Smyrna Airport

Airport Master Plan Update

Virtual Public Information Meeting

June 3, 2020

ATKINS

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SMYRNA/RUTHERFORD COUNTY

AIRPORT AUTHORITY

Welcome!

Thank you for joining to learn more about the master plan process currently underway at Smyrna Airport!

Meeting Agenda

- Master Planning Process
- Environmental Features
- Sustainability
- Results of the Aviation Activity Forecasts
- Facility Requirements Overview
- Development Alternatives Presentation
- Next Steps
- Question & Answer Session

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Please Submit All Comments to:

Gavin.Fahnestock@atkinsglobal.com

Smyrna Airport Master Plan, C/o ATKINS
Attn: Gavin Fahnestock
404 BNA Drive, Suite 600
Nashville, TN 37217

Comments received during this presentation will be reviewed during the question and answer session.

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Comment Opportunities

Comments can also be entered in the chat window for this presentation.

Comments can be entered during the presentation and will be addressed either during or after the presentation.

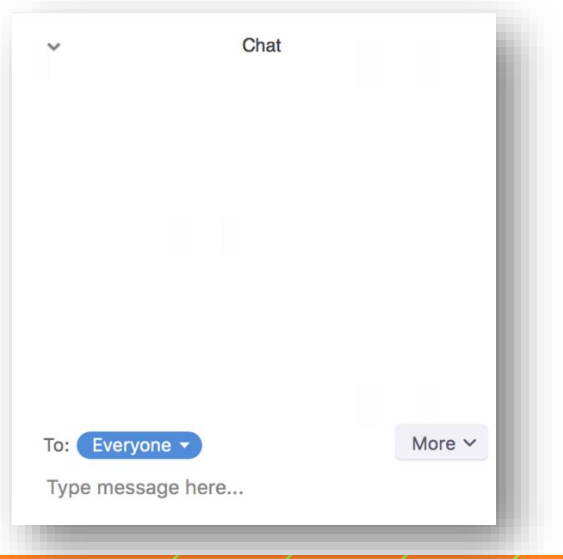
Steps to start a chat:

Click CHAT in the meeting controls 

The chat window will open on the right.

Type a message and press enter.

Chat messages will default to send to everyone in the meeting.



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Today's Speakers

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John Black
Executive Director
Smyrna/Rutherford County Airport Authority

Gavin Fahnestock
Sr. Aviation Planner
Atkins

Jason Hignite
Sr. Project Manager
Atkins

Connor Haskin
Aviation Planner
Atkins

Master Planning Process

Investigation

Goal Setting & Visioning

Existing Conditions

Aviation Demand Forecasts

Demand / Capacity & Facility Requirements

Recommendation

Alternatives Development & Evaluation

Sustainability & Environmental Review

Recommended Development Plan

Airport Layout Plan

Implementation

Capital Improvement Plan & Phasing

Financial Feasibility

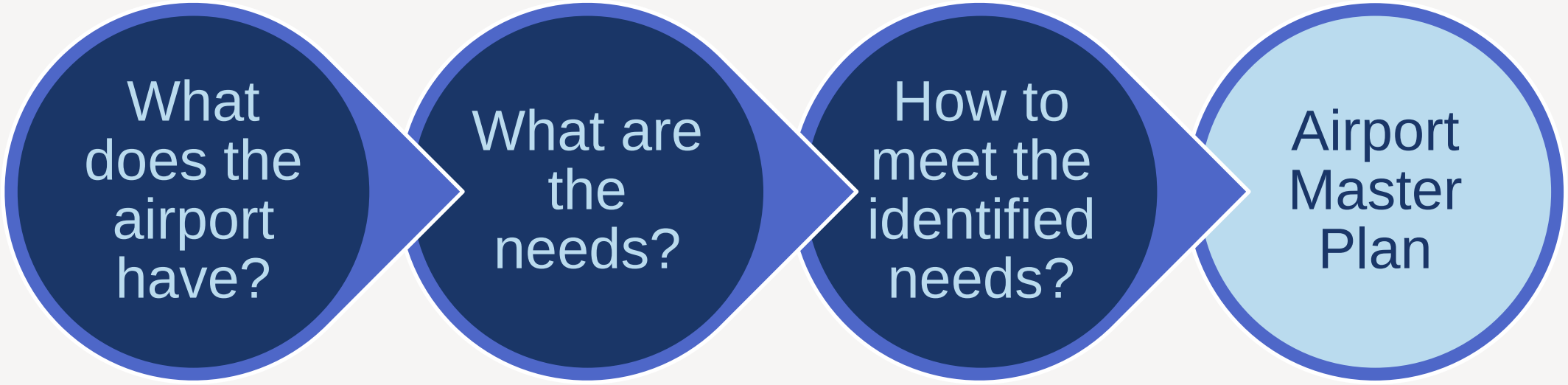
Final Documentation

Final Report

Airport Layout Plan

Public & Stakeholder Outreach

SCHEDULE



- Existing conditions
- Inventory of assets
- Obtain stakeholder input

- Aviation forecasts (FAA reviews and approves)
- Demand and capacity analysis
- Obtain stakeholder and public input

- Determine alternatives
- Select the best alternative
- Prepare an implementation plan
- Obtain stakeholder and public input

- Comprehensive guidance document for future airport development

"A comprehensive study of an airport that usually describes the short-, medium-, and long-term development plans to meet future aviation demand."

- FAA Advisory Circular 150/5070-6B, Airport Master Plans

Environmental Features

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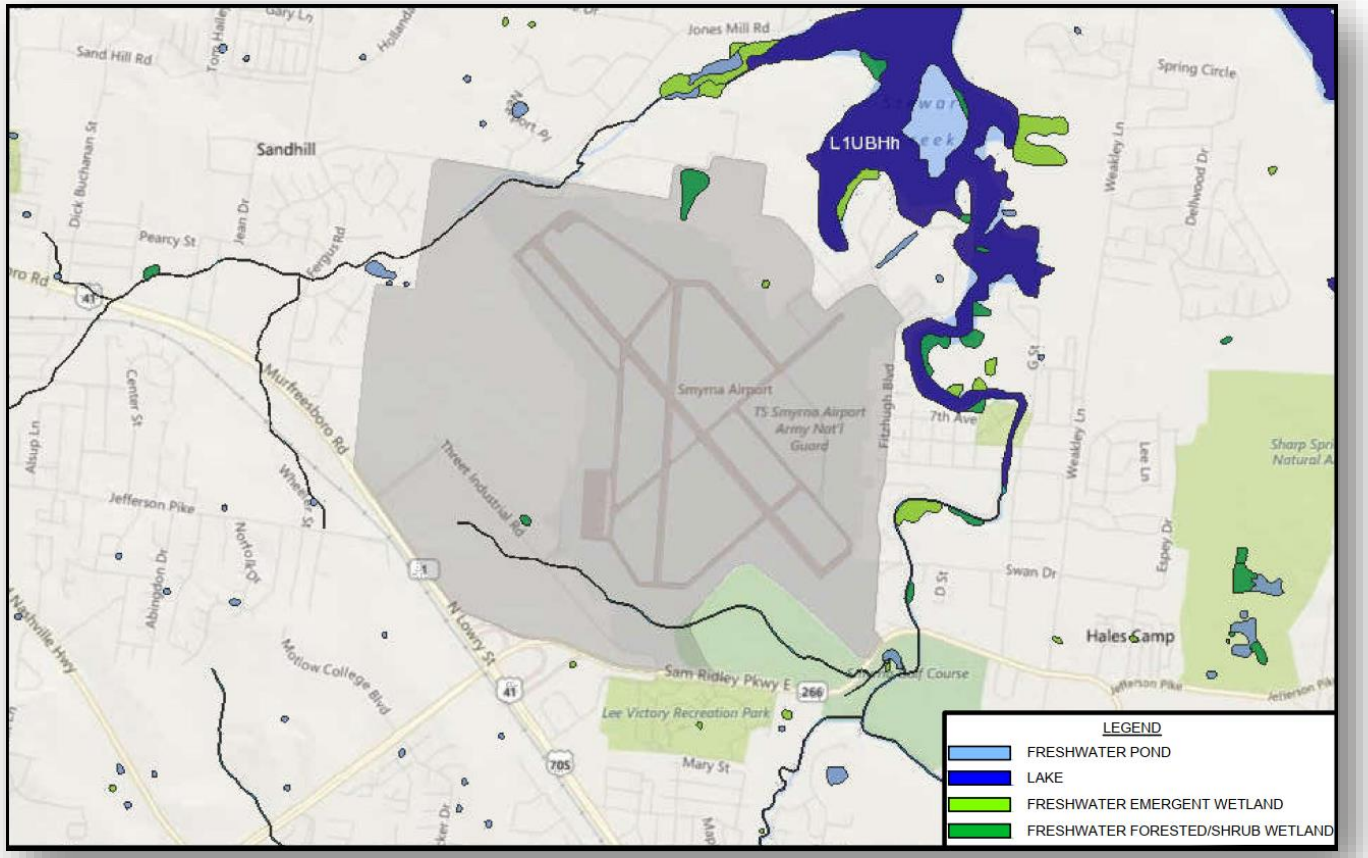
Environmental – Wetland & Other Water Features

