THE OHIO STATE UNIVERSITY

AIRPORT

TECHNICAL ADVISORY COMMITTEE MEETING 2 – MARCH 5, 2018

Airport Master Plan

WELCOME & INTRODUCTIONS

Kimberly Moss, Doug Hammon (The Ohio State University)

Member Introduction

- Name
- Organization

MEETING PURPOSE, FORMAT AND DISCUSSION GUIDELINES

Marie Keister (Engage Public Affairs)

Meeting Purpose/Agenda

- Recap Master Plan Purpose
- Recap Public/Stakeholder Input to Date
- Study and Schedule Update
  - Environmental Overview
  - Inventory of Existing Conditions
  - Aviation Activity Forecasts
- Next Steps

Format & Discussion Guidelines

- Respect each other's time
- Respect each other's ideas
- It's okay to disagree, please don't be disagreeable

RECAP: AIRPORT MISSION & MASTER PLAN PURPOSE

Marie Keister (Engage Public Affairs)

Airport Overview

- One of the leading general aviation facilities in the nation
- One of the nation's premier university-owned and operated facilities
  - Less than 30 university airports nationwide
  - Three owned by tier-1 institutions
- Supports interdisciplinary learning, discovery, engagement
- Contributes to economic vitality of the central Ohio region

Airport Master Plan

- Combine community engagement with the university's strategic vision to formulate the blueprint for the airport's long-term development

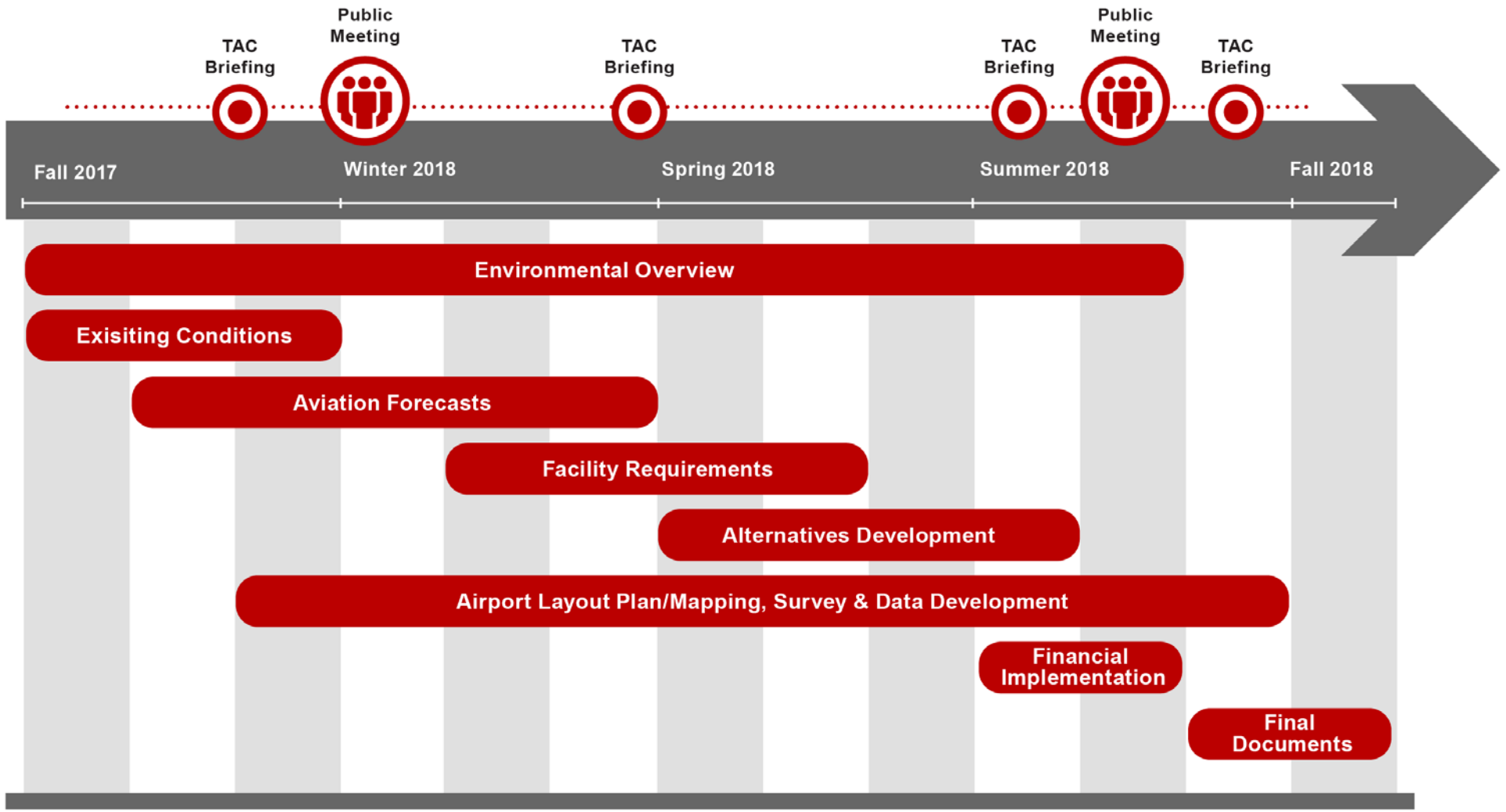
- Identify current and future needs and gain consensus on investment priorities for the next 20 years

Master plan mission: How do we retain and enhance this premier status?

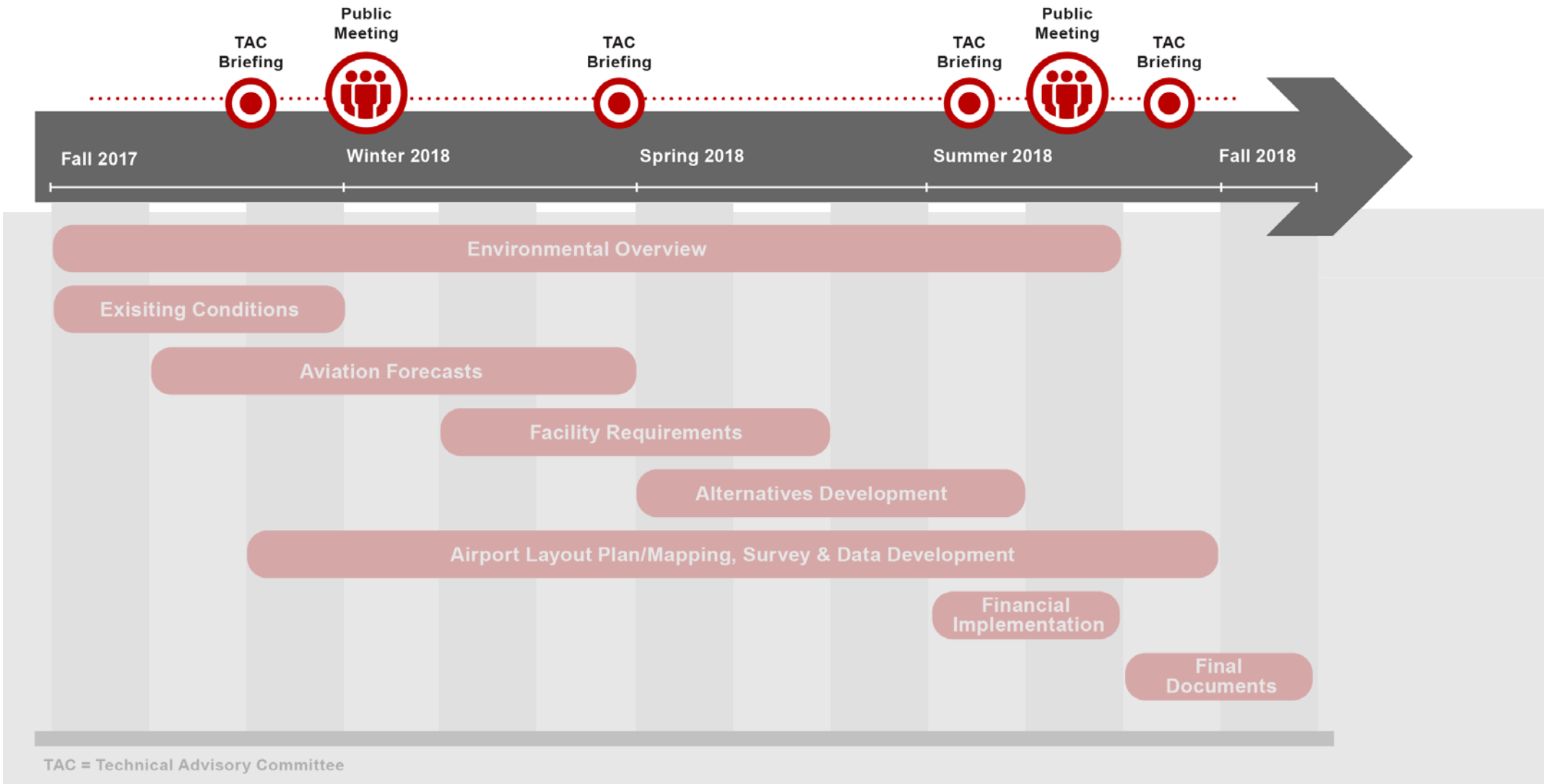

WEST DUBLIN–GRANVILLE ROAD (OHIO 161)
SAWMILL ROAD
RAILROAD
LINDWORTH ROAD
TAXIWAY G
TAXIWAY B
RUNWAY 9L–27R
TAXIWAY E
TAXIWAY C
KAYS AVENUE
RUNWAY 5–23
RUNWAY 9R–27L
TAXIWAY A
TAXIWAY A
AIRCRAFT APRON
SAWMILL ROAD
GODOWN ROAD
RAILROAD
WEST CASE ROAD
WEST CASE ROAD
N

Study Area

Schedule



TAC = Technical Advisory Committee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Public Meeting
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Fall 2017
Winter 2018
Spring 2018
Summer 2018
Fall 2018
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Exisiting Conditions
Aviation Forecasts
Facility Requirements
Alternatives Development
Airport Layout Plan/Mapping, Survey & Data Development
Financial Implementation
Final Documents
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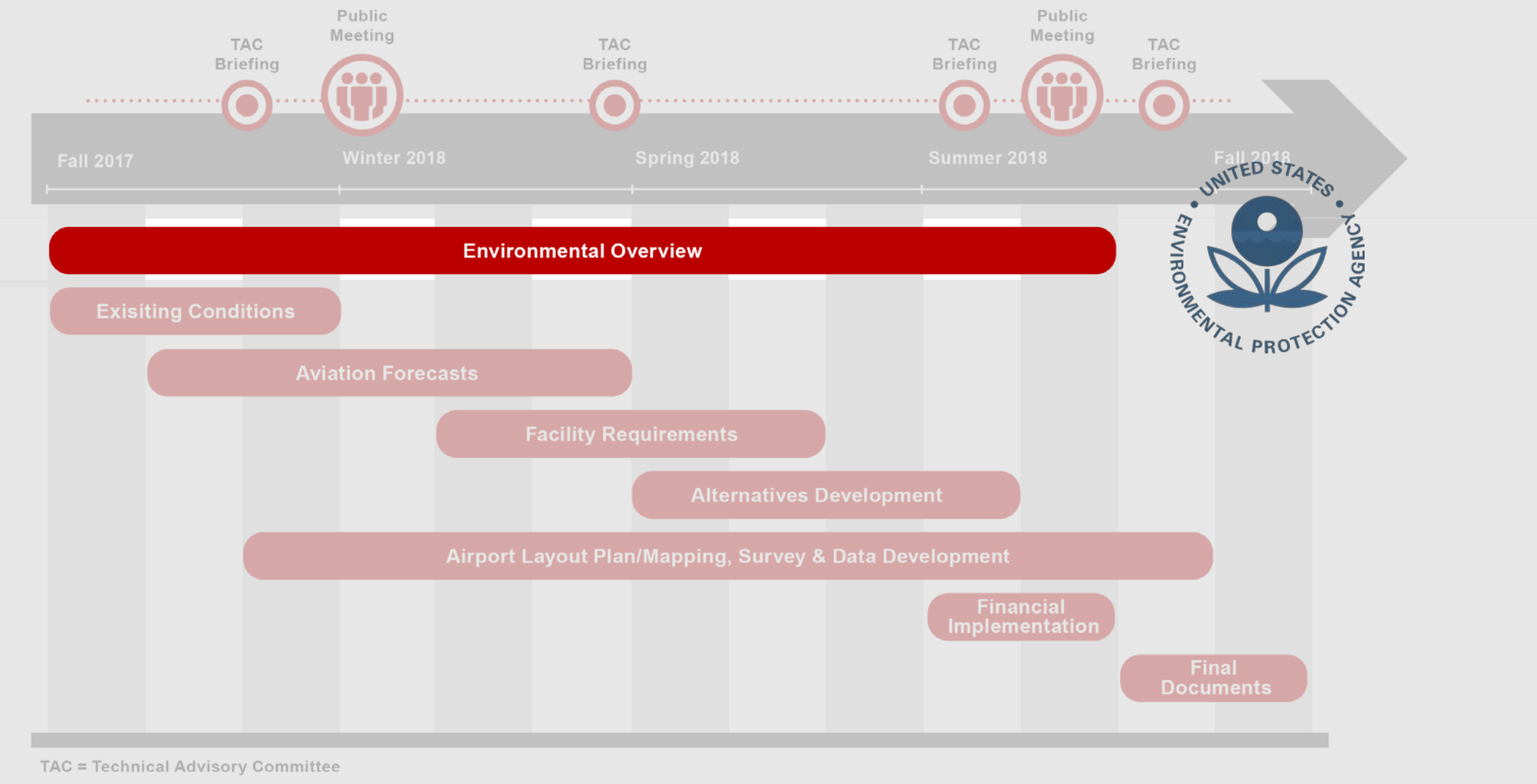
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
TAC = Technical Advisory Committee

RECAP: PUBLIC AND STAKEHOLDER INPUT TO DATE

Marie Keister (Engage Public Affairs) & Maria Muia (Woolpert)

