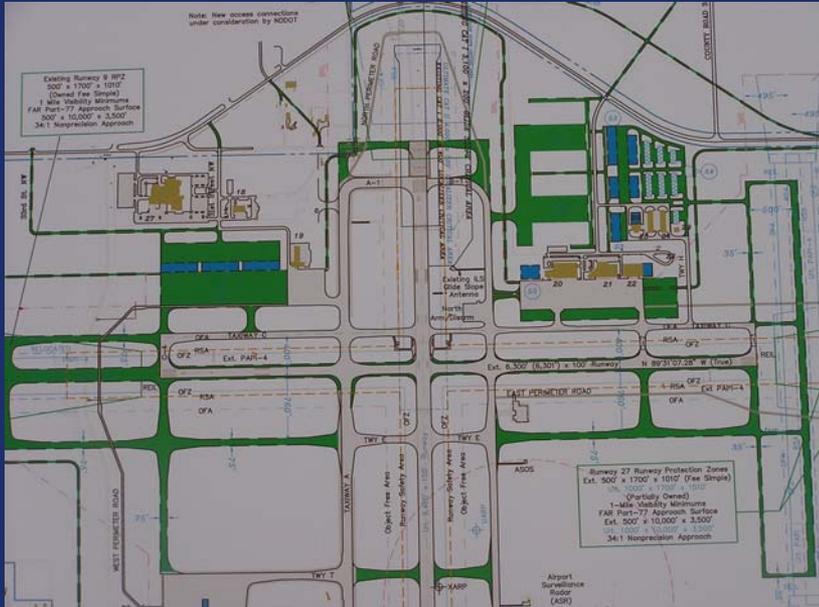


# 2010 Fall Seminar Airport Layout Plans



Presentation to: North and South Dakota Aviation Users

Name: Brian P. Schuck

Date: October 27 & 28, 2010



Federal Aviation  
Administration



# PPM 5310.1 Preparation and Review of Airport Layout Plans

- Regional guidance to be used for ALP development since 2006.
- PPM 5310.1 is being updated in response to changes to:
  - AC 150/5070-6B, Change 1, Airport Master Plans
  - AC 150/5300-13, Change 15, Airport Design
  - Runway Departure Surface
  - Electronic Airport layout plans / Airport GIS

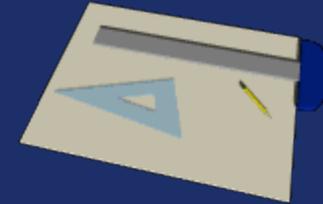


# PPM 5310.1 Preparation and Review of Airport Layout Plans

- **Introduction**
- **Attachments**
  - Attachment A – Guidelines on Preparing Airport Layout Plans.
  - Attachment B – ALP Review Checklist.
  - Attachment C – ALP Development and Review Process.



# Attachment A – Guidelines for preparing Airport Layout Plans



- **As the name suggests, it contains guidance on ALP development.**
  - Typical pages of the ALP
  - Narrative
  - How to handle Appendix 2 Surfaces



# Attachment B: ALP Review Checklist

- **Submit a completed checklist with the ALP.**
- **The checklist is located on the Great Lakes Airports website in MS Word at:**  
[http://www.faa.gov/airports\\_airtraffic/airports/regional\\_guidance/great\\_lakes](http://www.faa.gov/airports_airtraffic/airports/regional_guidance/great_lakes)
- **Ensure the ALP Review Statement is included on the ALP.**



# Cover sheet of Checklist

- **To be used during review for tracking purposes.**
- **Airport identification.**
- **ALP submittal information.**
  - ALP Prepared by
  - Internal QA/QC
  - Sponsor Review
- **FAA Review.**



# The Narrative Report

- **Basic aeronautical forecasts.**
  - Design aircraft
- **Explanation of proposed development.**
  - Approach Category
- **Rationale for unusual design features/ modification to design standards.**
- **14 CFR Part 77**
- **Airport Capital Improvement Plan (ACIP).**



# The Narrative Report

- **Proposed timeline of development.**
  - Milestones/triggering events
  - Action Items/next steps
  - Funding plan