- These identified environmental features are currently protected under:
  - *Clean Water Act of 1972 (§ 404)*
  - *40CFR1.00-149: EPA Water Program Regulations*
  - *44CFR1.9: Management of Floodplains and Protection of Wetlands*
    - *Executive Order 11990: Wetland Protection*
    - *Executive Order 11988: Floodplain Management*
  - *TCA § 69-3: Tennessee Water Quality Control Act of 1977*



Acronyms

EPA – Environmental Protection Agency
CFR – Code of Federal Regulations
TCA – Tennessee Code Annotated

Environmental – Floodplains

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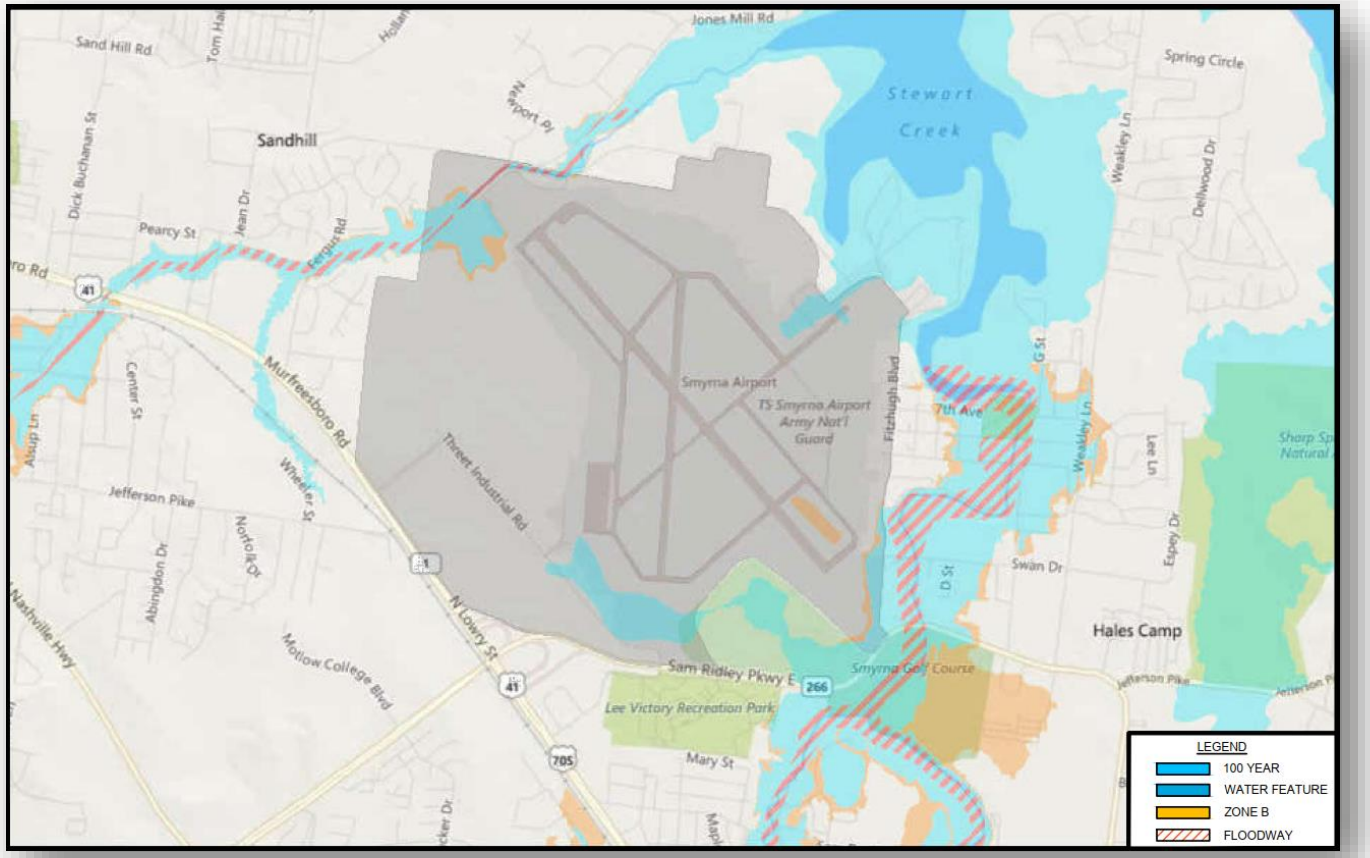

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Environmental – 4(f) Properties

- Section 4(f) of the *Department of Transportation Act of 1966* states that the DOT will not approve any program or project that requires the use of:
  - Publicly-owned Recreation Facilities
  - Wildlife and Waterfowl Refuges
  - Historic Lands

- Examples of Section 4(f) properties include but are not limited to Public Parks, Public Recreation Areas, and Historical Sites.

Local 4(f) Resources

Acronyms

DOT – Department of Transportation

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Sustainability

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What is Airport Sustainability?

Economic Viability

Operational Efficiency

Natural Resource Conservation

Social Responsibility

Current Sustainability Initiatives

- Solar Farm
- LED Airfield and Terminal Lighting
- Airport Bee Apiary
- Electric Vehicle Charging Stations
- Terminal Recycling Program
- Terminal Window Tinting
- Asphalt Re-Use

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Acronyms
LED – Light Emitting Diode

On-Going Sustainability Goals

- **Reduce** airport carbon footprint
- **Increase** airport recycling efforts
- **Promote** sustainability at all Airport events
- **Reduce** waste management costs
- **Pursue** community involvement programs

Results of the Aviation Activity Forecasts

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Development of Aviation Forecasts

Historic Data

- FAA National Based Aircraft Inventory
- FAA Operations Network

Recent Projections of Aviation Activity

- FAA Terminal Area Forecasts

Factors Influencing Forecast Approach

- State of the General Aviation Industry
- Service Area of the Airport
- Local Socioeconomic Factors
- Aviation Fuel Prices
- Stakeholder Interviews

