AIRPORT MASTER PLAN

Public Open House

Welcome!

SWO

Regional Airport

Stillwater®

OKLAHOMA

THE Mead & Hunt TEAM

Mead & Hunt
Tulsa, Oklahoma

McFarland Architects
Tulsa, Oklahoma

Leibowitz & Horton AMC
Greenwood Village, Colorado

Olsson
Tulsa, Oklahoma

Agenda

- Introductions
- Meeting Format and Logistics
- What a Master Plan Study Is and Is Not
- Process and Schedule
- Master Plan Work Products
- Next Steps
- Questions

THE Mead & Hunt TEAM

SWO Regional Airport Stillwater OKLAHOMA

Introductions

- **Airport Staff**
- **Study Committee (SC)**
- **Consultant Team**
  - Mead & Hunt
  - Four Specialty Sub Consultants
    - McFarland Architects
    - Olsson
    - Leibowitz & Horton
    - Quantum Spatial
- **FAA**

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Meeting Format and Logistics

- **The goal of the Open House is to share information with the public regarding the master plan process, analysis, and recommendations.**
- **Master Plan materials including draft chapters and appendices, frequently asked questions, and more are available on the project website: www.flystillwaterok.com/page/home/about-us/airport-master-plan**

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A Master Plan Is…

- **Decision making tool to guide the orderly development of future physical airport facilities**
  - Layout of airport facilities meeting FAA design standards
  - Identifies and reserves space for future facilities
- **20-year strategic vision**
- **Informs follow-on NEPA documents**
- **Informs city land use planning and transportation plans**
- **Flexible to allow for uncertainties**
- **Supported by fact and logic**

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A Master Plan Is NOT…

- **A business plan**
- **A strategic plan**
- **A noise study**
- **A regulatory document**
- **An FAA development mandate or guarantee of funding**
- **Rigid and inflexible**

Master Plan Deliverables

- **Tangibles**
  - Narrative Report
    - FAA-approved forecasts
    - Capital Improvement Plan
    - Implementation strategy
  - FAA-approved Airport Layout Plan (ALP)
- **Intangibles**
  - Planning process and ideas
  - Community connection
  - Vision for the future

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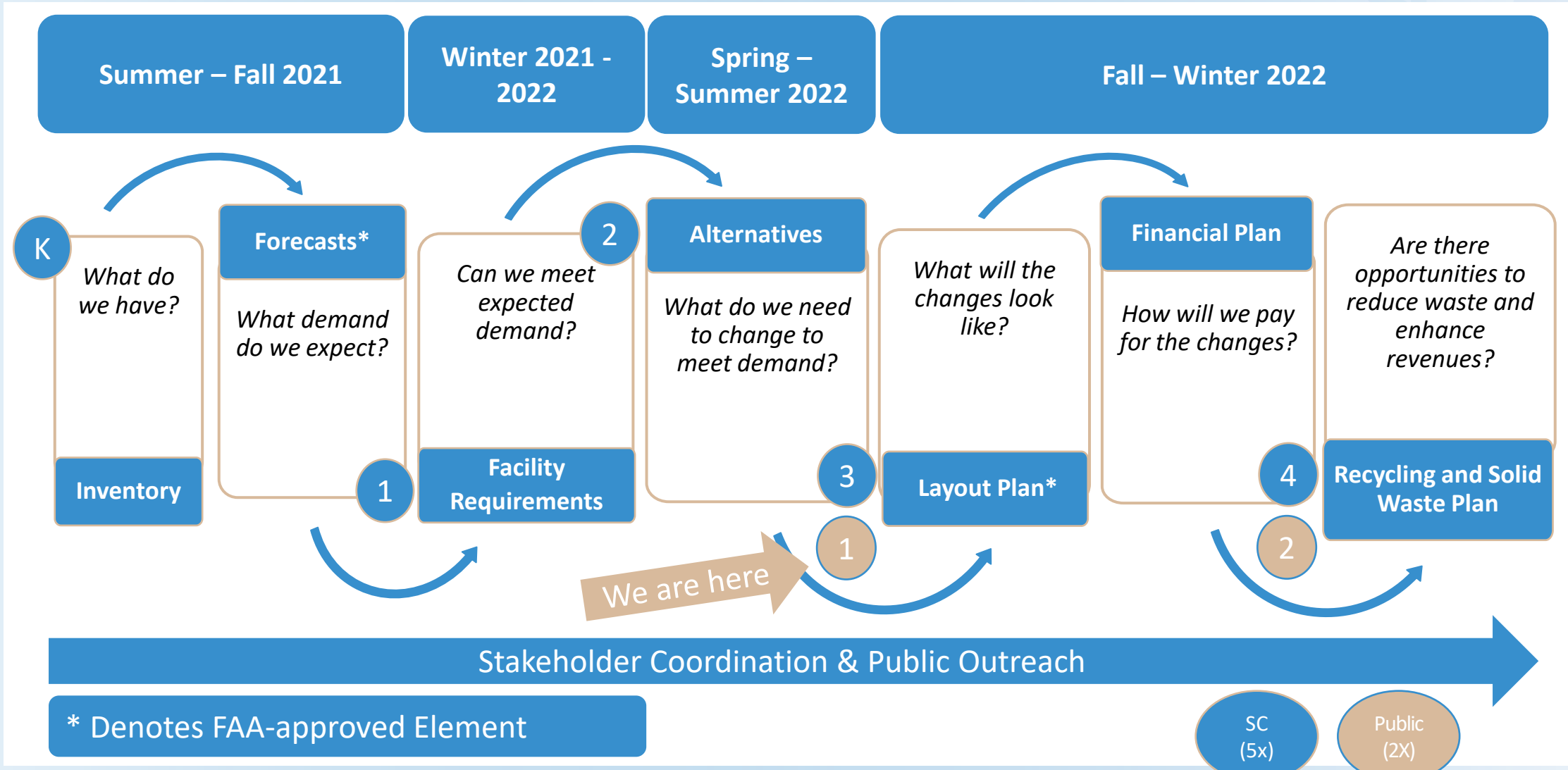
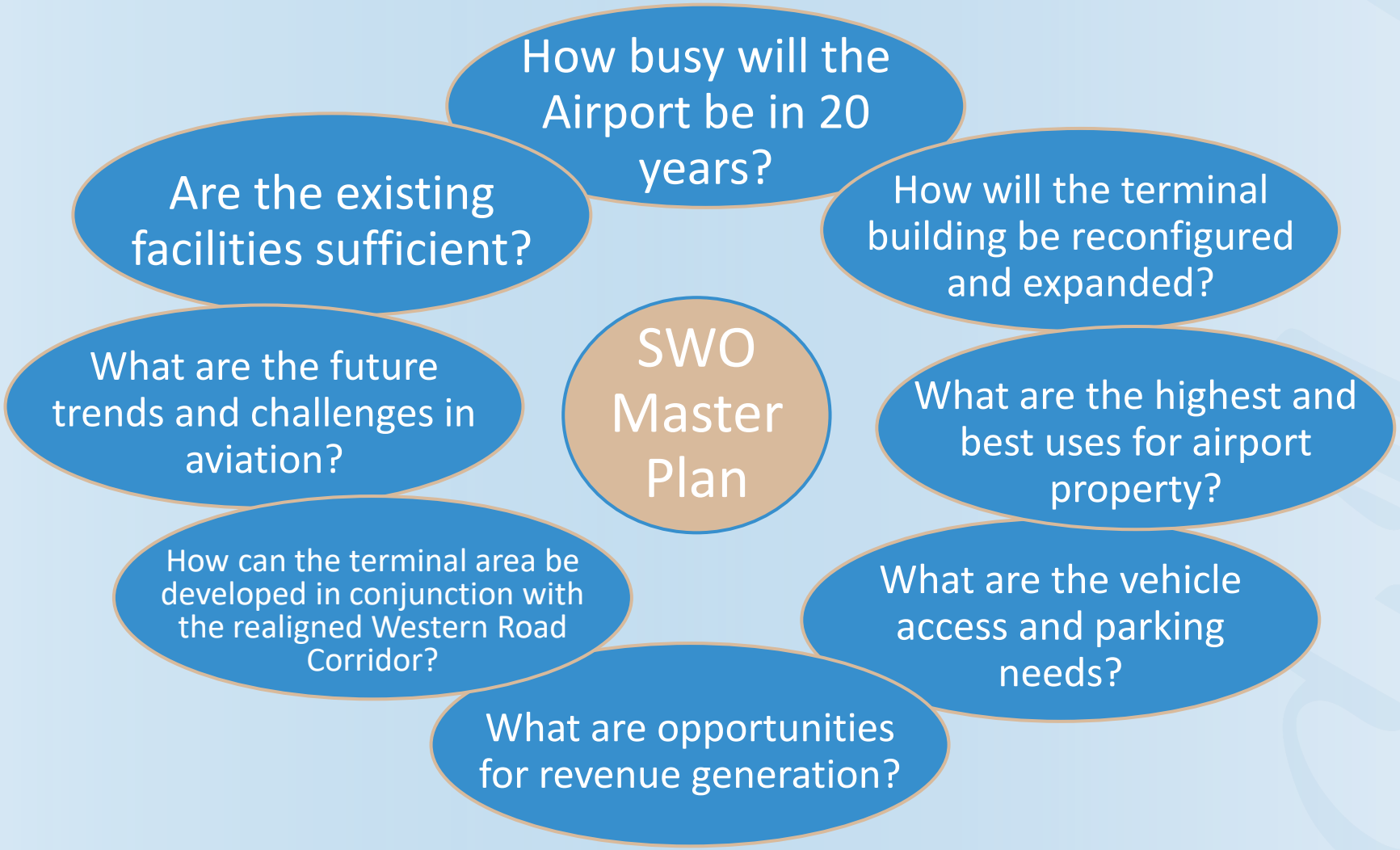
Master Plan Process and Schedule

