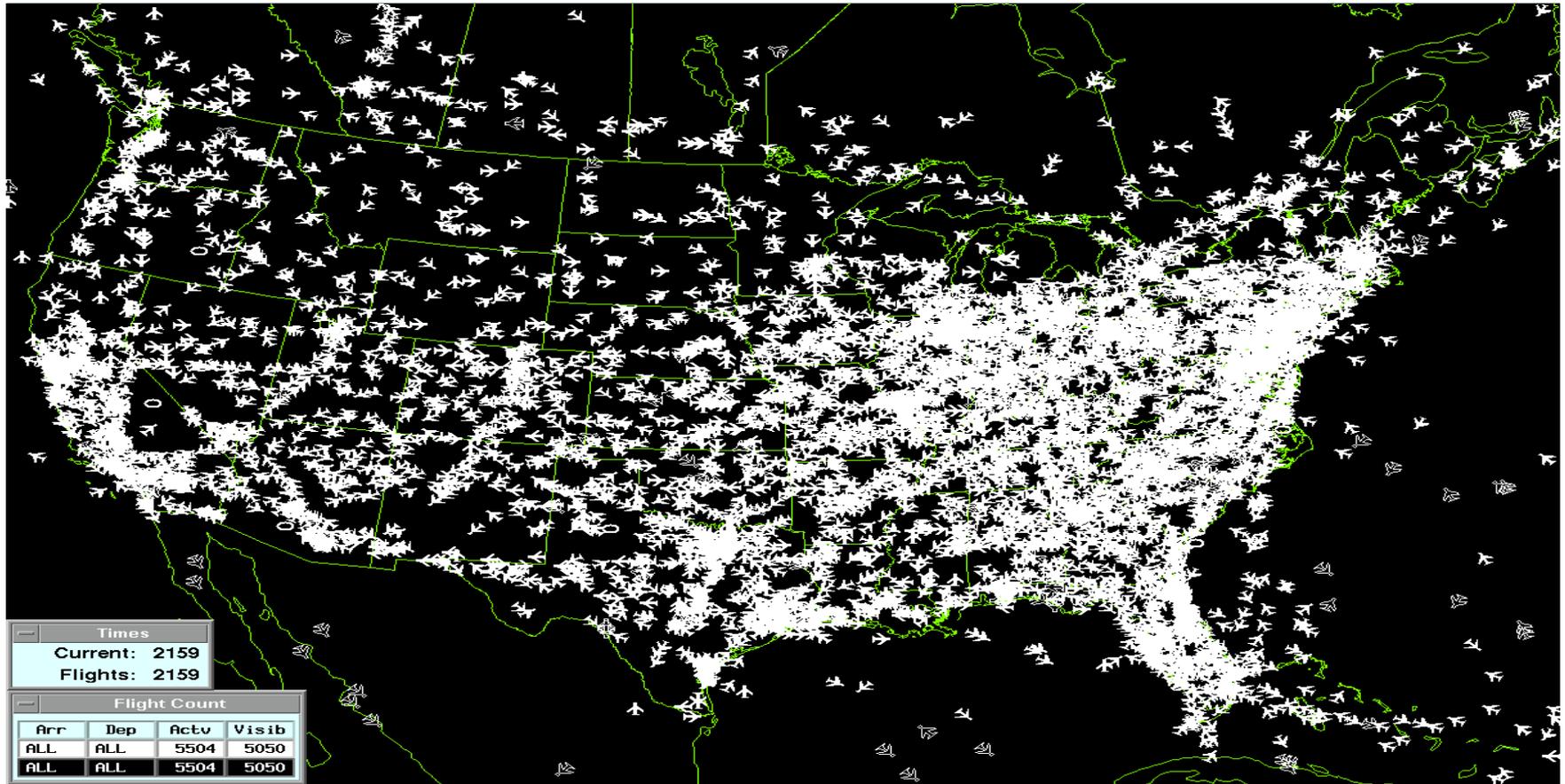
Date: October 27-28<sup>th</sup> 2010



Federal Aviation  
Administration



# National Airspace System with Next-Generation GPS Procedures



During peak periods up to 6000 aircraft operate in the NAS!

# What does Satellite Navigation (WAAS) GPS Bring to North and South Dakota Airports?

- **Greater Airport Capacity**
  - All Weather Operations
  - Precise approach and departure procedures
- **Increase Safety for Pilots**
  - Continuous Descent Procedures
  - Improved Pilot/Controller Situational Awareness
- **Limited Airport Navigation Aids required for Precision approach capability with GPS-LPV**



# Goal For An Airport Sponsor In Planning for GPS-LPV Procedures

- **Goal is to establish (LPV) “Localizer Performance with Vertical” guidance procedures if feasible**
- **LPV was designed to be similar to ILS which was done intentionally to smooth the pilots transitioning phase.**
- **Airport Sponsors should consider LPV-GPS approach criteria on the Airport Layout Plan**



# How Does the Airport's Environment Affect the LPV Minimums?

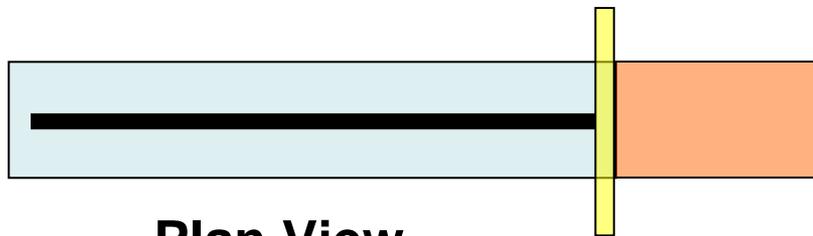
1. Obstacle Free Zones
2. Glidepath Qualification Surface (GQS)
3. Runway Lighting and Markings
4. Taxiway Considerations
5. Airport Surveys
6. Runway Protection Zone