Strengths (across COC, TAC, Public Meeting)

- *Physical location of the airport*
- *Proximity to major development, OSU main campus & businesses*
- *Air traffic control & tower*
- *Existing facilities*
- *Airport staff & management*
- *Contributor to economic development/growth*
- *Educational airport (teaching, real-world experience)*

Strengths (across various groups)

- COC & TAC:
  - *Flexibility/availability*
  - *University support*
  - *Services/value to business community*
  - *Partnership with CRAA airports*
- COC & Public:
  - *Student development & opportunities*
- TAC & Public:
  - *Easy access*
  - *Two runways*
  - *Historical significance*
  - *Open space*

Weaknesses (across COC, TAC, Public Meeting)

- *Aging infrastructure*
- *Limited hanger space*
- *Communication to community & neighborhoods*
- *Noise issues*

Weaknesses (across various groups)

- COC & TAC:
  - *Aging equipment*
  - *Lack of public access*
  - *Physical design constraints*
  - *Limited staff*
  - *Community relations challenge*
  - *Competing development (residential vs airport)*
  - *Lack of political engagement/use*
  - *Single revenue source/limited funds*
- COC & Public:
  - *Outdated buildings*

Vision (across COC, TAC, Public Meeting)

- *Center for innovative technology/unmanned aviation vehicles (UAV)*
- *Local resource for the public (aviation and open spaces)*
- *Balance airport needs with the relationship with local community*
- *Improved asset as an educational aviation center*

Vision (across various groups)

- COC & TAC:
  - *Improved safety record*
  - *Runway extension*
  - *Expand flight education*
  - *National recognition as aviation leader*
  - *Nat'l recognized for producing pilots*
  - *Cohabited space with Columbus State programs*
  - *National research center & park*
  - *Leader in NextGen research*
  - *Public partnerships & engagement*
- TAC & Public:
  - *Airport renovation*
  - *Flight school/activities for public*
  - *Open space/trails for public use*
- COC & Public:
  - *Reduced noise (complaints)*

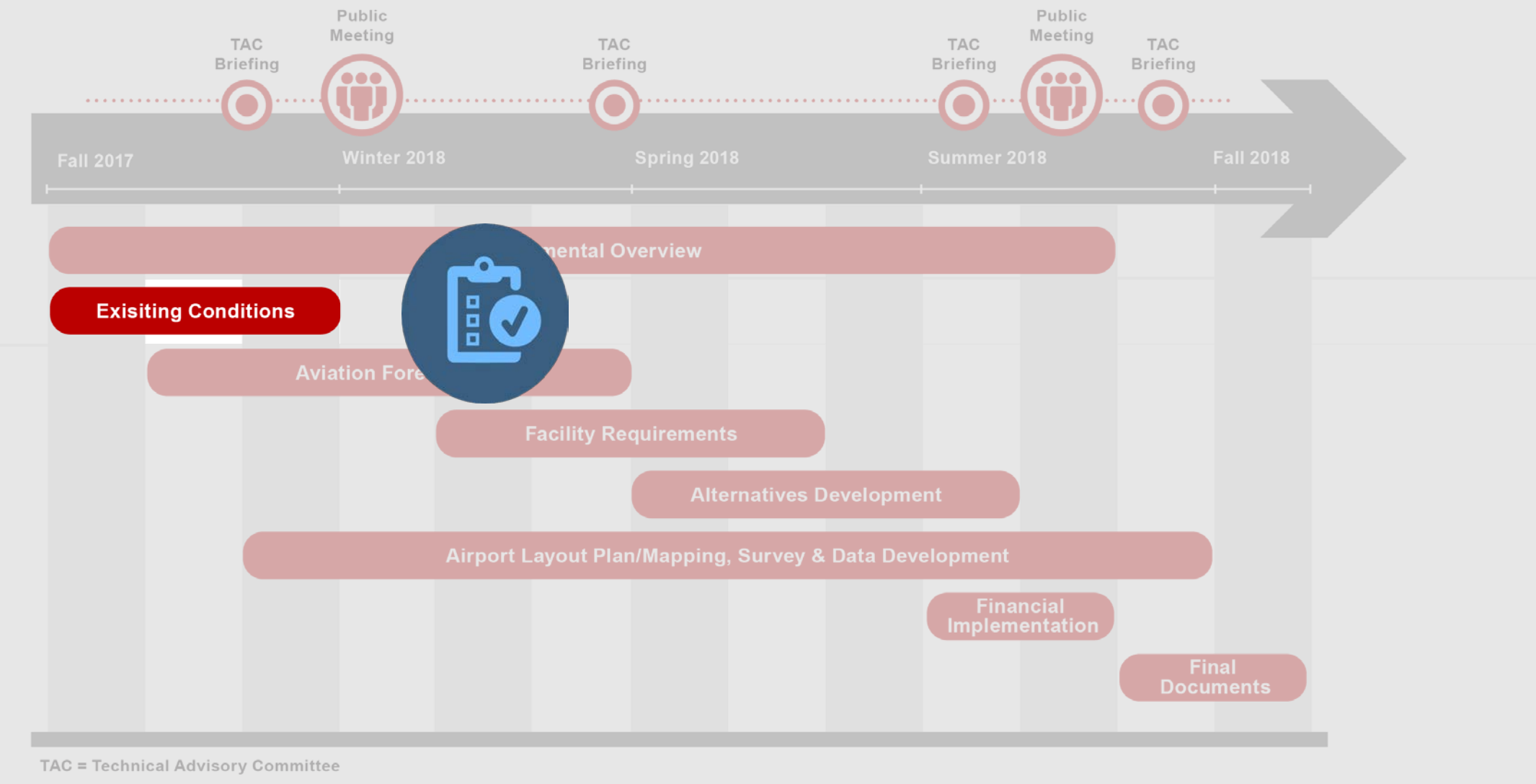
Success (across COC, TAC, Public Meeting)

- *Commitment/support from university leadership*
- *Community/stakeholder support & buy-in*

What is success? (across various groups)

- COC & TAC:
  - *Community acceptance/voices heard*
  - *Broad support*
  - *Overall plan agreement*
- COC & Public:
  - *Public understanding that airport is an asset*
  - *Trust between airport neighbors*
  - *Reduced noise*
- TAC & Public:
  - *Transparency*
  - *Financial responsibility*

QUESTIONS?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DRAFT INVENTORY OF EXISTING CONDITIONS

Maria Muia, Woolpert

Inventory/ Existing Conditions

Airport Location and Role

Located in northwestern Franklin County

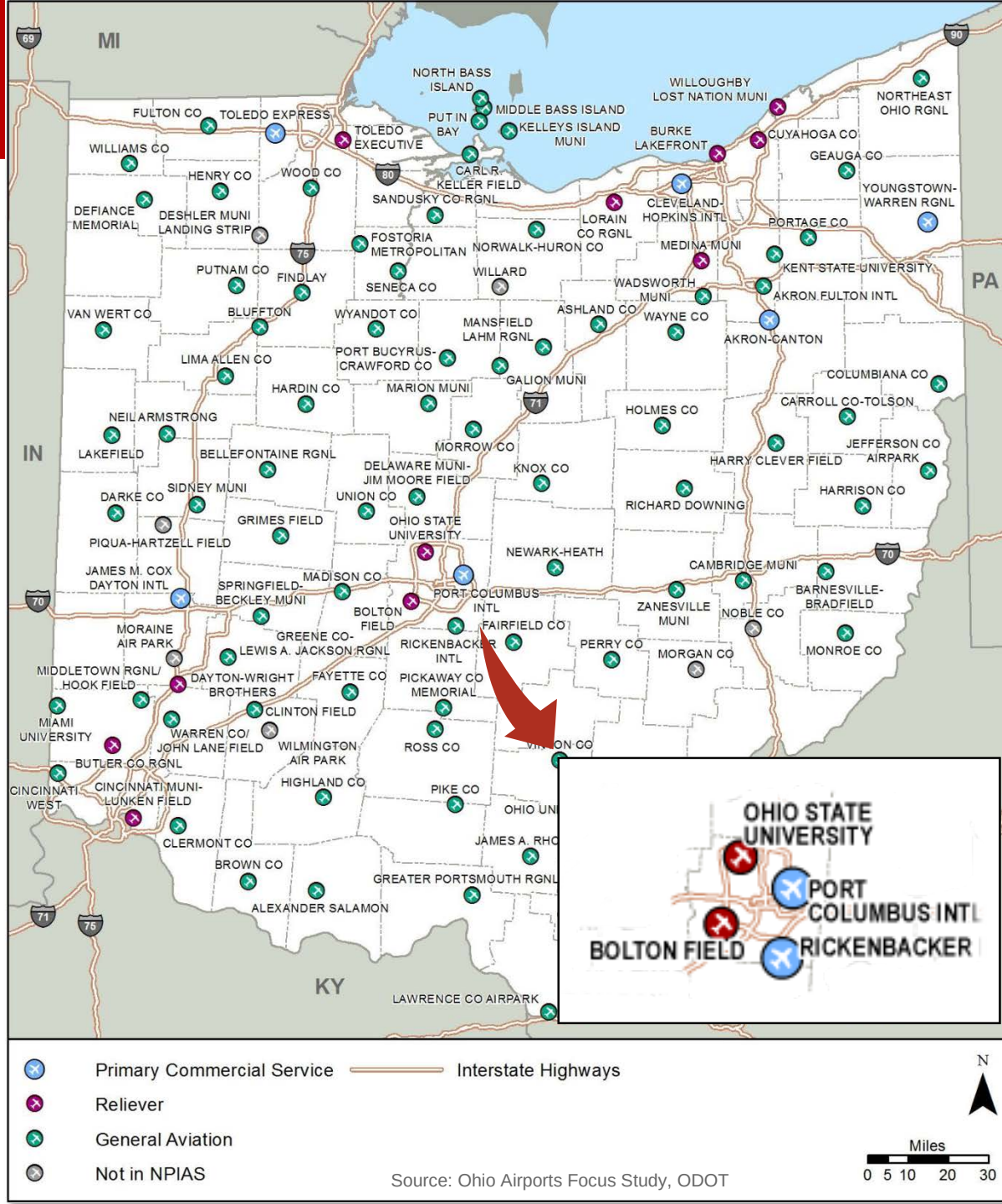
7 miles northwest of the university's campus

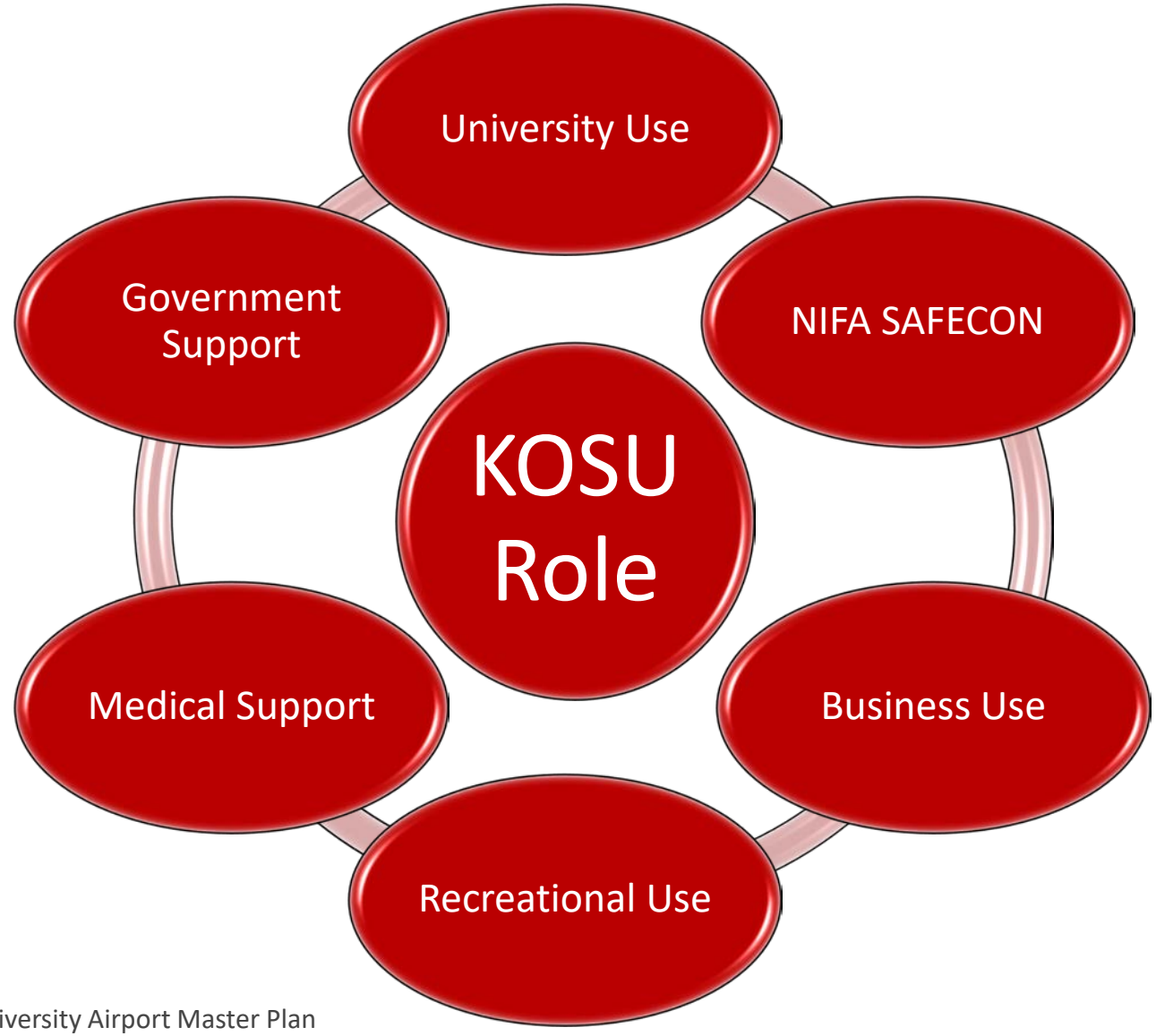
National Priority GA airport (FAA)