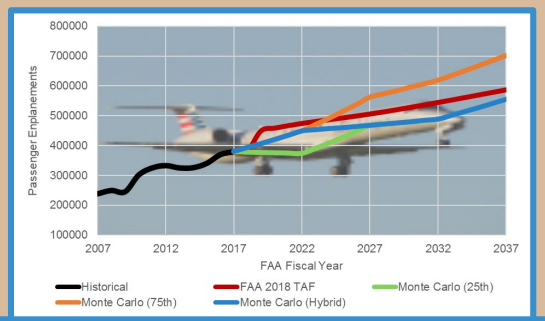


Master Plan Central Questions



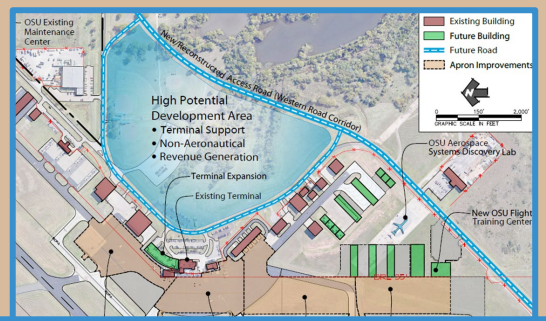
AIRPORT MASTER PLAN

Master Plan Focus Areas



Forecasts & Air Service

Terminal Building



Terminal Area Improvement

Revenue Development

Stakeholders

Implementation

Inventory

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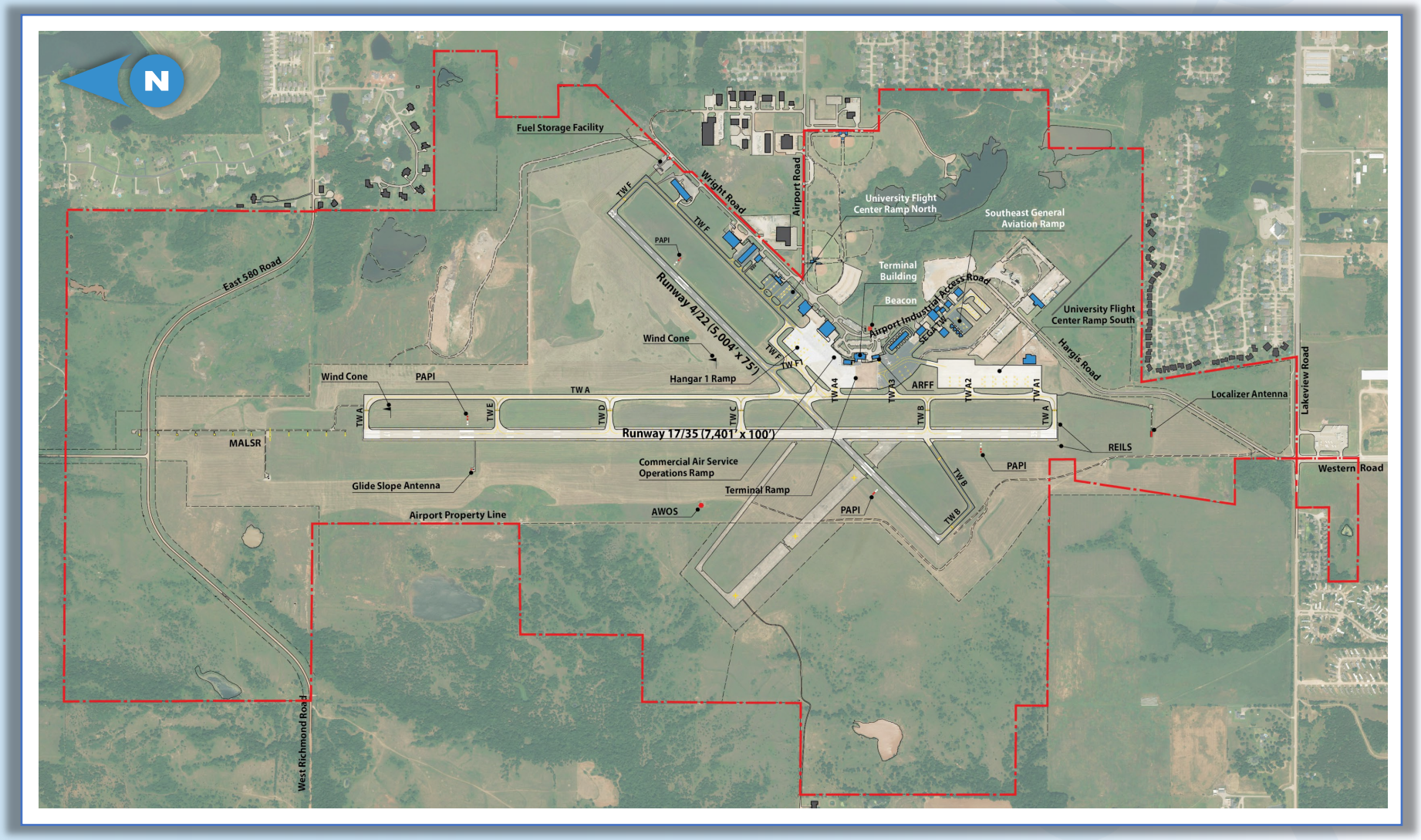
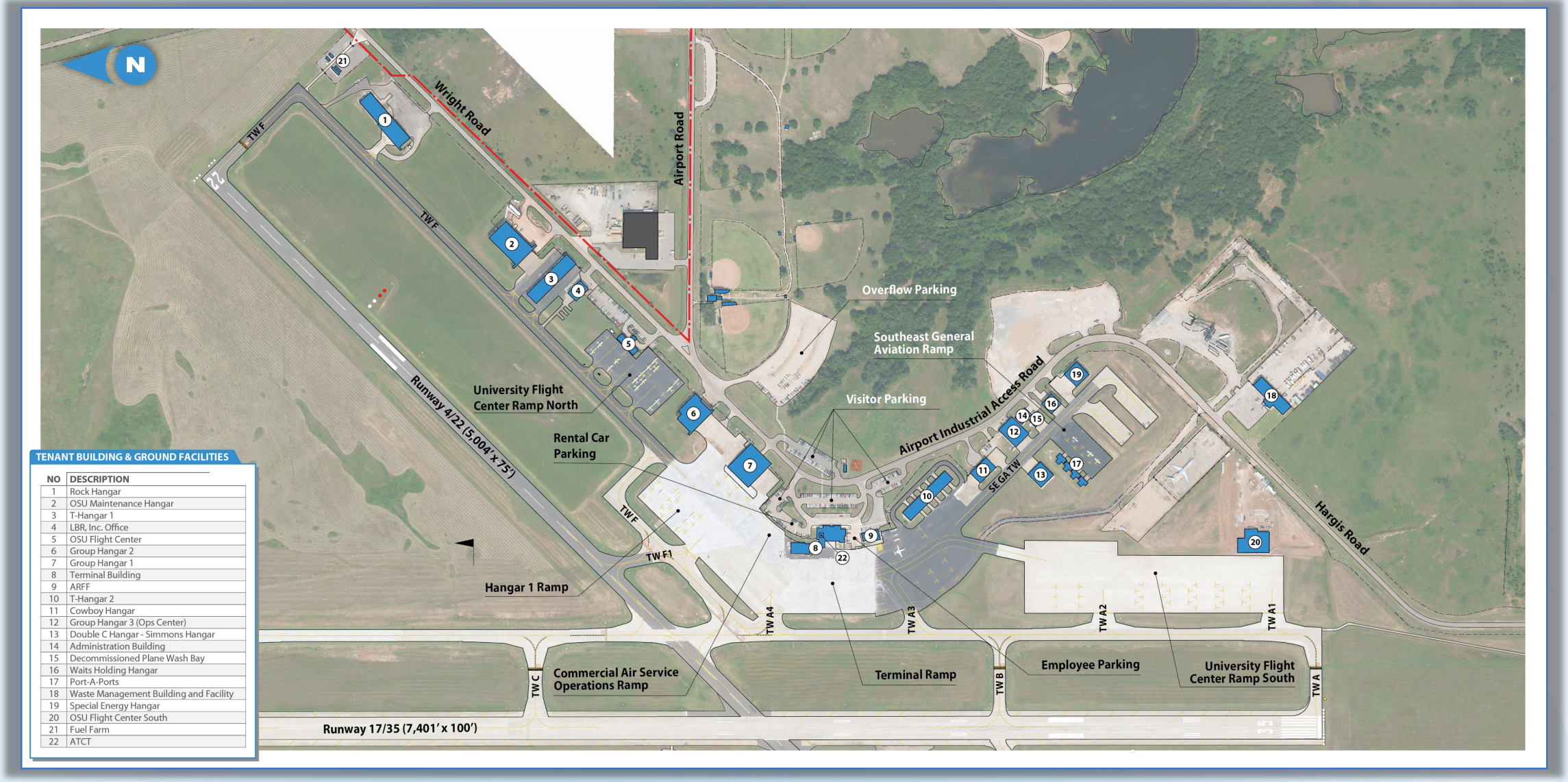
Existing Airport Facilities

- **Airfield Layout**
  - Runways
  - Taxiways
  - Aprons
- **Terminal Building**
- **Support Facilities and Equipment**
- **Airport Access**
- **Airspace**
- **Airport Environs**
- **Land Use and Zoning**
- **Utilities**
- **Environmental Baseline**