# Obstacle Free Zones

Obstacles should not penetrate the airport obstacle free zones (OFZ)

- Check the ALP to insure the OFZ is clear for the proposed approach (Non or Precision criteria)
- Airport Approach Survey will identify obstacles that need to be removed prior to implementing the IAP



**Plan View**



**Profile View**

# How Do We Decide How Low To Go?

**Table A16-1B. Approach Procedure With Vertical Guidance (APV-RNP)  
Approach Requirements**

Visibility Minimums <sup>1</sup>	< 3/4-statute mile	< 1-statute mile	1-statute mile	>1-statute mile <sup>14</sup>
Height Above Touchdown (HAT) <sup>2</sup>	250	300	350	400
TERPS Glidepath Qualification Surface (GQS) <sup>3</sup>	Table A2-1, Row 7, Criteria, and Appendix 2, par. 5a Clear			
TERPS Paragraph 251	34:1 clear	20:1 clear	20:1 clear, or penetrations lighted for night minimums (See AC 70/7460-1)	
Precision Obstacle Free Zone (POFZ) 200 x 800 <sup>4</sup>	Required		Recommended	
Airport Layout Plan <sup>5</sup>	Required			
Minimum Runway Length	4,200 ft (1,280 m) (Paved)	3,200 ft (975 m) <sup>6</sup> (Paved)	3,200 ft (975 m) <sup>6,7</sup>	
Runway Markings (See AC 150/5340-1)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Holding Position Signs & Markings (See AC 150/5340-1 and AC 150/5340-18)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Runway Edge Lights <sup>8</sup>	HIRL / MIRL		MIRL/LIRL	
Parallel Taxiway <sup>9</sup>	Required		Recommended	
Approach Lights <sup>10</sup>	<i>Required</i> <sup>11</sup>		Recommended	
Runway Design Standards; e.g., Obstacle Free Zone (OFZ) <sup>12</sup>	<3/4-statute mile approach visibility minimums	≥ 3/4-statute mile approach visibility minimums		
Threshold Siting Criteria To Be Met <sup>13</sup>	Table A2-1, Row 4 and 9, Criteria		Appendix 2, Table A2-1, Lines 4 and 8, Criteria	
Survey Required for Lowest Minima	Vertically Guided Airport Airspace Analysis Survey			



- Determine the level of visibility the airport requires ... not every airport can offer the lowest visibility (ASOS-AWOS)
- LPV approaches are defined as APV approaches, so typically Table A16-1B Airport Infrastructure applies.

# LPV down to 200 foot Decision Altitude

Table A16-1A. Precision Instrument Approach Requirements.