FAR Part 139 certificated airport

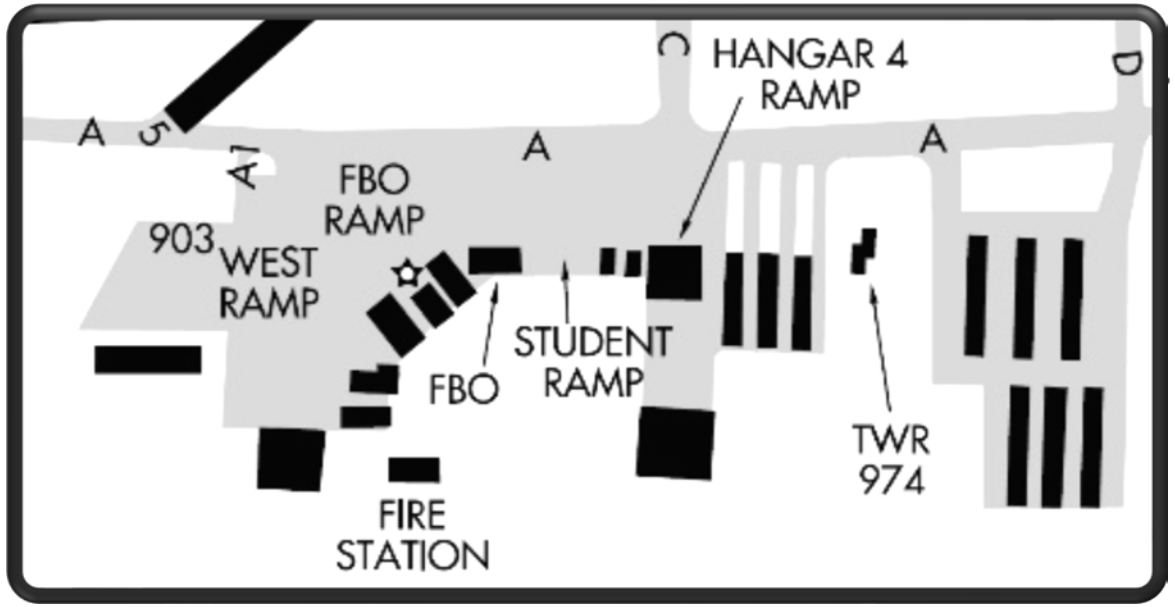
Reliever airport to CMH (FAA)

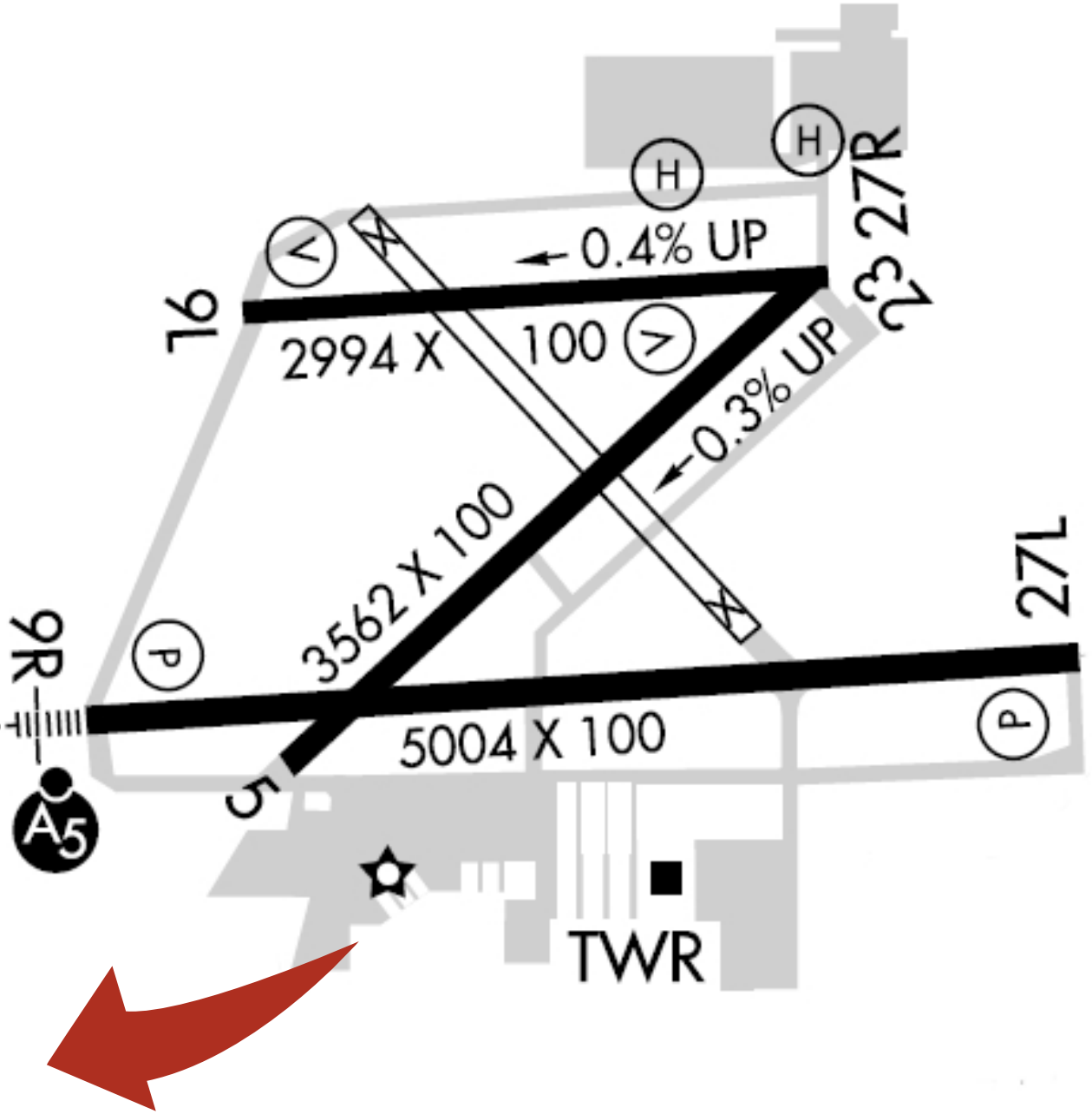
GA Level 1 airport (ODOT)




University Use
Government Support
NIFA SAFECON
KOSU Role
Medical Support
Business Use
Recreational Use

Inventory/
Existing Conditions





Source: Woolpert, Inc., 2017; FAA

Inventory/
Existing Conditions

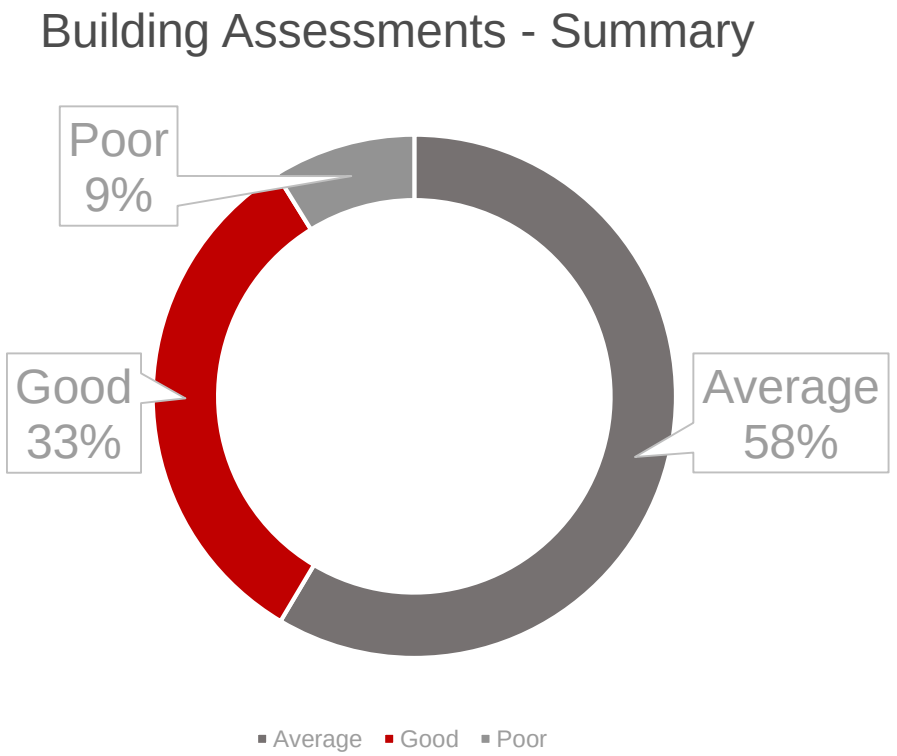
New Terminal Building Underway - 29,000 sf.

Source: KOSU Facebook Page, accessed February 2018

Inventory/
Existing Conditions

23 **airport buildings** assessments consisting of:

- Storage Facilities – 17,350 sf
- Maintenance Facilities – 52,510 sf
- Office with Conventional Hangar – 85,290 sf
- Conventional Hangars – 68,675 sf
- T-Hangars – 131,420 sf



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- Storage Facilities – 17,350 sf
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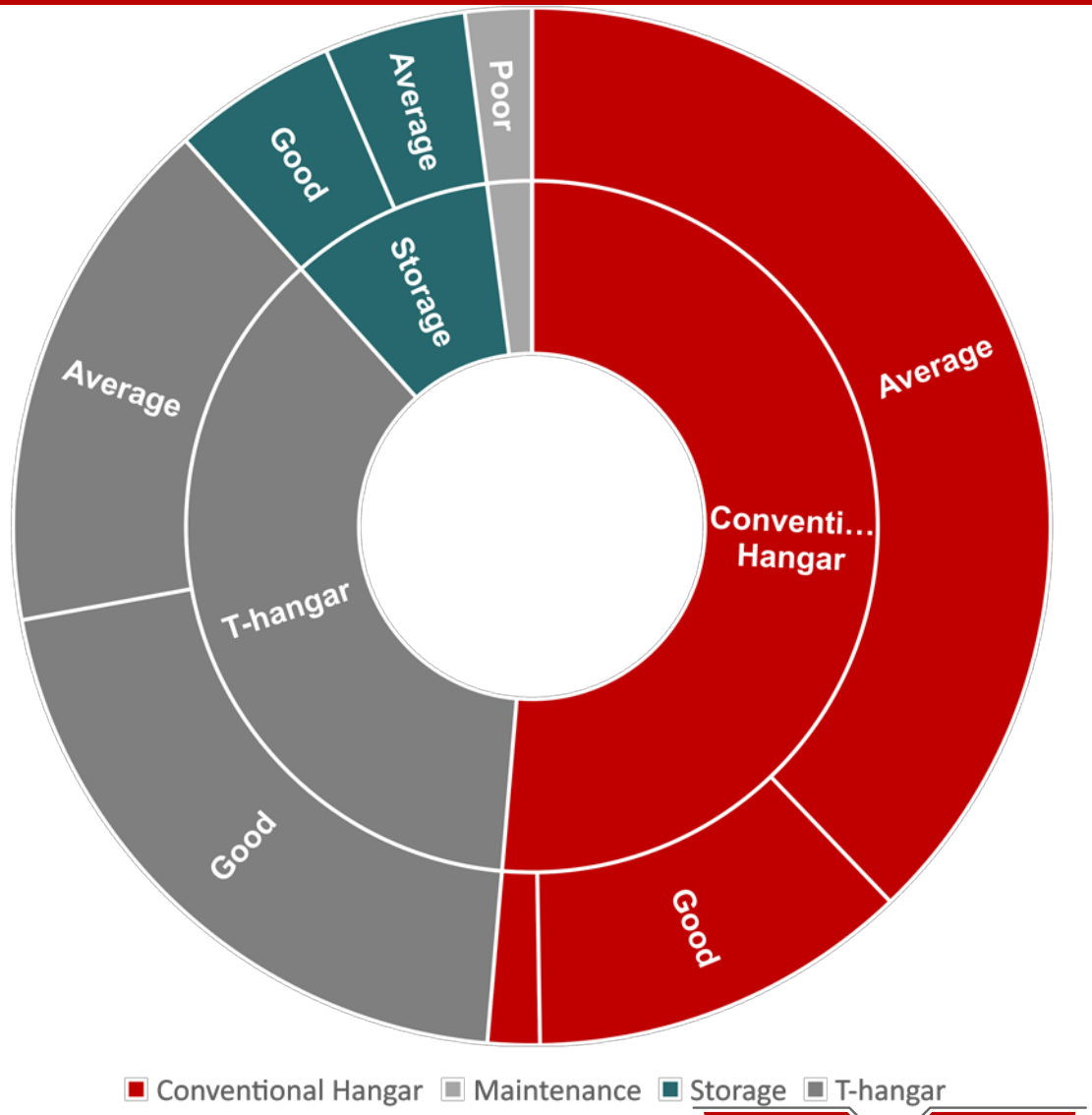
New Terminal – WILL BE BRAND NEW!



Inventory/ Existing Conditions

Source: Woolpert, Inc., 2017; Google Earth, February 2018

Aircraft Parking Aprons

- 2 asphalt aprons: ~35,300 SF and 2,000 SF.
- ~131 paved tie-downs available on the aprons.

Auto Parking

- ~180 paved parking spaces (including 7 handicap)
- Overflow parking for over 50 cars
- 2 automobile electric charging stations
- Enterprise Car Rental
- Car2Go

Inventory/
Existing Conditions

1	2011	Pick-Up Spreader Western Products
1	2001	Runway Sweeper Oshkosh HB-2723
1	1987	Runway Sweeper Idaho Norland 16 ft.
1	1987	Snow Blower Oshkosh H-2318
2	1986	Plow Trucks Oshkosh P-2526-SP
1	1986	Loader Case W30
1	1985	Tractor Case 1594
1	1985	Spreader Wilmar 600 Series
1	2017	Backhoe John Deere 310SL

Source: KOSU Facebook Page, accessed February 2018

Inventory/
Existing Conditions

Aircraft Rescue and Firefighting Battalion 7 - Station 11, Built 1991

- Columbus Fire Department Station #11 located at the main entrance off West Case Road
- 1 ARFF truck - 500 gal. of water, 60 gal. foam, 500 pounds dry chemicals.

