DENTON ENTERPRISE AIRPORT

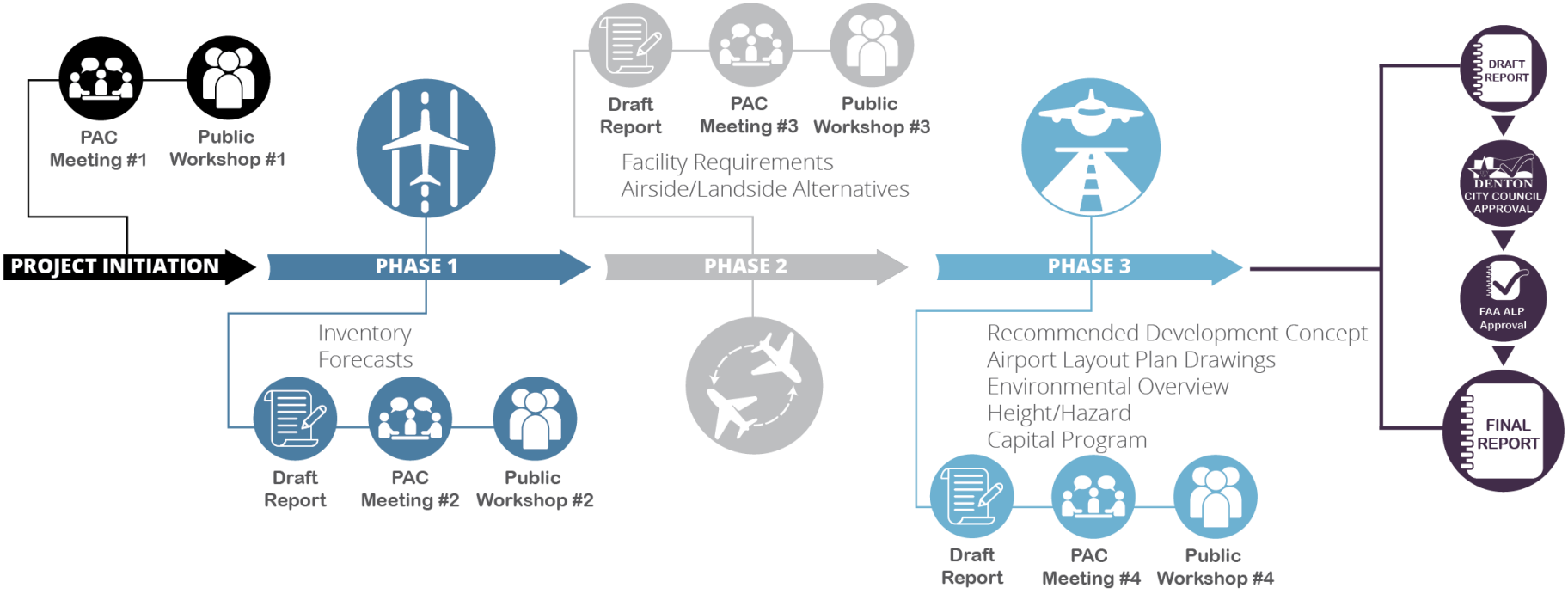
AIRPORT MASTER PLAN

AGENDA

Planning Advisory Committee Meeting #3
April 16, 2025

1. Welcome/Introductions
2. Status of the Master Plan
3. Air Cargo Study (HubPoint)
4. Phase 1 Recap
5. Review of Phase 2 Materials
    a. Facility Requirements
    b. Airport Development Alternatives
6. Open Discussion/Questions

MASTER PLAN PROCESS



DENTON ENTERPRISE AIRPORT

AIRPORT MASTER PLAN

Air Cargo Study

Denton Enterprise Airport
Master Plan - Air Cargo Assessment

DENTON ENTERPRISE AIRPORT

DFW ACCESS. EXTRAORDINARY BUSINESS.

Planning Advisory Committee Meeting

April 2025

hubpoint STRATEGIC ADVISORS

Introduction

- Primary objectives:
  - Conduct an air cargo market analysis to determine outlook for DTO air cargo activities
  - Develop long-term 20-year air cargo forecasts for DTO in tonnage and all-cargo aircraft operations
  - Develop DTO air cargo revenue forecasts based on activity forecasts

- The approach to the project involved:
  - Primary research - interviews with select Denton area companies/organizations
  - Secondary research and analysis - publicly available data and information
  - Synthesis of findings

Agenda

- Air Cargo Industry Trends
- Current Situation for DTO Air Cargo
- Regional Market and Competitive Environment
- SWOT Analysis and Synthesis
- Air Cargo Forecasts

Air cargo industry trends

Cargo charter flights represent a small portion of overall DTO activity, but they provide valuable services to Denton area manufacturers

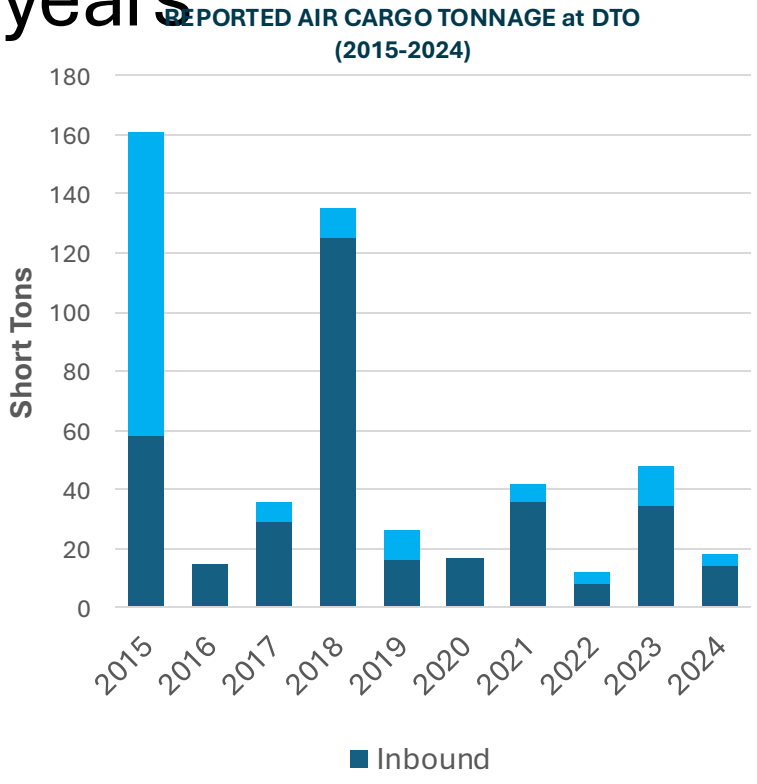
- Air cargo operations are a small share of the overall flight activity at DTO - cargo flights operate as on-demand charters
- DTO cargo charters primarily carry inbound freight
- Sheltair FBO performs ground handling services for cargo charters - loading/unloading freight, aircraft fueling, coordination with trucking companies for pick-up / delivery

- Berry Aviation, an operator of on-demand cargo charters, has based aircraft at DTO
- From DTO, Berry primarily operates cargo charters related to the automotive industry – incl. Mexico, El Paso, Laredo
- Some of Berry's cargo charters serve Denton-based companies.