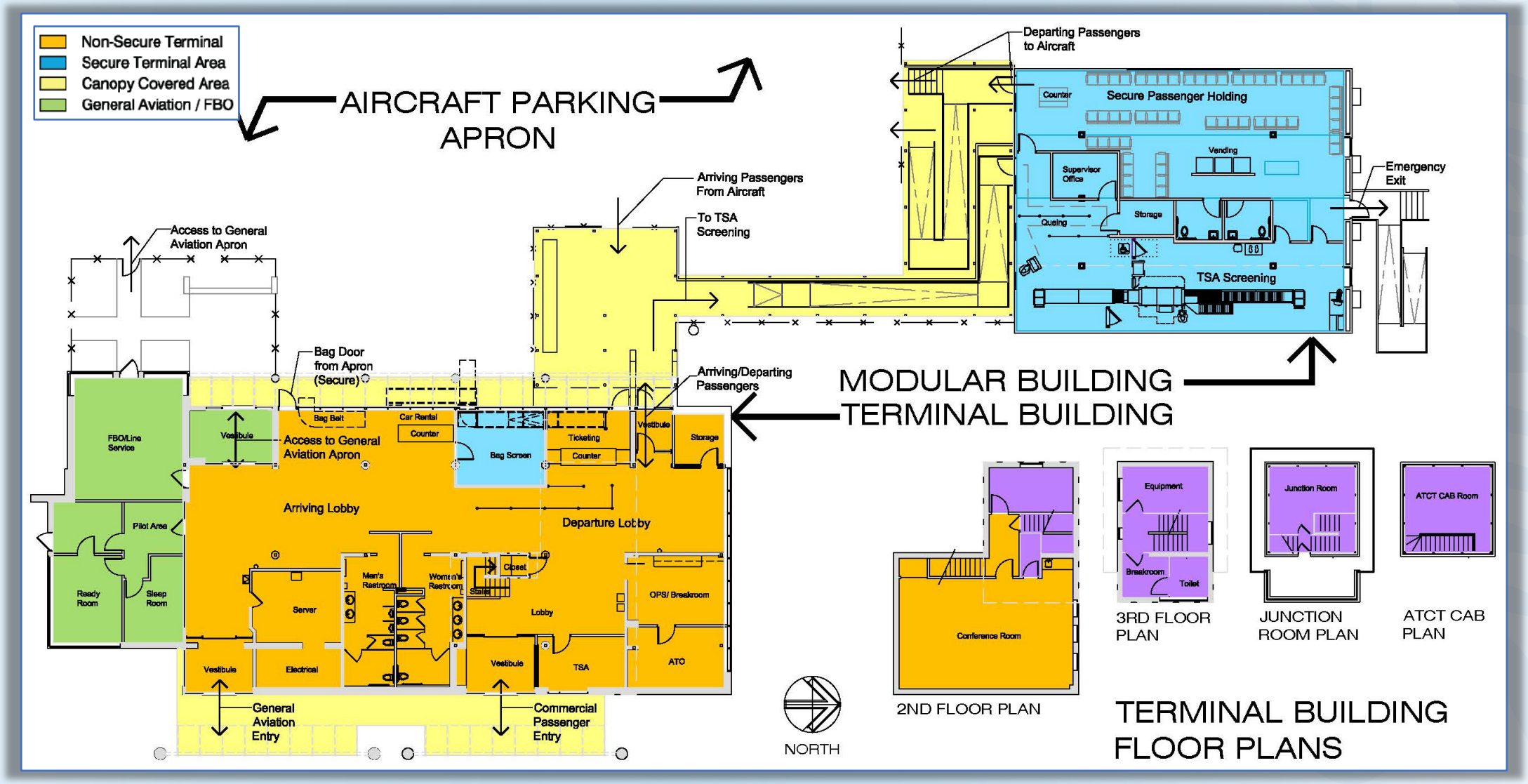
Existing Landside



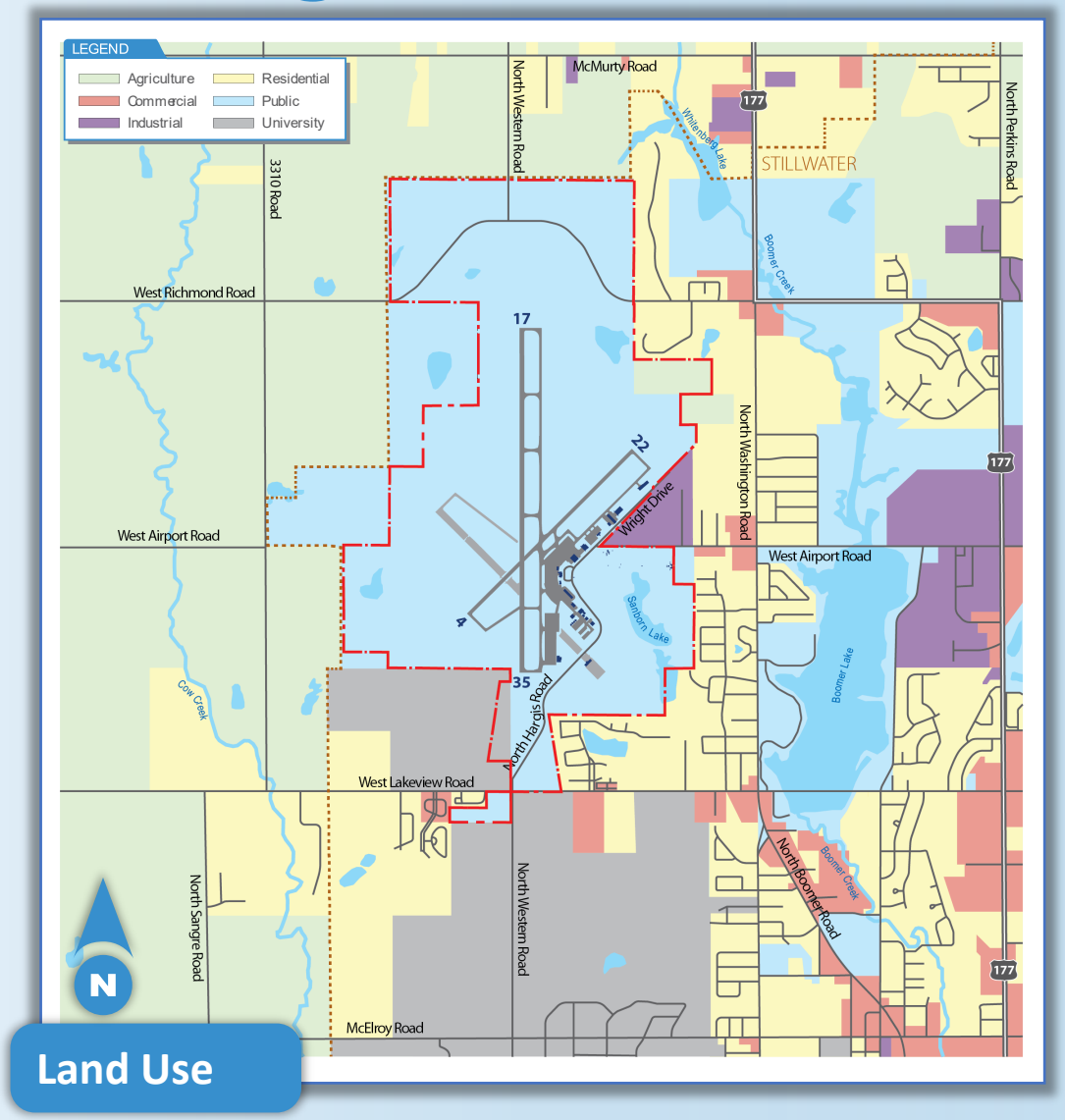
TENANT BUILDING & GROUND FACILITIES

NO	DESCRIPTION
1	Rock Hangar
2	OSU Maintenance Hangar
3	T-Hangar 1
4	LBR, Inc. Office
5	OSU Flight Center
6	Group Hangar 2
7	Group Hangar 1
8	Terminal Building
9	ARFF
10	T-Hangar 2
11	Cowboy Hangar
12	Group Hangar 3 (Ops Center)
13	Double C Hangar - Simmons Hangar
14	Administration Building
15	Decommissioned Plane Wash Bay
16	Waits Holding Hangar
17	Port-A-Ports
18	Waste Management Building and Facility
19	Special Energy Hangar
20	OSU Flight Center South
21	Fuel Farm
22	ATCT

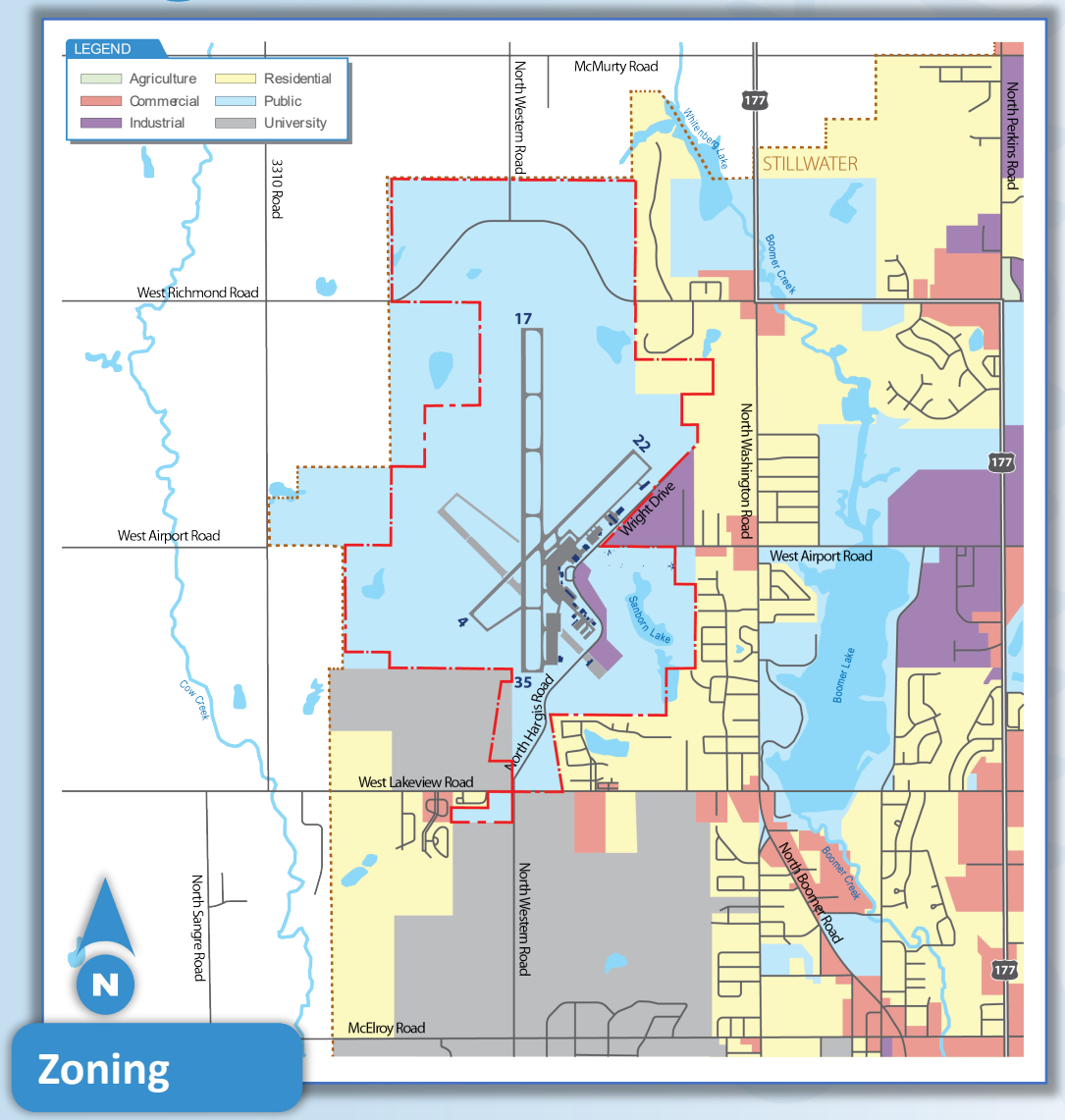
Terminal Building



Existing Land Use and Zoning



Land Use



Zoning

Aviation Forecasts

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Key Metrics

- **Passenger Enplanements**
- **Aircraft Operations**
  - Commercial Service
  - General Aviation
- **Based Aircraft**
- **Runway Design Code (RDC)/Critical Aircraft Analysis**