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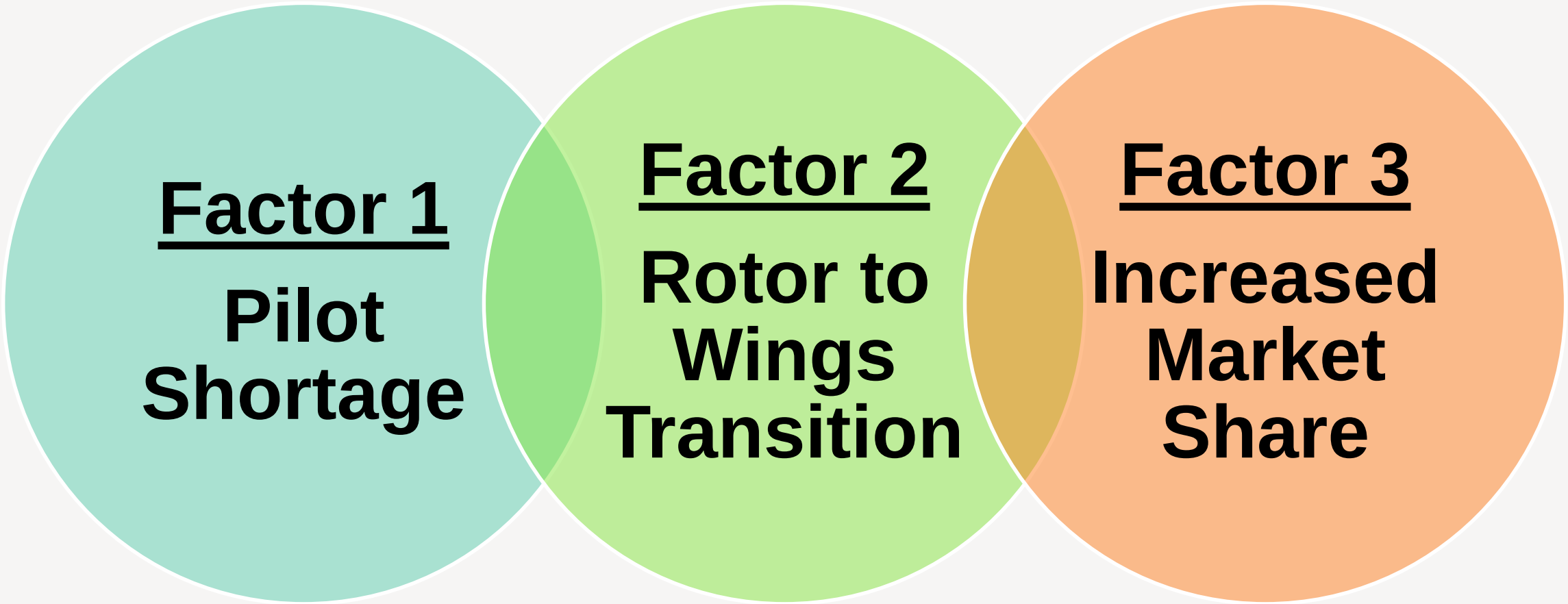
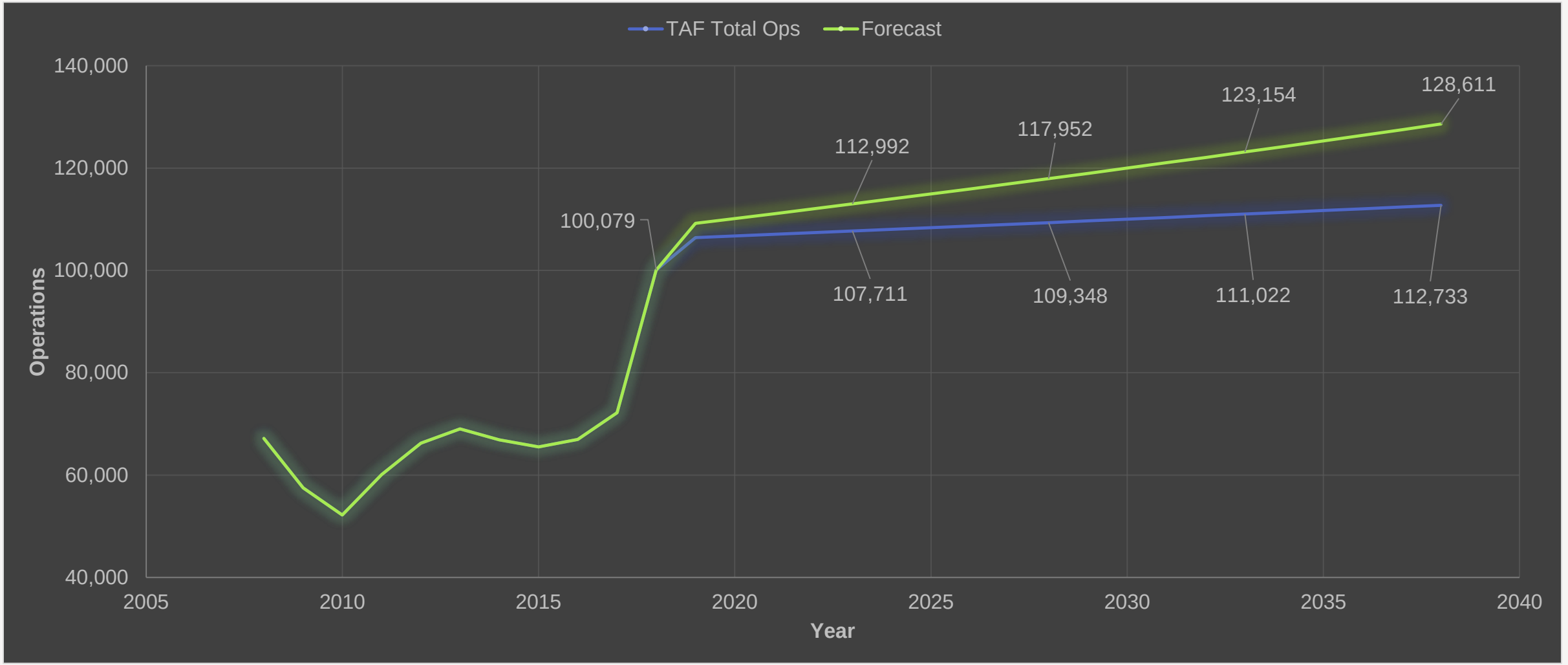
Acronyms

FAA – Federal Aviation Administration

Primary Factors Influencing Forecast



Total Operations Forecast



Source: FAA 2018 Terminal Area Forecast, analysis by Jacobsen|Daniels, 2019

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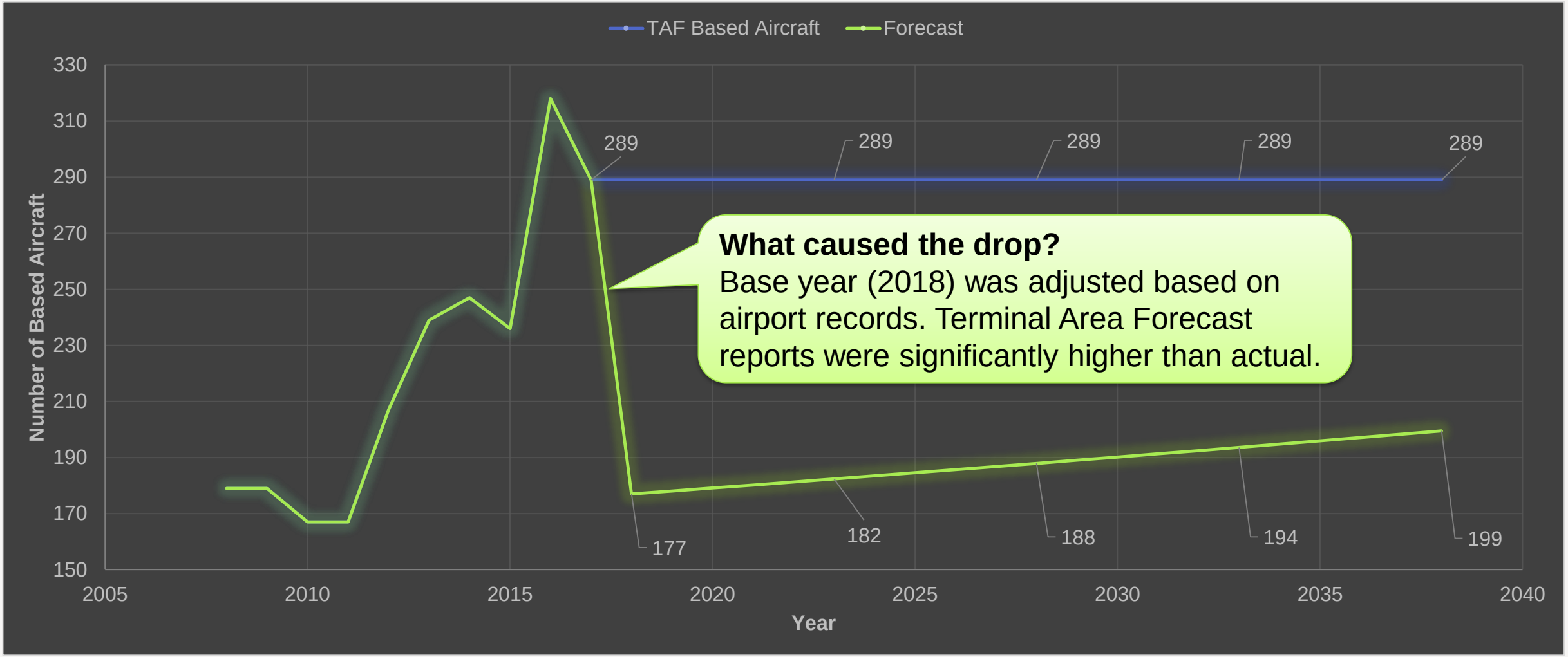
Acronyms

TAF – Terminal Area Forecast

FAA – Federal Aviation Administration

Total Based Aircraft Forecast



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Facility Requirements Review