- Cargo carriers offer important services to Denton area manufacturers

DTO air cargo data sourced from U.S. DOT shows wide variations in annual tonnage handled over the past 10 years

- Due to the types of aircraft operating cargo charters, **reported data is incomplete, but does enable certain observations about air cargo at DTO**
- Due to the on-demand nature of charter operations, **DTO cargo tonnage varies greatly on a year-to-year basis**
- DTO cargo flights primarily carry inbound tonnage; past 5 years, **80% of tonnage was inbound**



Source: Hubpoint analysis of U.S. DOT, T-100 Carrier Reports (CY 2024). Note: Includes only data reported to the U.S. DOT.

Air cargo operations at DTO face certain limitations related to facilities, infrastructure and available services

- DTO does not have dedicated air cargo facilities which complicates storage and handling needs
- Freight handled on the ramp and ground transportation (i.e. trucking) must be carefully coordinated with flights
- DTO's runway length and strength limits the operations of larger jet aircraft carrying heavyweight freight
- As needed, Sheltair typically utilizes forklifts to load and unload cargo from cargo charters, but larger cargo aircraft would require specialized equipment
- DTO does not have on-site U.S. Customs staff which limits cargo flight operations to domestic U.S. flights

While the regional air cargo market is large, the primary service area for DTO air cargo is limited

- The Dallas-Fort Worth Metroplex is a center for companies manufacturing air-eligible goods which generate demand for domestic and international air cargo services
- International air trade focuses on Europe and Asia (China, Japan, Taiwan, Germany, France, UK)
- Recognizing the influence of the region's three commercial airports and the characteristics of DTO's charter cargo services, the primary service area for DTO air cargo is likely defined as the area within approximately 20 minutes' drive time of the airport
- Given this limited service area, research focused on business activities in close proximity to DTO
- Interviews with several companies and other stakeholders

The DTO regional air cargo market is highly competitive and features three commercial airports offering a wide range of cargo services

The Dallas-Fort Worth area is one of the most well-served air cargo markets in the U.S.

- **DFW** – all-cargo freighters serving multiple continents, belly cargo from passenger aircraft, and integrated express carrier services. Also, multiple cargo facilities, world-class cargo ground handlers, on-site government agencies for Customs and other inspections, a large freight forwarder base and related trucking operations.

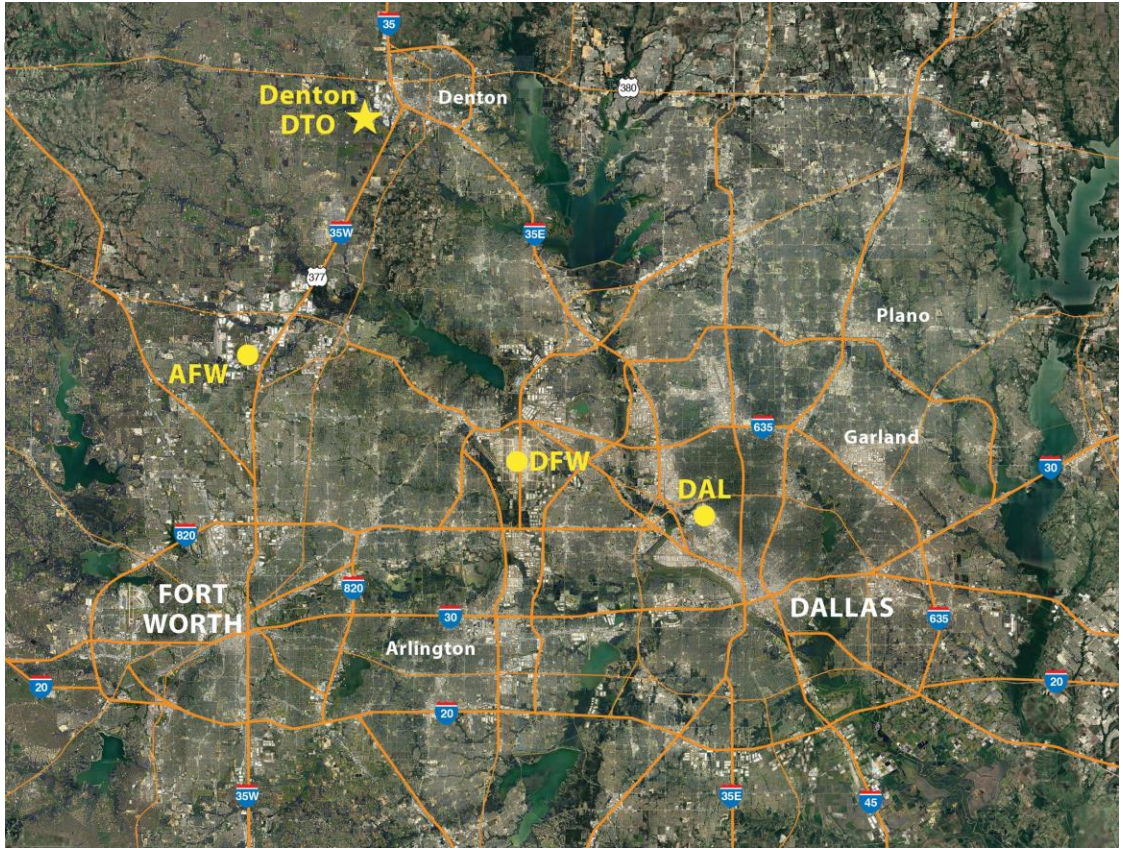
- **AFW** – regional hubs for FedEx and Amazon Air; cargo charters

- **DAL** – home to one of Southwest Airlines' largest operations for belly cargo with both domestic and international passenger air services

Collectively, these three airports offer a depth and breadth of cargo services that effectively cover the needs of every shipper.

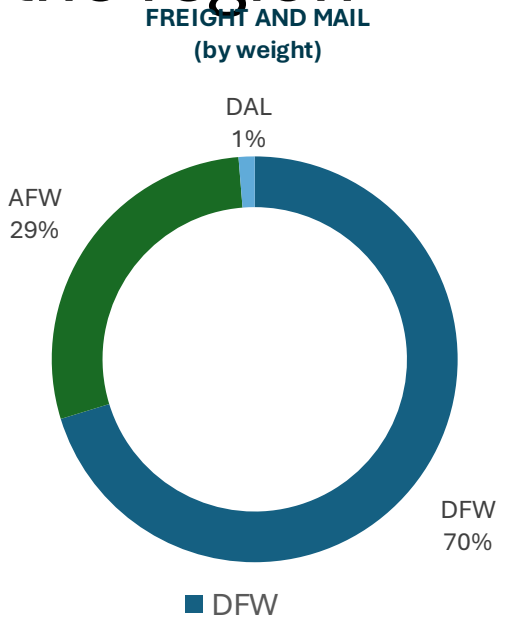
DTO is located within close proximity of the three commercial airports serving the region's air cargo deman

- Distance and drive time from DTO:
  - DFW – 30 miles / 35 min.
  - AFW – 20 miles / 30 min.
  - DAL – 40 miles / 50 min.
- All market segments are served by the three airports
  - International / Domestic
  - Heavy Freight / E-commerce / Small Package Express
  - All-cargo freighters with main deck capacity / Passenger aircraft with belly capacity
- Extensive eco-systems supporting air cargo services



Each of the commercial airports have air cargo niches, with DFW's scale and capacity leading to a dominant share of cargo in the region

- In 2024, DFW handled 809,000 short tons of cargo representing 70% of total air cargo weight amongst the three airports
- AFW handled 328,000 short tons of cargo in 2024 which equates to 29% of total air cargo of the region's commercial airports
- DAL handled just under 15,000 short tons which accounts for 1% of the combined total for the three airports



Source: Hubpoint analysis of U.S. DOT, T-100 Carrier Reports (CY 2024).