Background – Passenger Catchment Area

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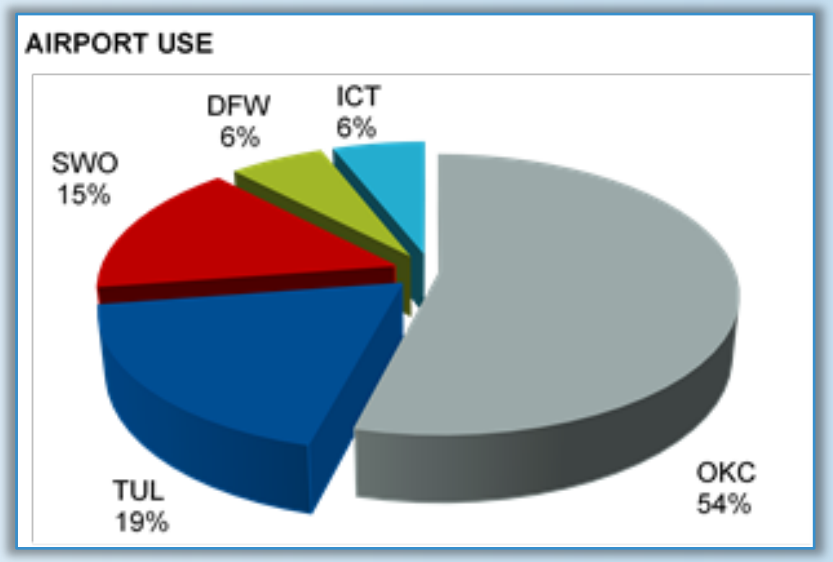
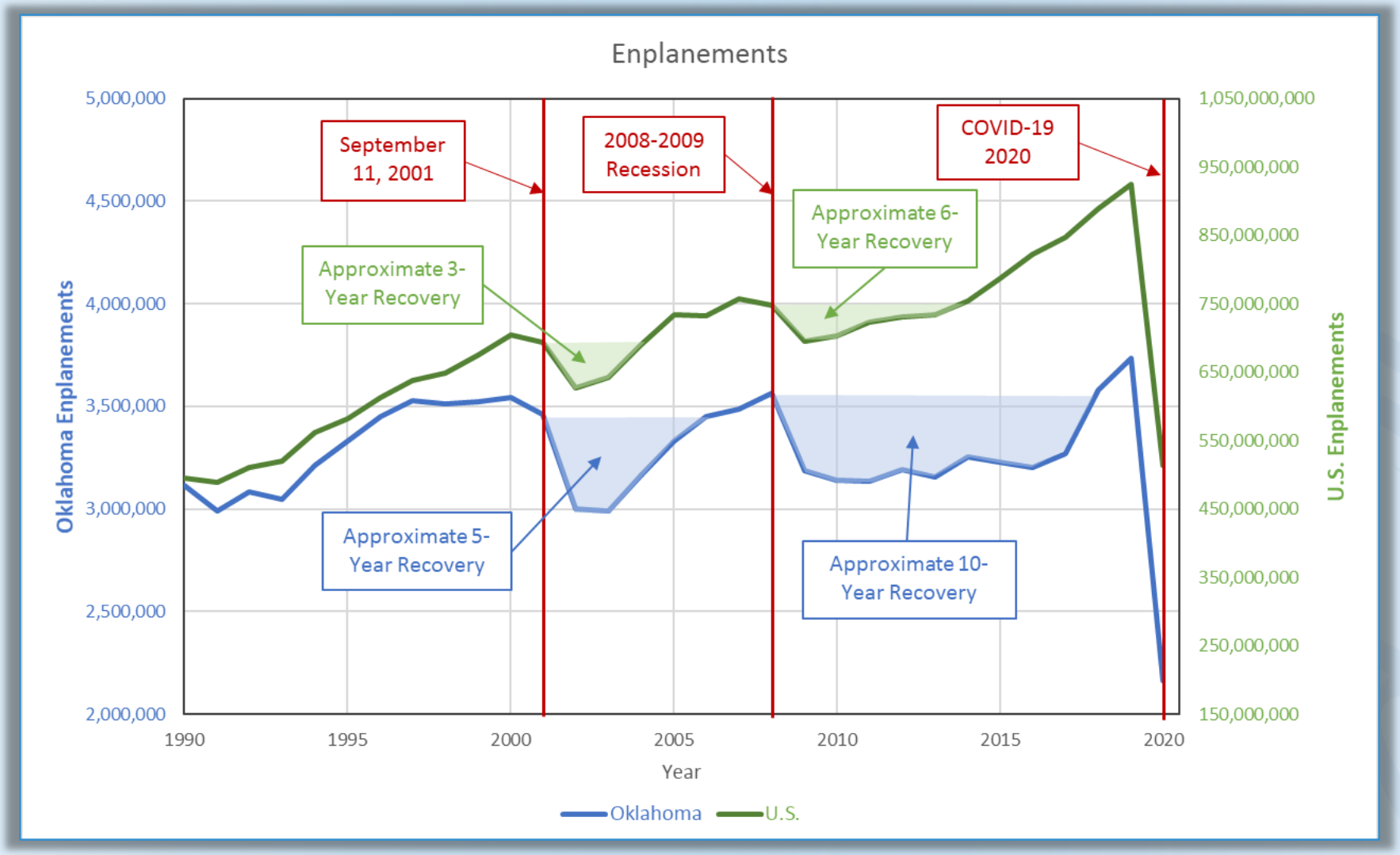
- **It encompasses:**
  - 60 ZIP Codes
  - 250,782 population (2020)
- **15% of the area's air travelers used SWO for their trips.**



Background – COVID Impacts



SOURCE: FAA TAF, 2021.

Passenger Enplanement Forecasts, 2020-2040

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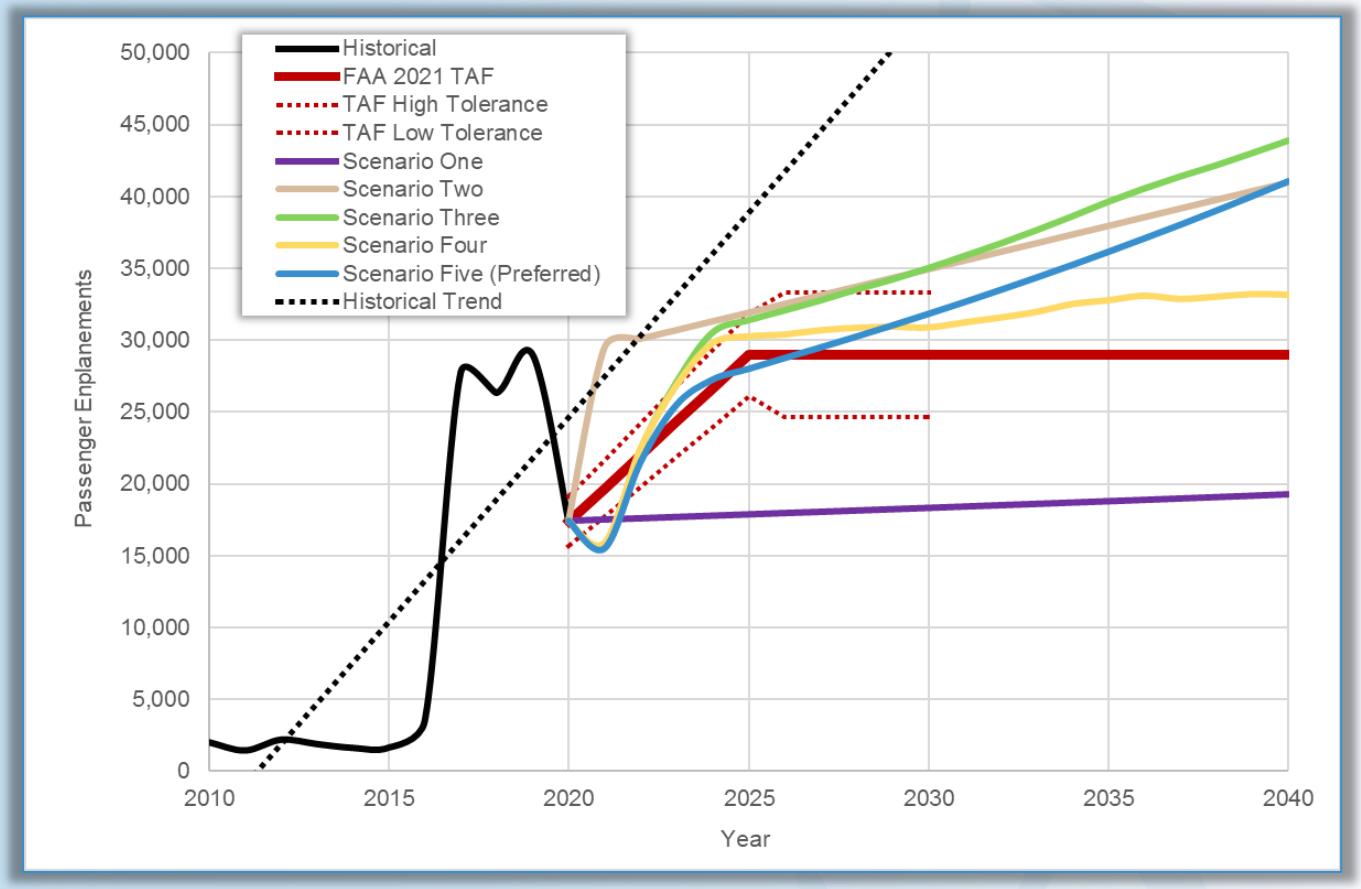
Activity	2020	2040	CAGR
Scheduled Service Enplanements	16,102	39,460	4.6%
Non-Scheduled Service Enplanements	1,308	1,600	1.0%
Total	**17,410**	**41,060**	**4.4%**

SOURCE: Mead & Hunt.



Peak Period Forecasts, 2020-2040

Category	Period	2020	2040
Scheduled Commercial Service Enplanements and Deplanements	Annual	16,102[1]	39,460
	Peak Month	2,850[2]	3,907
	Average Day	95	130
	Peak Hour – Enplanements	48	66
	Peak Hour – Deplanements	45	64
Total Scheduled Commercial Service Passengers	Annual	32,204[2]	78,920
	Peak Month	5,592[2]	7, 813
	Average Day	186	260
	Peak Hour	93	130
Aircraft Operations	Annual	62,643[3]	97,044
	Peak Month	8,077[3]	12,616
	Average Day	269	421
	Peak Hour	30	46

SOURCES: [1] Actual, FAA TAF, 2021.

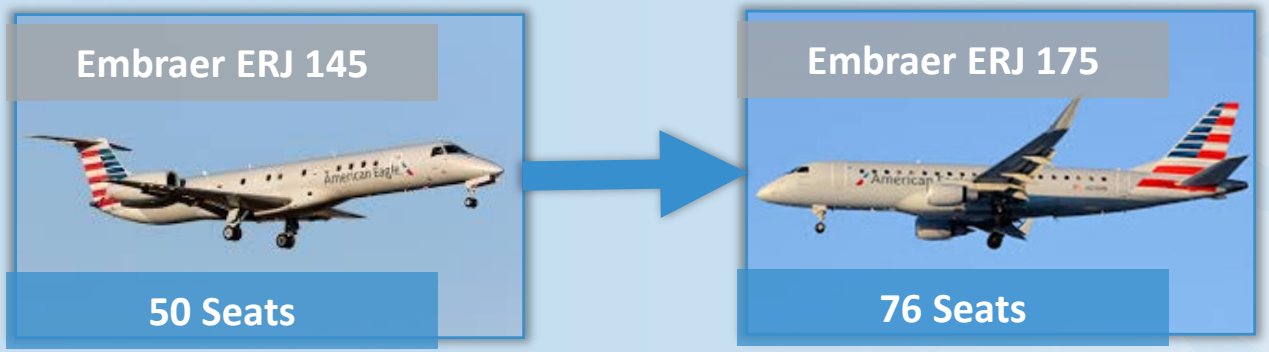
[2] Actual, Envoy Airlines, August 2021.