# The Title Sheet

- **Airport owner approval block.**
  - The Airport Sponsor must sign the ALP before the FAA can issue an approval letter.
- **Date on the ALP.**
  - The date that the sponsor/consultant signs the ALP.
- **Space for FAA approval letter or stamp.**
- **ALP Review Statement.**



# The ALP Review Statement

**“On behalf of [insert consultant name], this Airport Layout Plan (ALP) was prepared for [insert Airport name] according to the applicable Advisory Circulars, the current version of the Great Lakes Region ALP Checklist, and accurately depicts the proposed use of airspace at the time of submittal. The ALP conforms with FAA design standards, except as noted.”**



# The Airport Data Sheet

- **Wind Rose Data.**

- 10.5. 13, 16, 20 knots.

- Age of data – the last 10 consecutive years of data with most current data no older than 10 years.

- Use best data available.

- **Airport Data Table.**

- Airport Reference Point Coordinates (existing, future if applicable, and ultimate).

- Miscellaneous facilities.



# The Airport Data Sheet

- **Airport Data Table continued**
  - Identify the following for each runway end:
    - Approach Category
    - Design Group
    - Tail Height
  - Runway safety area dimensions
  - Runway end coordinates
  - **Modification to standards**
    - Existing
      - Approval date
    - Requested
      - Will be approved and date added prior to final ALP.
  - **Declared Distance Table**
    - Included even if Declared Distances are not used.



# The Airport Data Sheet

- Airport Data Table continued
  - Approach type and minimums

**Table A2-1. Approach/Departure Requirements Table**

	Runway Type	DIMENSIONAL STANDARDS*					Slope/OCS
		Feet					
		A	B	C	D	E	
1	Approach end of runways expected to serve small airplanes with approach speeds less than 50 knots. (Visual runways only, day/night)	0	60	150	500	2,500	15:1
2	Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more. (Visual runways only, day/night)	0	125	350	2,250	2,750	20:1
3	Approach end of runways expected to serve large airplanes (Visual day/night); or instrument minimums $\geq$ 1 statute mile (day only).	0	200	500	1,500	8,500	20:1
4	Approach end of runways expected to support instrument night circling. <sup>1</sup>	200	200	1,700	10,000	0	20:1
5	Approach end of runways expected to support instrument straight in night operations, serving approach category A and B aircraft only. <sup>1</sup>	200	200	1,900	10,000 <sup>2</sup>	0	20:1
6	Approach end of runways expected to support instrument straight in night operations serving greater than approach category B aircraft. <sup>1</sup>	200	400	1,900	10,000 <sup>2</sup>	0	20:1
7 <sup>3</sup> , 6,7, 8	Approach end of runways expected to accommodate approaches with positive vertical guidance (GQS).	0	½ width runway + 100	760	10,000 <sup>2</sup>	0	30:1
8	Approach end of runways expected to accommodate instrument approaches having visibility minimums $\geq$ 3/4 but < 1 statute mile, day or night.	200	400	1,900	10,000 <sup>2</sup>	0	20:1
9	Approach end of runways expected to accommodate instrument approaches having visibility minimums < 3/4 statute mile or precision approach (ILS, GLS, or MLS), day or night.	200	400	1,900	10,000 <sup>2</sup>	0	34:1
10	Approach runway ends having Category II approach minimums or greater.	The criteria are set forth in TERPS, Order 8260.3.					
11	Departure runway ends for all instrument operations.	0 <sup>4</sup>	See Figure A2-3				40:1
12	Departure runway ends supporting Air Carrier operations. <sup>5</sup>	0 <sup>4</sup>	See Figure A2-4				62.5:1

\* The letters are keyed to those shown in Figure A2-1.

# The Airport Data Sheet

- **The Magnetic Variance of Record must be used for calculating Runway Identifiers.**
- **Current magnetic variance should be used only when there is not a Magnetic Variance of Record, which is typical for airports that are new or do not have approaches.**



# The Airport Data Sheet

- If the Magnetic Variance of Record is changed, it may cause a change in Runway Identifiers. If the Identifiers do change, then coordination (about 2 years in advance) must be done to assure approaches are not lost when the identifiers are change.