SWOT analysis for DTO air cargo

STRENGTHS	WEAKNESSES
• Efficiencies from uncongested airport environment • Location in northern region of the DFW Metroplex with high growth profile and proximity to major companies • Nearby interstate highway system (I-35, I-35E and I-35W) provides convenient access to key markets • Local companies value DTO option for cargo charters • Sheltair capably handles cargo charters at DTO and has interest in growing cargo business • Air cargo charter carrier Berry Aviation has based aircraft at DTO and operates on-demand cargo charters from the airport	• Existing runway lacks required length and strength to accommodate certain common all-cargo aircraft which, in turn, limits shipment weight and size at DTO • No dedicated cargo facilities for regular cargo operations • Limited revenue potential under current fee structure for DTO/City related to air cargo • No existing cargo ramp for freighter aircraft • Lack of belly cargo capacity on passenger aircraft serving DTO
OPPORTUNITIES	**THREATS**
• Growing businesses and population in northern DFW metro area likely to drive increased demand for air cargo services • Just-in-Time manufacturing processes rely on air cargo to mitigate risks of production line disruptions • Airside and landside congestion at commercial airports in the region make DTO a viable option for certain air cargo operations • Optimistic outlook for Advanced Air Mobility and UAS/UAV related to air cargo may benefit airports like DTO, potentially for middle-mile applications	• Robust air cargo services at competing airports in the region (DFW, AFW, DAL) • Integrated carriers focusing on trucking in domestic U.S. • Few current manufacturers of air-eligible commodities in the immediate DTO region • Lack of concentrated and consistent demand for air cargo services • Tariffs and trade wars threaten overall trade and economic stability leading to reduced demand for air cargo services

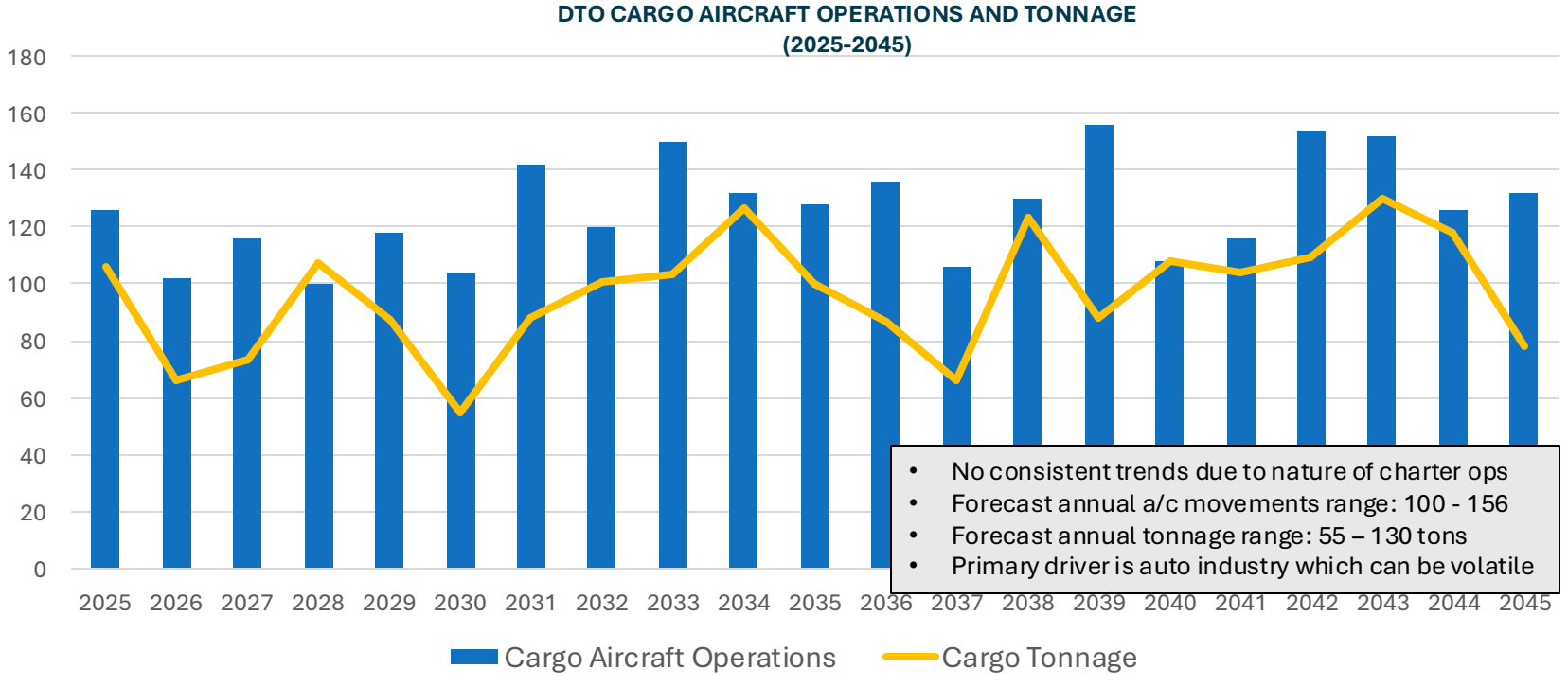
Synthesis of Air Cargo Assessment findings

- DTO's air cargo business relies heavily on charter operations, and this is expected to remain the case over the next 20 years.
- Prevailing trends among scheduled cargo operators (e.g., FedEx, UPS, Amazon Air) do not indicate the addition of new airports like DTO to their networks.
- Competition from established commercial airports in the Dallas-Fort Worth Metroplex limits DTO's ability to capitalize on potential opportunities and grow its air cargo business.
- A substantial expansion of air cargo services at DTO would likely require significant investments in cargo facilities, infrastructure, and handling equipment - investments that may not be justifiable given the low revenue levels the Airport/City currently receives from cargo operations.
- Despite this, DTO's air cargo services provide substantial value to key companies in the Denton community, making the continuation of charter cargo operations a priority.
- Effective oversight of DTO's air cargo business should enhance services and help identify growth opportunities within its charter cargo niche.

