

Importance of Airport Layout Plans (ALPs)

AGGAA
May 23, 2023

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Basics of Airport Planning Documents

- Airport Master Plan – a comprehensive study of an airport, describing short, medium and long term development to meet future aviation demand – it includes an ALP and Narrative Report
- Airport Layout Plan (ALP) – a scaled drawing set of existing and proposed land use facilities necessary for the development of the airport – can include a Narrative Report



ALP Components

- A standard ALP includes the following sheets:
 - Cover Sheet
 - Airport Layout Drawing
 - Approach Surface Drawings
 - Terminal Area Drawing
 - Land Use Drawing
 - Runway Departure Surface Drawing
 - Exhibit A Property Map



When to update your ALP

- Airport Master Plan and Airport Layout Plan can aid in the long term success of your airport, as well as the day to day success
- Update when airport conditions have changed, such as changes in operations or number of based aircraft
- Formally proposed facilities or conditions have been constructed
- The latest ALP is over 20 years old



Importance of ALP to sponsors

- Some of our GA airport sponsors were asked about what are important aspects of an ALP after going through the process and what questions have come up.
 - **Critical Aircraft determinations for existing and future conditions**
 - **What is important to show on the ALP in relation to funding?**
 - **What are the different required surfaces that need to be shown?**
 - **How do I represent feasible growth on the ALP for the planning period?**

Critical Aircraft Determination

- Why is it important?
 - Your critical aircraft will determine your airport's dimensional requirements as specified by FAA AC 150/5300-13B
 - Your design aircraft will impact:
 - RSA/ROFA
 - Runway width
 - Runway separation requirements
 - Hold position markings
 - Runway protection zones



Critical Aircraft Determination

AC 150/5300-13B Airport Design Design Standards Cheat Sheet	Visual Runways and Not Lower than 3/4 Mile Visibility										
	Airplane Design Group A & B						Airplane Design Group C & D				
	I (small)	I	II (small)	II	III	IV	I	II	III	IV	V
Runway Centerline to:											
Taxiway/Taxilane Centerline ²⁻⁶	150	225	240	240	300	400	300	300	400	400	400
Hold Position Marking ⁸	125	200	125	200	200	250	250	250	250	250	250
Runway:											
Width	60	60	75	75	100	150	100	100	100	150	150
Shoulder Width	10	10	10	10	20	25	10	10	20	25	35
Blast Pad Width	80	80	95	95	140	200	120	120	140	200	220
Blast Pad Length	60	100	150	150	200	200	100	150	200	200	400
RSA Length Beyond Departure End ^{9,10}	240	240	300	300	600	1000	1000	1000	1000	1000	1000
RSA Length Prior to Threshold ¹¹	240	240	300	300	600	600	600	600	600	600	600
RSA Width ¹³	120	120	150	150	300	500	500	500	500	500	500
ROFA Length Beyond Runway End	240	240	300	300	600	1000	1000	1000	1000	1000	1000
ROFA Length Prior to Threshold	240	240	300	300	600	600	600	600	600	600	600
ROFA Width	250	400	500	500	800	800	800	800	800	800	800



Critical Aircraft Determination

- An accurate Critical Aircraft determination helps ensure the proper development of airport facilities and appropriate federal investments in airport facilities.
- Things to consider:
 - Required Safety Areas
 - Existing/Future/Ultime Conditions
 - Future Facilities
 - Land Requirements



ALP and Funding Considerations

- Must be shown on the ALP for funding eligibility; project selection will prioritize safety
- Things to consider:
 - Age of equipment
 - More pavement = more maintenance
 - Layout of future facilities
 - Property acquisition
 - Capital Improvement Plan



Approach Surfaces

- ALP categories of approach surfaces for GA Airports
 - 14 CFR Part 77
 - Threshold Siting Surface