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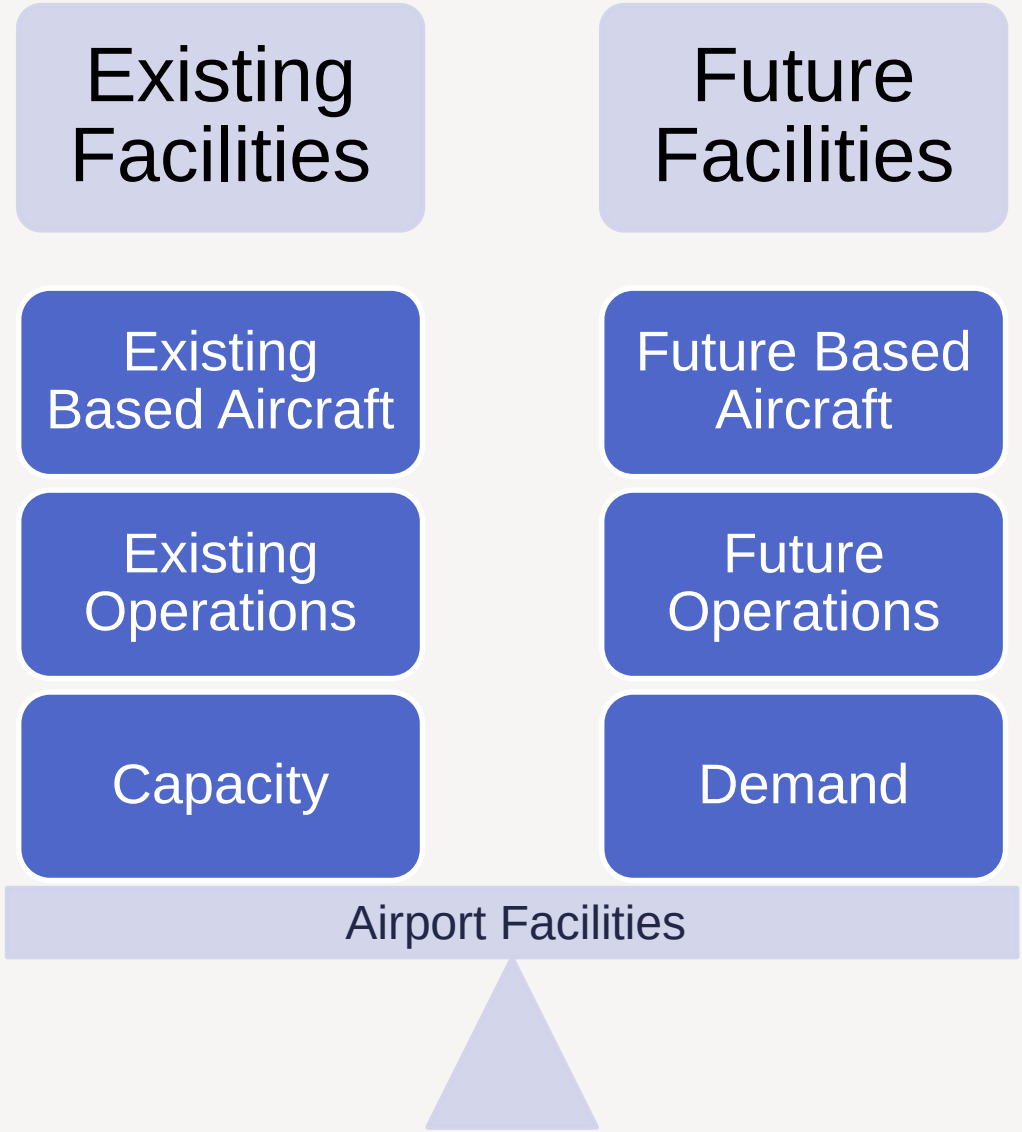
What are the Facility Requirements?

A balance between:

- Existing Facilities
- Future Facilities



Critical Aircraft Determination

"The critical aircraft is the **most demanding** aircraft type, or grouping of aircraft with similar characteristics, that make **regular use** of the airport."

- FAA Advisory Circular 150/5000-17, *Critical Aircraft and Regular Use Determination*

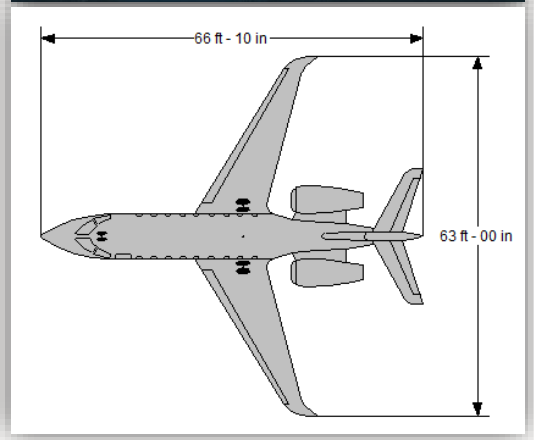
Regular Use

- ✓ 500 Annual Operations
- ✓ Takeoff or Landing
- ✓ Itinerant or Local
- ✗ Excludes touch-and-go operations

Source: Smyrna/Rutherford County Airport Authority Facebook Page, July 27, 2018

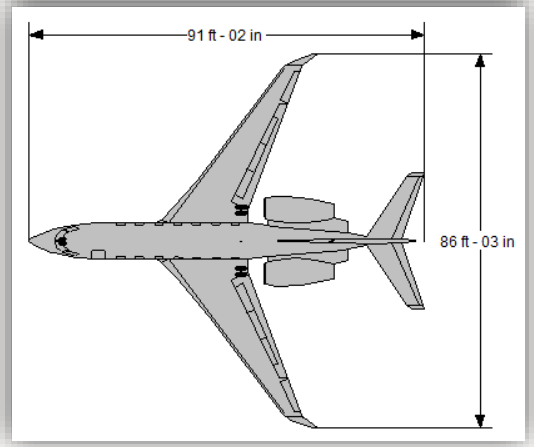
What is the existing and future critical aircraft?

Existing: **Gulfstream 280**



- Determined by using most demanding method.
- 2018 Ops: **263**
- AAC: **C**
- ADG: **II**

Future: **Gulfstream V/500/550**



- Determined by using grouping method.
- AAC: **D****
- 2038 Ops: **594**
- ADG: III
- 2038 Ops: **517**

**The Gulfstream V/500/550 are grouped (GLF5) based on FAA Order 7360.1D. Not all GLF5 aircraft are AAC D. New variants of the GLF5 are AAC C.