DTO Air Cargo Forecasts

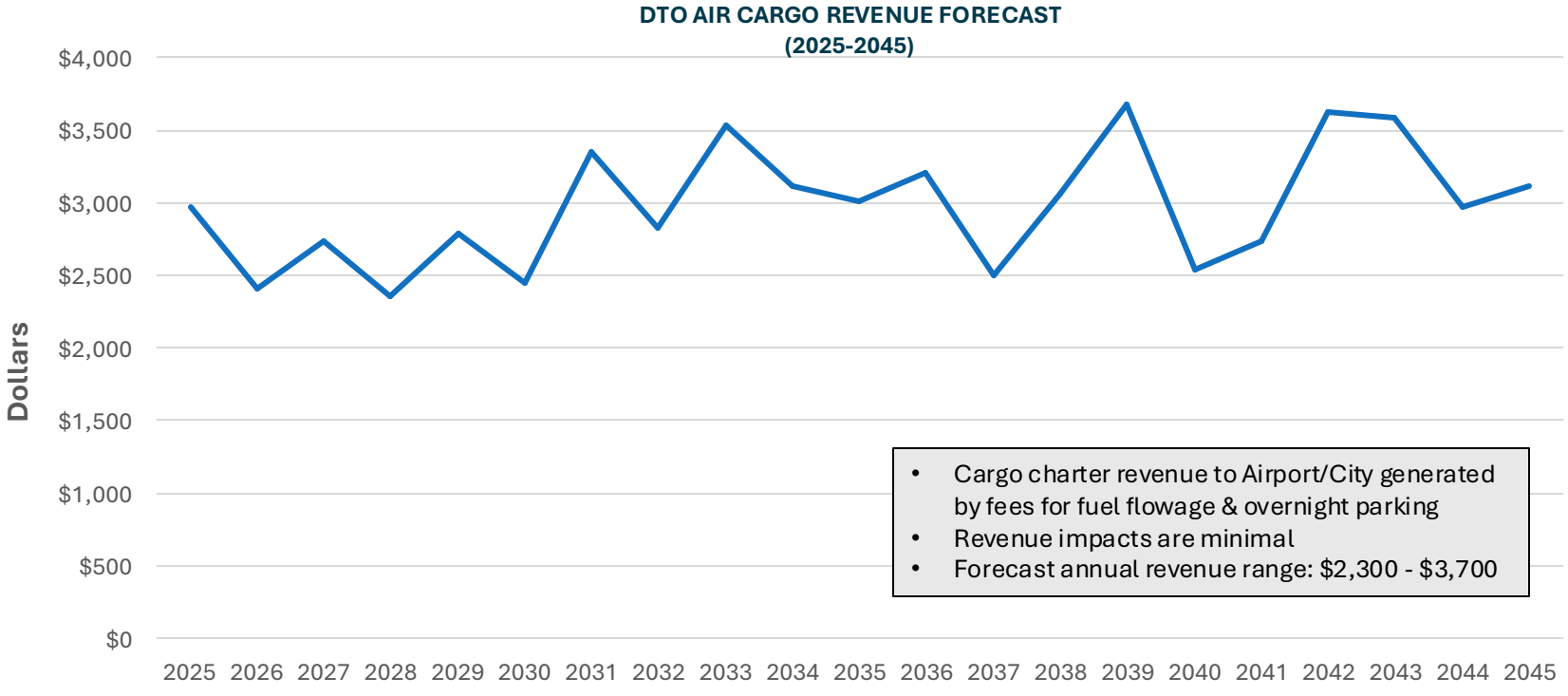
- Aircraft Operations and Tonnage
- Revenue

DTO air cargo operations and tonnage forecast



Source: Hubpoint analysis

DTO air cargo revenue forecast



Source: Hubpoint analysis

DENTON ENTERPRISE AIRPORT

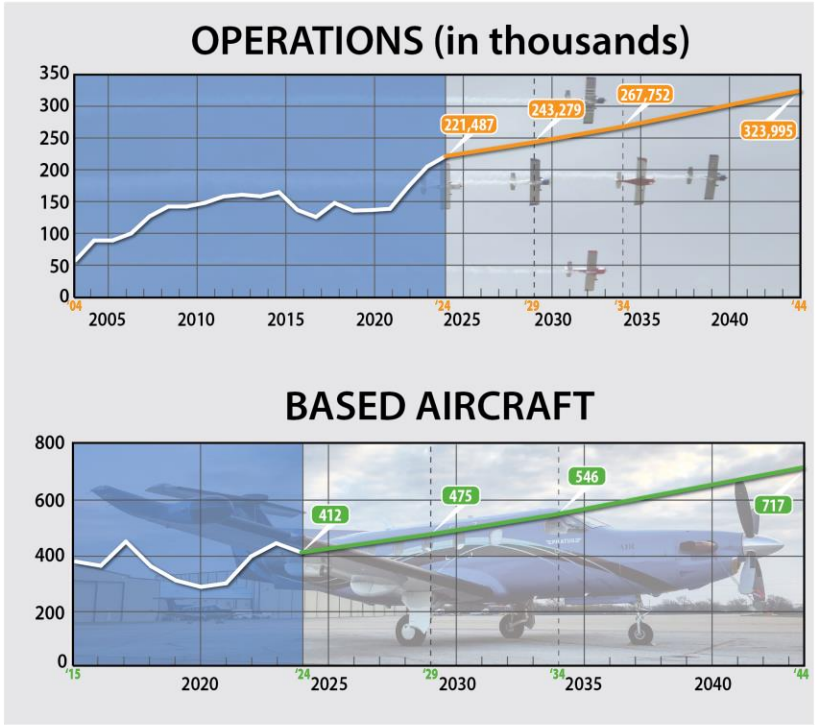
AIRPORT MASTER PLAN

Phase 1 Recap

Exhibit 2E: Forecast Summary

	2024	2029	2034	2044	CAGR
ANNUAL OPERATIONS					
Itinerant					
Air Carrier	14	14	14	14	0.0%
Air Taxi	3,075	3,400	4,300	6,100	3.5%
General Aviation	102,829	113,500	125,300	152,800	2.0%
Military	51	81	81	81	2.3%
Total Itinerant	***105,969***	***116,995***	***129,695***	***158,995***	***2.0%***
Local					
General Aviation	115,514	126,284	138,057	165,000	1.8%
Military	4	0	0	0	N/A
Total Local Subtotal	***115,518***	***126,284***	***138,057***	***165,000***	***1.8%***
TOTAL ANNUAL OPERATIONS	221,487	243,279	267,752	323,995	1.9%
OPERATIONAL PEAKING CHARACTERISTICS					
Peak Month	22,043	25,226	27,763	33,595	2.1%
Design Day	711	814	896	1,084	2.1%
Busy Day	898	1,028	1,131	1,369	2.1%
Design Hour	205	235	259	313	2.1%
BASED AIRCRAFT					
Single Engine Piston	306	351	401	520	2.7%
Multi-Engine Piston	58	68	79	105	3.0%
Jet	34	40	46	65	3.3%
Helicopter	14	16	19	25	2.9%
Glider/Other	0	0	1	2	N/A
TOTAL BASED AIRCRAFT	412	475	546	717	2.8%

N/A - Not Applicable ***CAGR*** - Compound annual growth rate



Sources: Coffman Associates analysis

Critical Aircraft Summary

TABLE 2W | Airport and Runway Classifications

	Runway 18L-36R		Runway 18R-36L
	Existing	Ultimate	Existing/Ultimate
Airport Reference Code (ARC)	C-II	C/D-III	B-II
Critical Aircraft (Typ.)	Bombardier Challenger 600	Gulfstream G550/G650	Beechcraft King Air 90/200/300/350
Runway Design Code (RDC)	C-II-2400	C/D-III/2400	B-II-4000
Taxiway Design Code (TDG)	3	3	2A