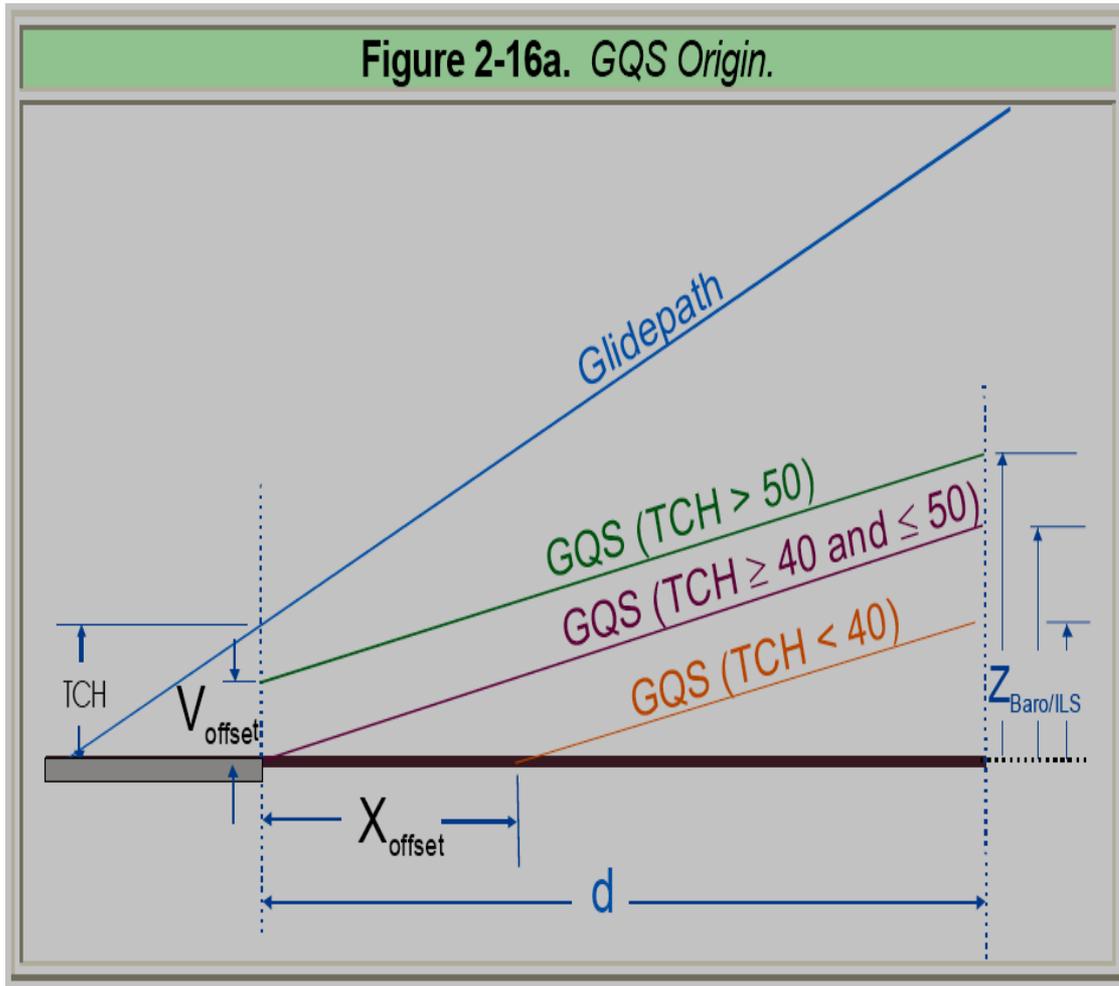
Visibility Minimums <sup>1</sup>	<3/4 statute mile	< 1-statute mile
Height Above Touchdown (HAT) <sup>2</sup>	200	
TERPS Glidepath Qualification Surface (GQS) <sup>3</sup>	Table A2-1, Row 7, Criteria, and Appendix 2, par. 5a Clear	
TERPS precision "W" surfaces <sup>4</sup>	Clear	See Note 5
TERPS Paragraph 251	34:1 Clear	20:1 Clear
Precision Obstacle Free Zone (POFZ) 200 x 800 <sup>6</sup>	Required	Not Required
Airport Layout Plan <sup>7</sup>	Required	
Minimum Runway Length	4,200 ft (1,280 m) (Paved)	
Runway Markings (See AC 150/5340-1)	Precision	Nonprecision
Holding Position Signs & Markings (See AC 150/5340-1 and AC 150/5340-18)	Precision	Nonprecision
Runway Edge Lights <sup>8</sup>	HIRL / MIRL	
Parallel Taxiway <sup>9</sup>	Required	
Approach Lights <sup>10</sup>	MALS, SSALS, or ALSF	Recommended
Runway Design Standards; e.g., Obstacle Free Zone (OFZ) <sup>11</sup>	< 3/4-statute mile approach visibility minimums	≥ 3/4-statute mile approach visibility minimums
Threshold Siting Criteria To Be Met <sup>12</sup>	Table A2-1, Row 9, Criteria	Table A2-1, Row 8, Criteria
Survey Required for Lowest Minima	Vertically Guided Airport Airspace Analysis Survey	



- LPV approaches to a Decision Altitude of 200 feet are authorized where the appropriate ILS infrastructure is in place at commercial airports
- At GA airports where the proposed procedure would not be an overlay of an ILS, the requirements of Appendix 16, Table 16-1A must be met