Image Source: Gulfstream.com

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Acronyms

AAC – Aircraft Approach Category
ADG – Airplane Design Group

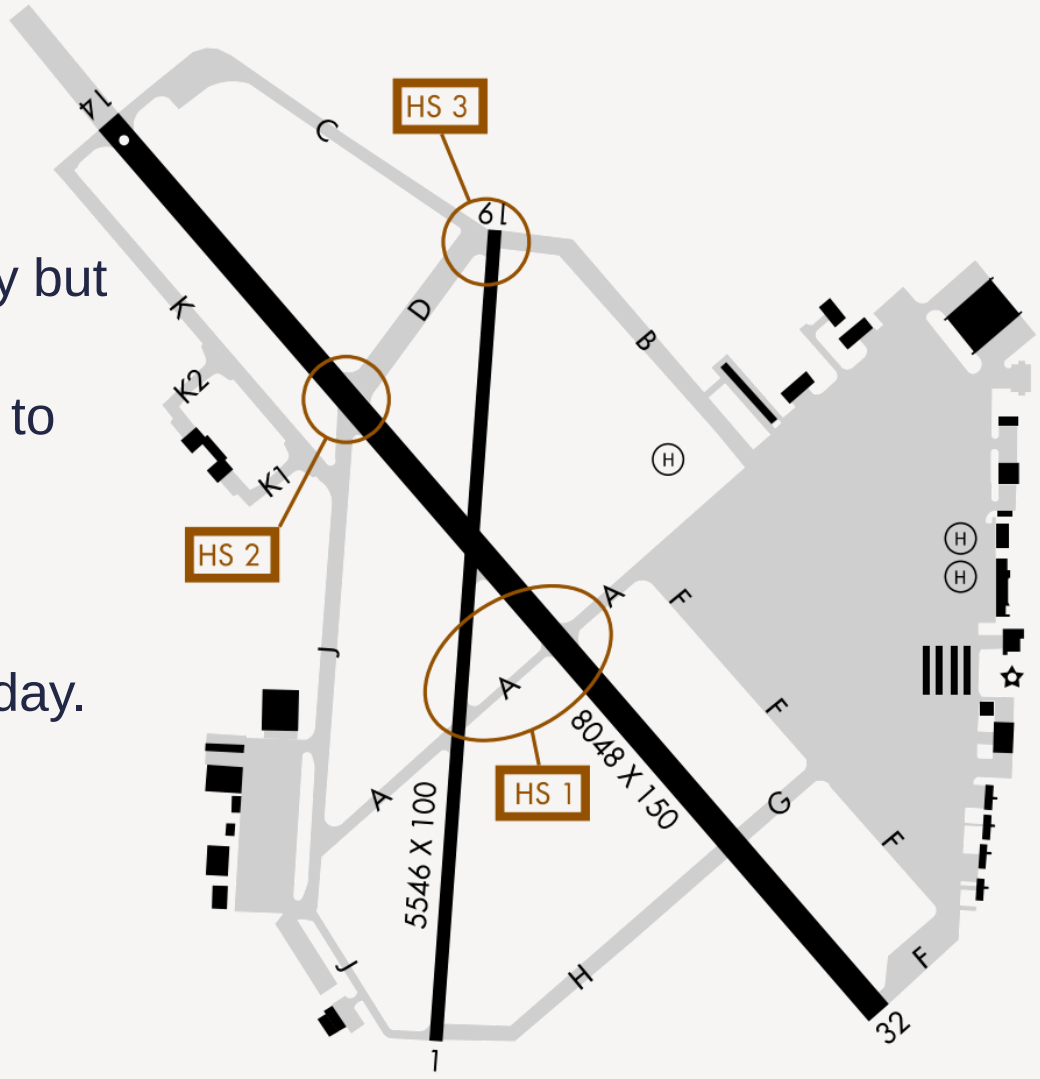
Airside Facilities

Runway Demand

- Runway 01/19 is not needed as a crosswind runway but justified as secondary runway;
- Runway 01/19 used approx. 50 percent of time due to proximity and approach overflight of BNA;
- Runway 01/19 needed to keep demand below 60 percent of the ASV; and,
- More costly to reconstruct in future than to retain today.

Inadvisable Airfield Geometry

- Airport Design Standards underwent a significant overhaul in 2012.
- Inadvisable geometry identified and redesigned.



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Acronyms
BNA – Nashville International Airport
ASV – Annual Service Volume

Aircraft Storage Requirements

- Forecast storage needs based on current approximation of aircraft storage types.
- Estimated space requirements based on average space requirements outlined below.

Average Aircraft Space Requirements

Aircraft Storage Type	Space Required (Square Feet)
SE Piston	1,800
ME Piston	3,200
Jet	5,200
Rotorcraft	3,200

Aircraft Storage Assumptions

Aircraft Storage Type	% of Based Aircraft Fleet Using Storage
SE Piston	
T-Hangar	60%
Parking Apron	30%
Conventional/Box Hangar	10%
ME Piston	
Conventional/Box Hangar	80%
T-Hangar	0%
Parking Apron	20%
Jet	
Conventional/Box Hangar (Large)	100%
Rotorcraft	
Conventional/Box Hangar	100%

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Acronyms
SE – Single Engine
ME – Multi-Engine

T-Hangar Requirements

- Typically cater specifically to single-engine aircraft
- Assumed that 60 percent of single-engine based aircraft will be stored in t-hangars.

T-Hangar Requirements

	Base Year	Forecast Year		
	2018	2023	2028	2038
Single-Engine Aircraft Requiring T-Hangar/T-Shed Storage	60	62	64	66
Current Capacity	60	60	60	60
Surplus / Deficiency (Units)	**0**	**2**	**4**	**6**

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Conventional Hangar Requirements

- Typically cater specifically to multi-engine and jet aircraft
- Assumed that 80 percent of multi-engine, 100 percent of jet, and 100 percent of rotorcraft based aircraft will be stored in conventional hangars

Conventional Hangar Requirements

	Base Year	Forecast Year		
	2018	2023	2028	2038
Based Single-Engine Aircraft Requiring Hangar Space	10	10	11	11
Based Multi-Engine Requiring Hangar Space	26	27	28	29
Based Jet Requiring Hangar Space	21	22	22	23
Based Helicopter Requiring Hangar Space	1	1	1	1
Total Aircraft Hangar Space Required (Sq. Ft.)	213,600	222,000	227,000	235,400
Total Existing Hangar Space (Sq. Ft.)	146,000	146,000	146,000	146,000
Surplus / Deficiency (Sq. Ft.)	**67,600**	**76,000**	**81,000**	**89,400**

Acronyms

Sq. Ft. – Square Feet

Apron Facilities

- Large amount of excess apron pavement.
- High cost of rehabilitation due to original concrete construction.
- Continued deterioration resulting in unusable portions of pavement and potential for FOD.

	Forecast Year			
	2018	2023	2028	2038
Based Aircraft Apron Requirements				
Single Engine Aircraft Requiring Apron Parking	30	31	32	33
Multi Engine Aircraft Requiring Apron Parking	7	7	7	7
Total Based Aircraft Apron Required (Sq. Yds.)	11,800	12,100	12,400	12,700
Itinerant Aircraft Apron Requirements				
Average Day Peak Hour Operations	43	52	54	58
Average Day Peak Hour Itinerant Operations	22	26	27	29
Transient Aircraft Positions Required (5-hour avg. stay)	108	130	135	145
Total Transient Apron Required (Sq. Yds.)	38,700	46,800	48,600	52,200
Total Apron Requirements				
Total Apron Required (Sq. Yds.)	50,500	58,900	61,000	64,900
Existing Aircraft Apron (Sq. Yds.)	278,934	278,934	278,934	278,934
Surplus/Deficiency (Sq. Yds.)	**228,434**	**220,034**	**217,934**	**214,034**

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Acronyms
FOD – Foreign Object Debris
Sq. Yds. – Square Yards

Draft Airport Development Alternatives

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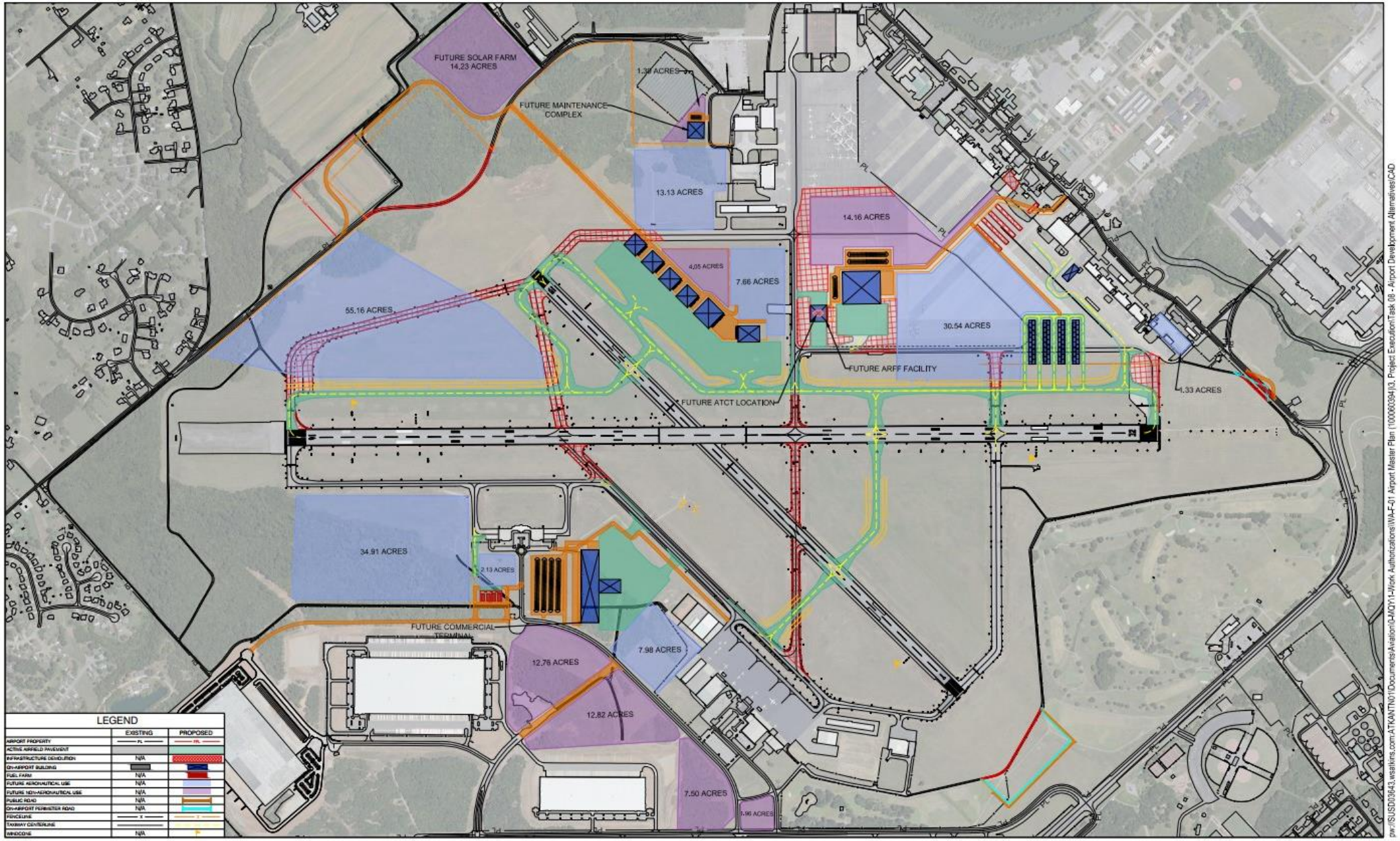
ALTERNATIVE 1