Source: FAA AC 150/5300-13B, Airport Design, Change 1

Challenger 600

Gulfstream G650

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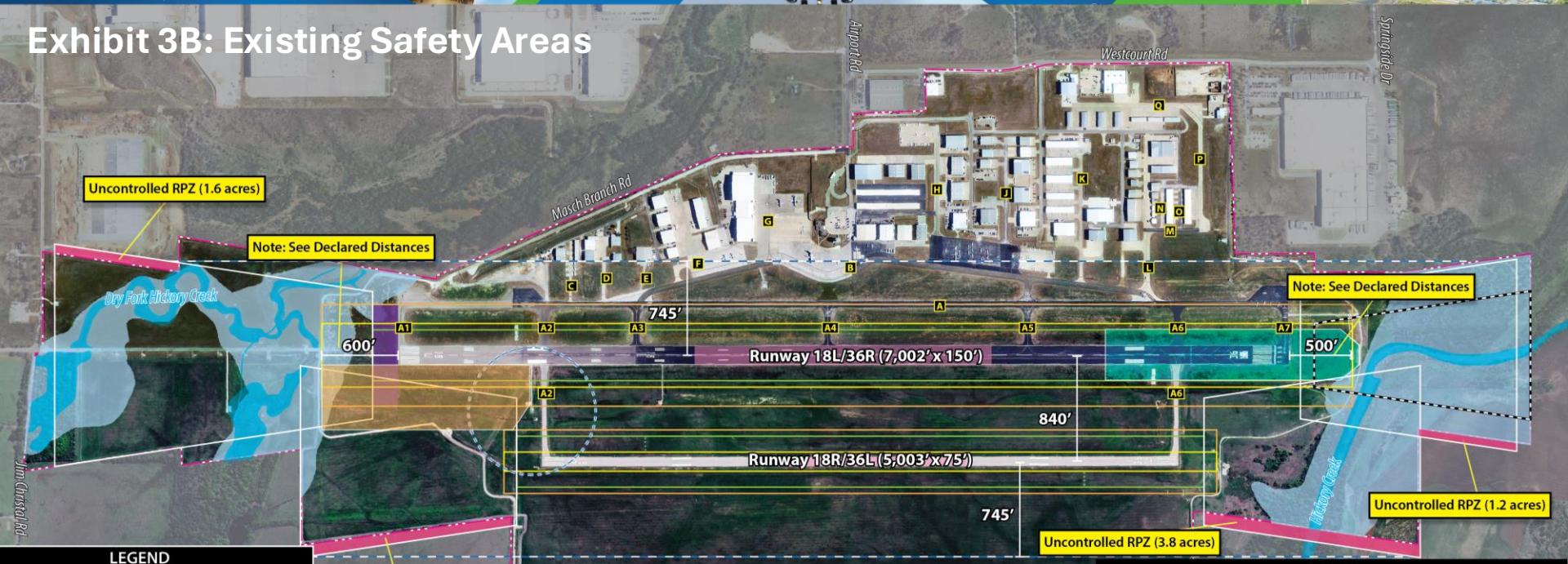
Chapter 3

Facility Requirements

Exhibit 3B: Existing Safety Areas



LEGEND

- Airport Property Line
- Avigation Easement
- D — Taxiway Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Approach Runway Protection Zone (RPZ)
- Departure RPZ
- ASOS Critical Area (500' Radius)
- 35' Building Restriction Line (BRL)
- Precision Obstacle Free Zone (POFZ)
- Runway High Energy Area
- Glide Slope Critical Area
- Localizer Critical Area
- Waterways
- Floodplains

Note: Departure RPZs only depicted where they extend beyond the approach RPZ.

	RUNWAY			
	18L	36R	18R	36L
Runway Design Code	RDC C-II-2400		RDC B-II-4000	
Runway Safety Area (RSA)	500' wide x 1,000' beyond runway end*		150' wide x 300' beyond runway end	
Runway Object Free Area (ROFA)	800' wide x 1,000' beyond runway end*		500' wide x 300' beyond runway end	
Runway Obstacle Free Zone (ROFZ)	400' wide x 200' beyond runway end		400' wide x 200' beyond runway end	
Precision Obstacle Free Zone (POFZ)	800' wide x 200' beyond runway end	Not Applicable	Not Applicable	Not Applicable
Runway Protection Zones				
Approach (inner width x outer width x length)	1,000' x 1,750' x 2,500'	1,000' x 1,510' x 1,700'	1,000' x 1,510' x 1,700'	1,000' x 1,510' x 1,700'
Departure (inner width x outer width x length)	500' x 1,010' x 1,700'	500' x 1,010' x 1,700'	500' x 700' x 1,000'	500' x 700' x 1,000'
Declared Distances (measurements in feet)				
Displaced Threshold	Not Applicable	100	Not Applicable	Not Applicable
Takeoff Run Available (TORA)	7,002	7,002	5,003	5,003
Takeoff Distance Available (TODA)	7,002	7,002	5,003	5,003
Accelerate Stop Distance Available (ASDA)	6,502	6,602	5,003	5,003
Landing Distance Available (LDA)	6,502	6,502	5,003	5,003

Source: FAA Airport Data and Information Portal (ADIP)

*The RSA/ROFA extend 600 feet beyond the north end of the runway and 500 feet beyond the south end of the runway due to applied declared distances.

