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# Airport 20 to 1 Approach Surface

2015 Hershey Airports Conference

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March 3, 2015



## 20:1 Approach Penetrations Identified

- Criteria developed by Flight Standards in the late 1990s
- Requires clear 20:1 approach surface for night minimums.
- Visual aids (VGSI) such as VASI or PAPI were designated as a **possible** mitigation.
- All terminal procedures are reviewed every two years, as required by AFS policy.
- During that periodic review, or other amendments, the TERPS Specialist in AeroNav Products may identify obstacles that penetrate the 20:1 visual surface.



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## 20:1 Penetrations Background

- Oct 2012: Flight Standards Division AFS-400 required immediate NOTAM action to restrict night operations whenever a 20:1 penetration was identified.
- Jan 2014: Refined policy considered “Risk” factors of the obstacles depending on the amount of penetration and allowed a 30 day validation period.
- Category A/B and C/D surface areas: AFS allowed the separation of NOTAM restrictions from the smaller A/B surface and the larger C/D surface.



## Change to 20:1 Dimensions

- AFS has issued a implemented a change to FAA Order 8260.3B, United States Standards for TERPS, Straight-in Visual Area Beginning Width.

### Memorandum

Date:

To: Abigail Smith, Director, Aeronautical Navigation (AeroNav) Products, AJV-3

From: Bruce DeCleene, Manager, Flight Technologies and Procedures Division, *BD*  
AFS-400

Subject: Change to FAA Order 8260.3B, United States Standard for Terminal Instrument Procedures (TERPS), Straight-in Visual Area Beginning Width

**Purpose:** This memorandum authorizes a change to TERPS, Volume 1, Chapter 3, paragraph 3.3.2c(1)(b), straight-in visual area dimensions.



# Dimension Changes Outlined

**Discussion:** Paragraph 3.3.2c(1)(b) specifies the requirements for the alignment, length, and width of visual areas associated with straight-in instrument approach procedures. The beginning visual area widths for all runways and for all aircraft approach categories are now specified at +/- 200 feet. Use TERPS, Volume 1, formula 3-3a, to define the half-width of the straight-in visual area.

The United States Instrument Flight Procedures Panel concurs with this new straight-in visual area dimensions.

**Action:** When establishing the straight-in visual area under TERPS, Volume 1, Chapter 3, paragraph 3.3.2c(1)(b), use a beginning width of +/- 200 feet for all approach categories.

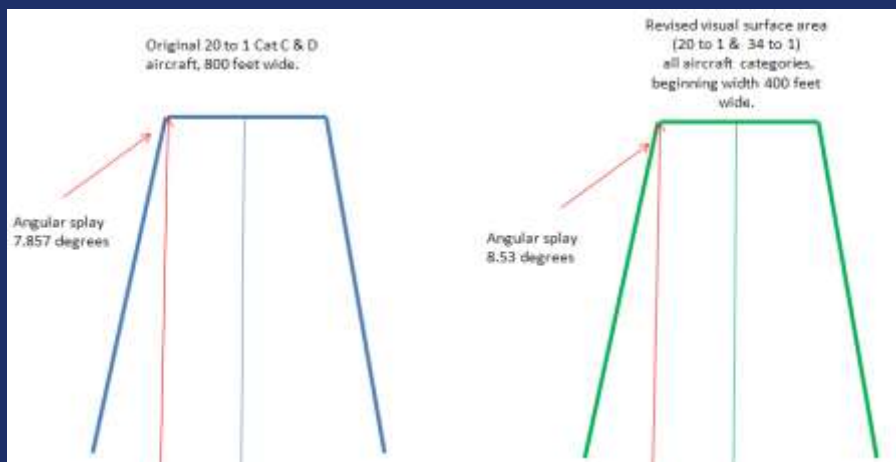
Use TERPS, Volume 1, formula 3-3a to determine the half-width of the straight-in visual area. Use of formula 3-3b is no longer required.

**Summary:** This change will be incorporated into the next revision to Order 8260.3 and cancels AFS-400 memorandum, same reference, dated October 30, 2013. If you have any questions, please contact Mr. Rick Dunham, Manager, Flight Procedure Standards Branch, AFS-420, at (405) 954-4164.



## New vs Old 20:1 (Width)

- Original 20:1: Categories C&D beginning width 800FT
- Revised (20:1 & 34:1): All Categories beginning width 400FT



# Visual Area – Straight In Defined

## STRAIGHT-IN approaches

### ON AIRPORT VOR NO FAF

The FAC and the extended runway centerline shall not exceed 30°. The FAC should be aligned to intersect the extended runway centerline 3,000 feet outward from the runway threshold. When an operational advantage can be achieved, this point of intersection may be established at any point between the runway threshold and a point 5,200 feet outward from the runway threshold. Also, where an operational advantage can be achieved, a FAC which does not intersect the runway centerline or intersects it at a distance greater than 5,200 feet from the threshold may be established, provided that such course lies within 500 feet laterally, of the extended runway centerline at a point 3,000 feet outward from the runway threshold. Straight-in category C, D, and E minimums are not authorized when the final approach course intersects the extended runway centerline at an angle greater than 15 degrees and a distance less than 3,000 feet (see figure 3-38)



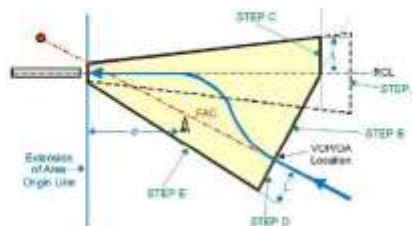
## TERPS

## Offset Evaluation

3.3.2 e. (1) (c) Offset [see figure 3-3c]: When the final course does not coincide with the RCL ( $\neq 0.03^\circ$ ), modify the straight-in visual area as follows:

- Step A. Draw the straight-in area aligned with the RCL as previously described.
- Step B. Extend a line perpendicular to the final approach course (FAC) from the DA point or VDP (even if one is not published) to the point it crosses the RCL.
- Step C. Extend a line from this point perpendicular to the RCL to the outer edge of the straight-in area, noting the length (L).
- Step D. Extend a line in the opposite direction of the line in Step B from the DA/VDP perpendicular to the FAC for distance (L).
- Step E. Connect the end of the line constructed in Step D to the end of the inner edge of the area origin line 200 ft from LTP.