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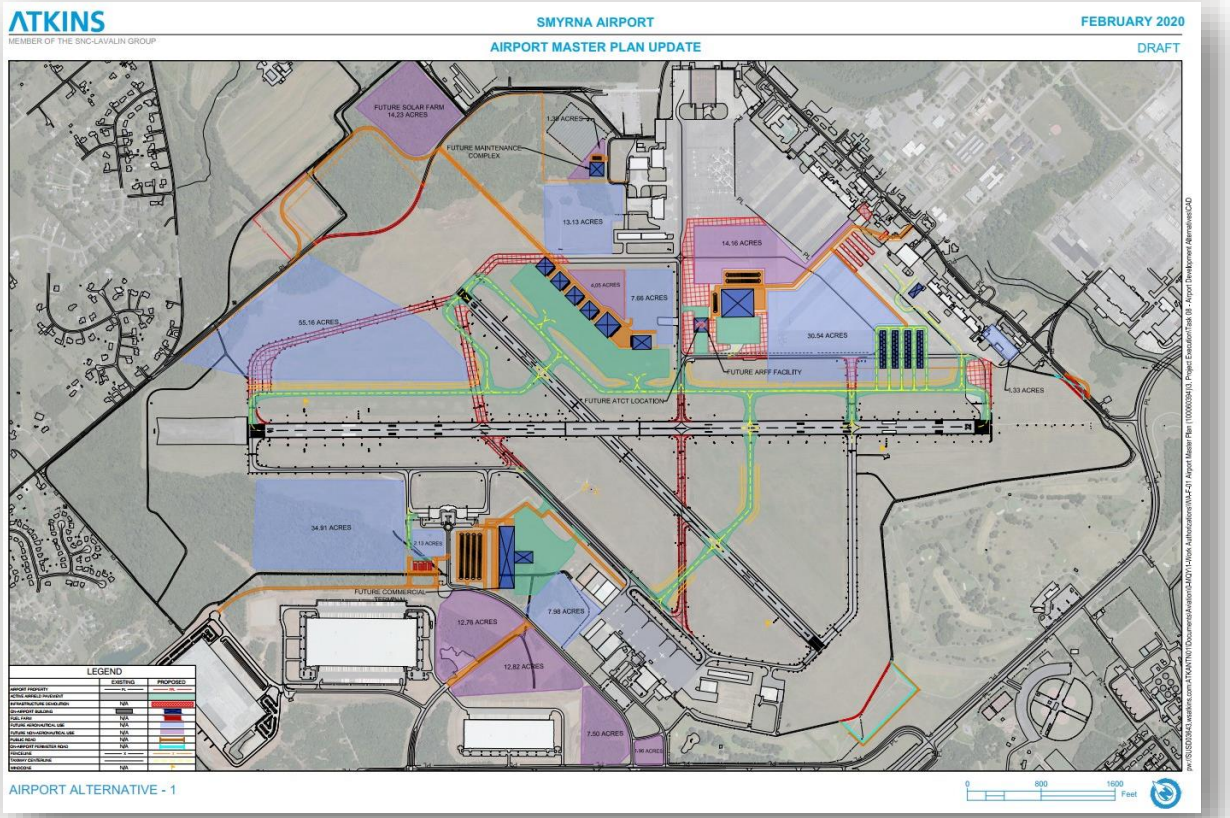
0 800 1600 Feet

Alternative 1



Major development items include:

- Realignment of multiple taxiways.
- Construction of new access roads to open development opportunities on the east ramp.
- Relocation of the ARFF facility and ATCT facility.
- Commercial service terminal to the northwest of the current terminal building.
- Expansion of the solar farm on the north side of Range Road.
- Relocation of the airfield perimeter roads outside of the RPZs.
- Relocation of the existing T-Hangars to the new aeronautical development area.
- Numerous aeronautical development areas.

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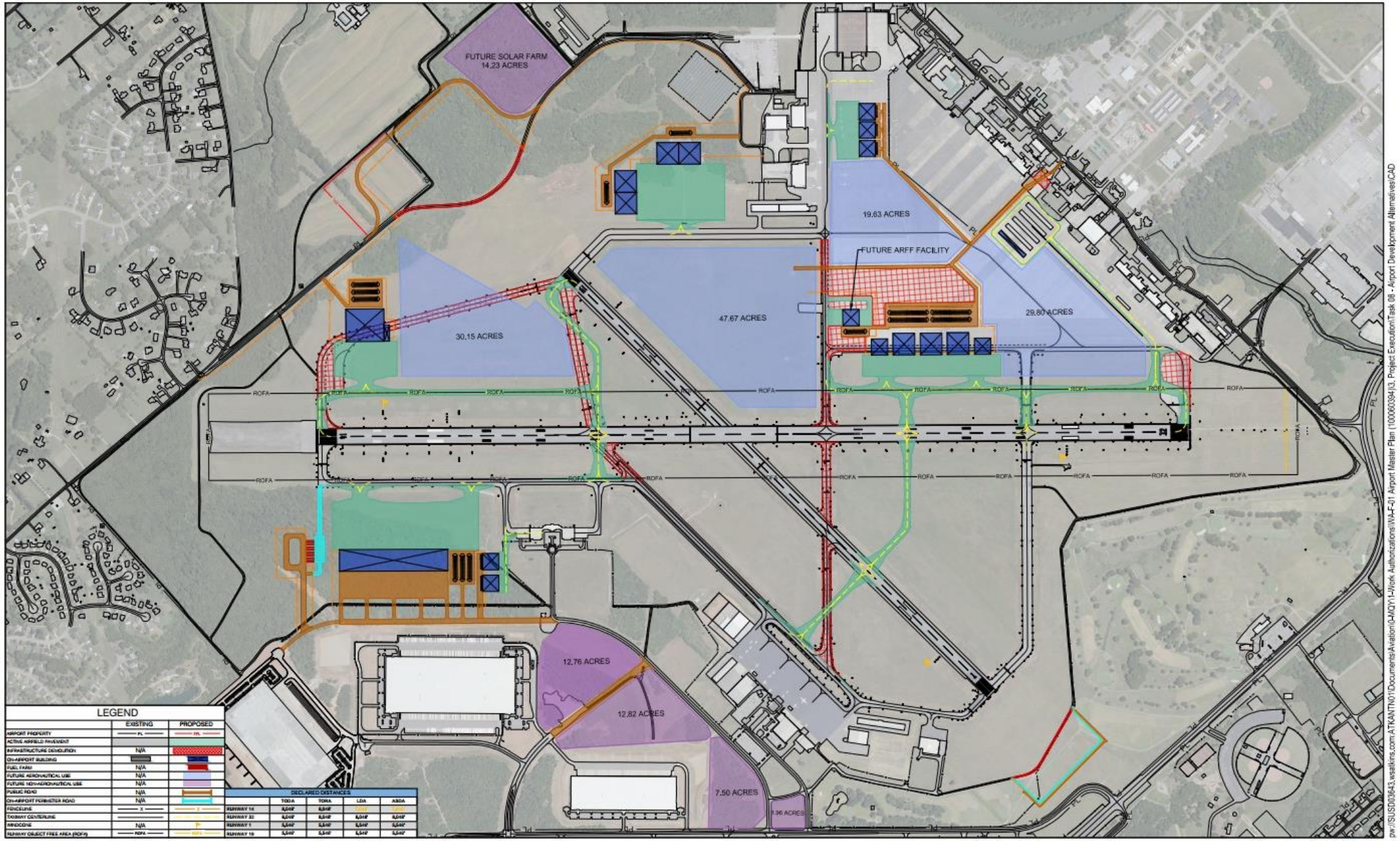
Acronyms
ARFF – Aircraft Rescue and Fire Fighting
ATCT – Air Traffic Control Tower
RPZ – Runway Protection Zone