[3] Actual, FAA The Operations Network (OPSNET), 2021.

Commercial Aircraft Operations Forecasts, 2020-2040

Aircraft Type	2020	2040	CAGR
Air Carrier	30	1,492	21.6%
Air Taxi/Commuter	1,890	792	-4.3%
Total	1,920	2,284	0.9%

SOURCE: Mead & Hunt.



General Aviation Aircraft Operations Forecasts, 2020-2040

Activity	2020	2040	CAGR
Itinerant	25,654	42,140	**2.5%**
Local	31,858	49,420	**2.2%**
Total	**57,512**	**91,560**	**2.4%**

SOURCE: Mead & Hunt.

Based Aircraft Forecasts, 2020-2040

Aircraft Type	2020	2040	CAGR
Single Engine	72	88	1.0%
Multi Engine	6	6	0.0%
Jet	2	4	35.%
Helicopter	0	1	N/A
Other	0	2	N/A
Total	**80**	**101**	**1.2%**

SOURCE: Mead & Hunt.

Operations by Runway Design Code (RDC) Forecasts, 2020-2040

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Runway 17/35					
RDC	A-I, A-II, B-I, B-II	C-I, C-II	D-I, D-II	B-III, C-III, C-IV, D-III	Total Operations
2020	47,330	1,278	4	50	48,662
2040	72,224	2,108	8	1,584	75,924

Runway 4/22			
RDC	A-I, A-II	B-I, B-II	Total Operations
2020	10,728	38	10,766
2040	17,704	106	17,810

Existing Critical Aircraft

Embraer ERJ 145 - RDC C-II

Future Critical Aircraft

Embraer ERJ 175 - RDC C-III

Existing and Future Critical Aircraft

Cessna 172 – RDC A-I

SOURCES: Mead & Hunt.
FAA Aircraft Characteristics Database; FAA TFMSC.
NOTE: Military aircraft and helicopter operations not included.

Facility Requirements

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Airside Facility Requirements

- **Airfield Design Standards**
  - Evaluate airfield geometric facilities for adherence to FAA design standards
  - Runway criteria uses critical aircraft's RDC and lowest Instrument Approach Procedure (IAP) visibility minimums
    - Runway 17/35 C-III-2400
    - Runway 4/22 B-I-VIS (Small Aircraft Only)
  - Taxiway criteria uses critical aircraft ADG and TDG
    - Runway 17/35 Taxiways ADG III, TDG 3
    - Runway 4/22 Taxiways ADG I, TDG 1A
  - Translates to FAA dimensional standards

Runway Design Standard Deficiencies

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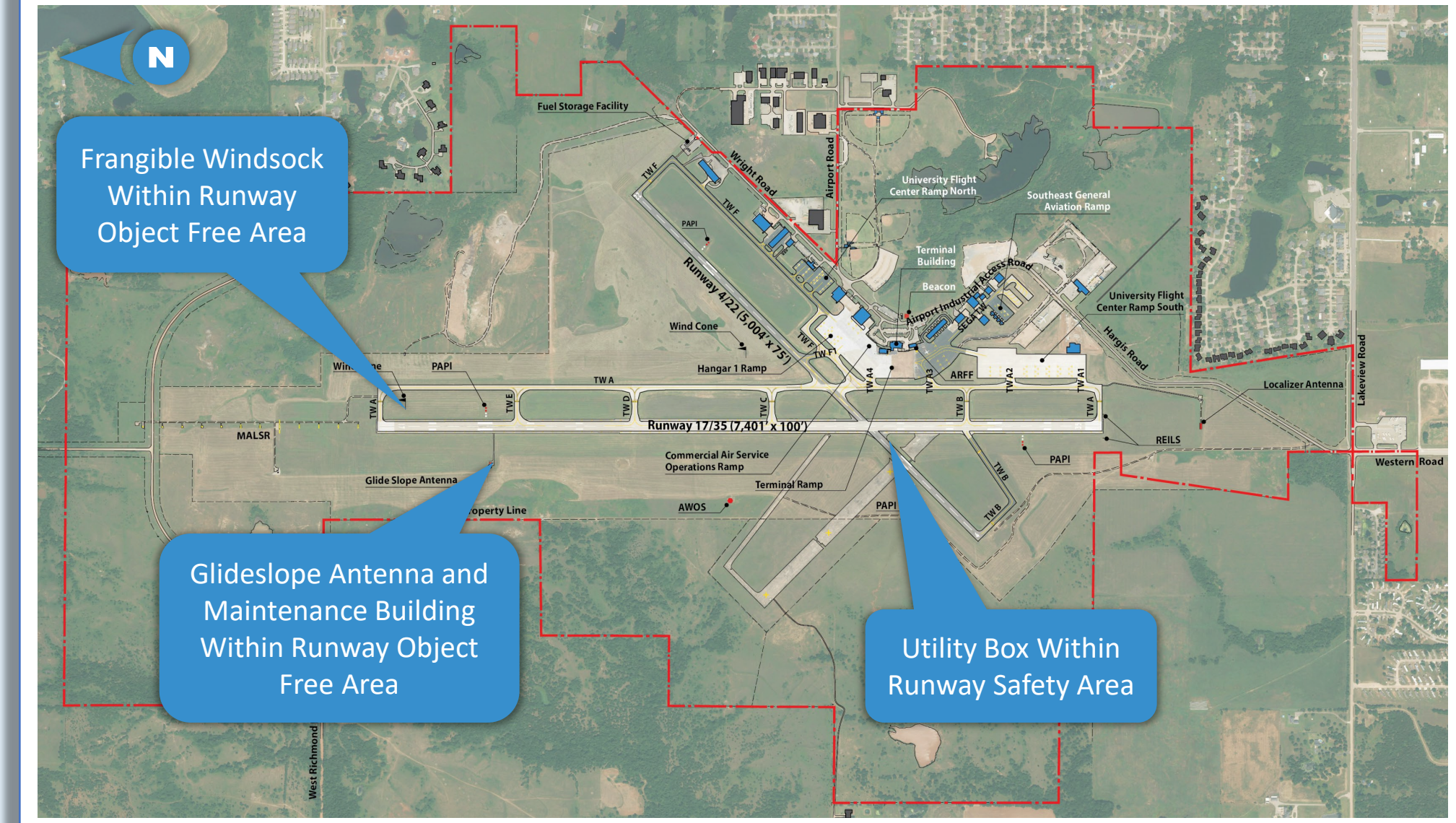

Taxiway Design Standard Deficiencies

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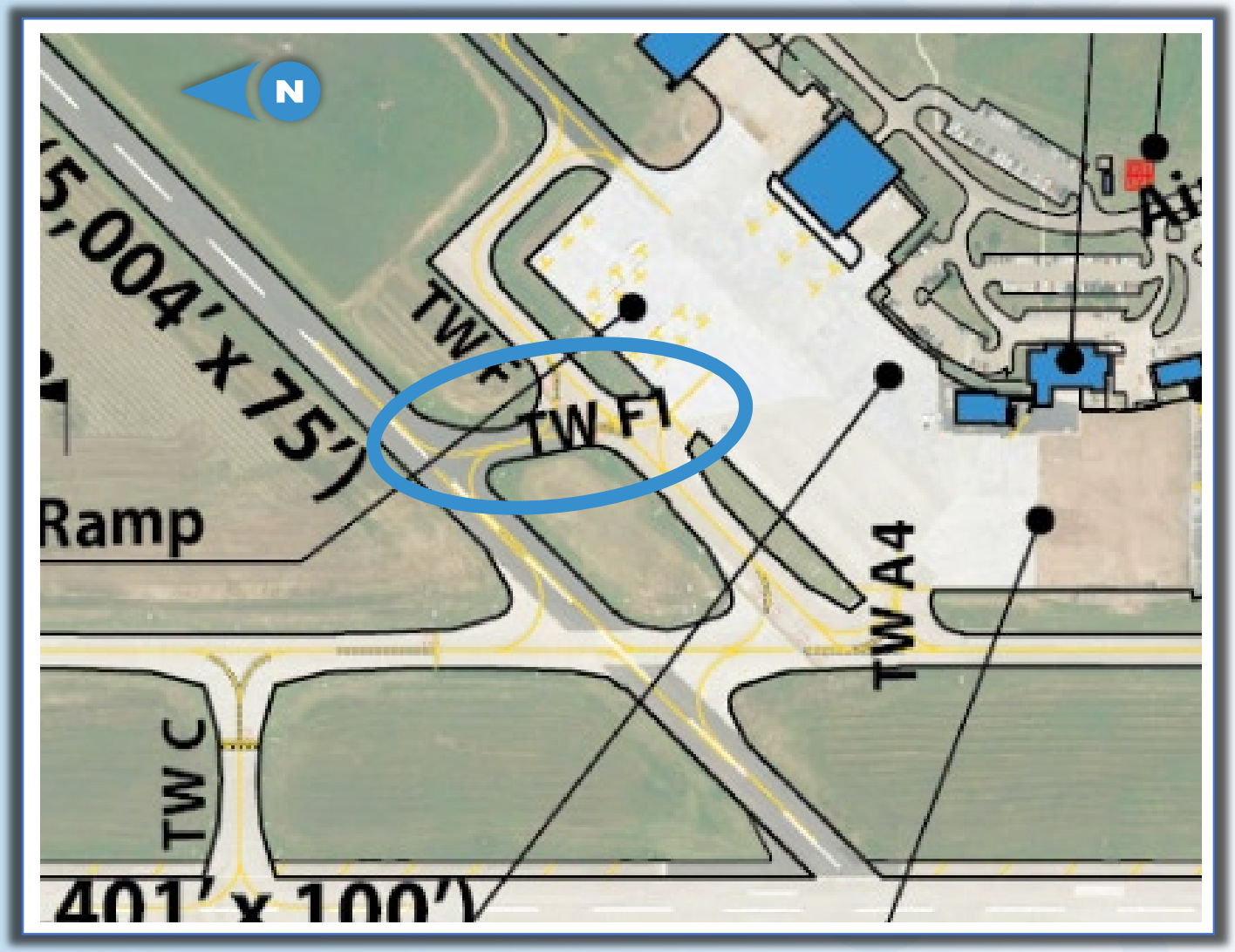
- **Taxiway F1**
  - Acute-Angled Exit for Landings to Runway 4
  - Near Direct Access to Runway 4/22 from Hangar 1 Ramp
- **Taxiway B**
  - Acute-Angled Intersection west of Runway 17/35
- **Recommend reconstructing to right-angle intersections when pavement conditions dictate**