FAR 139 Index: IV A U 09/1975

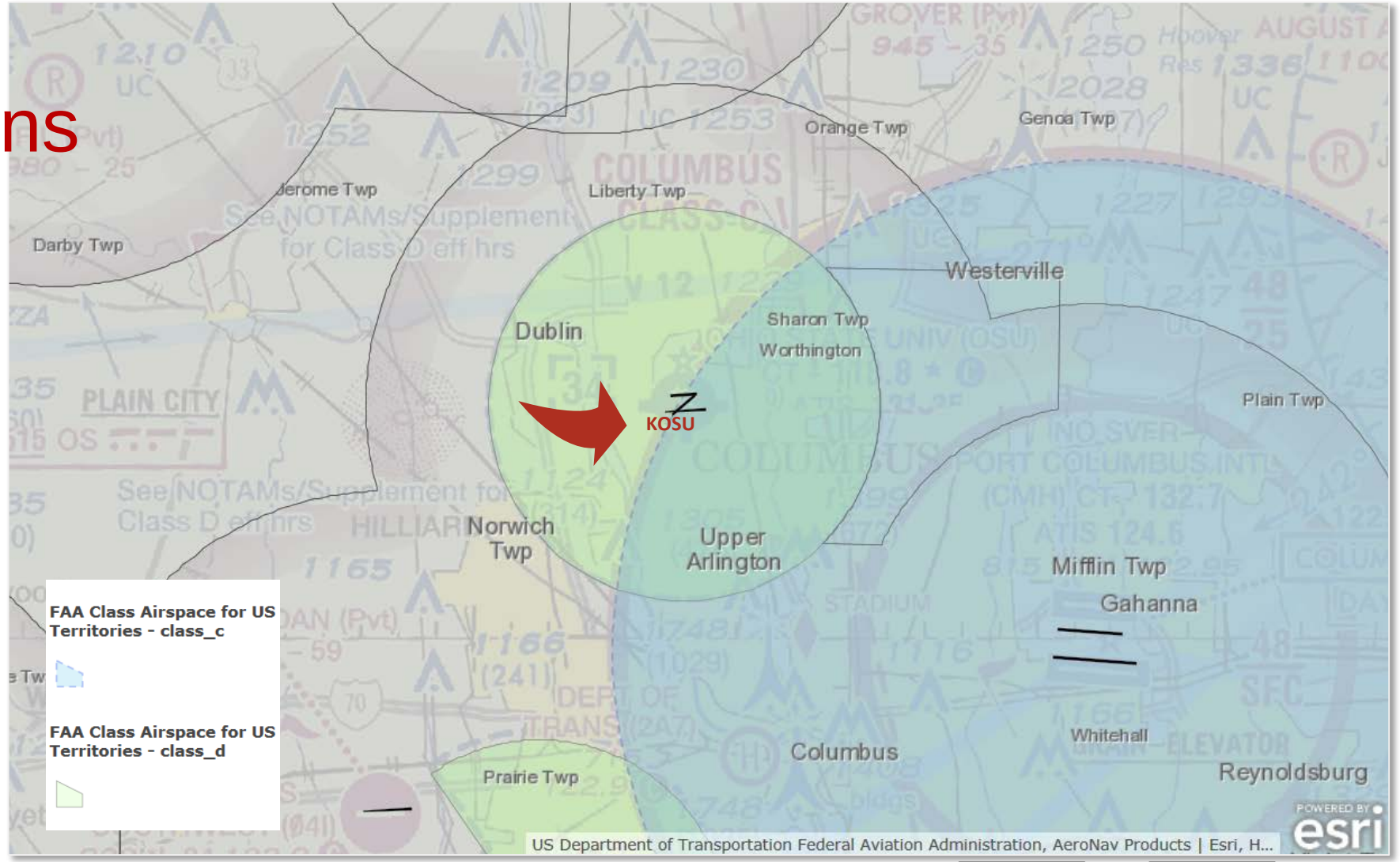
Apparatus	Model
Engine 11	2005 Sutphen
Rescue 11	2012 Sutphen/SVI
Medic 11	2011 International/Horton
Battalion 7	2013 Ford Explorer
EMS-17	2013 Ford Explorer
Boat 11	2013 Zodiac 2

Source: Google Earth, Street View, accessed February 2018

Inventory/ Existing Conditions

Within Class D airspace - which extends from the ground to 2,500 feet MSL.

Falls on outer edge of John Glenn Columbus International Airport's (CMH) Class C airspace.



Inventory/
Existing Conditions

KOSU Air Traffic Control Tower

- Staffed by Midwest Air Traffic Control Services
- 87,000 annual operations and increasing
- Rank #186 out of 517 total towered airports in operations in country
- 20% are Air Taxi

Source: Woolpert, Inc., 2017; KOSU Facebook Page, accessed February 2018

Inventory/ Existing Conditions

Instrument Approach Procedures

- 4 instrument approach procedures (IAP)
- All serve primary runway 9R/27L
- Provide users w/ approach minimums allowing for safe landing in a variety of weather conditions
- Best approach minimums –
  - 200-foot ceiling with ½ mile visibility

ILS/LOC RW 09R

CATEGORY	A	B	C	D
S-ILS 9R	1105-½ 200 (200-½)			
S-LOC 9R	1420-½ 515 (600-½)		1420-1 515 (600- 1)	
CIRCLING	1420-1 515 (600-1)		1420-1½ 515 (600-1½)	1460-2 555 (600-2)

RNAV RW 09R

CATEGORY	A	B	C	D
LPV DA	1105-½ 200 (200-½)			
LNAV/ VNAV DA	1168-½ 263 (300-½)			
LNAV MDA	1420-½ 515 (600-½)		1420-1 515 (600-1)	
CIRCLING	1420-1 515 (600-1)		1420-1½ 515 (600-1½)	1460-2 555 (600-2)

RNAV RW 27L

CATEGORY	A	B	C	D
LPV DA	1153-1 250 (300-1)			
LNAV/ VNAV DA	1199-1 296 (300-1)			
LNAV MDA	1280-1 377 (400-1)		1280-1⅛ 377 (400-1⅛)	
CIRCLING	1380-1 475 (500-1)		1380-1½ 475 (500-1½)	1460-2 555 (600-2)

NDB RW 09R

CATEGORY	A	B	C	D
S-9R	1460-¾ 555 (600-¾)		1460-1⅛ 555 (600-1⅛)	
CIRCLING	1460-1 555 (600-1)		1460-1⅝ 555 (600-1⅝)	1460-2 555 (600-2)

Source: FAA

Inventory/ Existing Conditions

Weather Reporting

ASOS/ATIS

On ground – recording via phone
(614) 451-2465

Inflight – via radio frequency 121.35

Lighted wind indicator

AVIATION WEATHER CENTER
NOAA NATIONAL WEATHER SERVICE

Local Forecast Go | HOME ADVISORIES FORECASTS OBSERVATIONS TOOLS NEWS SEARCH

Impacts METAR Board

METAR Home | Plot | Data | Board

IDs: KOSU Submit

KOSU - Columbus/Ohio State, OH, US

Updated at: 1420 UTC 22 Feb 2018

Potential Impact: None | Slight | Moderate | High

Time	22/02Z	22/03Z	22/04Z	22/05Z	22/06Z	22/07Z	22/08Z	22/09Z	22/10Z	22/11Z	22/12Z	22/13Z	22/14Z
VIS			8	9	10	10	7	7	8	7	9	6	7
CIG			80	75	30	31	31	32	75	45	46	36	38
Cover			OVC	OVC	OVC	OVC	OVC	OVC	OVC	OVC	OVC	OVC	OVC
FltCat			VFR	VFR	MVFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR
WX			-RA	-RA	-RA	-RA	-RA	-RA	-RA	RA	-RA	-RA BR	-RA
WDir			60	20	10	30	10	20	20	40	50	40	60
WSpd			9	10	11	11	9	9	9	10	12	7	10
WGst			--	--	--	--	--	--	--	--	--	--	--

Raw hourly METARs

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KOSU 220353Z 06009KT 8SM -RA OVC080 03/02 A3051 RMK AO2 RAB02 SLP336 P0000 T00330022
KOSU 220453Z AUTO 02010KT 9SM -RA OVC075 03/02 A3051 RMK AO2 SLP335 P0004 T00280017 402060028
KOSU 220553Z AUTO 01011KT 10SM -RA OVC030 02/02 A3052 RMK AO2 SLP340 P0002 60011 T00220017 10050 20022 55002
KOSU 220653Z AUTO 03011KT 10SM -RA OVC031 02/01 A3048 RMK AO2 UPB36E41 SLP327 P0000 T00220011
KOSU 220753Z AUTO 01009KT 7SM -RA BKN031 OVC046 02/02 A3048 RMK AO2 SLP327 P0002 T00220017
KOSU 220853Z AUTO 02009KT 7SM -RA OVC032 02/01 A3046 RMK AO2 SLP322 P0005 60007 T00220011 56017
KOSU 220953Z AUTO 02009KT 8SM -RA SCT055 BKN075 OVC090 02/02 A3044 RMK AO2 SLP313 P0003 T00220017
KOSU 221053Z AUTO 04010KT 7SM RA OVC045 02/01 A3044 RMK AO2 SLP314 P0007 T00220011
KOSU 221153Z 05012KT 9SM -RA FEW033 BKN046 OVC060 03/01 A3043 RMK AO2 SLP311 P0007 60024 70044 T00280011 10028 20022 56011
KOSU 221253Z 04007KT 6SM -RA BR OVC036 03/02 A3046 RMK AO2 SLP320 P0004 T00280017
KOSU 221353Z 06010KT 7SM -RA FEW011 FEW018 OVC038 03/02 A3044 RMK AO2 SLP316 P0004 T00280022
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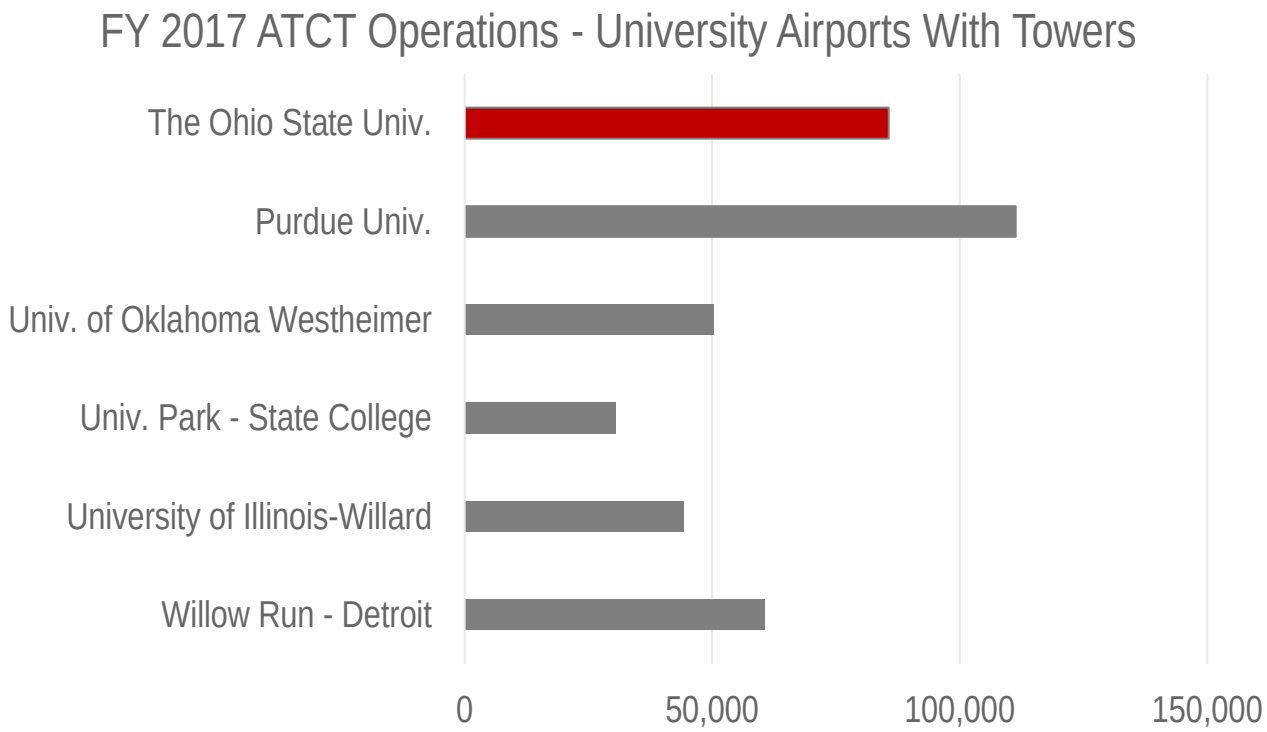
Source: NOAA National Weather Service, Aviation Weather Center

Inventory/ Existing Conditions



Source: FAA Air Traffic Control Tower (ATCT) Aircraft Operations Counts, Fiscal Years 2016 – 2017 (Ranked by State), Quadrex Aviation, LLC, November 2017