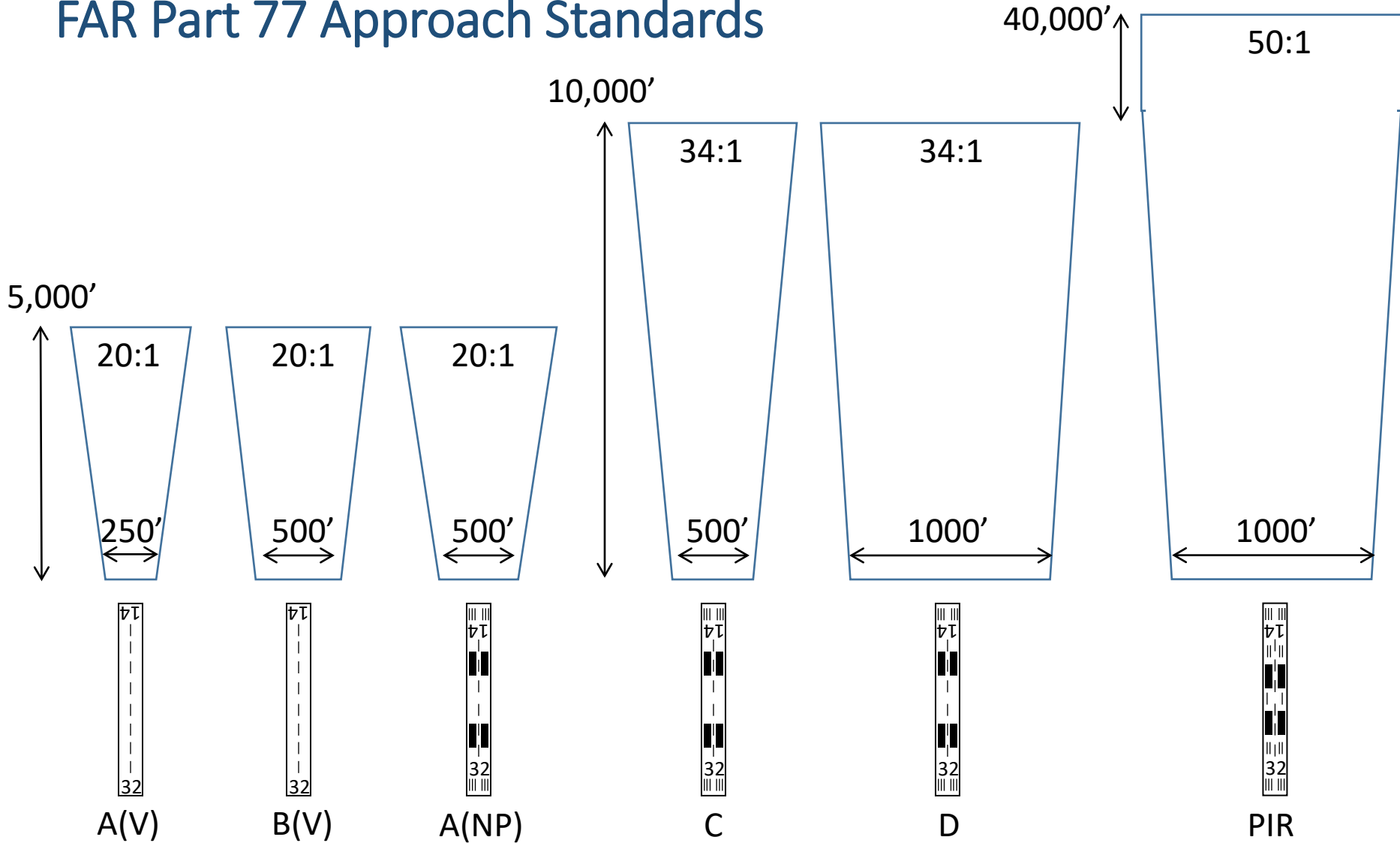


FAR Part 77 Approach Standards

DIM	Item	Dimensional Standards (FEET)					
		Visual Runway		Non-Precision Instrument Runway			Precision Instrument Runway
		A	B	A	B		
		A	B	A	C	D	
A	Width of primary surface and approach surface width at inner end	250	500	500	500	1000	1000
B	Radius of horizontal surface	5000	5000	5000	10000	10000	10000
		Visual Approach		Non-Precision Instrument Approach			Precision Instrument Approach
		A	B	A	B		
		A	B	A	C	D	
C	Approach surface width at end	1250	1500	2000	3500	4000	16000
D	Approach surface length	5000	5000	5000	10000	10000	*
E	Approach slope	20:1	20:1	20:1	34:1	34:1	*
	A	Utility runways					
	B	Runways larger than utility					
	C	Visibility minimums greater than 3/4 mile					
	D	Visibility minimums as low as 3/4 mile					
	*	Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 ft					



FAR Part 77 Approach Standards



FAA Threshold Siting (15:1, 20:1, 30:1, 34:1)

- Mandatory for NPIAS airports
- Those with an instrument approach must remain clear for night minimums
- 6 approach configurations (the 7th is the Departure Surface):

Runway Type	Visibility Minimums	Dimensional Standards (Feet)				Slope	Notes	
		A	B	C	D			
1	Approach end of runways expected to serve small airplanes with approach speeds less than 50 knots		120	300	500	2500	15:1	Note: Approach surface begins at runway threshold
2	Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more.		250	700	2250	2750	20:1	
3	Approach end of runway expected to serve large airplanes. (>12,500lbs)		400	1000	1500	8500	20:1	
4	Approach end of runways that supports IFR circling procedures and procedures only providing lateral guidance (VOR, NDB, LNAV, LP, and LOC)	(≥)3/4 statute mile	200	400	3400	10000	20:1	Note 1: Dimension A is relative to the runway threshold. Note 2: Refer to the US Terminal procedures Publication to determine if circling minimums are available. Note 3: Marking and lighting of obstacle penetrations to this surface or the use of a Visual Guidance Lighting System may mitigate displacement of the threshold. Note 4: 10,000 ft represents a nominal value for planning purposes. The length is dependent on the Visual Descent Point location.
		< 3/4 statute mile	200	400	3400	10000	34:1	
5	Approach end of runways providing ILS, MMLS, PAR, and landing distance available (LDA) with glidepath, LPV, LNAV/VNAV, RNP, or GLS.	(≥)3/4 statute mile	200	800	3400	10000	20:1	Note 1: Dimension A is relative to the runway threshold Note 2: Surface 5 represents the TERPS visual portion of the final approach segment. Surface 6 represents the TERPS Vertical Guidance Surface. Both surfaces apply for APV and PA procedures. Note 3: The FAA assesses TERPS final approach segment criteria for all runway ends authorized for ILS, MMLS, PAR, and LDA with Glideslope, LPV, and GLS procedures. Refer to FAA Order 8260.3. Note 4: Represents a nominal value for planning purposes. The actual length depends on the precision final approach fix.
		< 3/4 statute mile	200	800	3400	10000	34:1	
6	Approach end of runways providing ILS, MMLS, PAR, and landing distance available (LDA) with glidepath, LPV, LNAV/VNAV, RNP, or GLS.	All	0	Runway Width + 200	1520	10200	30:1	