ALTERNATIVE 2



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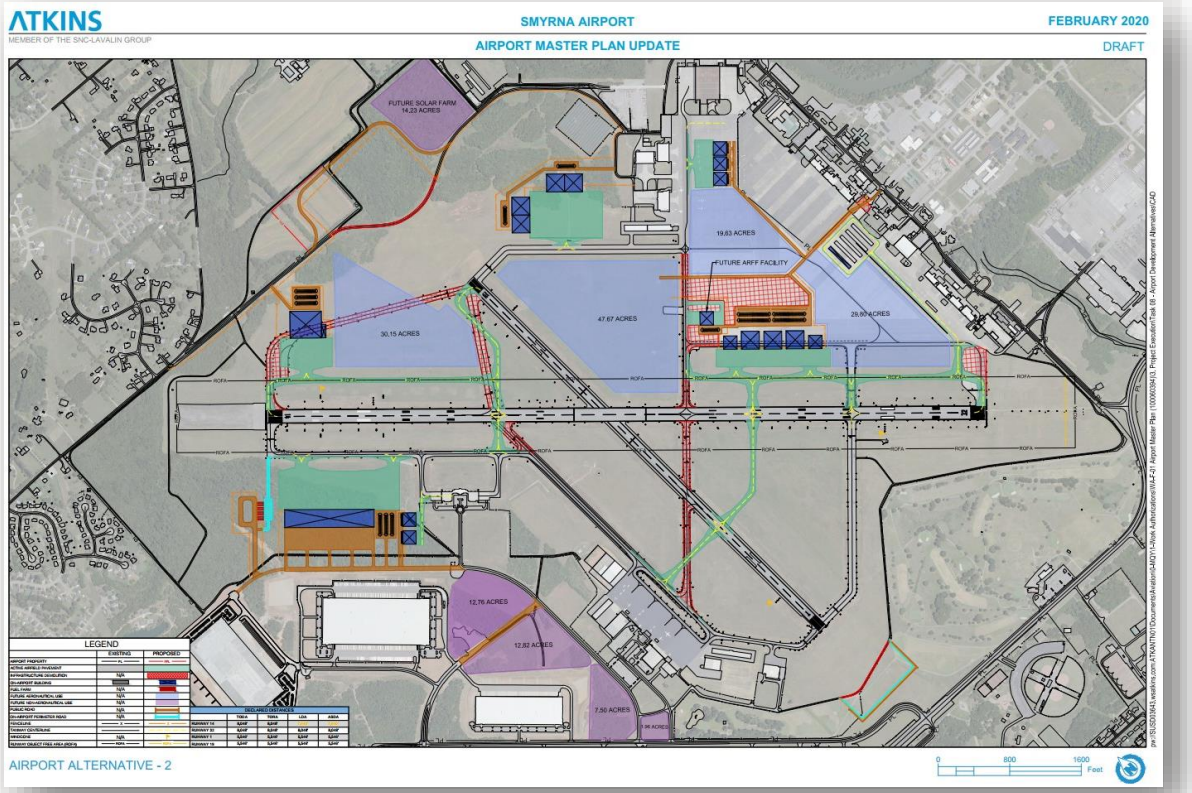
Alternative 2



Major development items include:

- Realignment of multiple taxiways.
- Construction of new access roads to open development opportunities on the east ramp.
- Removal or relocation of taxiways to eliminate hot spots.
- Relocation of the ARFF facility.
- MRO/Cargo ramp and support facilities near the landside cargo facilities.
- Expansion of the solar farm on the north side of Range Road.
- Relocation of the airfield perimeter road outside of the Runway 01 RPZ.
- Numerous aeronautical development areas.

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Acronyms
ARFF – Aircraft Rescue and Fire Fighting
MRO – Maintenance, Repair, and Overhaul
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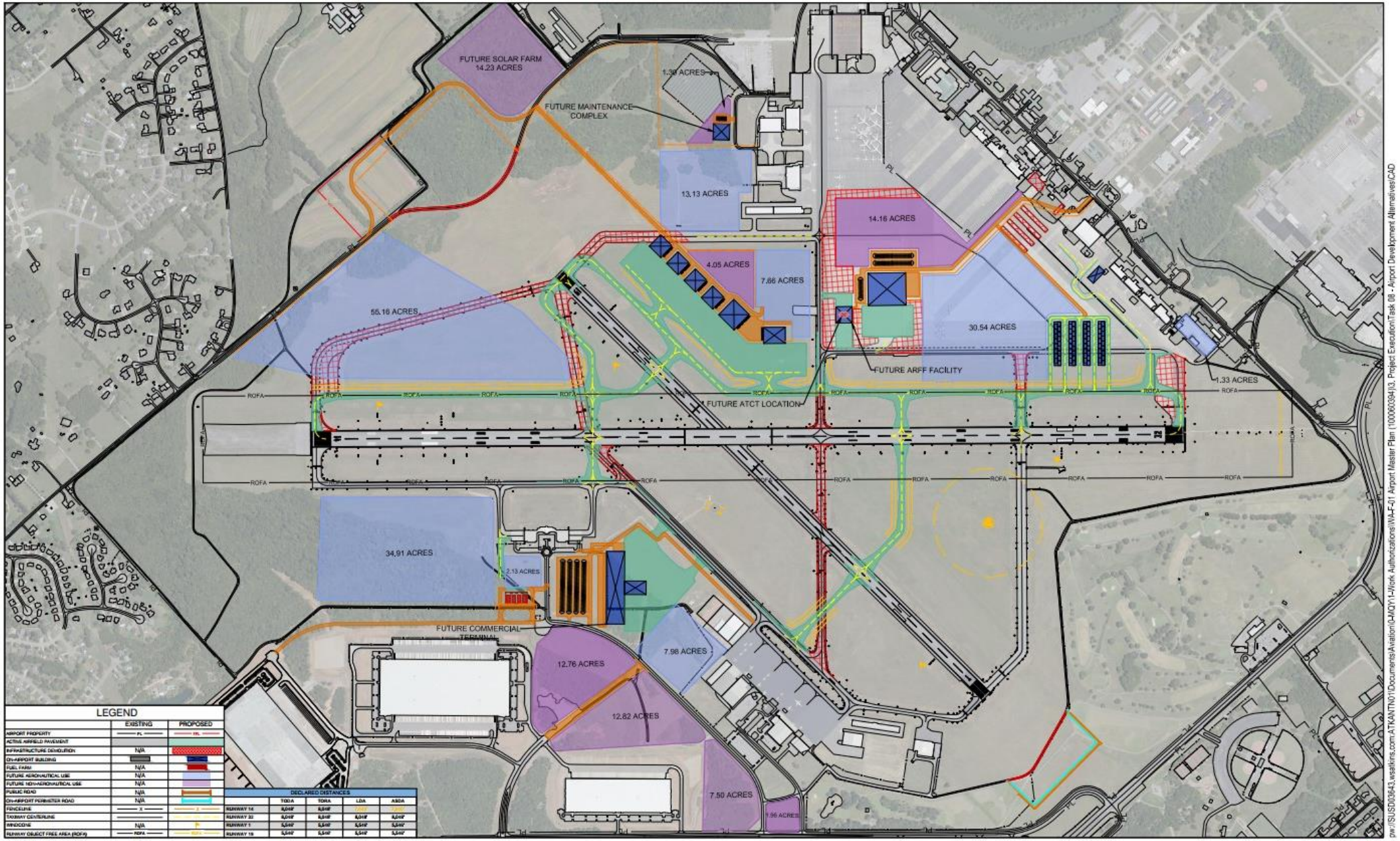
PREFERRED ALTERNATIVE