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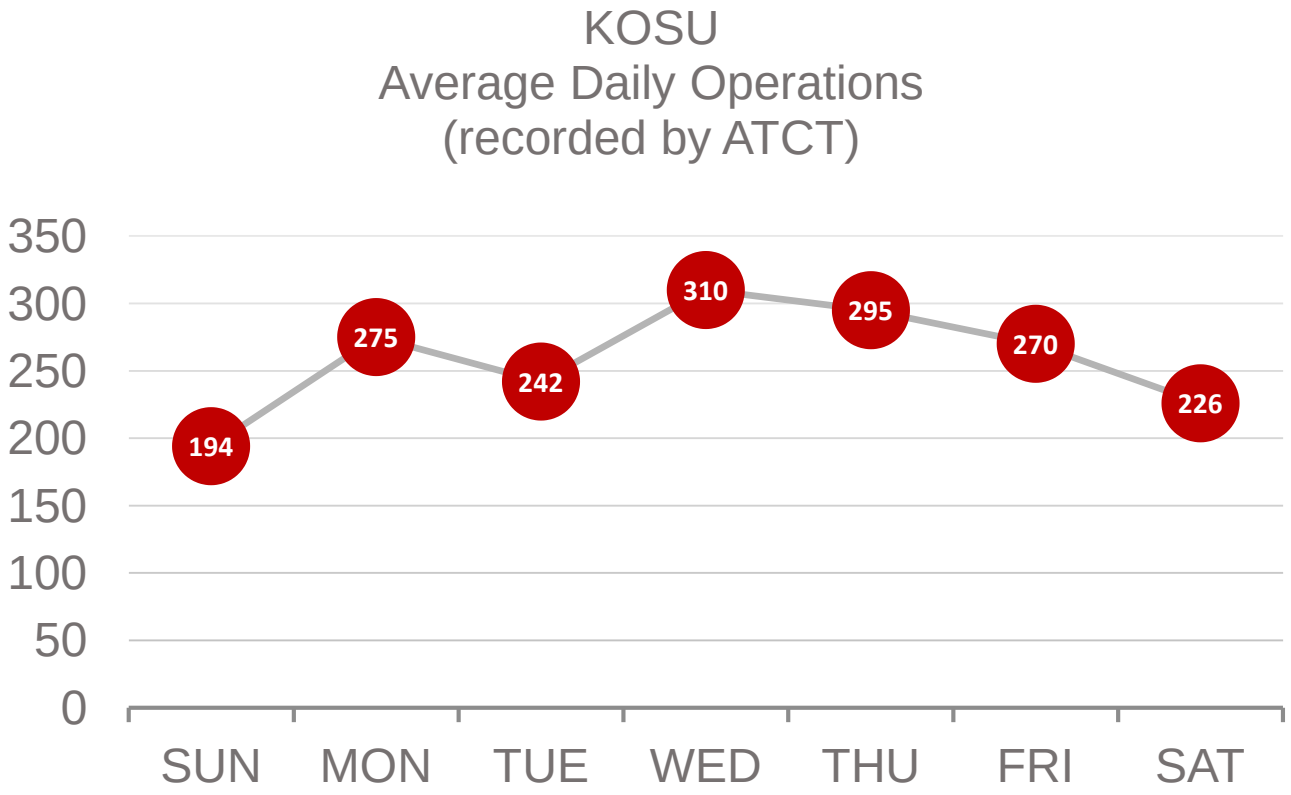
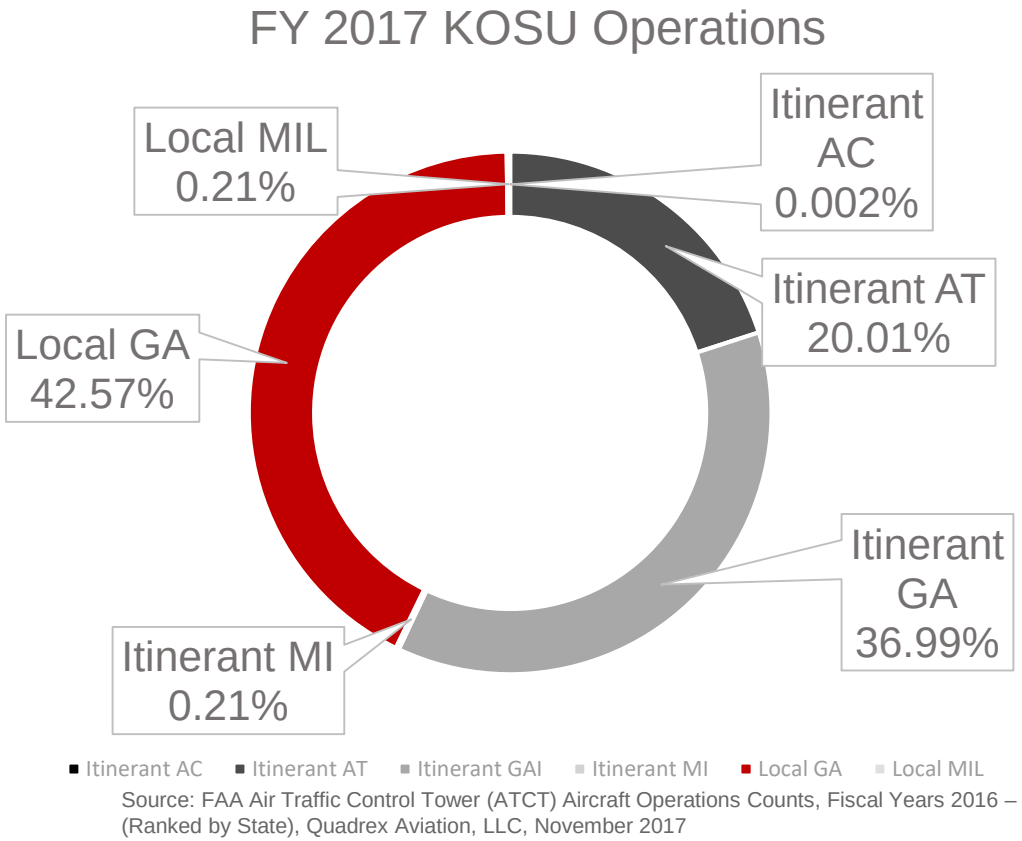


Source: FAA Operations & Performance Data, Accessed February, 2018



Source: FAA Air Traffic Control Tower (ATCT) Aircraft Operations Counts, Fiscal Years 2016 – 2017 (Ranked by State), Quadrex Aviation, LLC, November 2017

Inventory/ Existing Conditions

Fueling

- 8 aboveground fuel tanks (6 for aircraft; 2 for vehicles)
  - 24,000 gal. AvGas
  - 48,000 gal. Jet A fuel
  - 4,000 gal of MoGas
  - 4 mobile aircraft refuelers

Source: Woolpert, Inc., 2017; KOSU, 2018

Aircraft De-icing via Mobile Truck

- Type I - *remove* snow, frost, and ice on aircraft
- Type IV - *prevent* snow, frost, or ice build-up
- 1 Mobile de-ice truck

Inventory/
Existing Conditions

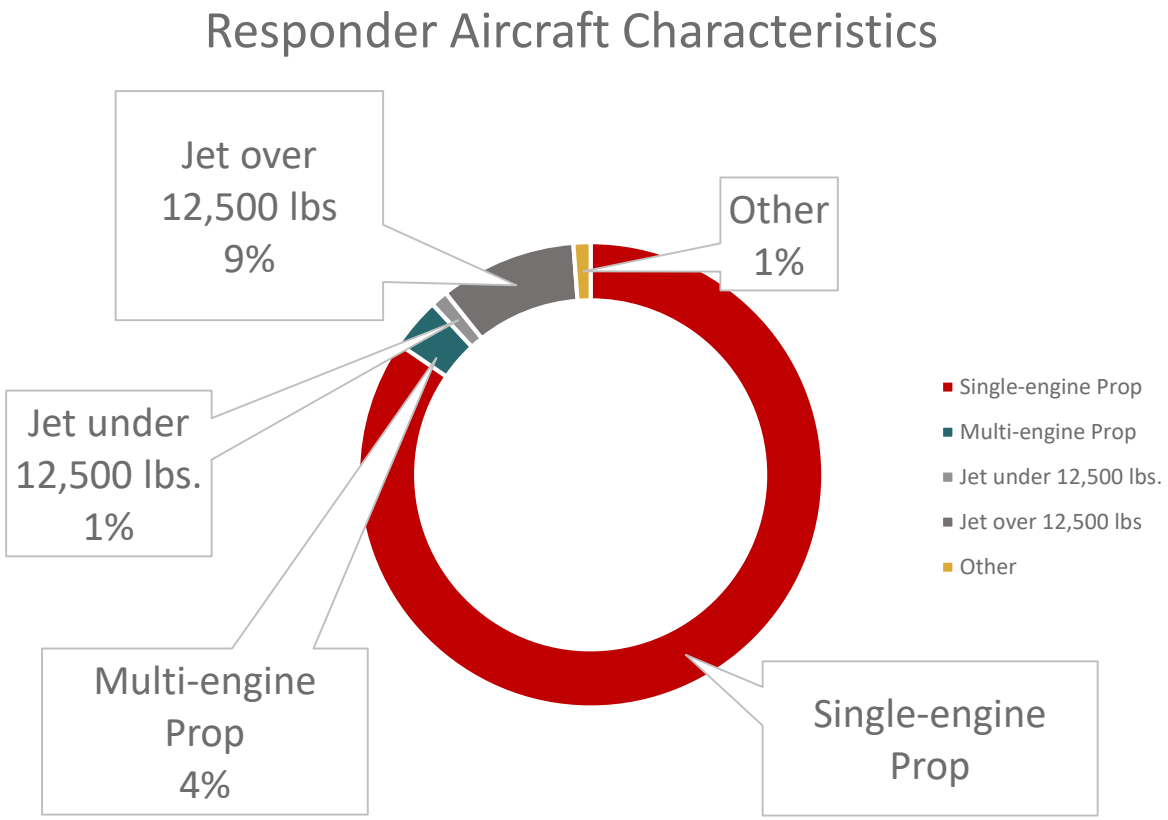
Aircraft Maintenance

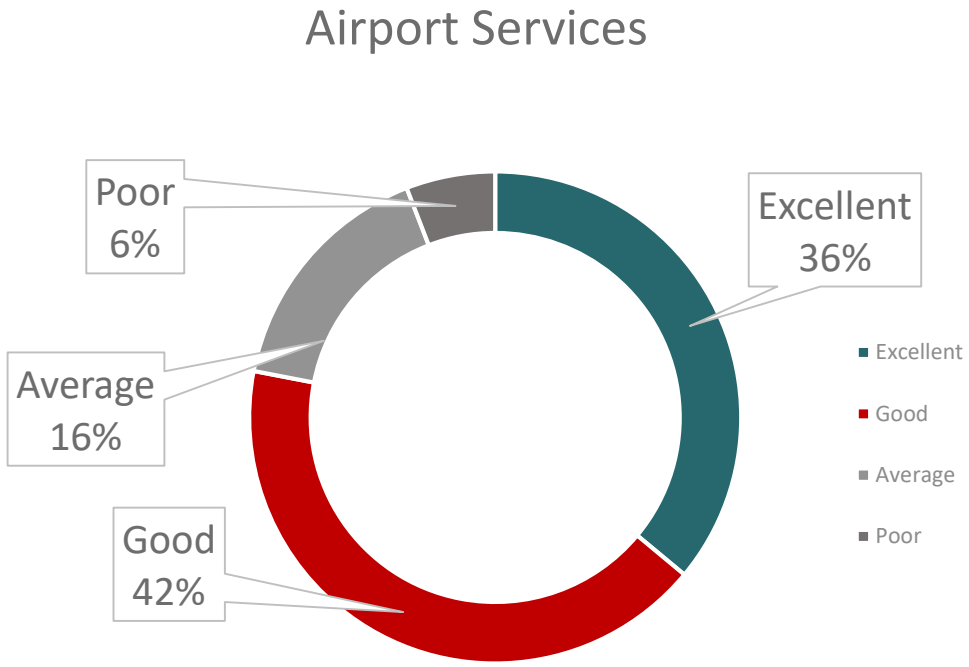
Approved Part 145 Repair Station, # IKBR028F
- Major airframe
- Major power plant
- Oxygen

Service almost all single-engine & most multi-e aircraft.
- Avionics department
- Parts department
- Authorized Cirrus Service Center
- Authorized Diamond Service Center

Source: https://osuairportfbo.org/services/aircraft-maintenance

User Survey Summary of Results





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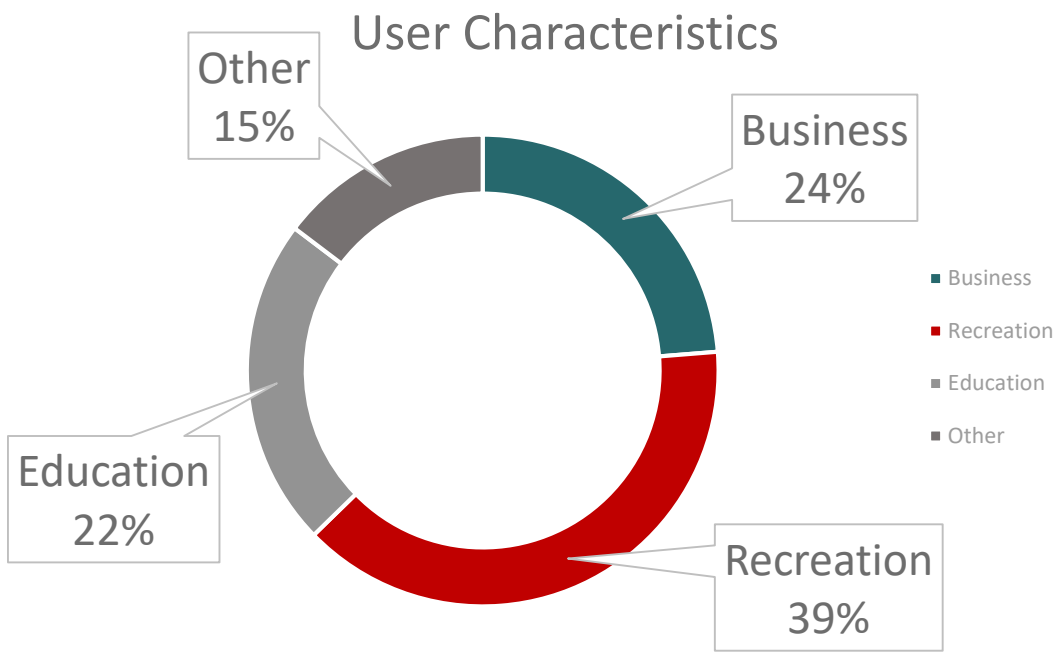
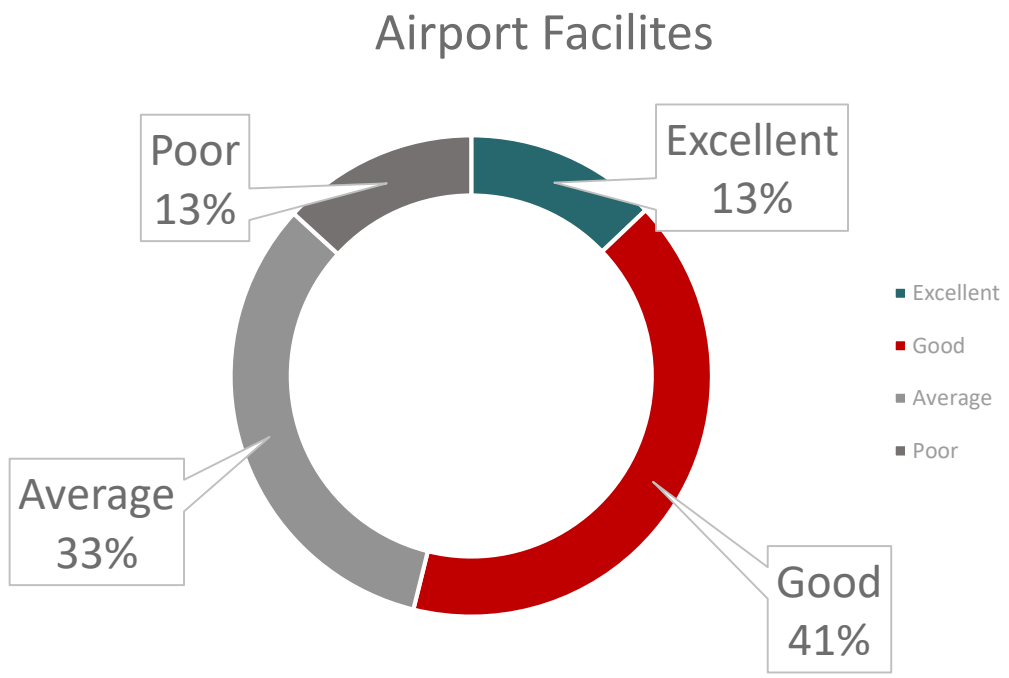