# The Airport Data Sheet

- Current magnetic variance can be obtained from <http://www.ngdc.noaa.gov/geomagmodels/Declination.jsp>.
- Magnetic Variance of Record can be obtained from [http://avnnet.jccbi.gov/datasheet\\_prd/owa/pro\\_datasheet](http://avnnet.jccbi.gov/datasheet_prd/owa/pro_datasheet).
- If the website for Magnetic Variance of Record does not work for you, you can get it from your friendly ADO.



# Airport Layout Drawing

- **Two sheets may be necessary for clarity.**
- **The reviewer should be able to differentiate between existing, future, and ultimate development.**



# Airport Layout Drawing

- **Layout of existing and proposed facilities.**
- **Runway Visibility Zone.**
- **FAA AC 150/5300-13, Appendix 2 Runway End Siting Requirements (as applicable).**
- **Fences (include height in the notes).**
- **Facilities and movement areas that are to be phased out (if applicable).**
- **Markings**
- **PACs, SACs, and/or other monuments**



# Airport Airspace Drawing

- **Plan view – based on ultimate runway configuration.**
- **Profile view – optional**
  - Ground profile, significant objects, existing and ultimate runway ends and approach slopes.
- **Obstruction Data Table**
  - Identify obstacles not depicted on the Inner Portion of the Approach Surface Drawing.



# Inner Portion of the Approach Surface Drawing



- **Plan view – existing and future.**
  - Inner portion of approaches shown to edges of paper (or to the limits of the RPZ).
  - Airport Design Surfaces (RSA, ROFA, ROFZ, RPZ, POFZ).
- **Profile view**
  - Existing and proposed runway centerline ground profiles.
  - AC 150/5300-13, Appendix 2 Runway End Siting Requirements.
  - Touchdown Zone Elevations.
- **Plan and Profile sheet is recommended for runways that have significant changes in elevation or development that is in close proximity to the transitional surface.**



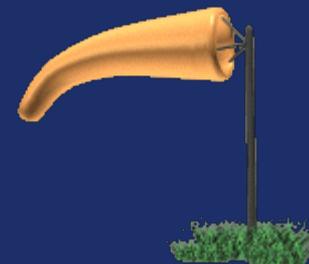
# Inner Portion of the Approach Surface Drawing

- **Obstruction Table for each approach surface**
  - Triggering event/Time frame/expected date for removal (if applicable) such as a runway extension.
  - Allowable Appendix 2 surface elevation.
  - Amount of Appendix 2 surface penetration.
  - Proposed disposition of Appendix 2 surface obstruction.
  - AC 150/5300-13, Appendix 2 Surfaces (15:1, 20:1, 34:1, 40:1, 62.5:1)