FAA Threshold Siting (20:1, 30:1)

- TSS Type 5 Surface starts 200' from threshold (20:1) – Most Common



- TSS Type 6 Surface starts at threshold (30:1) – Additional if LPV or ILS



Approach Surfaces

- Why are approach surfaces important?
 - Obstructions
 - Land use compatibility
- ALP drawings that must include approach surfaces:
 - ALD
 - Inner Approach Drawings
 - Exhibit A property map

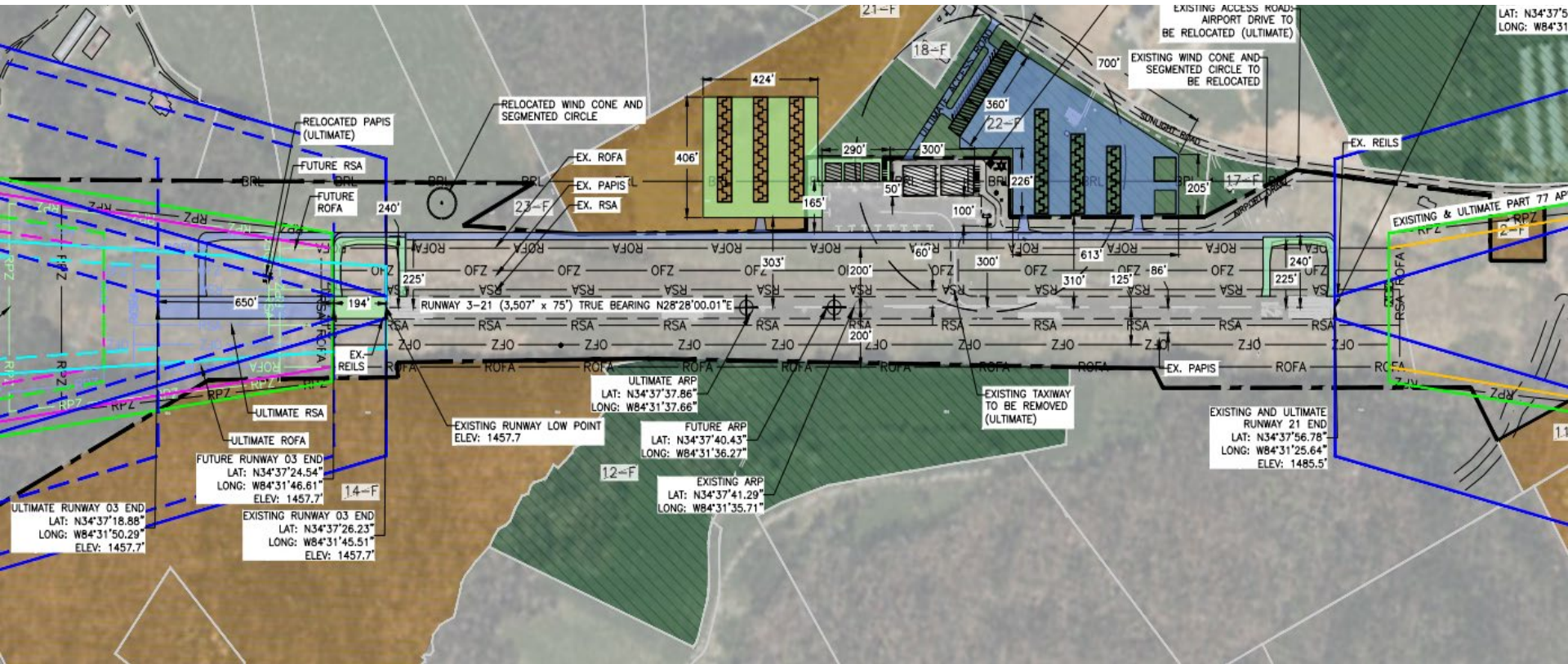


Projecting Growth

- Use your ALP to show feasible growth over the 20 year planning period, organize future facilities with growth in mind
- Factors to consider:
 - Layout of facilities
 - Property Acquisition
 - Future Maintenance
 - Expanding Critical Aircraft Demands



Projecting Growth



Questions?