Exhibit 3C: Existing Taxiway/Taxilane Object Free Areas

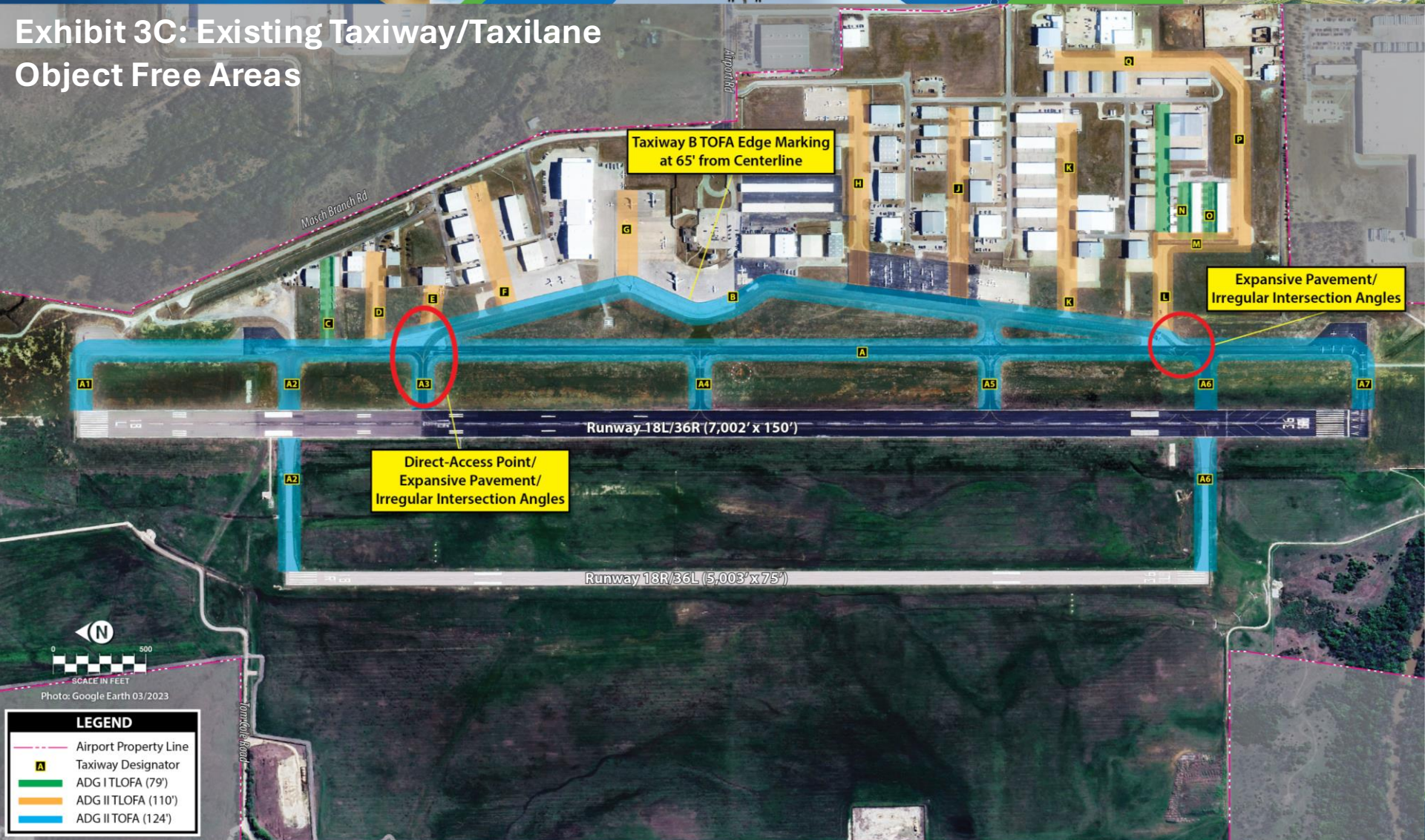


Exhibit 3C: Ultimate Taxiway/ Taxilane Object Free Areas

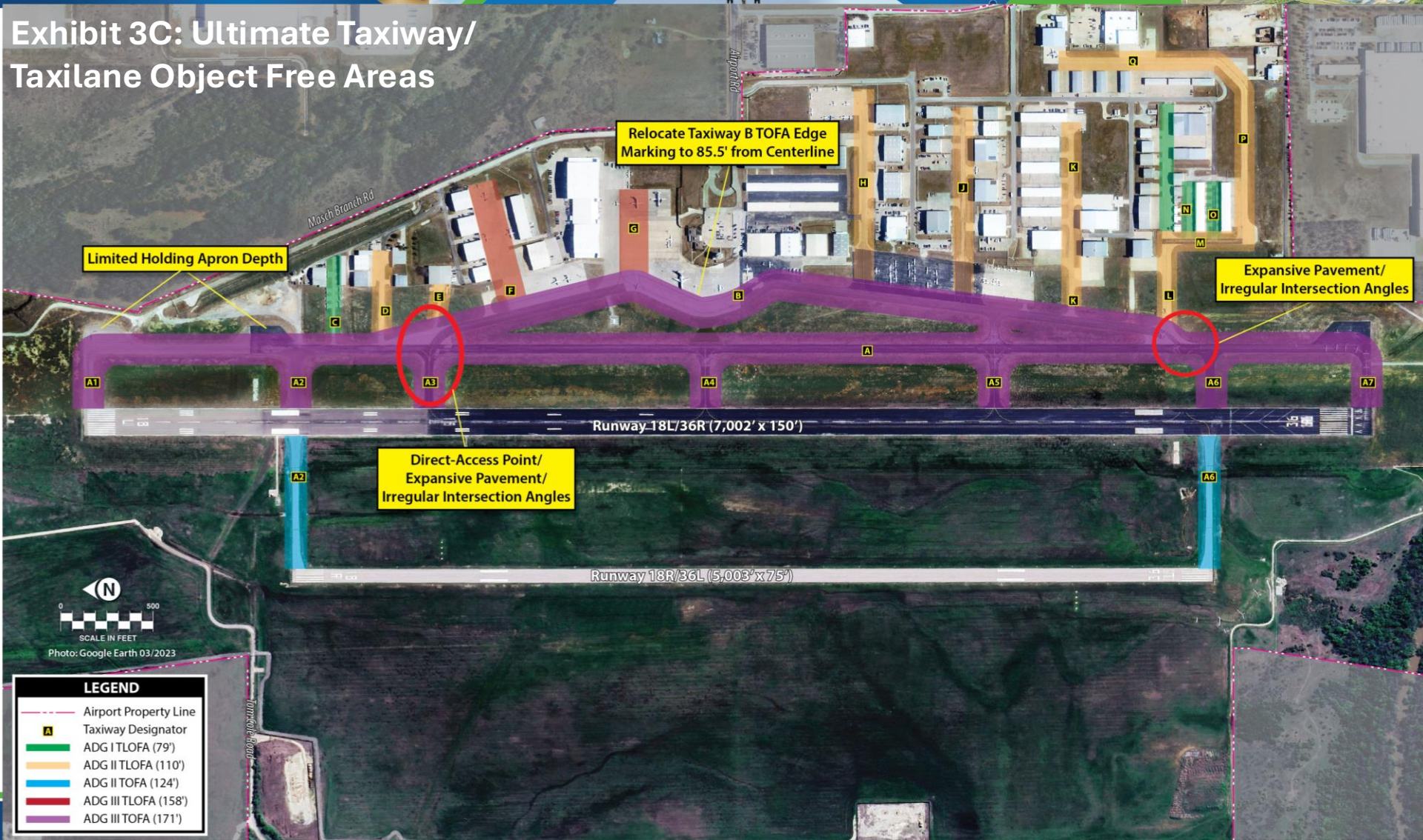


Exhibit 3A: Airfield Capacity Factors

Exhibit 3A: Demand vs. Capacity

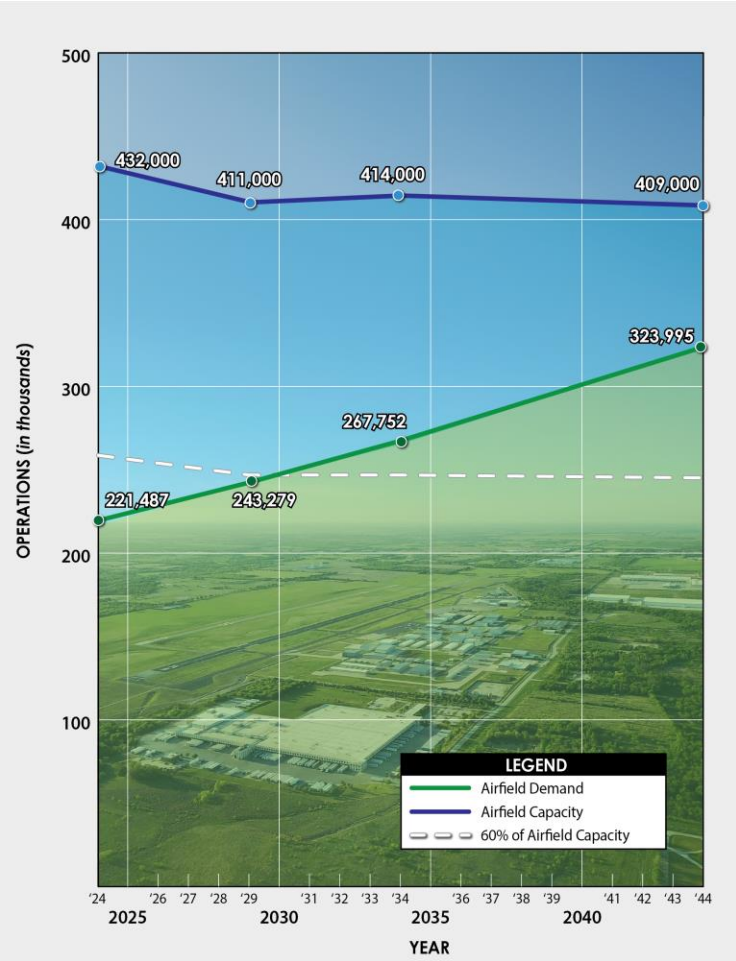


Table 3D: Airfield Capacity Summary

	Base Year (2024)	Short Term (1-5 Years)	Intermediate Term (6-10 Years)	Long Term (11-20 Years)
Operational Demand				
Annual	221,487	243,279	267,752	323,995
Capacity				
Annual Service Volume	432,000	411,000	414,000	409,000
Percent Capacity	51.3%	59.2%	64.7%	79.2%
Weighted Hourly Capacity	252	250	250	249

Sources: FAA AC 150/5060-5, Airport Capacity and Delay; Coffman Associates analysis

Capacity Conclusions:

- Increasing % of larger Class C aircraft operations will contribute to a gradual decline in ASV.
- Capacity enhancements should be given higher priority when operations reach 80% of ASV.
- Additional runways are not considered; however, adding exit taxiways to both runways will enhance airfield capacity.