# Inner Portion of the Approach Surface Drawing

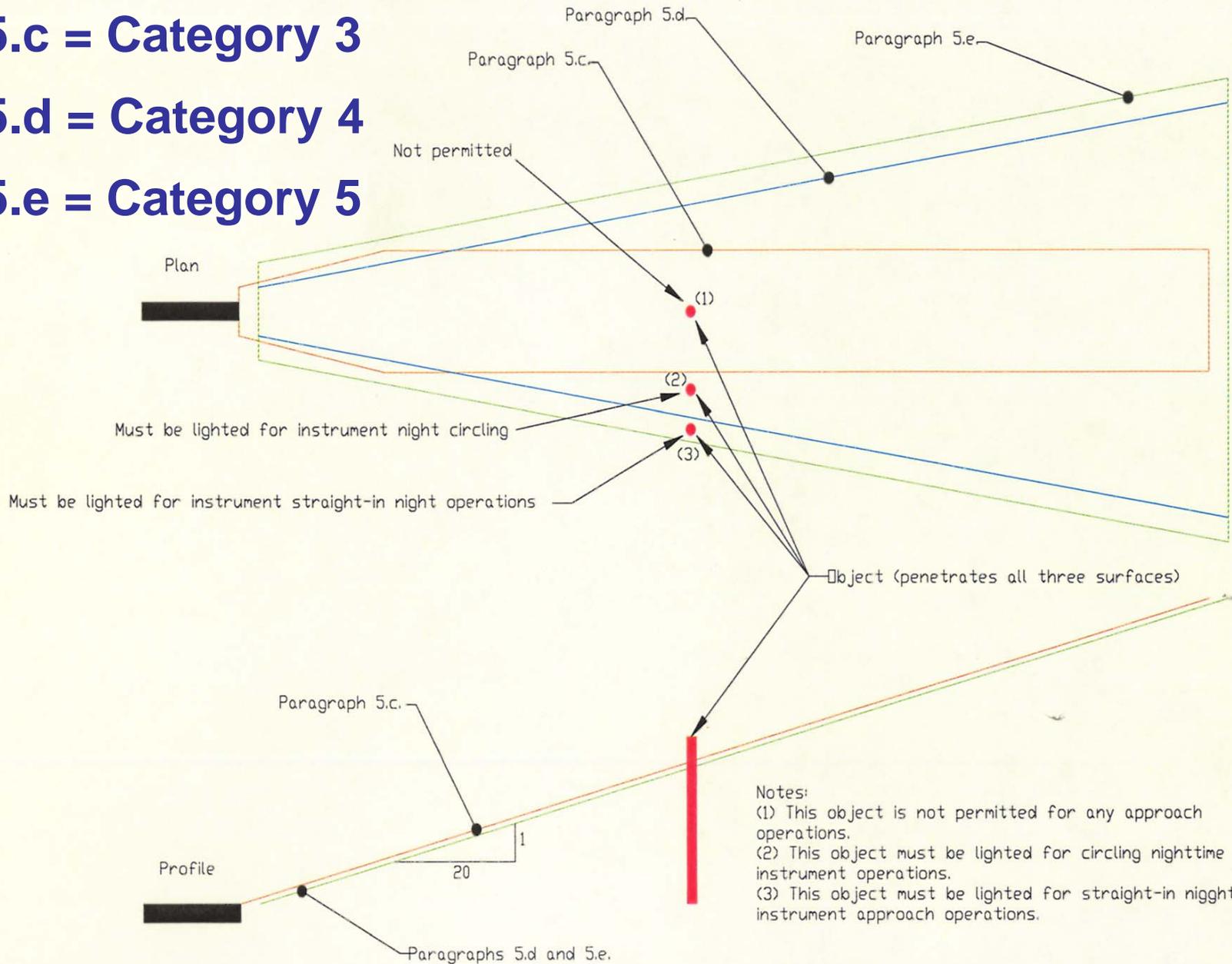
- **Penetrations to Part 77 are:**
  - Obstructions
  - May be hazards
- **Penetrations to Part 77 are presumed a hazard unless determined through an aeronautical study that it is not hazard.**
- **Penetrations to the Appendix 2 surface are a hazard.**
  - Possible exceptions: Category 4, 5, 6, 10, and 11.



**5.c = Category 3**

**5.d = Category 4**

**5.e = Category 5**



# Inner Portion of the Approach Surface Drawing

- **Hazards must be mitigated. Possible mitigation include:**
  - Closing the runway
  - Removing the hazard
  - Runway threshold relocation
  - Changing the approach
  - Declared Distances



# Inner Portion of the Approach Surface Drawing

- **Obstructions determined through an aeronautical study must be lighted unless the study determines:**
  - The object is conspicuous without lighting.
  - The object is shielded by other objects.