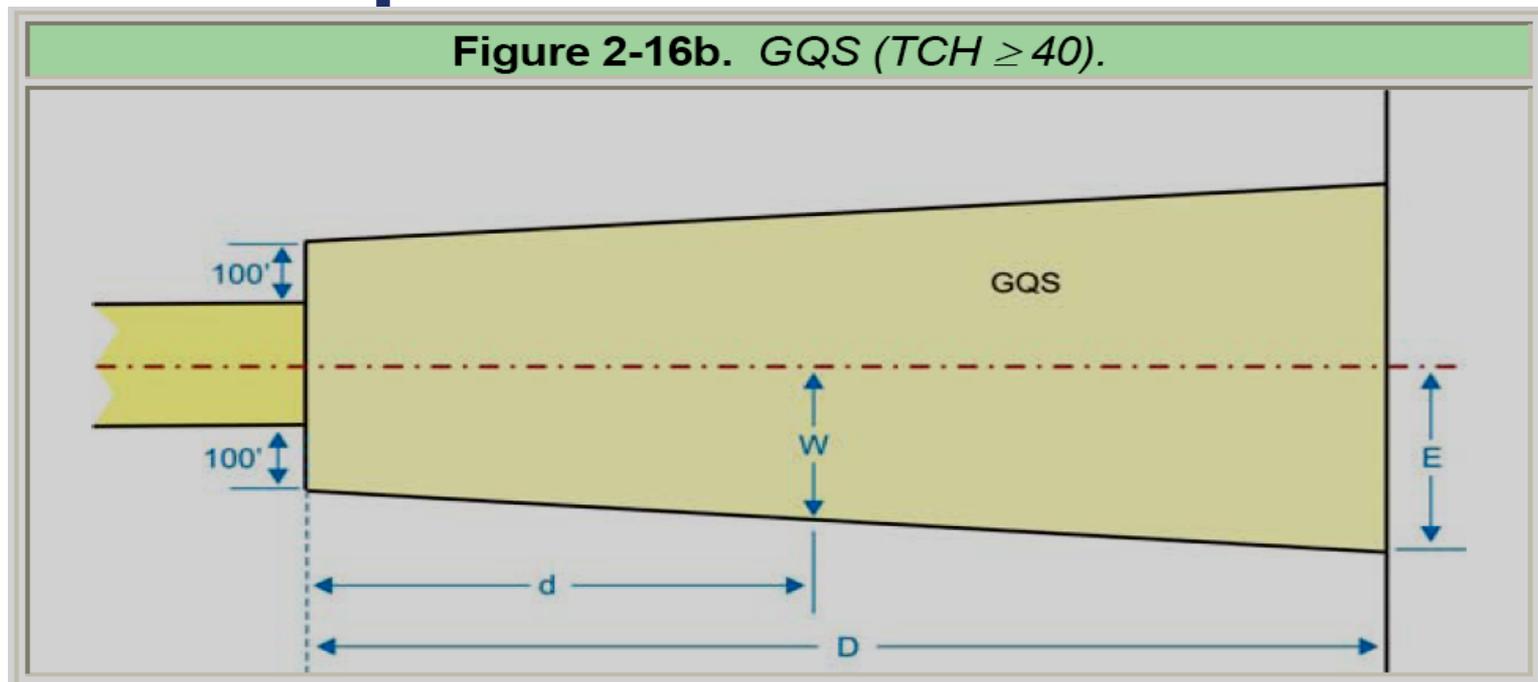
# Glidepath Qualification Surface

Figure 2-16a. GQS Origin.



- The GQS applies to LPV approach procedures providing vertical path guidance
- The intent is to provide a descent path that is free of obstructions in the established glide path angle

# Glidepath Qualification Surface



- The GQS is centered on a course from the Decision Altitude point to the runway threshold.
- If the GQS is penetrated, LPV approach procedures will not be developed by Flight Procedures and your procedure is on hold. (Airport tree story)

# Runway Edge Lights

Table A16-1B. Approach Procedure With Vertical Guidance (APV-RNP)  
Approach Requirements

Visibility Minimums <sup>1</sup>	< 3/4-statute mile	< 1-statute mile	1-statute mile	>1-statute mile <sup>14</sup>
Height Above Touchdown (HAT) <sup>2</sup>	250	300	350	400
TERPS Glidepath Qualification Surface (GQS) <sup>3</sup>	Table A2-1, Row 7, Criteria, and Appendix 2, par. 5a Clear			
TERPS Paragraph 251	34:1 clear	20:1 clear	20:1 clear, or penetrations lighted for night minimums (See AC 70/7460-1)	
Precision Obstacle Free Zone (POFZ) 200 x 800 <sup>4</sup>	Required	Recommended		
Airport Layout Plan <sup>5</sup>	Required			
Minimum Runway Length	4,200 ft (1,280 m) (Paved)	3,200 ft (975 m) <sup>6</sup> (Paved)	3,200 ft (975 m) <sup>6,7</sup>	
Runway Markings (See AC 150/5340-1)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Holding Position Signs & Markings (See AC 150/5340-1 and AC 150/5340-18)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Runway Edge Lights <sup>8</sup>	HIRL / MIRL		MIRL/LIRL	
Parallel Taxiway <sup>9</sup>	Required		Recommended	
Approach Lights <sup>10</sup>	Required <sup>11</sup>		Recommended	
Runway Design Standards; e.g., Obstacle Free Zone (OFZ) <sup>12</sup>	<3/4-statute mile approach visibility minimums	≥ 3/4-statute mile approach visibility minimums		
Threshold Siting Criteria To Be Met <sup>13</sup>	Table A2-1, Row 4 and 9, Criteria		Appendix 2, Table A2-1, Lines 4 and 8, Criteria	
Survey Required for Lowest Minima	Vertically Guided Airport Airspace Analysis Survey			

- Required for night minimums ( ie...8 red/green threshold lights per end GA apt



# What About Approach Lights?

Table A16-1B. Approach Procedure With Vertical Guidance (APV-RNP)

## Approach Requirements

Visibility Minimums <sup>1</sup>	< 3/4-statute mile	< 1-statute mile	1-statute mile	>1-statute mile <sup>14</sup>
Height Above Touchdown (HAT) <sup>2</sup>	250	300	350	400
TERPS Glidepath Qualification Surface (GQS) <sup>3</sup>	Table A2-1, Row 7, Criteria, and Appendix 2, par. 5a Clear			
TERPS Paragraph 251	34:1 clear	20:1 clear	20:1 clear, or penetrations lighted for night minimums (See AC 70/7460-1)	
Precision Obstacle Free Zone (POFZ) 200 x 800 <sup>4</sup>	Required	Recommended		
Airport Layout Plan <sup>5</sup>	Required			
Minimum Runway Length	4,200 ft (1,280 m) (Paved)	3,200 ft (975 m) <sup>6</sup> (Paved)	3,200 ft (975 m) <sup>6,7</sup>	
Runway Markings (See AC 150/5340-1)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Holding Position Signs & Markings (See AC 150/5340-1 and AC 150/5340-18)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Runway Edge Lights <sup>8</sup>	HIRL / MIRL		MIRL/LIRL	
Parallel Taxiway <sup>9</sup>	Required		Recommended	
Approach Lights <sup>10</sup>	<i>Required<sup>11</sup></i>		Recommended	
Runway Design Standards; e.g., Obstacle Free Zone (OFZ) <sup>12</sup>	<3/4-statute mile approach visibility minimums	≥ 3/4-statute mile approach visibility minimums		
Threshold Siting Criteria To Be Met <sup>13</sup>	Table A2-1, Row 4 and 9, Criteria		Appendix 2, Table A2-1, Lines 4 and 8, Criteria	
Survey Required for Lowest Minima	Vertically Guided Airport Airspace Analysis Survey			



- For LPV based approach minima as low as  $\frac{3}{4}$  Statute Mile, approach lights are *required with ODALs, MALSR, etc*

# Runway Markings and Signs

Table A16-1B. Approach Procedure With Vertical Guidance (APV-RNP)  
Approach Requirements