Table 3J: Runway Length Requirements – Aircraft Between 12,500 and 60,000 Pounds

Airport Elevation	642.7' feet above mean sea level			
Average High Monthly Temp.	95.7°F (July)			
Runway Gradient	0.18% Runway 18R-36L (12.3')			
Fleet Mix Category	**Raw Runway Length from FAA AC**	**Runway Length with Gradient Adjustment**	**Wet Surface Landing Length for Jets (+15%)[1]**	**Final Runway Length[2]**
75% of fleet at 60% useful load	4,842'	4,965'	5,500'	5,500'
100% of fleet at 60% useful load	5,880'	6,003'	5,500'	6,000'
75% of fleet at 90% useful load	7,146'	7,269'	7,000'	7,300'
100% of fleet at 90% useful load	9,375'	9,498'	7,000'	9,500'

[1]Max 5,500' for 60% useful load and max 7,000' for 90% useful load in wet conditions
[2]Longest runway need rounded up to nearest hundred

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design

Table 3K: Supplemental Business Aircraft Takeoff Length Requirements

		TAKEOFF LENGTH REQUIREMENTS (feet)				
		Useful Load				
Aircraft	MTOW	60%	70%	80%	90%	100%
Challenger 300	38,850	4,554	4,988	5,437	5,909	6,400
Challenger 601	**45,100**	**5,130**	**5,710**	**6,360**	**7,090**	**7,900**
Citation III	21,500	4,596	5,060	5,562	C/L	C/L
Citation X	35,700	4,728	5,151	5,651	6,194	6,768
Falcon 2000	35,800	4,890	5,349	5,836	6,349	7,228
Falcon 50EX	41,000	4,507	4,984	5,488	6,020	6,510
Falcon 900EX	49,200	4,330	4,880	5,540	6,210	6,820
Global Express	98,000	4,831	5,409	6,017	6,653	7,323
Gulfstream G280	39,600	4,325	4,775	5,283	5,829	6,434
Gulfstream G450	74,600	4,587	5,048	5,568	6,119	6,711
Gulfstream G550	**91,000**	**4,717**	**5,400**	**6,092**	**6,844**	**7,630**
Gulfstream G650	**99,600**	**4,991**	**5,491**	**6,064**	**6,720**	**7,479**
Hawker 1000	31,000	5,460	6,100	6,740	C/L	C/L
Hawker 4000	39,500	4,371	4,746	5,147	5,586	6,151
Lear 60	23,500	5,275	5,819	6,379	6,931	7,628

Red figures are greater than 7,002 feet (length of the primary runway at DTO).
Critical aircraft is in **bold**.
Runway length calculation assumptions: 642.7' MSL field elevation; 95.7°F ambient temperature; 0.18% runway grade
C/L = climb limited: aircraft cannot maintain required climb gradient
MTOW = maximum takeoff weight

Source: UltraNav software

Table 3L: Supplemental Business Aircraft Landing Length Requirements

		LANDING LENGTH REQUIREMENTS (feet)					
		Dry Runway Condition			Wet Runway Condition		
Aircraft	MLW	Part 91	80% Rule	60% Rule	Part 91	80% Rule	60% Rule
Challenger 300	33,750	2,638	3,298	4,397	5,057	6,321	8,428
Challenger 601	**36,000**	**3,370**	**4,213**	**5,617**	**4,044**	**5,055**	**6,740**
Citation III	19,000	3,794	4,743	6,323	5,443	6,804	9,072
Citation X	31,800	3,901	4,876	6,502	5,568	6,960	9,280
Falcon 2000	33,000	3,165	3,956	5,275	3,640	4,550	6,067
Falcon 50EX	35,715	2,965	3,706	4,942	3,410	4,263	5,683
Falcon 900EX	44,500	3,716	4,645	6,193	4,274	5,343	7,123
Global Express	78,600	2,702	3,378	4,503	3,107	3,884	5,178
Gulfstream G280	32,700	3,019	3,774	5,032	3,472	4,340	5,787
Gulfstream G450	66,000	3,302	4,128	5,503	5,671	7,089	9,452
Gulfstream G550	**75,300**	**2,809**	**3,511**	**4,682**	**5,101**	**6,376**	**8,502**
Gulfstream G650	**83,500**	**3,782**	**4,728**	**6,303**	**4,996**	**6,245**	**8,327**
Hawker 1000	25,000	2,915	3,644	4,858	3,982	4,978	6,637
Hawker 4000	33,500	3,272	4,090	5,453	3,763	4,704	6,272
Lear 60	19,500	3,659	4,574	6,098	4,930	6,163	8,217

Red figures are greater than 7,002 feet (length of the primary runway at DTO).
Critical aircraft is in **bold**.
Runway length calculation assumptions: 642.7' MSL field elevation; 95.7°F ambient temperature; 0.18% runway grade
MLW = maximum landing weight

Source: UltraNav software

Runway Length Conclusions

Runway 18L-36R at 7,002’

- Exceeds FAA-recommended length to accommodate 100% of business jets at 60% useful load (6,000’)
- Accommodates the existing (Challenger 600) and ultimate (G550/G650) critical aircraft up to 80% useful loads and landing in most conditions
- Creeks located north and south of the runway limit extension potential
- Recommended that Runway 18L-36R be maintained at its current length but consider reducing/eliminating declared distances

Runway 18R-36L at 5,003’

- Planned to accommodate smaller aircraft (B-II design)
- Exceeds FAA-recommended length to accommodate all small GA aircraft with 10+ passenger seats (4,400’)
- Runway is less constrained by creeks/terrain issues
- Recommended to plan for use by small/mid-sized business jets with a minimum length recommendation of 5,500’

Exhibit 3D: Airfield Summary

CATEGORY	EXISTING	ULTIMATE
Runway	**18L-36R**	
Runway Design Code (RDC)	C-II-2400	C/D-III-2400
Dimensions	7,002' x 150'	Maintain Length; Consider Width Reduction to 100'
Pavement Strength	70,000 SWL; 100,000 DWL	Maintain
Blast Pads	None	Add Blast Pads (140' x 200')
RSA	RSA with Declared Distances	Consider Improvements to Eliminate Declared Distances
ROFA	ROFA with Declared Distances	Consider Improvements to Eliminate Declared Distances
ROFZ	Standard ROFZ	Maintain
POFZ	Standard POFZ (18L)	Maintain
RPZ	Approximately 2.8 Acres of Uncontrolled RPZ Property	Establish Full Control Over All RPZs
Runway	**18R-36L**	
Runway Design Code (RDC)	B-II-4000	B-II-4000
Dimensions	5,003' x 75'	Consider Extension to Minimum Length of 5,500'
Pavement Strength	30,000 SWL; 50,000 DWL	Maintain
Blast Pads	None	None
RSA	Standard RSA	Maintain
ROFA	Standard ROFA	Maintain
ROFZ	Standard ROFZ	Maintain
RPZ	Approximately 7.2 Acres of Uncontrolled RPZ Property	Establish Full Control Over All RPZs