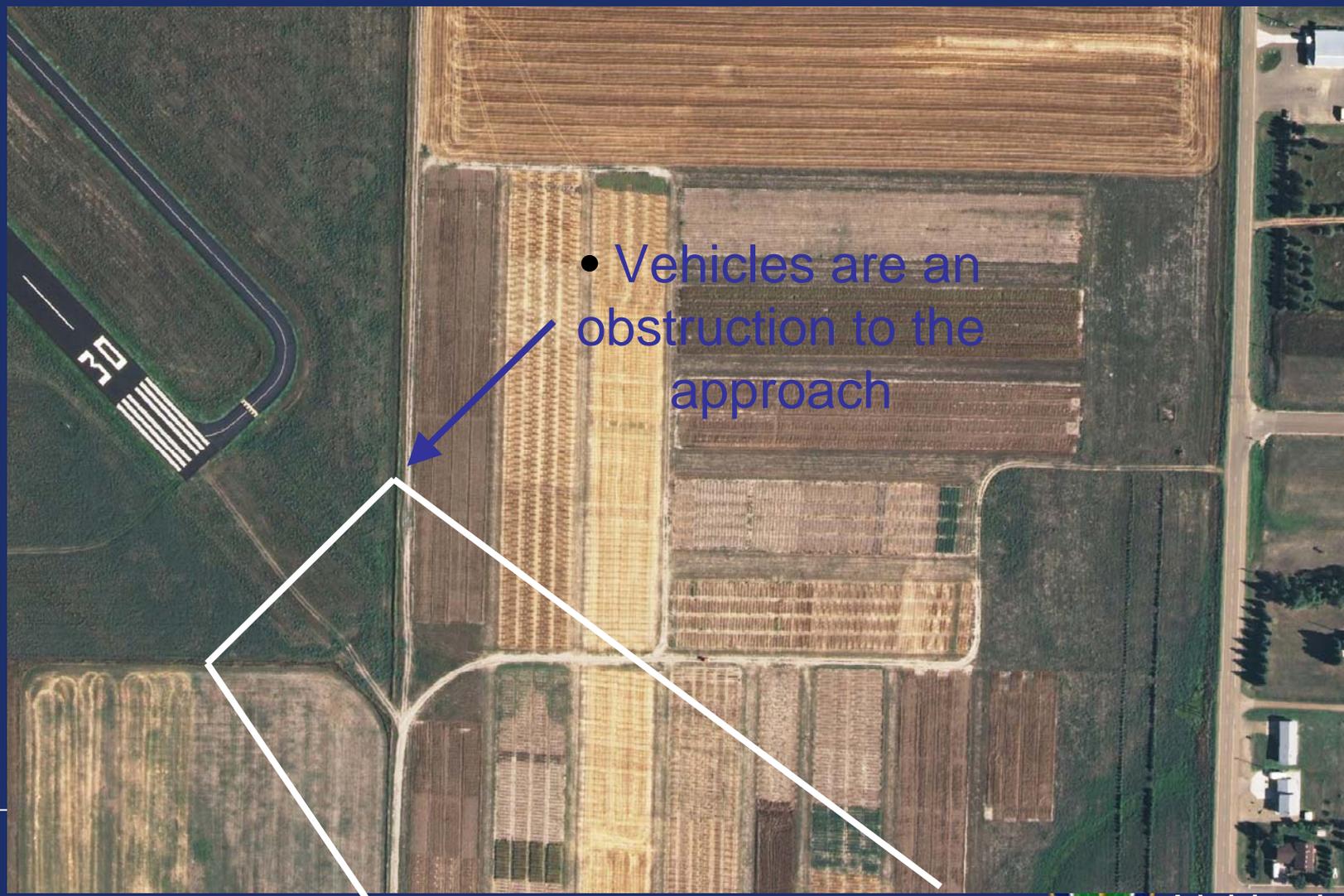
# Inner Portion of the Approach Surface Drawing



# Inner Portion of the Approach Surface Drawing



# Inner Portion of the Approach Surface Drawing



# Terminal Area Drawing

- **Building data table.**
- **Buildings to be removed or relocated.**
- **Special use areas.**
  - Agricultural spraying, etc.



# Terminal Area Drawing

## Apron areas:

- **Just because a hangar is being built doesn't mean additional apron is needed. A taxiway in many cases will be adequate.**
- **The tie in between a taxiway or apron is not eligible for private hangars.**
- **Hangars constructed on Federally funded pavement will have to reimburse the Federal portion of the cost of the pavement.**



# Terminal Area Drawing

- **Apron areas**
  - The tie in between a taxiway or apron is not eligible for rehabilitation for private hangars. If the apron is rehabilitated and the private tie in is done as a portion of the project, these expense of these areas must be identified and so they do not receive federal participation.