Visibility Minimums <sup>1</sup>	< 3/4-statute mile	< 1-statute mile	1-statute mile	>1-statute mile <sup>14</sup>
Height Above Touchdown (HAT) <sup>2</sup>	250	300	350	400
TERPS Glidepath Qualification Surface (GQS) <sup>3</sup>	Table A2-1, Row 7, Criteria, and Appendix 2, par. 5a Clear			
TERPS Paragraph 251	34:1 clear	20:1 clear	20:1 clear, or penetrations lighted for night minimums (See AC 70/7460-1)	
Precision Obstacle Free Zone (POFZ) 200 x 800 <sup>4</sup>	Required	Recommended		
Airport Layout Plan <sup>5</sup>	Required			
Minimum Runway Length	4,200 ft (1,280 m) (Paved)	3,200 ft (975 m) <sup>6</sup> (Paved)	3,200 ft (975 m) <sup>6,7</sup>	
Runway Markings (See AC 150/5340-1)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Holding Position Signs & Markings (See AC 150/5340-1 and AC 150/5340-18)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Runway Edge Lights <sup>8</sup>	HIRL / MIRL		MIRL/LIRL	
Parallel Taxiway <sup>9</sup>	Required		Recommended	
Approach Lights <sup>10</sup>	Required <sup>11</sup>		Recommended	
Runway Design Standards; e.g., Obstacle Free Zone (OFZ) <sup>12</sup>	<3/4-statute mile approach visibility minimums	≥ 3/4-statute mile approach visibility minimums		
Threshold Siting Criteria To Be Met <sup>13</sup>	Table A2-1, Row 4 and 9, Criteria		Appendix 2, Table A2-1, Lines 4 and 8, Criteria	
Survey Required for Lowest Minima	Vertically Guided Airport Airspace Analysis Survey			

- Precision markings are *required* when the visibility is less than  $\frac{3}{4}$  statute mile
- Non-precision markings required for visibilities 1 Statute Mile and greater



# Parallel Taxiway

Table A16-1B. Approach Procedure With Vertical Guidance (APV-RNP)  
Approach Requirements

Visibility Minimums <sup>1</sup>	< 3/4-statute mile	< 1-statute mile	1-statute mile	>1-statute mile <sup>14</sup>
Height Above Touchdown (HAT) <sup>2</sup>	250	300	350	400
TERPS Glidepath Qualification Surface (GQS) <sup>3</sup>	Table A2-1, Row 7, Criteria, and Appendix 2, par. 5a Clear			
TERPS Paragraph 251	34:1 clear	20:1 clear	20:1 clear, or penetrations lighted for night minimums (See AC 70/7460-1)	
Precision Obstacle Free Zone (POFZ) 200 x 800 <sup>4</sup>	Required	Recommended		
Airport Layout Plan <sup>5</sup>	Required			
Minimum Runway Length	4,200 ft (1,280 m) (Paved)	3,200 ft (975 m) <sup>6</sup> (Paved)	3,200 ft (975 m) <sup>6,7</sup>	
Runway Markings (See AC 150/5340-1)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Holding Position Signs & Markings (See AC 150/5340-1 and AC 150/5340-18)	Precision	Nonprecision <i>(precision recommended)</i>	Nonprecision <sup>7</sup>	
Runway Edge Lights <sup>8</sup>	HIRL / MIRL		MIRL/LIRL	
Parallel Taxiway <sup>9</sup>	Required		Recommended	
Approach Lights <sup>10</sup>	Required <sup>11</sup>		Recommended	
Runway Design Standards; e.g., Obstacle Free Zone (OFZ) <sup>12</sup>	<3/4-statute mile approach visibility minimums	≥ 3/4-statute mile approach visibility minimums		
Threshold Siting Criteria To Be Met <sup>13</sup>	Table A2-1, Row 4 and 9, Criteria		Appendix 2, Table A2-1, Lines 4 and 8, Criteria	
Survey Required for Lowest Minima	Vertically Guided Airport Airspace Analysis Survey			

- Required when the expected visibility is less than 1 SM
- Parallel taxiway **MUST** be full length



# Airport Surveys-AGIS



- **If LPV procedure is feasible, Airport sponsor may consider contracting with a Consultant (Entitlements) or seek a Third Party Survey (FAA sponsored in Flight Procedures budget) which complies with FAA AC 150/5300 16-17-18 following AGIS process. Future AC 19 upcoming will review GA survey process. Need more than a current ALP**
- **AGIS process will be discussed later in the seminar.**

# Check Your Runway Protection Zones (RPZ)

- **RPZ's function is to enhance the protection of people and property on the ground.**
- **Prohibited land uses are residences, churches, hospitals, schools, offices, shopping centers, so avoid places of public assembly.**
- **Purchase first the RPZ and if impracticable, then secure airspace easements with land use controls that consider wildlife impacts**