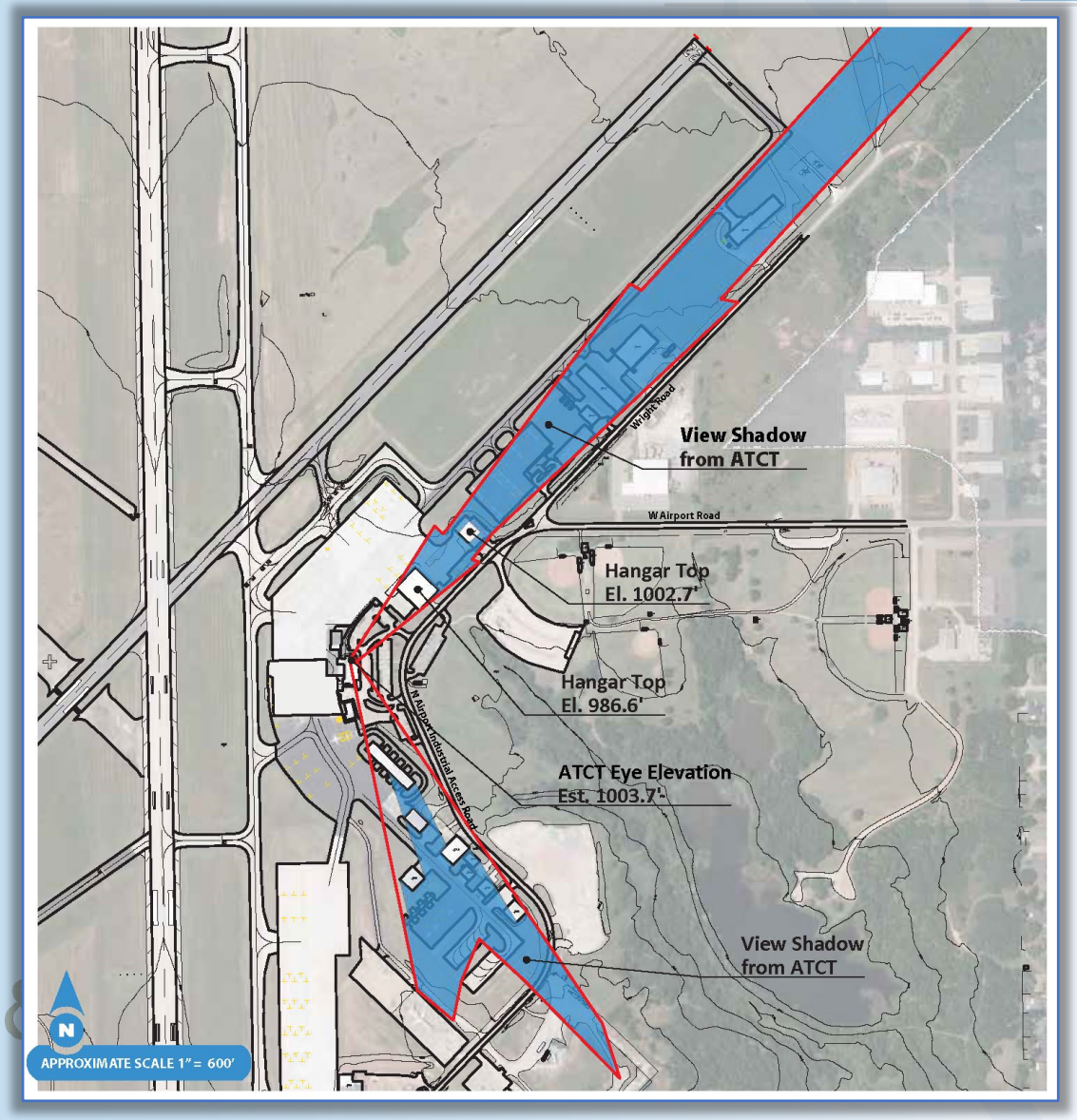


Landside Facility Requirements

- **Terminal Area**
  - Passenger Terminal Building
  - Curbside
  - Apron
  - Access and Parking
- **GA Facilities**
- **Airport Traffic Control Tower (ATCT)**
- **Aircraft and Fire Fighting (ARFF) Facilities**
- **Snow Removal Equipment (SRE) Facilities**

ATCT Requirements

- **Existing ATCT does not provide unobstructed views to all controlled aircraft movement areas**
  - Portion of Taxiway F
  - Portion of Southeast GA Taxiway
- **Line of Sight (LOS) angle of incidence insufficient**
  - Standard is equal to or greater than 0.80 degrees
  - Currently equal to 0.04 degrees
- **Recommend analyzing alternative ATCT site**



Terminal Building Requirements

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- **Assumptions**
  - Based on scheduled commercial service passengers
  - Chartered university athletic teams could use facilities if desired
  - Minimum of 2 gates/holdrooms
  - Minimum of 2 airlines occupancy
  - Apron accommodates 1 ERJ 175 and 1 Boeing 737-800 aircraft simultaneously
- **Existing Terminal Building Provides Approximately 10,000 sf**
  - FBO Uses Approximately 1,000 sf

Terminal Space Summary by Component (sq ft)	2020	2040
Main Entrance Hall	1,400	1,400
Terminal Ticket Hall	960	960
Airline Ticket Office and Ground Operations	4,072	4,072
Checked Baggage Inspection Screening	300	300
Airline Outbound Baggage Make-Up	950	950
Passenger Security Screening Checkpoint and Exit Lane	2,100	2,100
Secure Concourse Exit Lane [1]	520	520
TSA Field Office	400	400
Secure Concourse Circulation	3,195	3,195
Passenger Departures Lounge	2,320	4,050
Inbound Baggage Drop-Off	1,200	1,200
Baggage Claim	977	1,550
Baggage Claim Hall	1,750	1,750
Car Rental	230	230
SARA	150	150
Concessions		
Non-Secure	1,650	1,650
Secure	375	375
Restrooms		
Non-Secure	1,435	1,435
Secure	1,705	1,705
Sub-Total Building	25,689	27,992
Building Systems, Structure @ 15% of Program Space	3,853	4,199
Total Building	29,542	32,191

Terminal Building Relationship Diagram

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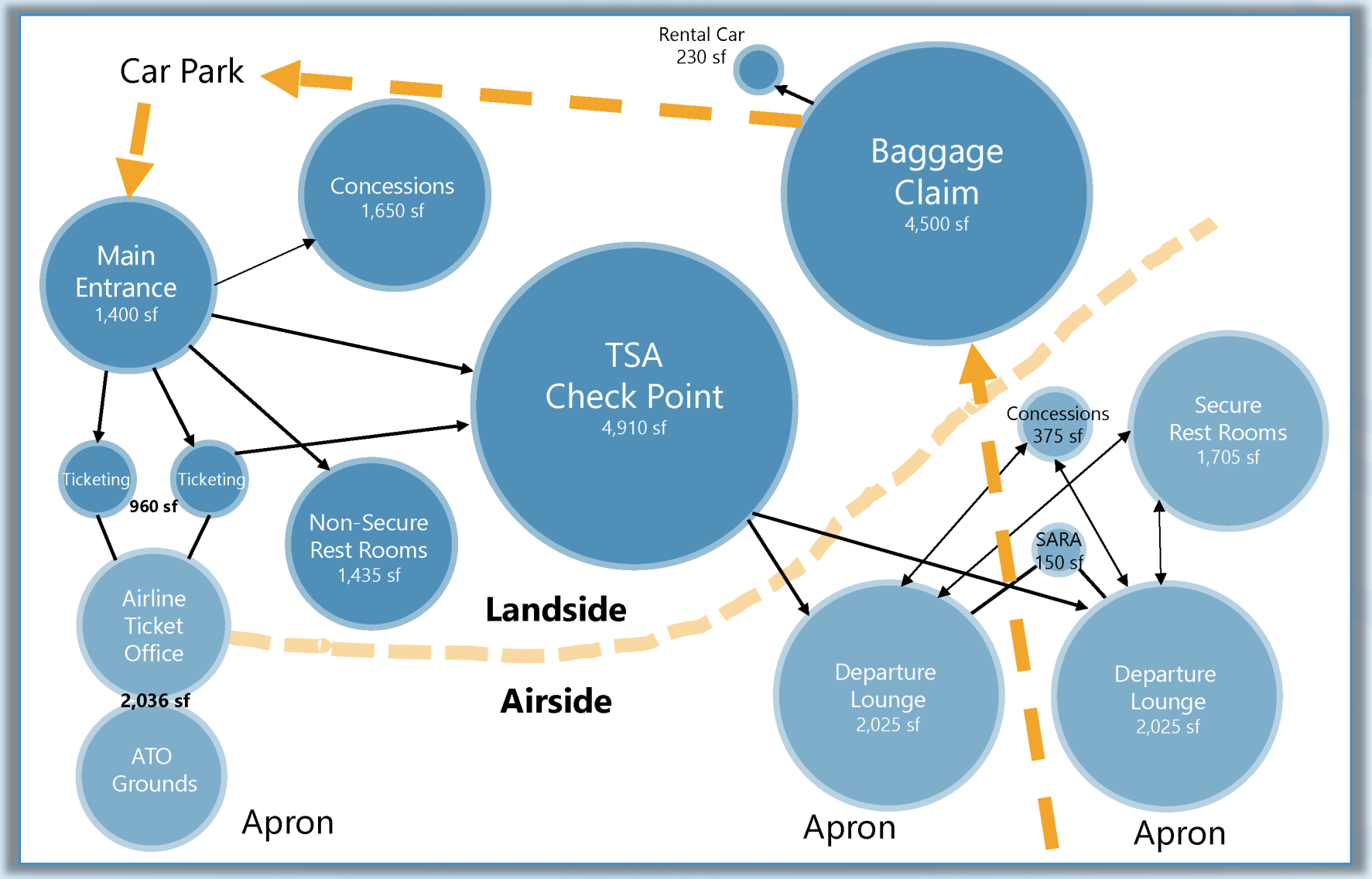