# Land Use Drawing

- **Airport Boundaries.**
  - Existing and future.
  - Fee and easement.
- **Runway visibility zone.**
- **65 LDN**





# Airport Property Map / Exhibit A



- **Plan view showing parcels of land.**
  - Existing and future.
- **Data Table.**
  - Number or letter and area of each parcel or easement.
    - **Type of easement**
      - Part 77
      - Compatible Land Use
  - Date property was acquired or property status.
  - Federal aid project number under which the property acquisition was reimbursed.
  - Type of funds used to acquire the land (AIP-noise, AIP-entitlement, PFC, other).
  - Grantor of property.



# Reminders...

- **Use Best Professional Judgment.**
- **Communicate with your ADO.**

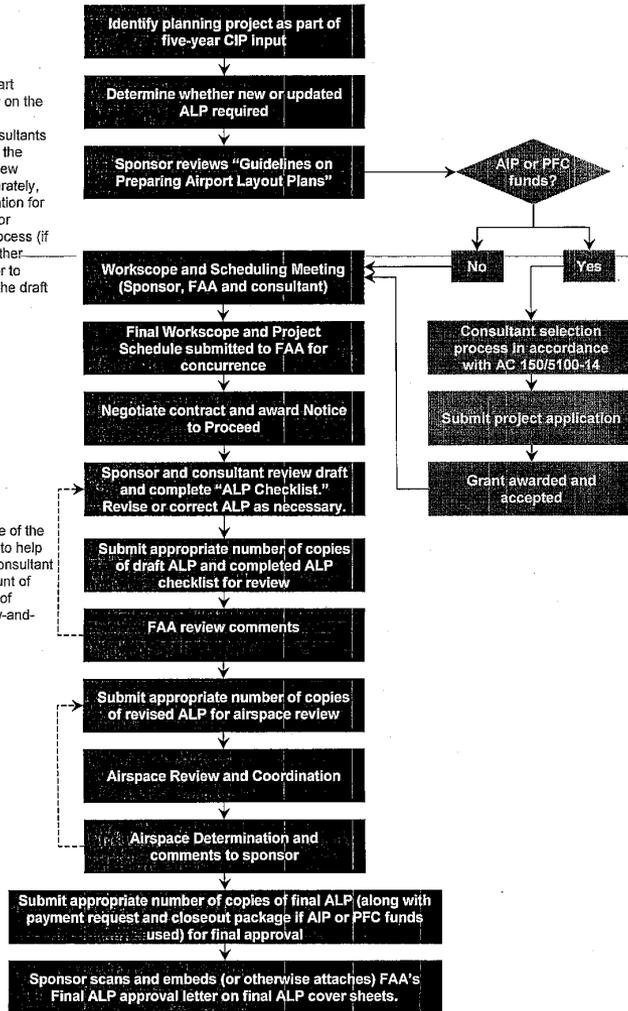


# Appendix C ALP Flowchart

## ATTACHMENT C AIRPORT LAYOUT PLAN (ALP) DEVELOPMENT AND REVIEW PROCESS

Note: This flowchart focuses principally on the planning process. Sponsors and consultants must also address the environmental review requirements separately, with due consideration for the time required for analysis, public process (if appropriate) and other steps required prior to Federal action on the draft ALP.

Note: The purpose of the "ALP Checklist" is to help the sponsor and consultant minimize the amount of time and expense of subsequent review-and-revision cycles.