# GPS Production Schedule

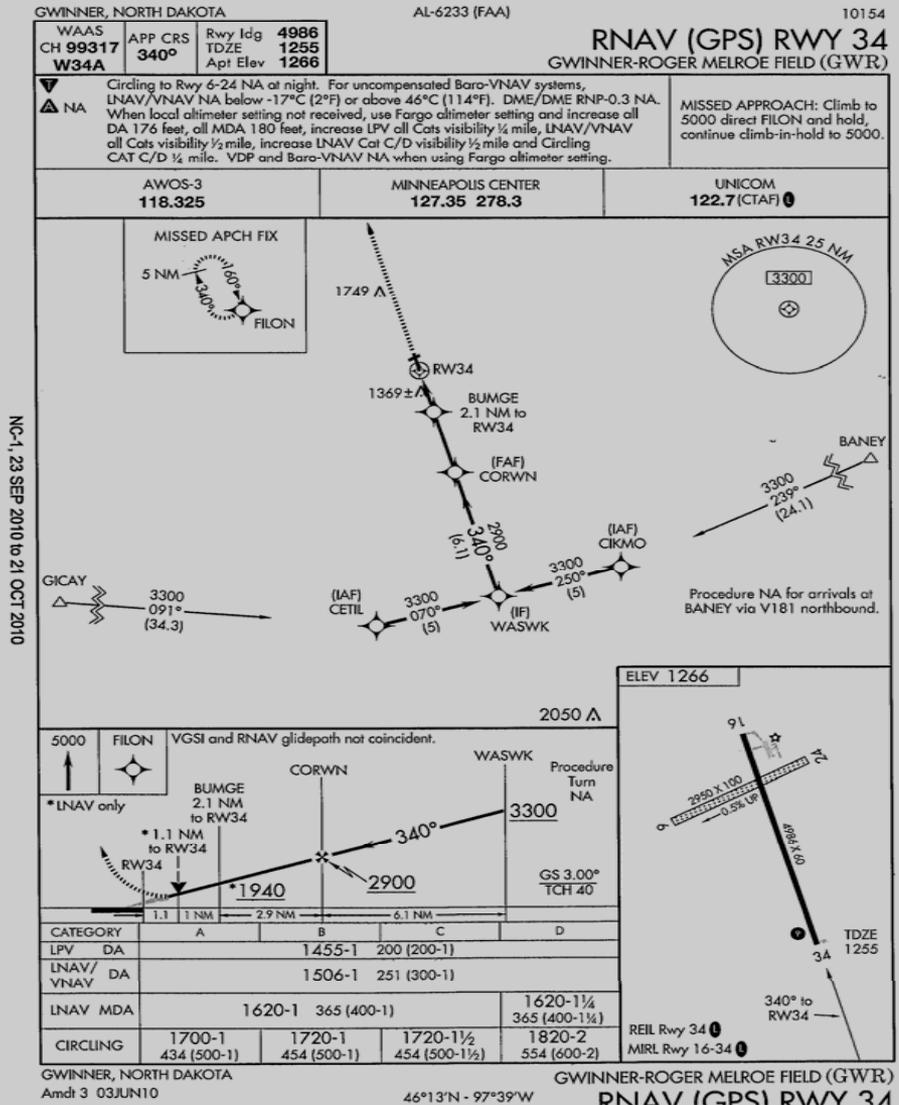
Go to Handout behind this presentation



- **The Schedule is produced by FAA Flight Procedure Office for monitoring LPV production (ND and SD Airports)**
- **Schedule is forward to FAA BIS ADO and state aeronautics to coordinate with airports/consultants**
- **Color Coded is Helpful: Black-LPV established, Green-survey done and validated by NGS, Orange-survey completed, Red- LPV on hold due to GQS violation (Must Correct), Violet- pending candidates**
- **This schedule should help you understand the status of your airports LPV pending procedures**