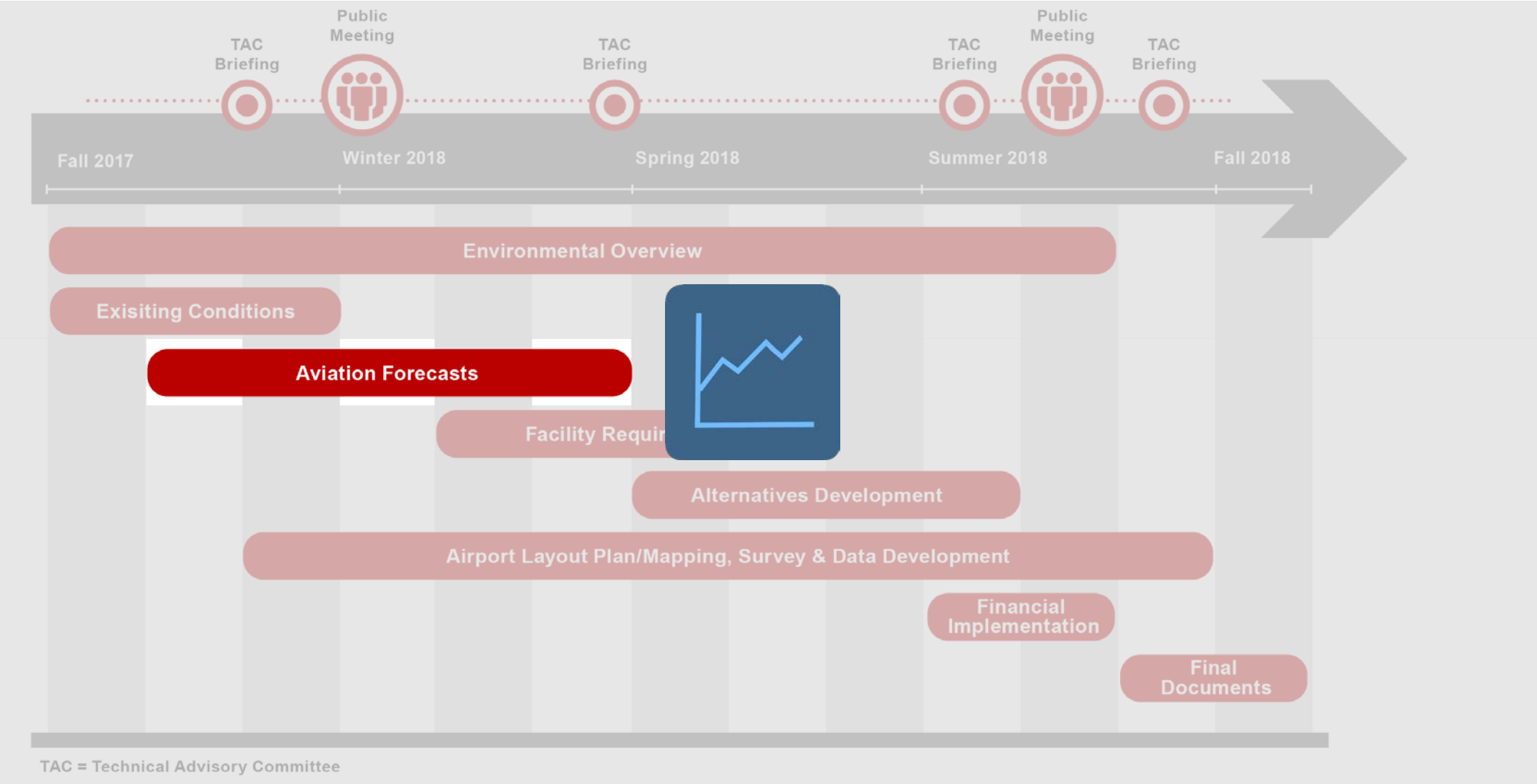


Inventory/Existing Conditions

2nd airport located at the Transportation Research Center in East Liberty, Ohio.

Opportunities	Constraints
Owned by The Ohio State University	Located inside a secure, access controlled facility, requiring pre-approval for all land and/or air access to the site.
Located at a state-of-the-art research facility	45 miles from main campus
Restricted access allows for uninterrupted flight operations	Lacks modern navigational, communications, and lighting system, as well as air traffic control
Limited impacts on surrounding community	No employment opportunities for students
	No interaction between students and professional pilots
	No opportunities for research to be conducted in a real-world setting
	No opportunities to engage surrounding community

QUESTIONS?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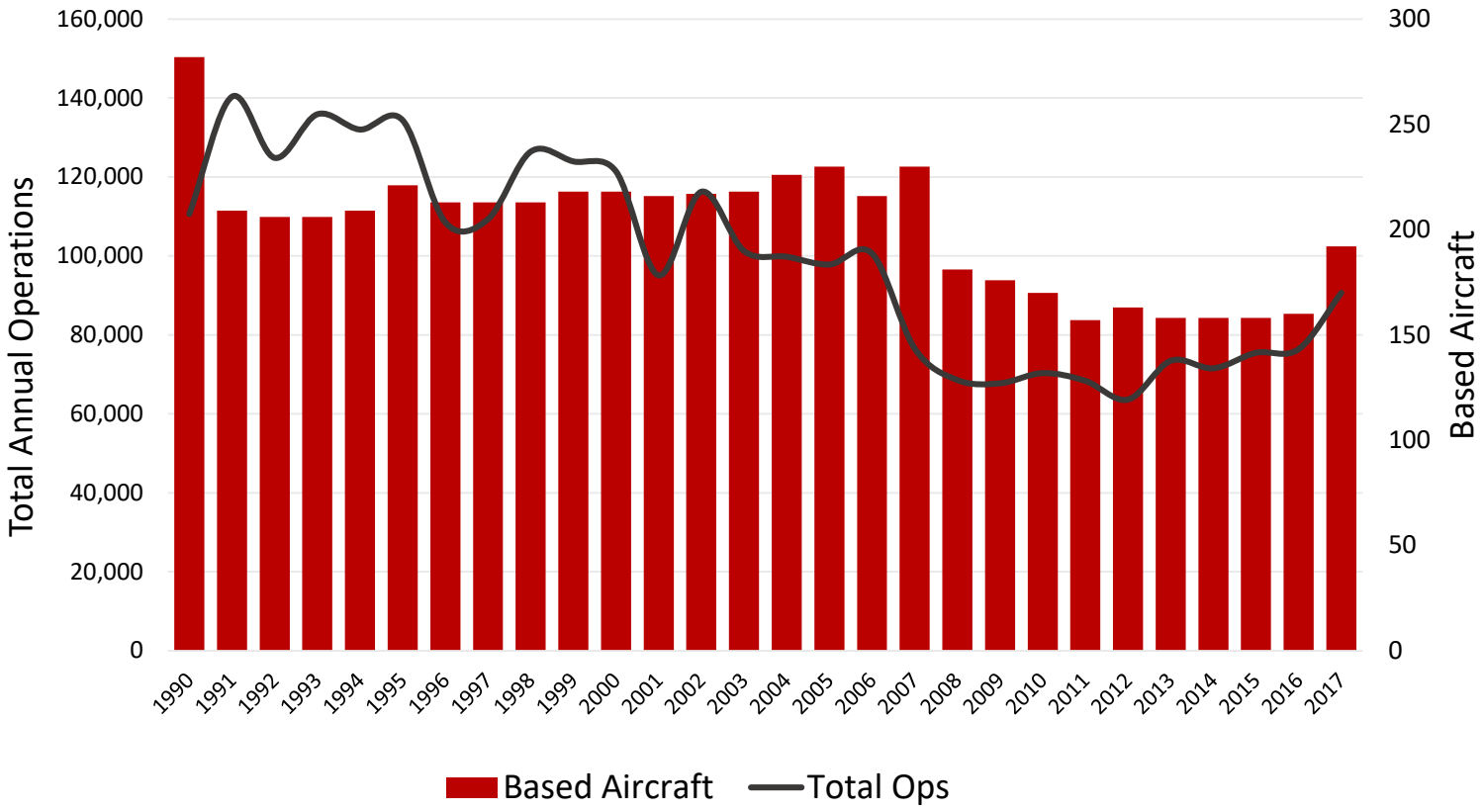
DRAFT AVIATION ACTIVITY FORECASTS

Sarah Arnold, Marr Arnold Planning

Forecast of Aviation Activity Process

- Review historic and current activity
- Understand airport role
- Review trends influencing future airport growth
- Develop forecasts
  - Based Aircraft
  - Operations
- Identify critical aircraft family

Historic and Current Activity



- Based Aircraft
  - Drop overall since 2007, but up 17% from 2016-2017
- Operations
  - 1.2% CAGR from 2007-2017
  - Up 14% from 2016-2017

Trends Impacting Future Growth: Regional Demographics (KOSU Service Area)

Population

1990-2016:
1.4% CAGR

2010-2040:
0.8% CAGR

Employment

1990-2016:
0.9% CAGR

2015-2037:
1.1% CAGR

Per Capita Income

1990-2016:
3.3% CAGR

2015-2037:
1.4% CAGR

Trends Impacting Future Growth: National General Aviation Trends

Opportunities	Threats
• Projected fleet growth (2017-37) in jets (2.3% AAGR), rotorcraft (1.6%), turboprops (1.4%) • Growth in light sport and experimental aircraft & activity • Increase in business flying and reliance on general aviation travel • Recovery in aircraft shipments and billings	• Projected decline in piston fleet over next 20 years • Minimal operational growth (0.3% AAGR 2017-37) • Decline in active pilots • Phase out in 100LL fuel • Cost of general aviation aircraft

Trends Impacting Future Growth: Competing Airports

Airport	Primary Runway Length and Width	Based Aircraft	Annual Operations	Distance from KOSU
Ohio State University	5,004' x 100'	187	90,687	
Bolton Field	5,500’ x 100’	81	22,700	11 nm S
Delaware Municipal	5,800’ x 100’	102	39,300	12 nm N
Union County	4,218' x 75'	56	31,900	15 nm NW
Rickenbacker International	12,202' x 200'	28	26,307	17 nm SE
Madison County	4,001’ x 75’	49	41,400	20 nm SW
Fairfield County	5,004’ x 75’	104	43,100	27 nm SE
Newark-Heath	4,649’ x 75’	64	12,500	28 nm W
Pickaway County	4,346’ x 75’	32	35,000	34 nm S
	TOTAL	703	342,137	