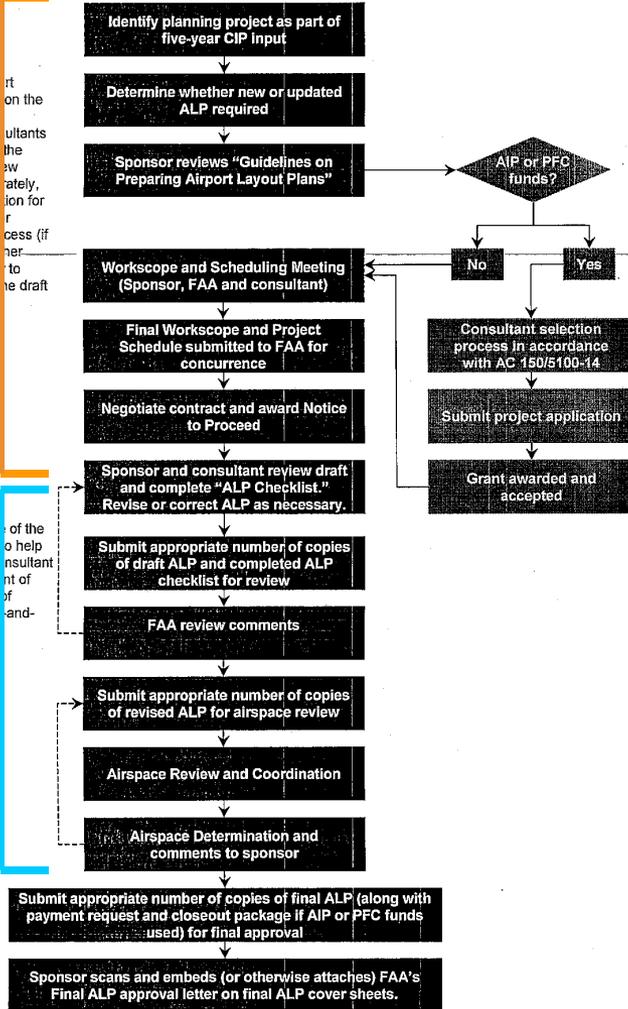


# Appendix C ALP Flowchart

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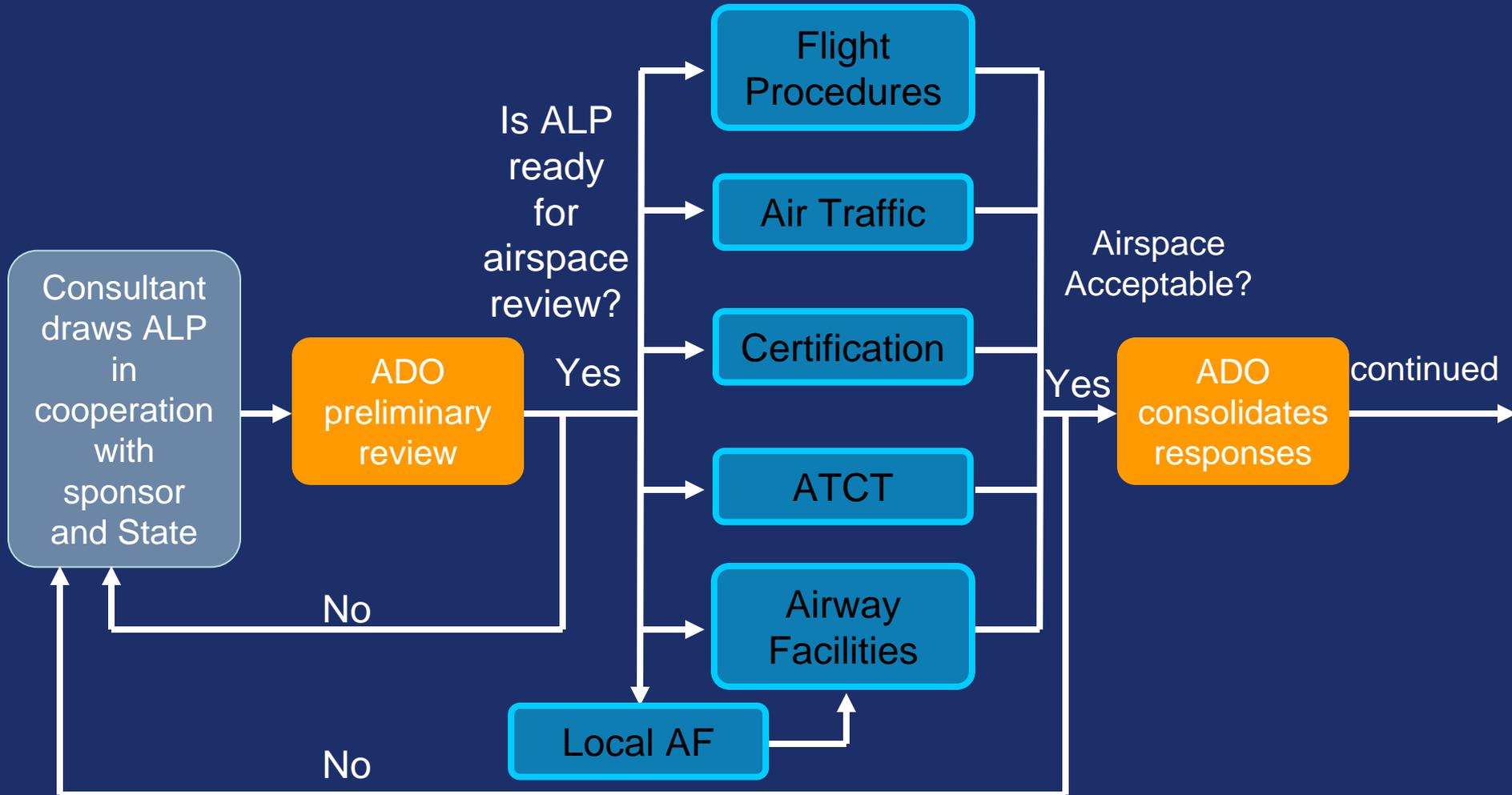
Pre-drawing