Terminal Alternatives

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Developable Area Analysis

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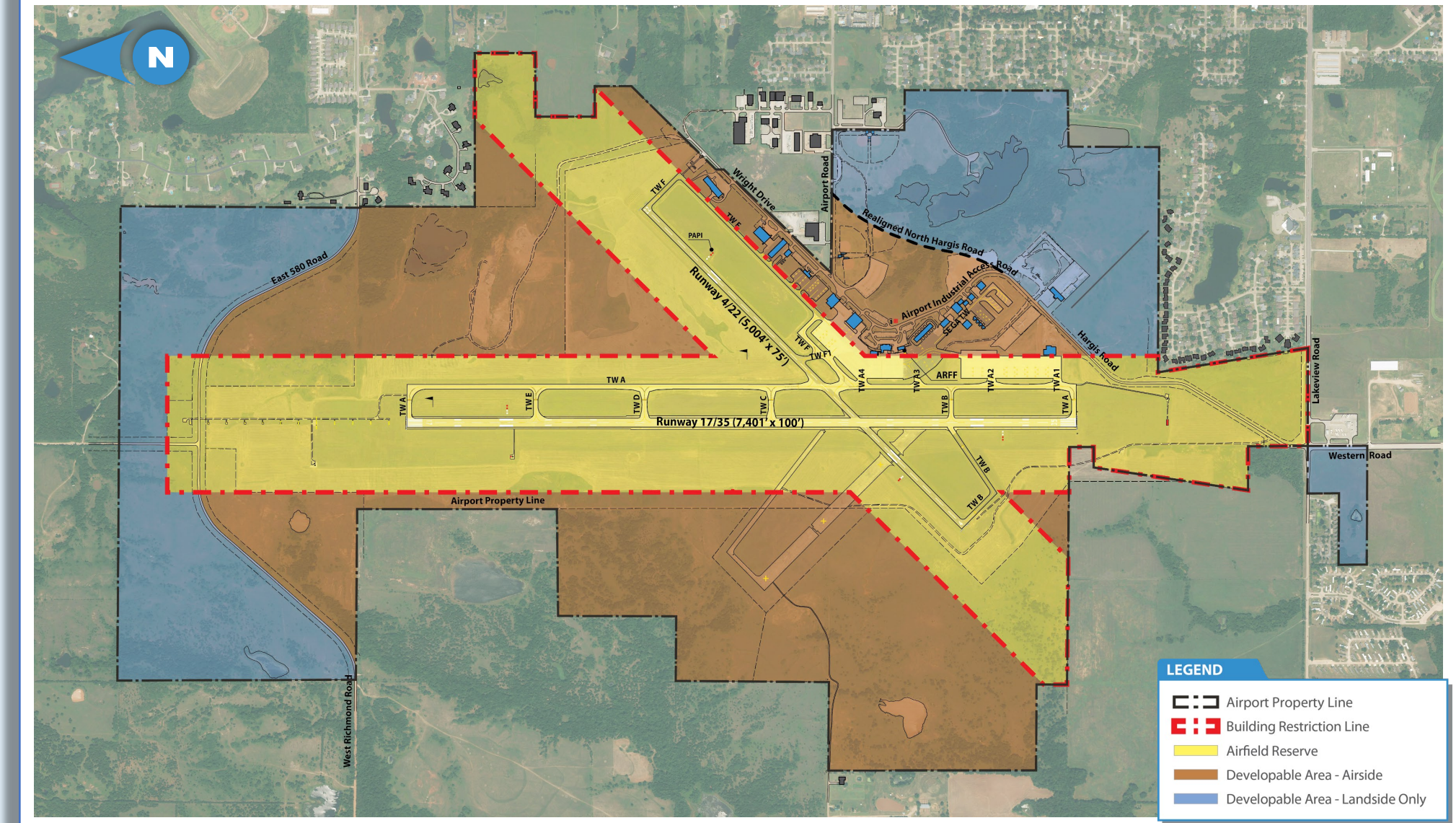

Terminal Area Site Analysis/Existing Conditions

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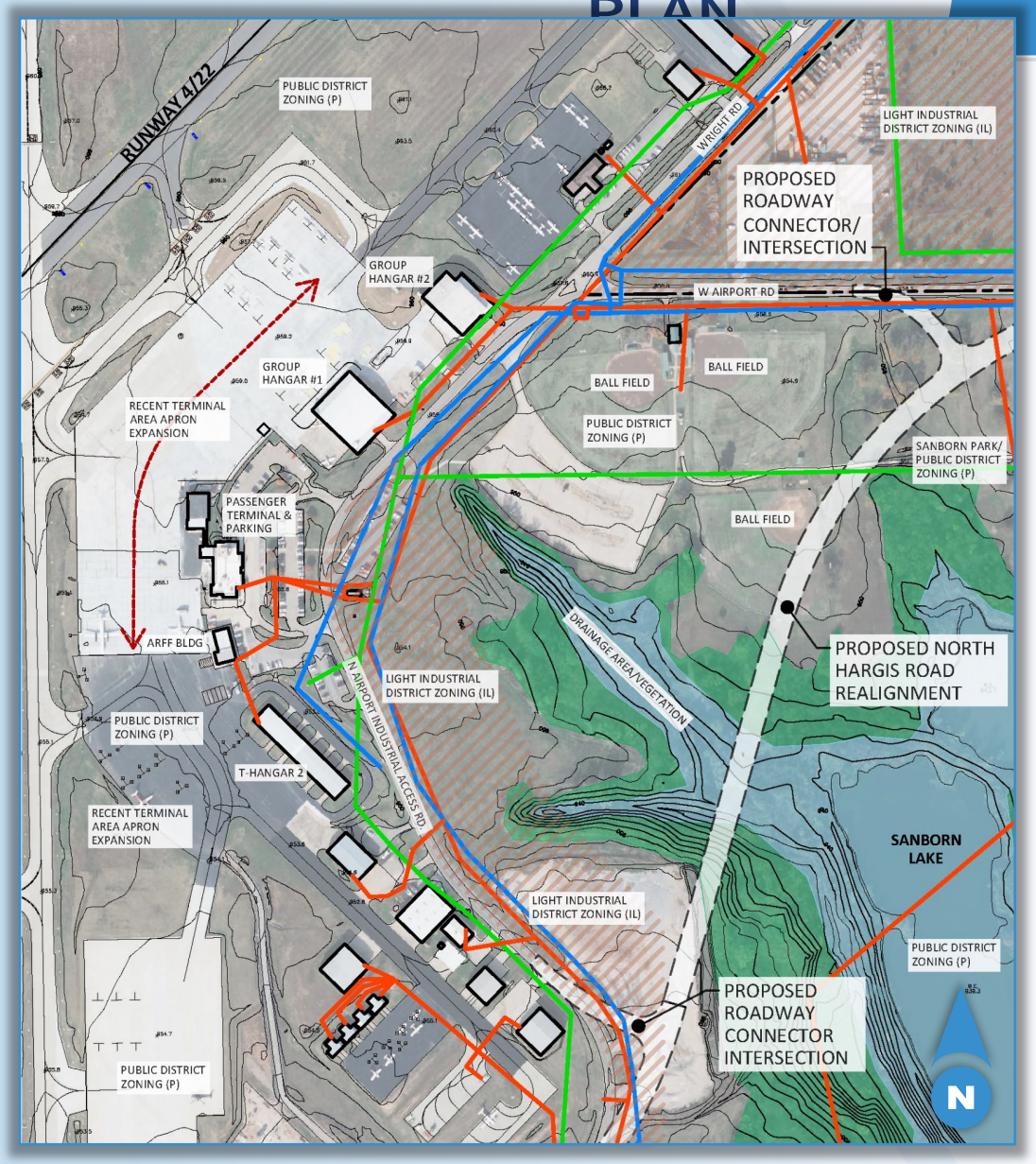
- **Planning Assessment Categories**
  - Vehicular Access/Parking
  - Utility Infrastructure
  - Topography
  - Stormwater Drainage/Detention
  - Vegetation
  - Airside/Landside Facilities & Interface
  - Land Use/Zoning
  - Passenger Terminal Building Visibility
  - Building Orientation/Solar Analysis



Alternative Terminal Concept 1

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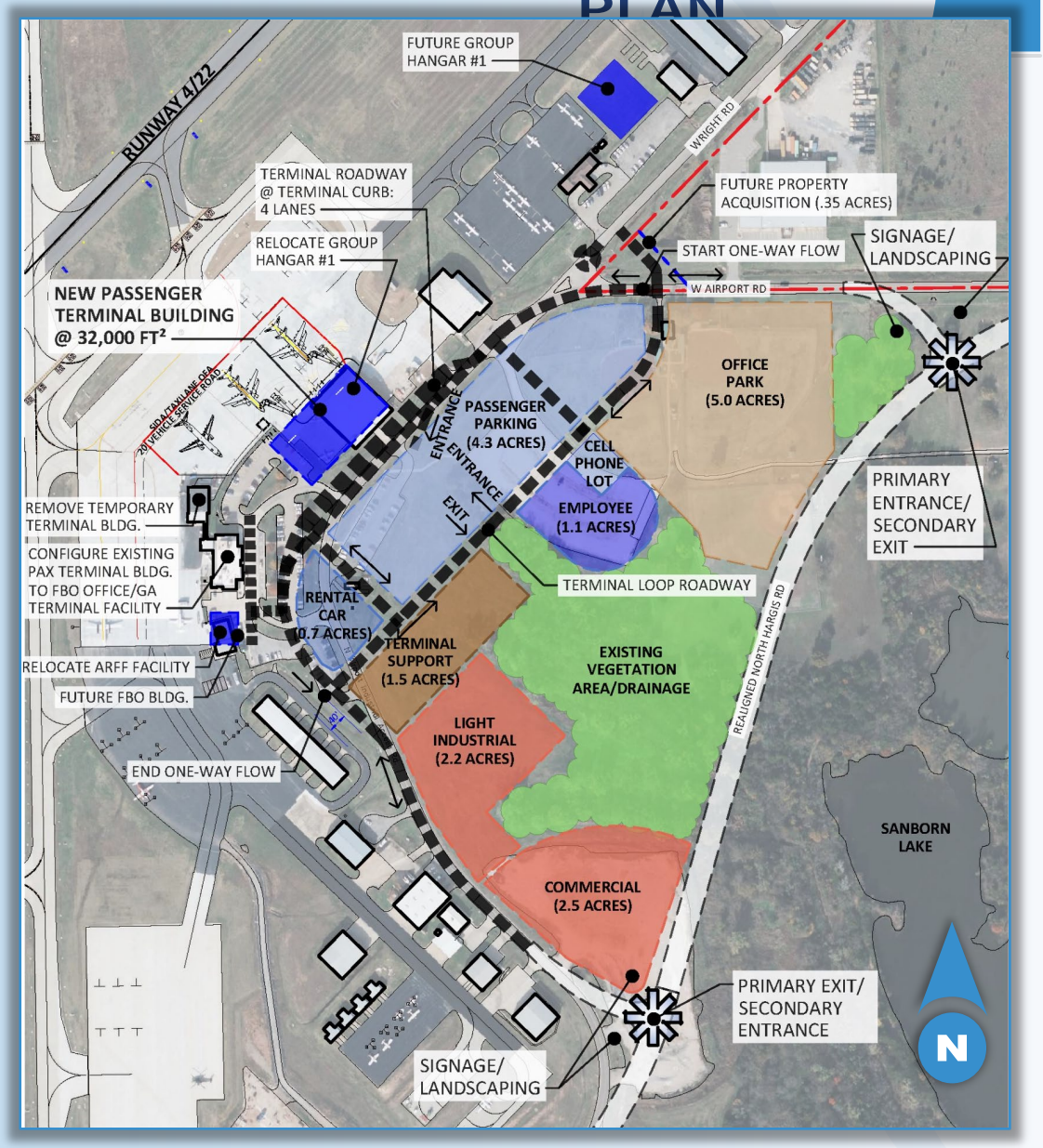
- **Advantages**
  - Minimizes impacts to existing commercial service operations during construction
  - Maximizes sight line visibility/prominence
  - Maximizes commercial service/GA separation
  - Maximizes utilization of new apron pavement
  - Maximizes redevelopment opportunities of existing terminal building (e.g., FBO/GA terminal)
  - Possible reduction in construction costs due to site separation from existing terminal
  - Provides phasing options for ATCT removal