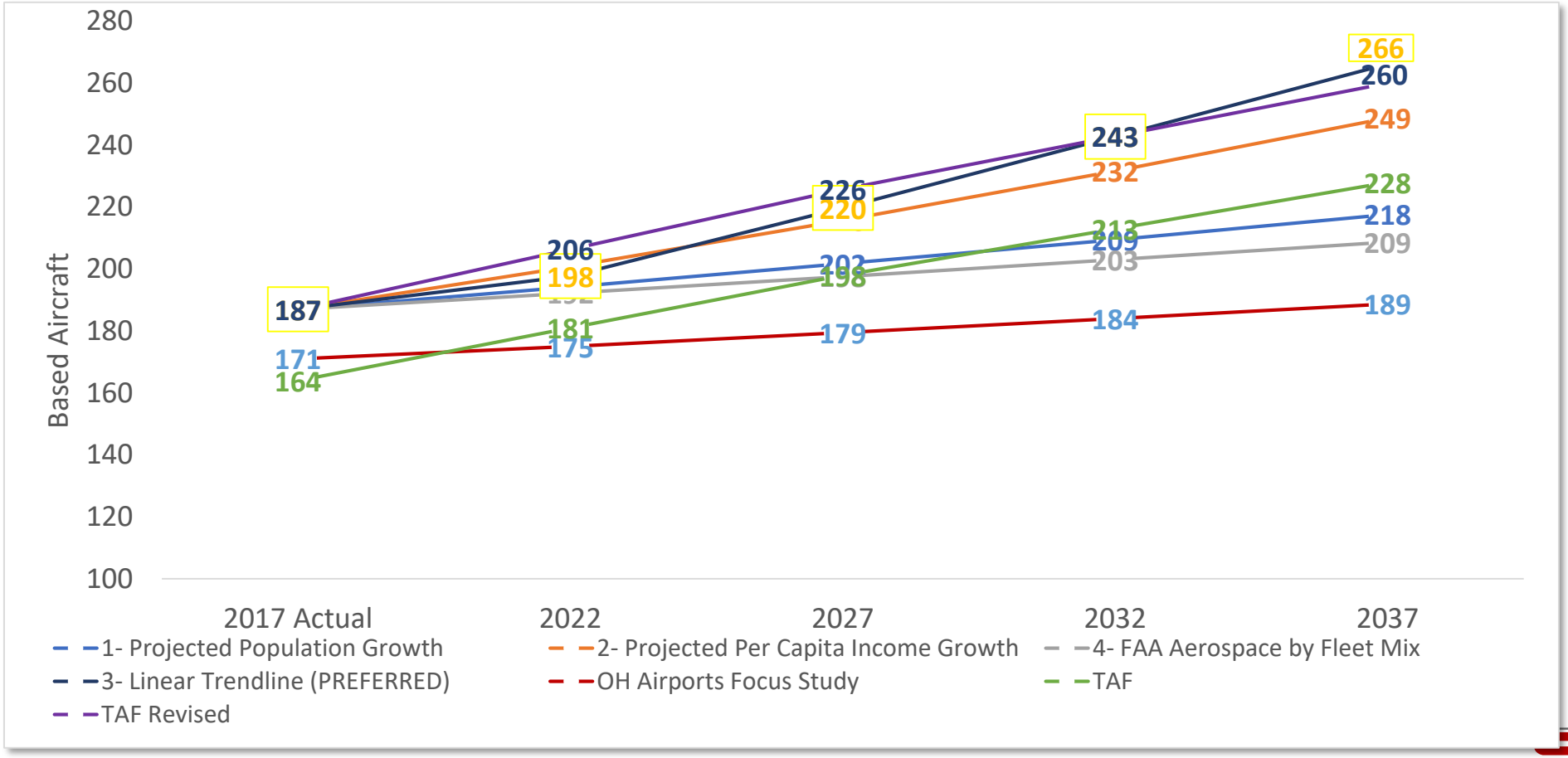
Forecast Process

- Short Term (2022), Mid Term (2027), and Long Term (2037)
- Variety of methodologies based on trends analysis
- Activity components
  - Based Aircraft
  - Based Aircraft Fleet Mix
  - Operations
  - Local vs. Itinerant Operations
  - Operational Fleet Mix
  - Peak Hour Operations

Based Aircraft Projections

	Year	Method 1- Population Growth	Method 2- PCI Growth	Method 3- Linear Trendline	Method 4- National Growth by Segment
Historic	2017	187	187	187	187
Projected	2022	194	201	198	192
	2027	202	216	220	198
	2037	218	249	266	209
AAGR 2017-2037		0.76%	1.44%	1.78%	0.55%
2037 Variation from TAF		-19.5%	-4.5%	2.3%	-24.6%

Based Aircraft Projections



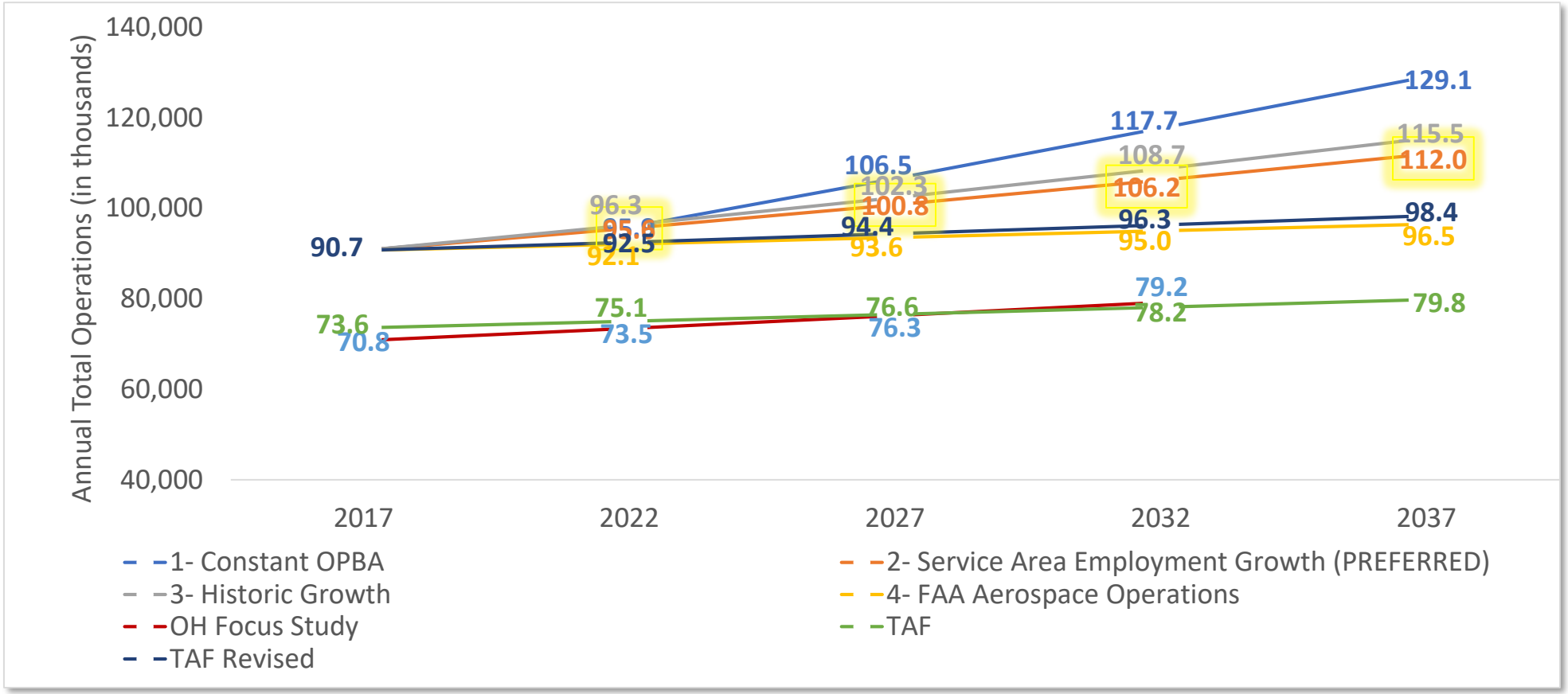
Fleet Mix Projections

	Year	Single Engine	Multi-Engine	Jet	Helicopter	Light Sport	Experi-mental	Total
Historic	2017	138	21	16	7	2	3	187
Projected	2022	143	22	18	8	3	4	198
	2027	155	23	21	11	5	5	220
	2037	174	27	30	17	11	7	266
Percent of Total								
Historic	2017	74%	11%	9%	4%	1%	2%	100%
Projected	2022	72%	11%	9%	4%	2%	2%	100%
	2027	71%	10%	10%	5%	2%	2%	100%
	2037	65%	10%	11%	6%	4%	3%	100%

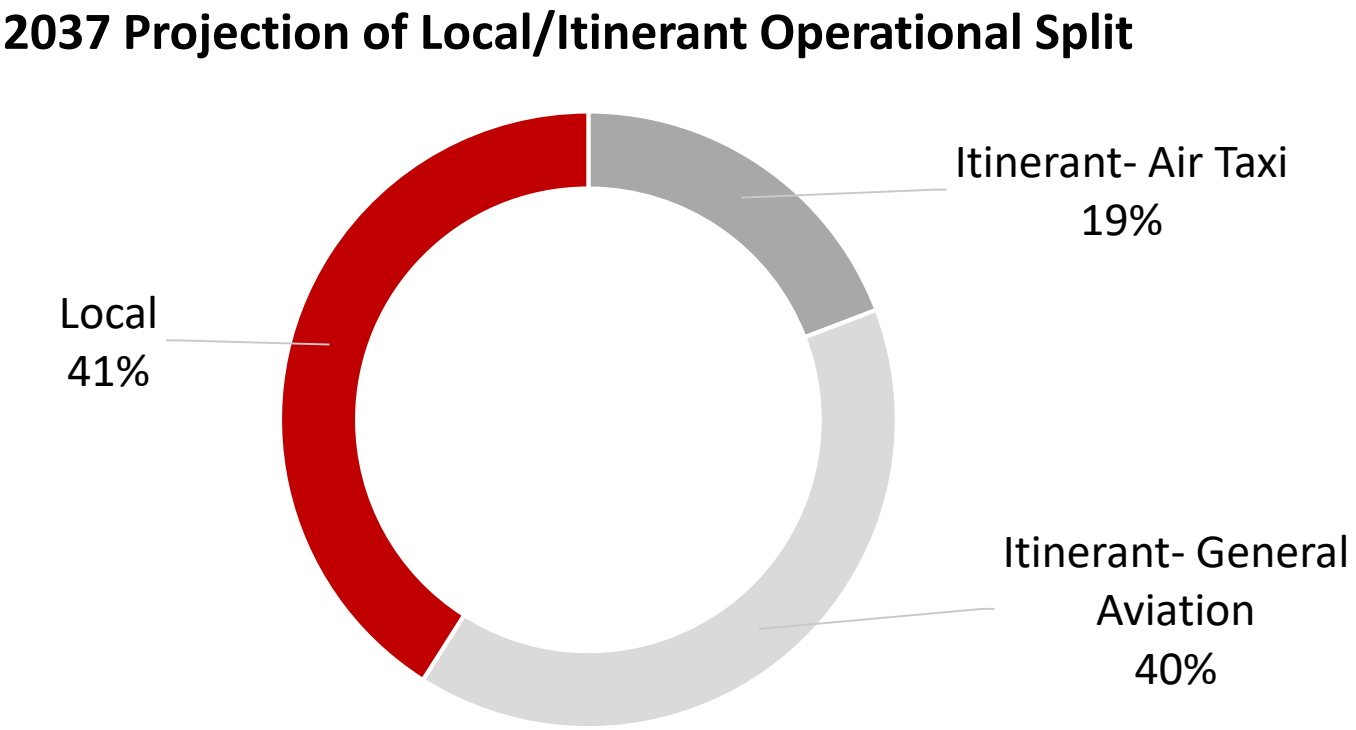
Operations Projections

	Year	Method 1- OPBA	Method 2- Employment Growth	Method 3- Historic Growth	Method 4- FAA Growth Rate
Historic	2017	90,687	90,687	90,687	90,687
Projected	2022	95,900	95,600	96,300	92,100
	2027	106,500	100,800	102,300	93,600
	2037	129,100	112,000	115,500	96,500
AAGR 2017-2037		1.78%	1.06%	1.22%	0.31%
2037 Variation from TAF		23.8%	12.1%	14.8%	-1.9%