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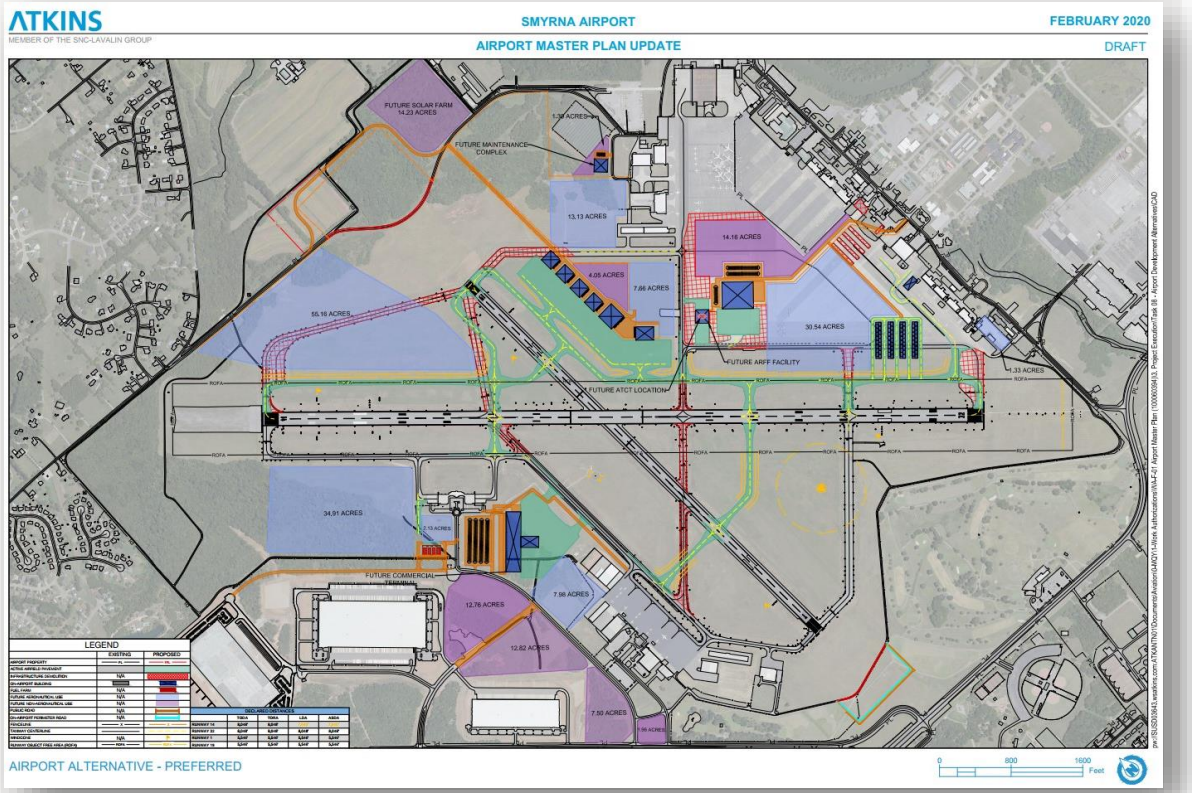
Preferred Alternative



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- Relocation of the airfield perimeter roads outside of the RPZs.
- Relocation of the existing T-Hangars to the new aeronautical development area.
- Numerous aeronautical development areas.
- Implementation of declared distances to mitigate ROFA impacts.

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Acronyms
ARFF – Aircraft Rescue and Fire Fighting
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RPZ – Runway Protection Zone
ROFA – Runway Object Free Area

Next Steps

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Next Steps

Airport Layout Plan Set

- Draft Final Submitted in March 2020.
- Revise based on comments received.
- Submit final ALP draft anticipated July 2020.

CIP & Financial Analysis

- Cost estimating currently underway.
- Completion anticipated in June 2020.

Final Document Preparation

- Submittal of Draft Final anticipated by end of July 2020.
- Submittal of final ALP and Airport Master Plan Update anticipated by end of September 2020.

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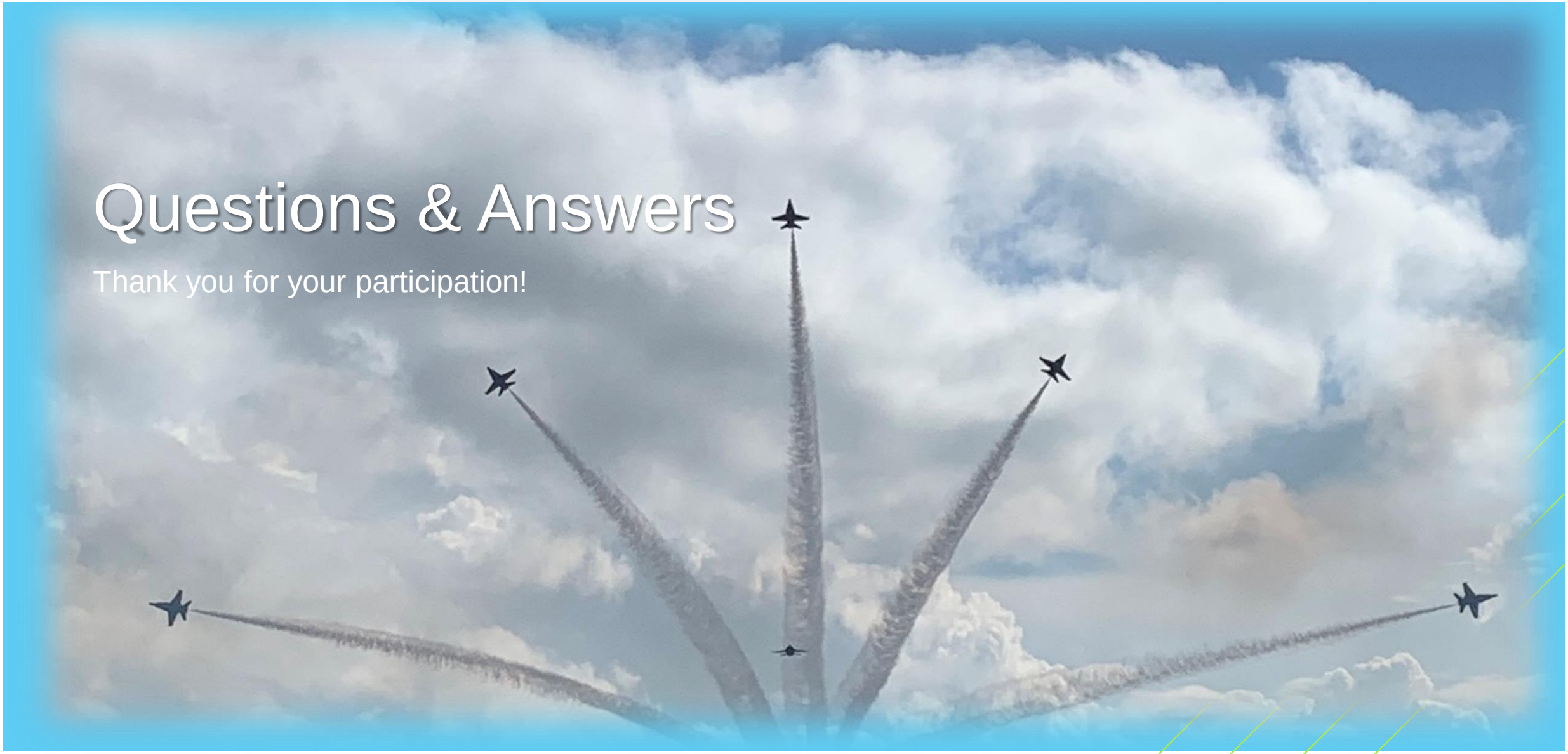
Acronyms

ALP – Airport Layout Plan
CIP – Capital Improvement Plan

Questions & Answers

Thank you for your participation!



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Thank you for joining!

Written comments may be submitted by mail or email through **June 19, 2020**.

Submit comments to:

Gavin.Fahnestock@atkinsglobal.com

Smyrna Airport Master Plan, C/o ATKINS

Attn: Gavin Fahnestock

404 BNA Drive, Suite 600

Nashville, TN 37217

Additional Resources:

www.smyrnaairport.com

https://www.instagram.com/smyrna_airport_kmqy/

https://www.facebook.com/SmyrnaRutherford-County-Airport-Authority-124660924273320/

615.459.2651

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Consolidated List of Acronyms

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Sq. Ft. – Square Feet

Sq. Yds. – Square Yards

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