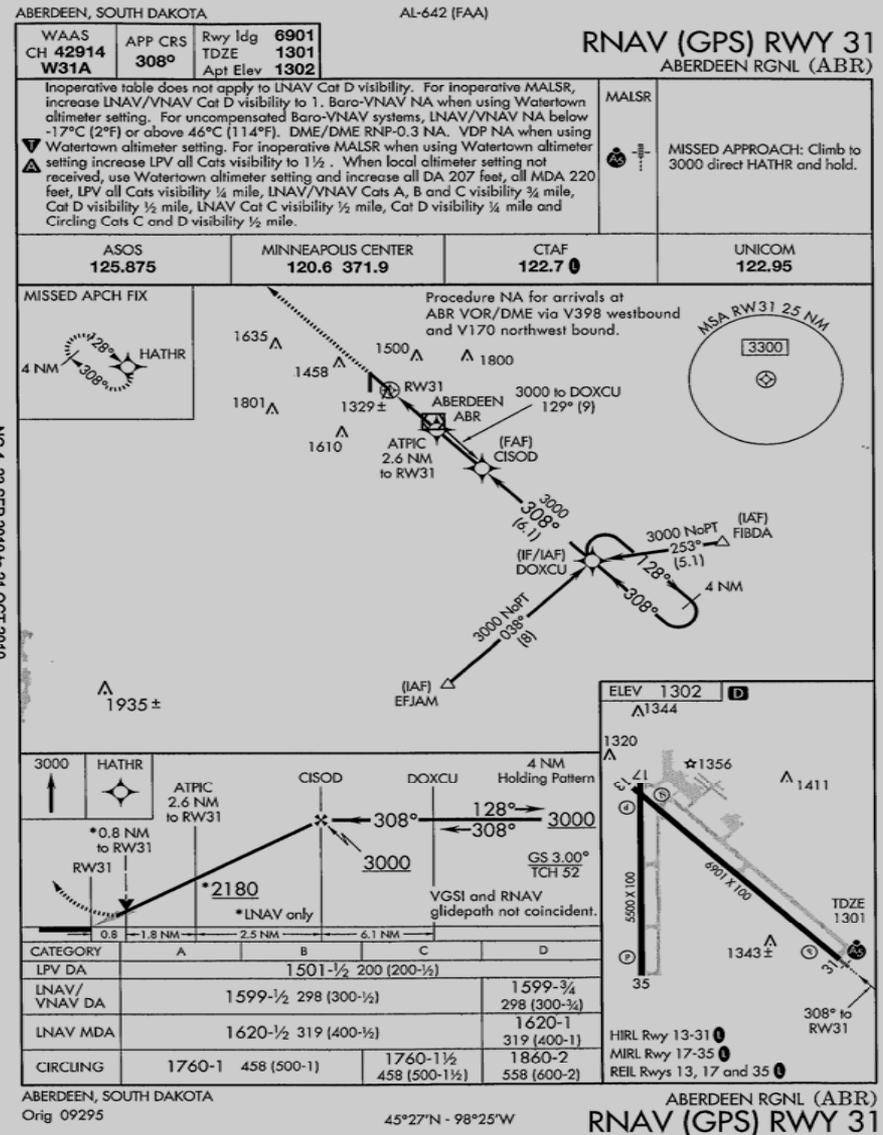
# ND Airports with LPV-Black

- Bismarck
- Bottineau
- Casselton
- Devils Lake
- Dickinson
- Fargo
- Grafton
- Grand Forks
- Gwinner
- Harvey
- Hazen
- Jamestown
- Langdon
- Minot
- Valley City
- Watford City
- Williston



# SD Airports with LPV-Black

- Aberdeen
- Brookings
- Huron
- Mitchell
- Pierre
- Rapid City
- Vermillion
- Watertown
- Winner
- Yankton



# ND-LPV “GREEN-READY To Go” GPS Production Status (7 Airports)

<http://aeronav.faa.gov/index.asp?xml=aeronav/PIT/ifpform>

- Carrington-Rwy 31
- Cavalier-Rwy 34
- Dickinson-Rwy 25
- Wahpeton- Rwy 15/33
- Mandan- Rwy 13/31
- Rolla- Rwy 32
- Tioga- Rwy 30
- Airport manager should log-in and reply “survey completed and validated-please process IFR-LPV procedure to Runway XX” and do RAPT Worksheet



# Instrument Flight Procedure Request Form for Airport Manager –Overview

<http://aeronav.faa.gov/index.asp?xml=aeronav/PIT/ifpform>

- [Initiate an Instrument Flight Procedure](#)
- Please fill out as many fields as possible.
- Required fields are indicated with an \* asterisk.
- Complete your Request by clicking the "Submit" button at the bottom of this form.
- 1. Your Point of Contact Information:
  - \* First Name:
  - \* Last Name:
  - Address:
  - City:
  - State:
  - Zip Code:
  - Country:
  - \* Daytime Phone:
  - Fax:
  - \* E-mail Address:
  - Company or Organization:
  -
- 2. Instrument Flight Procedure (IFP) Information:
  - \* Airport Name:
  - \* Airport ICAO Ident:
  - \* City/County:
  - \* State:
  - \* Country:
  - \* Type of Aircraft:
  - \* Airport has a Published IFP?
  - \* Have you contacted the Airport Manager regarding this Request?
  - \* Procedure(s) Requested and/or Additional Remarks:



# SD-LPV “GREEN-READY To Go” GPS Production Status (8 Airports)

<http://aeronav.faa.gov/index.asp?xml=aeronav/PIT/ifpform>

- Belle Fouche- Rwy 32
- Yankton-Rwy 31
- Eagle Butte-Rwy 13
- Gettysburg-Rwy 31
- Sioux Falls-Rwy 3/21
- Madison-Rwy 33
- Mobridge-Rwy 30
- Sturgis-Rwy 29
- Airport manager should log-in and reply “survey completed and validated-please process IFR-LPV procedure to Runway XX” and do RAPT worksheet



# REGIONAL AIRSPACE PROCEDURES TEAM (RAPT)

New regional policy of RAPT team is to require completion of Approach Design Worksheet before they approve the charting LPV-RNAV-ILS-VOR

EXCELLENT  
PLANNING TOOL!