ALP  
Development

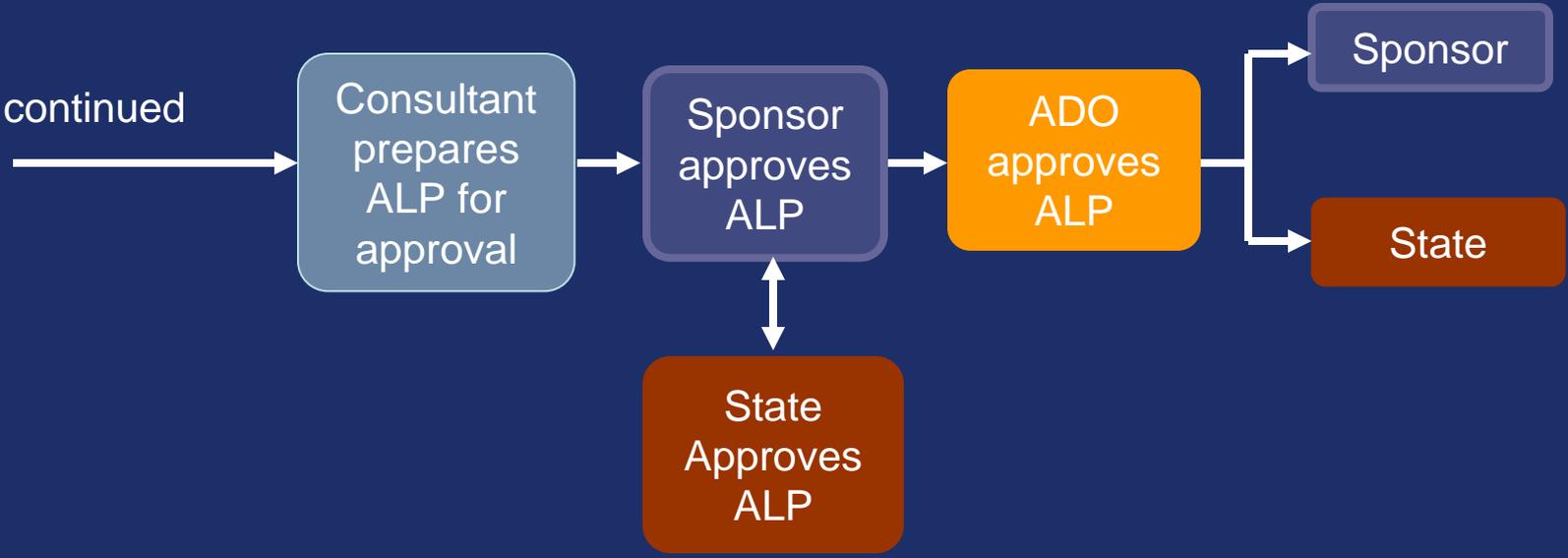
Approval



# ALP Flow Chart



# ALP Flow Chart



Questions ?