Figure 3-3c. Offset Visual Area



## Notification Process

- Initial Notification: Within 3 business days, a file is forwarded to the airport requiring sponsor to validate each penetration ASAP, but not more than 30 days. The Airport District Office (ADO) is info copied.
- Action required by sponsor: Airport owner/sponsor must provide a written report and copy the ADO.
- No Response: If no response received within prescribed timeframe, the penetrations will be treated as though they do exist and the instrument Approach Procedures (IAPs) will receive night restrictions.

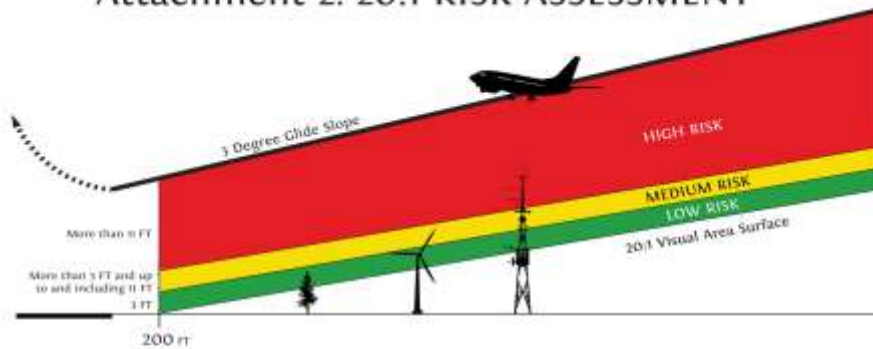


## Obstacle Verification

- Verification: Airport owner/sponsor must verify the validity of each penetration as soon as possible but not to exceed 30 calendar days.
- 20:1 determined Invalid: Either obstacle does not exist or has been removed or lowered in height to no longer penetration. If lowering obstacle, survey data must be obtained and document new AGL and MSL height, 1A accuracy code, and surveyor stamp/signature.
- 20:1 determined to be Valid: Indicates the obstacle is in the location and at the approximate height reported. NOTAM action is dependent of the Risk category.



## Attachment 2. 20:1 RISK ASSESSMENT



### HIGH RISK (more than 11 feet)

- Immediately restrict IAP visibility to at least 1 SM. If unlighted, restrict night operations (e.g., using a Notice to Airmen (NOTAM), or a Procedure Amendment).
- Submit compliance plan as soon as possible but no later than 30 days.
- IAP restriction(s) will remain until penetration(s) are mitigated.

### MEDIUM RISK (more than 3 feet and up to and including 11 feet)

- No immediate IAP actions.
- Submit compliance plan as soon as possible but no later than 30 days.
- Mitigate penetrations as soon as possible but not to exceed 180 days.

IAP - Instrument Approach Procedure  
SM - Statute Mile

### LOW RISK (3 feet or less)

- No immediate IAP actions.
- Submit compliance plan as soon as possible but no later than 30 days.
- Mitigate penetrations as soon as possible but not to exceed one year.

11/16/2014



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## Attachment 4. Timelines and IAP Restrictions

10/16/14

RISK CATEGORIES	Obstacle Penetrates 20:1 by:	Verification Timelines	IAP Restrictions if 20:1 are valid	Compliance Plan Timelines
HIGH	More than 11 feet	Not to exceed 30 days	Immediately restrict IAP visibility and if unlighted restrict night operations (e.g., using a Notice to Airmen (NOTAM) or a Procedure Amendment)	IAP Restrictions will remain until penetration(s) are mitigated
MEDIUM	More than 3 feet and up to and including 11 feet	Not to exceed 30 days	No immediate action	30 days for Compliance Plan & 180 days to light, lower, or remove
LOW	3 feet or less	Not to exceed 30 days	No immediate action	30 days for Compliance Plan & 1 year to light, lower, or remove

NOTE: Verification and compliance timelines should be completed as soon as possible but not to exceed the appropriate number of calendar days. If any of the timelines are not met or the obstructions cannot be removed, lighted or lowered the IAP will be restricted immediately.

IAP - Instrument Approach Procedure  
VIS - Visibility



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# Airport Owner/Sponsor Response

- If 20:1 penetrations determined invalid: EFPT will notify applicable offices to update airport's data file(s). No Action required to restrict or modify Instrument Approach Procedure (IAP).
- If 20 to 1 penetrations determined valid:
  - Airport owner/sponsor submits written compliance plan.
  - Airport owner/sponsor mitigates the penetration through removal, lighting, reduction in height, or VGSI waiver request.
  - FAA action taken per Risk Assessment Criteria



## What is in the works?

- **Revision to the Airports GIS site to include a Surface Analysis and Visualization (SAV) "20:1" tool (tomorrow 10:30)**
- **Will allow running analysis, generating surfaces, and visualizing the penetrations**
- **Currently usable in the Eastern Region if there is GIS or any other obstacle/airport data loaded**





# Corry Lawrence K8G2 RWY 32

- “OLD” Cat C & D 20 to 1 surface example.



# Corry Lawrence K8G2 RWY 32

- “NEW” Cat A through D 20 to 1 surface example.







## Contact Info

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