AIRPORT DESIGN WORKSHEET FOR INSTRUMENT APPROACH			
<b>A. Airport Information</b>			
1. Airport Name/LOCID	4. Proposed Visibility & Type of Approach (provide type of approach) <input type="checkbox"/> >1 mi <input type="checkbox"/> 1 mi <input type="checkbox"/> <1 mi <input type="checkbox"/> <3/4 mi <input type="checkbox"/> Precision Approach <input type="checkbox"/> Non-precision with Vertical Guidance <input type="checkbox"/> Non-precision Approach <input type="checkbox"/> Circling Approach		Enter Approach Type (i.e. ILS, LPV, VOR)
2. Associated City/State	Enter Applicable Runways (for circling only)		
3. Runway End			
<b>B. Standards Verification</b>			
	<b>Runway Ends</b>	<b>Runway</b>	<b>Runway</b>
5. Airport Approach Category-Airport Design Group			
6. Runway Length and Width			
7. Airport Layout Plan Approval Date Does current ALP depict the requested instrument approach?			<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Runway Signage and Markings → Indicate Visual, NPI, or PIR → Are runway signage and markings in accordance with AC 150/5340-18 and AC 150/5340-17?		<input type="checkbox"/> VIS <input type="checkbox"/> NPI <input type="checkbox"/> PIR <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> VIS <input type="checkbox"/> NPI <input type="checkbox"/> PIR <input type="checkbox"/> Yes <input type="checkbox"/> No
9. Associated Taxiway Signage & Markings in accordance with AC 150/5340-18 and AC 150/5340-17 (i.e. Holding Position Signs and hold lines installed)		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Designate type of Runway Lighting Is runway lighting in accordance with AC 150/5340-307		<input type="checkbox"/> None <input type="checkbox"/> MRL <input type="checkbox"/> HIRL <input type="checkbox"/> Yes <input type="checkbox"/> No	
11. Is a Parallel Taxiway or equivalent available?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
12. Identify type of Approach Lighting Systems			
13. Provide VGSI (PAPI/VASI) information. If unknown, provide the information on the attached VGSI checklist.	Angle °	TCH ft.	Angle ° TCH ft.
14. Obstacle Free Zone(s) clear of penetrations, including aircraft or vehicles on parallel taxiway?  Precision Obstacle Free Zone (POFZ) clear of penetrations? (applies only if visibility minima is <3/4 mi)  Runway Safety Area (RSA) meet standards for proposed approach?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No	
15. Threshold Siting Surface (Identify the applicable category in Appendix 2, Table A2-1 for which the TSS standard is met)			
16. Identify applicable size and slope of Part 77 approach surface and identify any obstructions (ex. 20:1 at 1000' x 16,000')			
17. Date Obstruction Survey submitted via AGIS internet site			
18. Meet compatible land use requirements? (RPZ, Wildlife Hazards, etc.)		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. Remarks: (Explain any "no" answers which normally are disqualifying for IAP development. If airport work is underway, which will meet a standard by a certain date, explain.)			
20. Justification: (Should include types and numbers of proposed users and impacts of providing)			
<b>C. Airport Sponsor</b>			
21. Name of person submitting data	22. Email address	23. Phone No.	24. Fax No.
25. Signature of Sponsor's Designated Official Representative		26. Date	
<b>D. For FAA Use Only</b>			
Concur with the aforementioned information:		<input type="checkbox"/> Yes <input type="checkbox"/> No	
If no, please explain:			
Name of FAA reviewing official:		Date	
Signature of FAA reviewing official		Date	

Date discussed in RAPT: \_\_\_\_\_

Attach additional documentation or remarks if necessary.

AGL 620-IAP-2010-1



# **SD-ND Airports in the LPV Process colored “Orange- Survey Completed but not Validated by NGS”**

- **20 SD airports with Orange status**
- **13 ND airports with Orange status**



**FAA Airports Office is working with NGS staff to increase validation and verification process that is delaying the Airport GIS surveys for LPV establishments**

# Dakota Airports- LPV Candidates That Penetrated The GQS – “RED-STATUS On Hold For LPV Establishment” (6)

- Eagle Butte-Rwy 31 but has existing RNAV(GPS) Rwy 31
- Hot Springs-Rwy 01 without an approach procedure
- Milbank-Rwy 31 but has existing RNAV(GPS) Rwy 31
- Pine Ridge-Rwy 30 but has existing RNAV(GPS) Rwy 30
- Bismarck-Rwy 21 due to tree penetration that was removed but still has RNAV(GPS) Rwy 21
- Williston-Rwy 11 with EA planning study on obstruction removal but still has RNAV(GPS) Rwy 11

**Removal of the GQS penetration is critical to continuance of the LPV development within Flight Procedures Design Team**



# SD Candidate Listing In Partnership with SD Aeronautics Staff FY 2011 for third party FPO survey

- Onida (98D) RWY 13 and 31
- Madison (MDS) RWY 15
- Hot Springs (HSR) RWY 19
- Pine Ridge (IEN) RWY 12
- Sturgis (49B) RWY 11
- Vermillion (VMR) RWY 12
- Milbank (1D1) RWY 13
- Belle Fourche (EFC) RWY 14
- Gettysburg (0D8) RWY 13



# ND Candidate Listing In Partnership with ND Aeronautics Staff FY 2011 for third party FPO survey

- Wahpeton (BWP) RWY 15 and 33
- Park River (Y37) RWY 12 and 30
- Parshall (Y74) RWY 12 and 30
- Lakota (5L0) RWY 15 and 33
- Ellendale (4E7) RWY 13 and 31
- Edgeley (51D) RWY 14 and 32
- Cooperstown (S32) RWY 13 and 31
- Gwinner (GWR) RWY 16
- Washburn (5C8) RWY 8 and 26



# GPS Establishment Process Review

- Airport Sponsors establish IFR need with local pilots and transient traffic (air ambulance, flying doctor, tourism and business flying)
- Work with Consultant to update Airport Layout Plan to insure IFR marking, signage, land, lighting and that airspace is clear in OFZ and RPZ controlled
- Submit FAA FPO website for Instrument Approach Request to make candidate list to design LPV for Violet status
- Submit new RAPT Worksheet to State and FAA BIS ADO to Review and Prioritize your procedure (Violet)
- Consider Contracting with Consultant using (Entitlements) or seek a Third Party Survey (FPO sponsored) FAA AC 150/5300 16-17-18 survey following AGIS process for Vertical or Non-Vertical Guidance



# GPS Establishment Process Review

- Complete and Submit LPV Survey Data on AGIS web site (Orange)
- Await NGS validation of survey data
- Submit FAA FPO website as Airport Manager to Request for Flight Procedures to design LPV (Green)- Justify traffic
- Await Flight Check and Approach Plate Publications (Black)
- Overall LPV Process can take 18-24 months on average in review of recent new establishments in the Dakotas
- Get ready by updating 5010/AFD data so that aviation businesses, charter and air medical flights will have correct airport information
- Buy yourself the new LPV avionics for your own airplane



# Questions about the Dakota LPV Planning Session? Thank you!