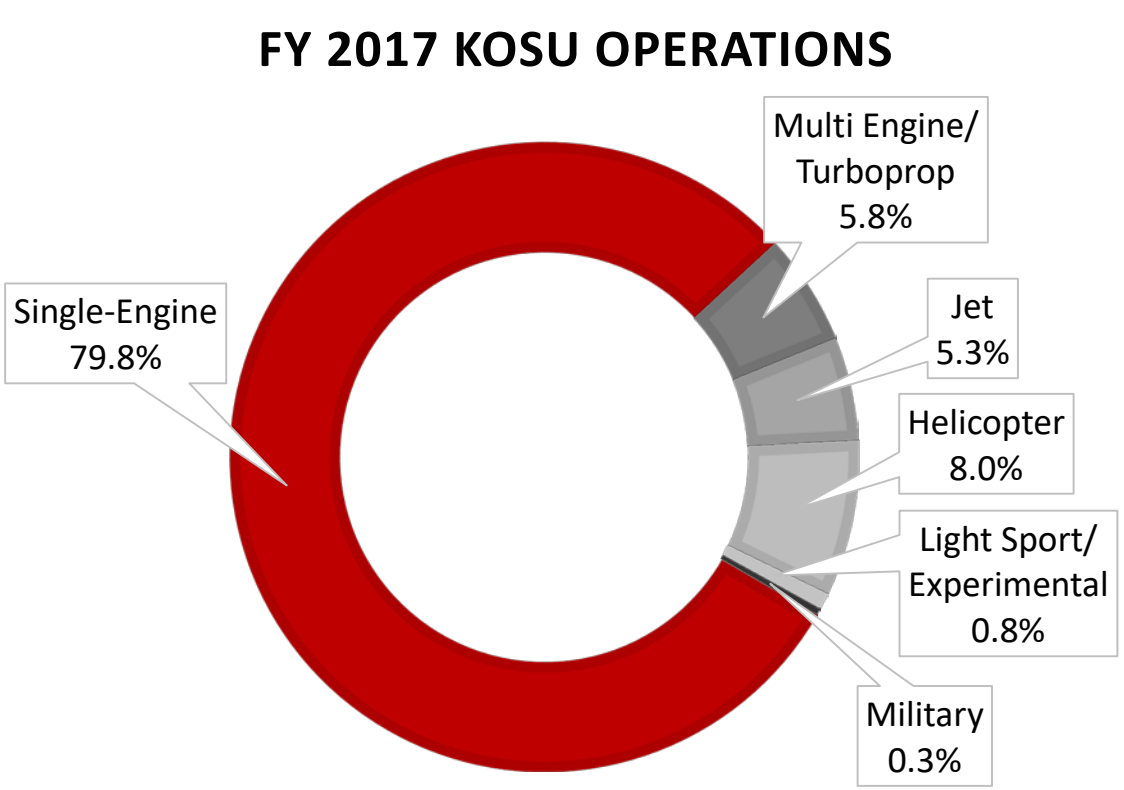
Operations Projections

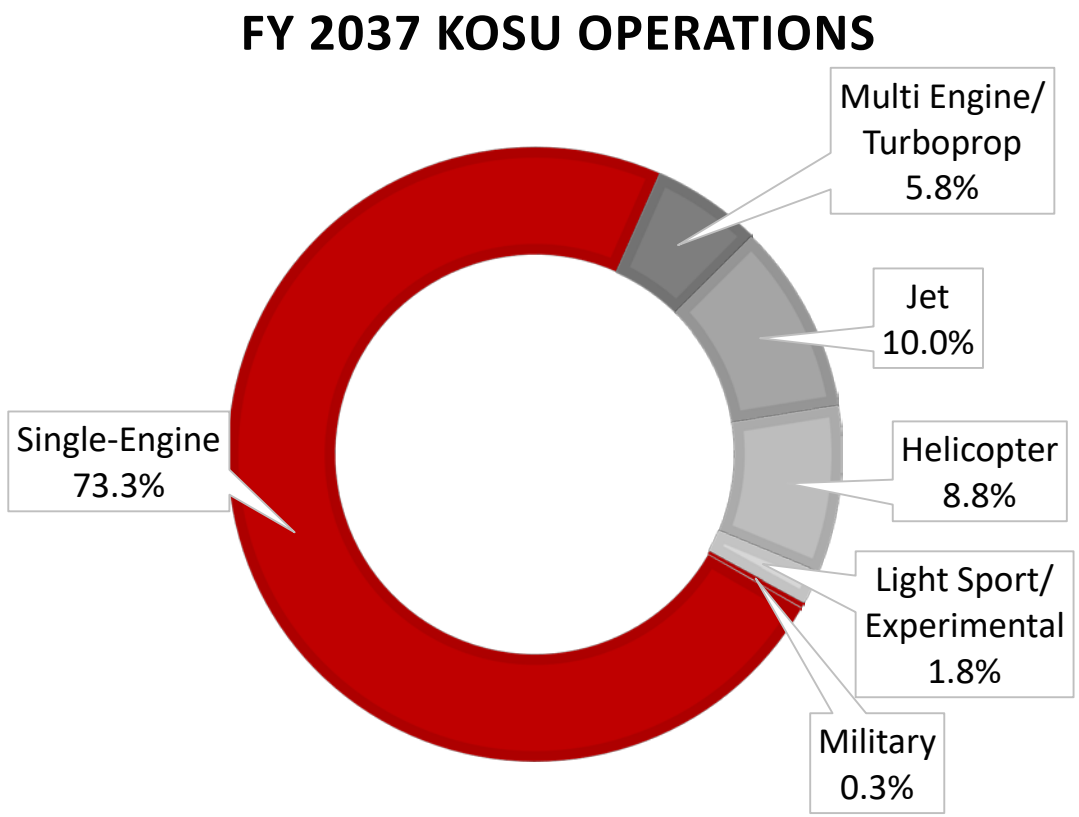


Local/Itinerant Operational Split

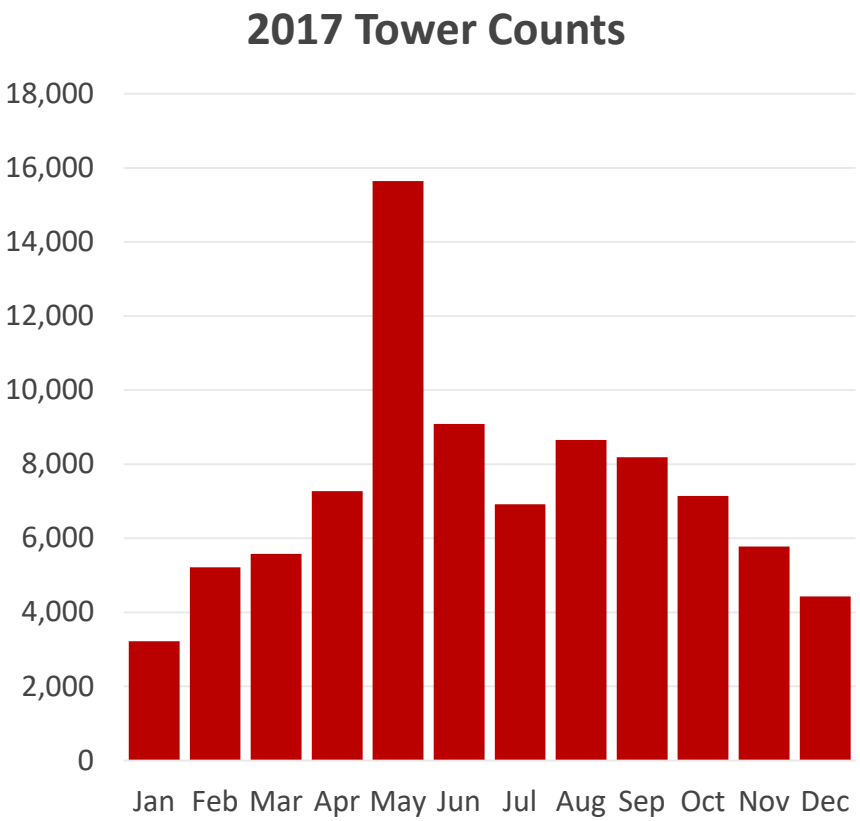


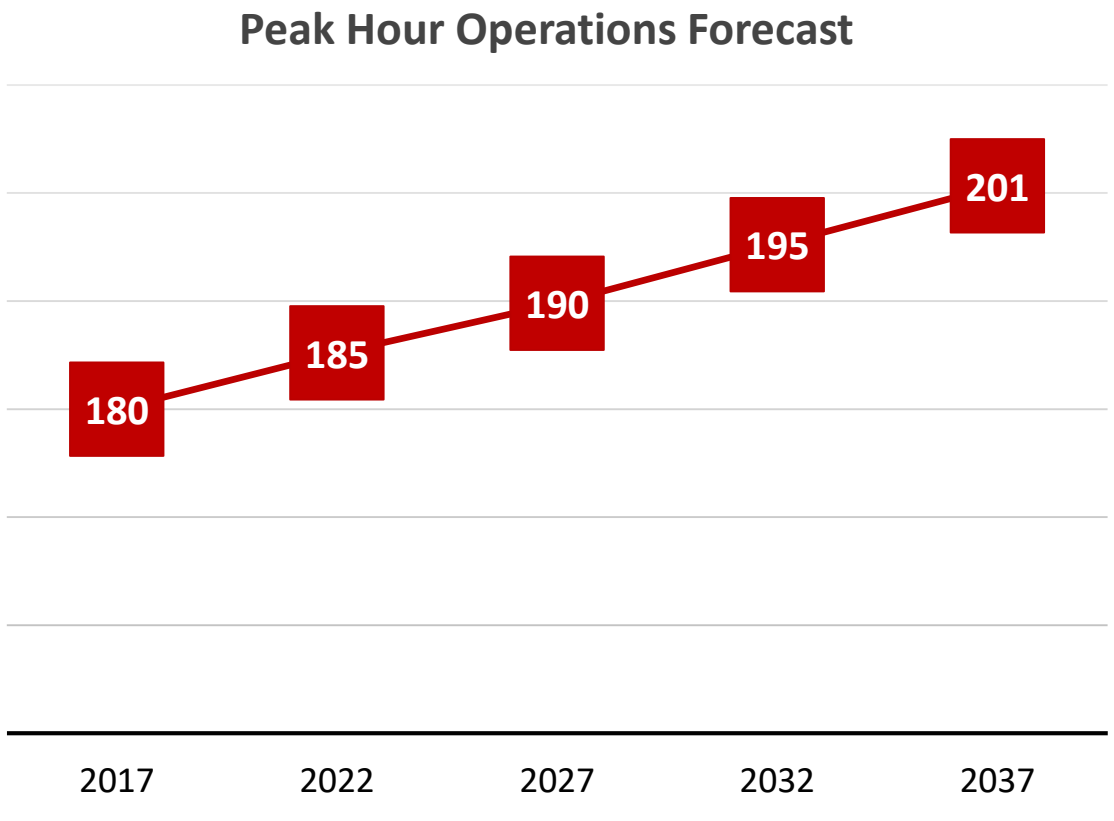
Operational Mix Projections





Peak Period Forecasts





Preferred Forecast Summary & TAF Comparison

Forecast Element	Year	Recommended Forecast	Adjusted TAF Forecast[1]	% Difference
Based Aircraft				
Base Year	2017	187	187	
Base Year + 5 Years	2022	198	206	-4.0%
Base Year + 10 Years	2027	220	226	-2.7%
Base Year + 15 Years	2032	243	243	0.0%
Base Year + 20 Years	2037	266	260	2.3%
AAGR 2017-2037		1.8%	1.7%	
Total Operations				
Base Year	2017	89,930	89,930	0.0%
Base Year + 5 Years	2022	94,800	91,700	3.3%
Base Year + 10 Years	2027	99,900	93,600	6.3%
Base Year + 15 Years	2032	105,300	95,500	9.3%
Base Year + 20 Years	2037	111,000	97,600	12.1%
AAGR 2017-2037		1.1%	0.4%	

Critical Aircraft

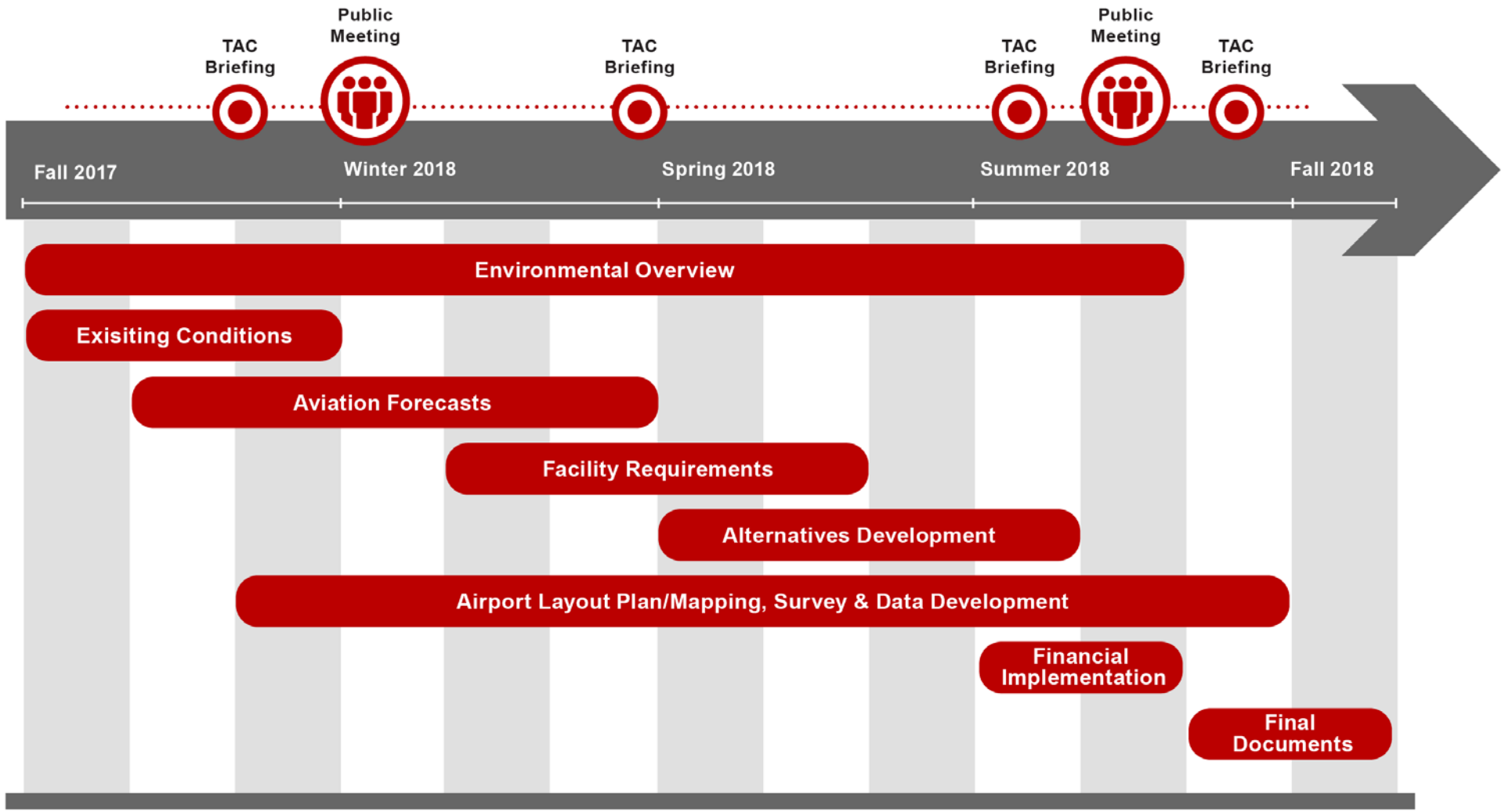
ARC Family	IFR Operations
A-I	4,713
A-II	2,078
B-I	1,670
B-II	3,747
C-I/D-I	804
C-II/D-II	1,274
C-III/D-III	60
C-IV/D-IV	2
HELI	90
Other/Unknown	72
Total IFR Aircraft Operations	14,620

C-II/D-II	
LJ75 - Learjet 75	292
CL30 - Bombardier Challenger 300	228
H25B - BAe HS 125/700-800/Hawker 800	184
LJ45 - Bombardier Learjet 45	152
CL60 - Bombardier Challenger 600	104
CL35 - Bombardier Challenger 300	96
GLF4 - Gulfstream IV/G400	88
C750 - Cessna Citation X	74
LJ60 - Bombardier Learjet 60	42
GALX - IAI 1126 Galaxy	36
C650 - Cessna III/VI/VII	28
Other	38
C-II/D-II Total	**1,274**

QUESTIONS?

Next Steps

- TAC meeting summary – to be posted online
- E-mail to public with link to online materials
- Next TAC meeting: scheduled for July 9th



TAC = Technical Advisory Committee

QUESTIONS & DISCUSSION

THE OHIO STATE UNIVERSITY

AIRPORT

THANK YOU

osuairport.org/airport-facilities/master-plan

ENGAGE PUBLIC AFFAIRS

WOOLPERT