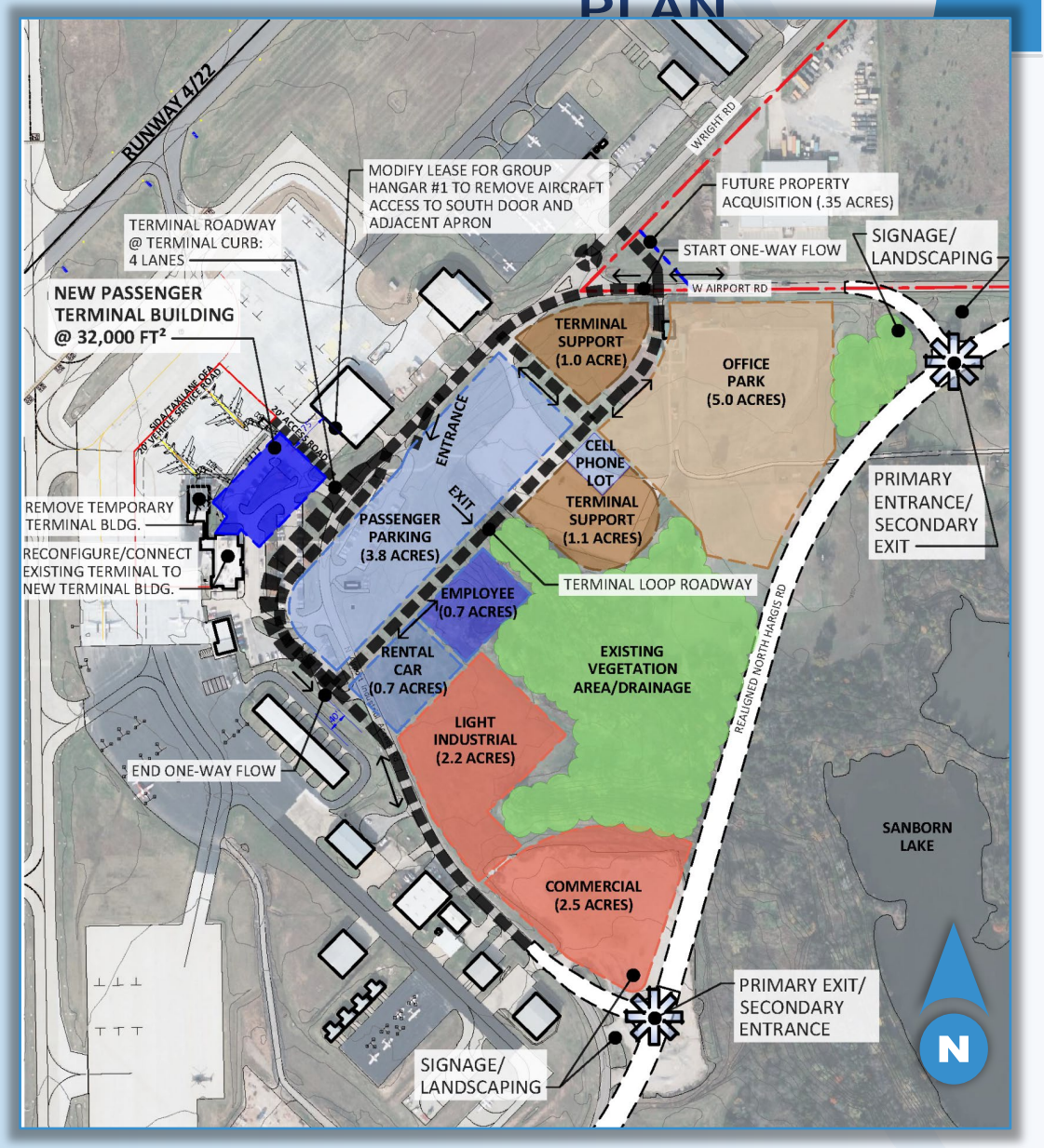
- **Disadvantages**
  - Required removal/relocation of Hangar #1 (impacts existing Airport tenants)



Alternative Terminal Concept 1A

AIRPORT MASTER PLAN

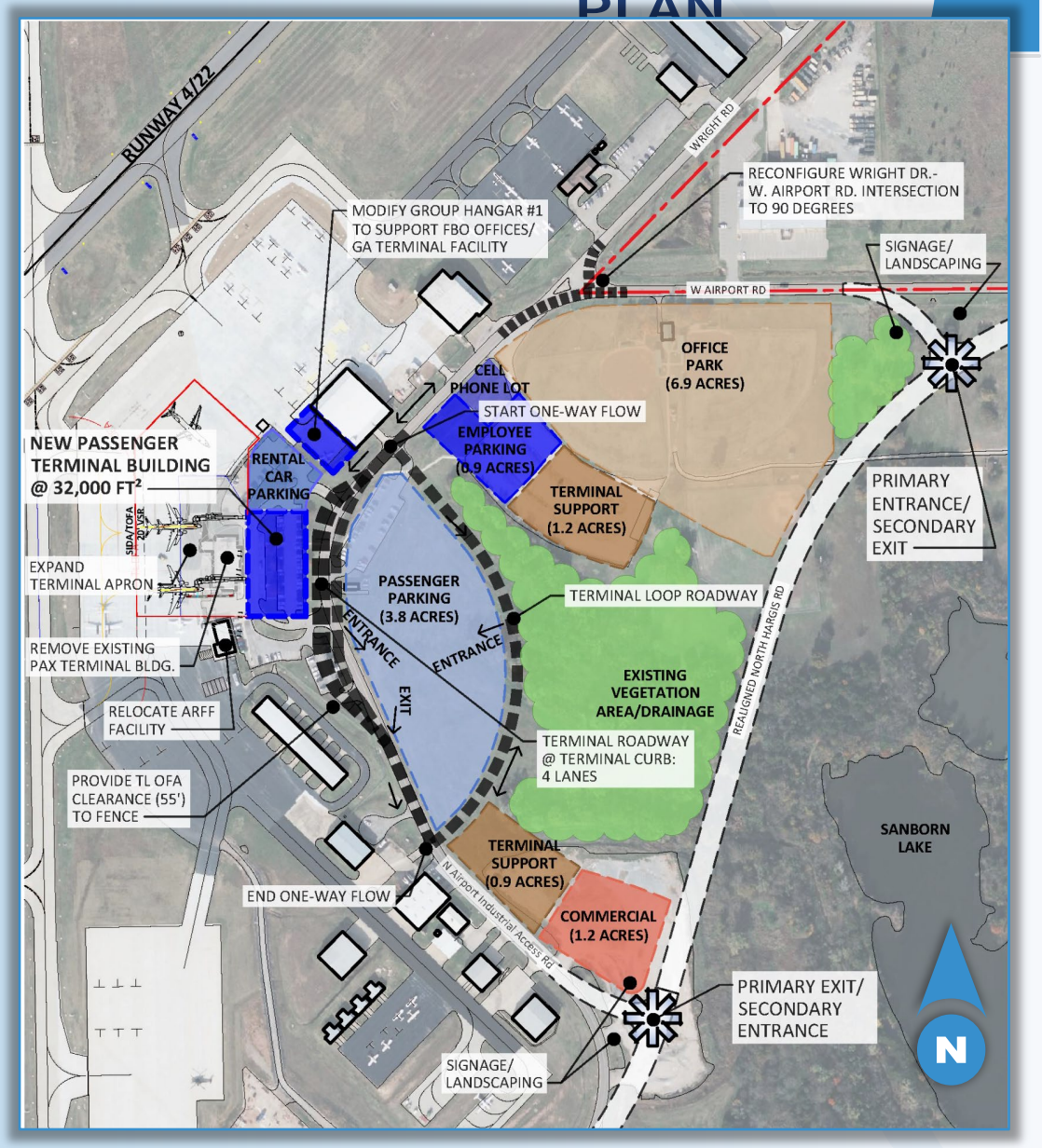
- **Advantages**
  - Improves minimization of impacts to existing commercial service operations during construction
  - Possible reduced construction costs due to reuse of existing terminal building
  - Improves commercial service/GA operations separation
  - Improves utilization of new apron pavement
  - Facilitates redevelopment opportunities for portion of existing terminal building (e.g., FBO/GA terminal)
  - Provides fewer phasing options for ATCT removal than Concept 1
- **Disadvantages**
  - Construction phasing/operational complexities through integration of and connection to existing terminal building
  - Improves but does not maximize separation of commercial service/GA operations
  - Potentially accelerates phasing of ATCT removal
  - Minimizes site-line visibility/prominence



Alternative Terminal Concept 2

AIRPORT MASTER PLAN

- **Advantages**
  - Improves sight-line visibility/prominence
  - Improves commercial service/GA operations separation
  - Improves utilization of new apron pavement
  - Conversion/repurposing of Hangar #1 for FBO operations provides shared used opportunities
- **Disadvantages**
  - Maximizes impacts to existing commercial service operations during construction
  - Potential increase in construction costs due to minimal site separation from existing terminal
  - Prohibits potential redevelopment opportunities (e.g., FBO/GA terminal) of existing terminal building
  - Reduces phasing and scheduling options for ATCT removal
  - Requires relocation of existing Hangar #1 tenants for reuse/repurposing to FBO/GA terminal



Questions?

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Q&A Session

- **If you wish to provide your feedback privately or following the meeting, you may do so by emailing us at kelly.maddoux@meadhunt.com and paul.priegel@stillwater.org.**
- **Consultants and staff will be available for Q&A until 7:30**

Next Steps

- **Receive your input**
  - Comments due by September 30, 2022
- **Address comments and input received to prepare Conceptual Development Plan (CDP)**
- **Implementation Plan**
  - Project list, cost estimates, and project priority
  - Financial Plan
- **Draft Master Plan Report**
  - Winter 2022/2023
- **Public Meeting #2**
  - Winter 2022/2023

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thank you!

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