KEY

ASOS - Automated Surface Observation System
DWL - Dual Wheel Loading
GPS - Global Positioning System
LPV - Localizer Performance with Vertical Guidance
MALSR - Medium Intensity Approach Lighting System
MIRL/HIRL - Medium/High Intensity Runway Lighting
MITL - Medium Intensity Taxiway Lighting
POFZ - Precision Obstacle Free Zone
PAPI - Precision Approach Path Indicator
RDC - Runway Design Code
REIL - Runway End Identification Lights
RSA - Runway Safety Area
RPZ - Runway Protection Zone
ROFA - Runway Object Free Area
SWL - Single Wheel Loading
TDG - Taxiway Design Group

Exhibit 3D: Airfield Summary

CATEGORY	EXISTING	ULTIMATE
Taxiways		
Design Group	TDG 3 (East of 18L-36R); TDG 2A (West of 18L-36R)	Maintain
Parallel Taxiway	Taxiway A (18L-36R)	Consider Full-Length Parallel Taxiway For 18R-36L
Parallel Taxiway Separation from Runway	400' (Taxiway A)	Minimum 240' Separation for Ultimate Parallel Serving 18R-36L
Widths	50' (East of 18L-36R); 35' (West of 18L-36R)	Maintain
Holding Position Separation	250' (18L-36R); 260' (18R-36L)	Increase Separation for 18L-36R Markings to 256'; Consider Relocating 18R-36L Markings to 200'
Notable Conditions	No Hot Spots; 2 Areas of Non-Standard Geometry	Consider Corrective Measures

KEY

ASOS - Automated Surface Observation System
DWL - Dual Wheel Loading
GPS - Global Positioning System
LPV - Localizer Performance with Vertical Guidance
MALSR - Medium Intensity Approach Lighting System
MIRL/HIRL - Medium/High Intensity Runway Lighting
MITL - Medium Intensity Taxiway Lighting
POFZ - Precision Obstacle Free Zone
PAPI - Precision Approach Path Indicator
RDC - Runway Design Code
REIL - Runway End Identification Lights
RSA - Runway Safety Area
RPZ - Runway Protection Zone
ROFA - Runway Object Free Area
SWL - Single Wheel Loading
TDG - Taxiway Design Group

Exhibit 3D: Airfield Summary

CATEGORY	EXISTING	ULTIMATE
Navigational and Weather Aids		
Instrument Approaches	ILS (18L); LPV GPS (All Runways)	Maintain
Weather Aids	ASOS, Wind Cone, Rotating Beacon, Segmented Circle	Maintain
Approach Aids	PAPI-4s (All Runways); MALSR (18L)	Add REILs to 36R, 18R, and 36L
Lighting and Marking		
Runway Lighting	MIRL (Both Runways)	Upgrade 18L-36R to LED MIRLs
Runway Marking	Precision (18L); Non-Precision (36R, 18R, 36L)	Maintain
Taxiway Lighting	MITL	Maintain
Airfield Signage	Standard Runway/Taxiway Identification, Holding Position, and Routing Signage	Maintain

KEY

ASOS - Automated Surface Observation System
DWL - Dual Wheel Loading
GPS - Global Positioning System
LPV - Localizer Performance with Vertical Guidance
MALSR - Medium Intensity Approach Lighting System
MIRL/HIRL - Medium/High Intensity Runway Lighting
MITL - Medium Intensity Taxiway Lighting
POFZ - Precision Obstacle Free Zone
PAPI - Precision Approach Path Indicator
RDC - Runway Design Code
REIL - Runway End Identification Lights
RSA - Runway Safety Area
RPZ - Runway Protection Zone
ROFA - Runway Object Free Area
SWL - Single Wheel Loading
TDG - Taxiway Design Group

Table 3U: General Aviation Landside Facility Requirements

	Current Capacity	Projected Needs		
		Short-Term	Intermediate-Term	Long-Term
General Aviation Terminal Facilities and Parking				
Terminal/FBO Service Space (sf)	22,800	9,375	12,375	18,000
Total Terminal/FBO Public Vehicle Parking	231	194	236	323
Aircraft Storage Hangar Requirements				
T-Hangar (sf)	160,709	214,700	275,900	419,900
Conventional/Box Hangar (sf)	576,011	639,000	706,500	888,500
Total Hangar Storage Area (sf)	736,720	853,700	982,400	1,308,400
Aircraft Parking Apron				
Based/Local Aircraft Parking (sy)	20,400	17,100	19,700	25,800
Transient Parking (sy)	39,775	57,200	63,400	79,100
Total Apron Area (sy)	60,175	74,300	83,100	104,900
Fuel Storage				
100LL (14-Day Fuel Storage)	37,340	20,068	22,020	26,431
Jet A (14-Day Fuel Storage)	36,340	56,633	69,022	106,189

Red indicates a projected need that exceeds current capacity.

Source: Coffman Associates analysis

Advanced Air Mobility (AAM) Mission

Develop validated AAM System Architectures that define a safe, certifiable, and scalable system

eVTOL Technology

- Multiple advanced lithium-ion batteries for short-distance flights of 50-200 miles reaching speeds of 200 mph
- Fast-charging capabilities to recharge to 80% in 15 minutes or 100% in 30 minutes
- Takeoff and land in helicopter mode and transition into airplane mode for flight
- 4-7 passenger seating capacity
- Emission-free and significantly quieter than helicopters

eVTOL Technology

Example eVTOL Aircraft

Volocopter

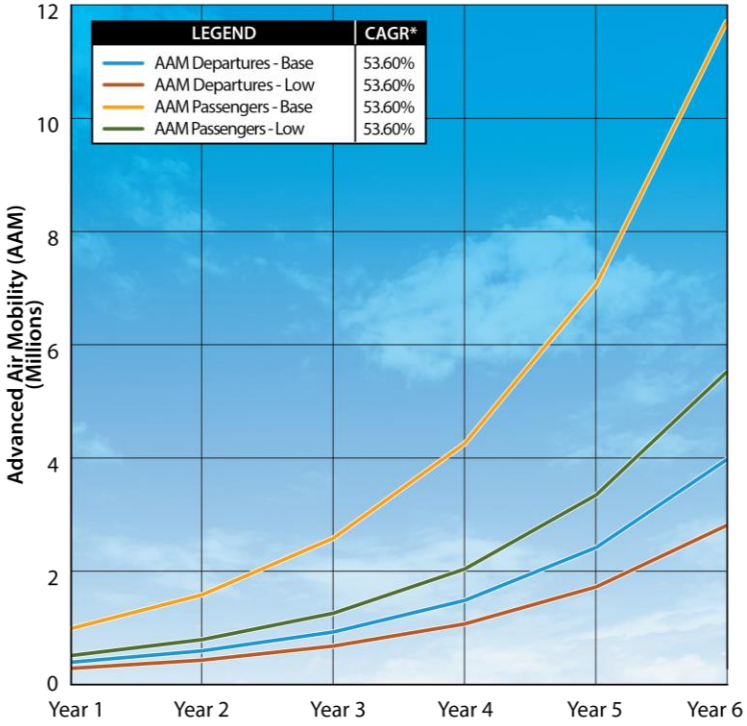
Joby

Archer

FAA AAM Forecasts

ADVANCED AIR MOBILITY (AAM) FORECASTS

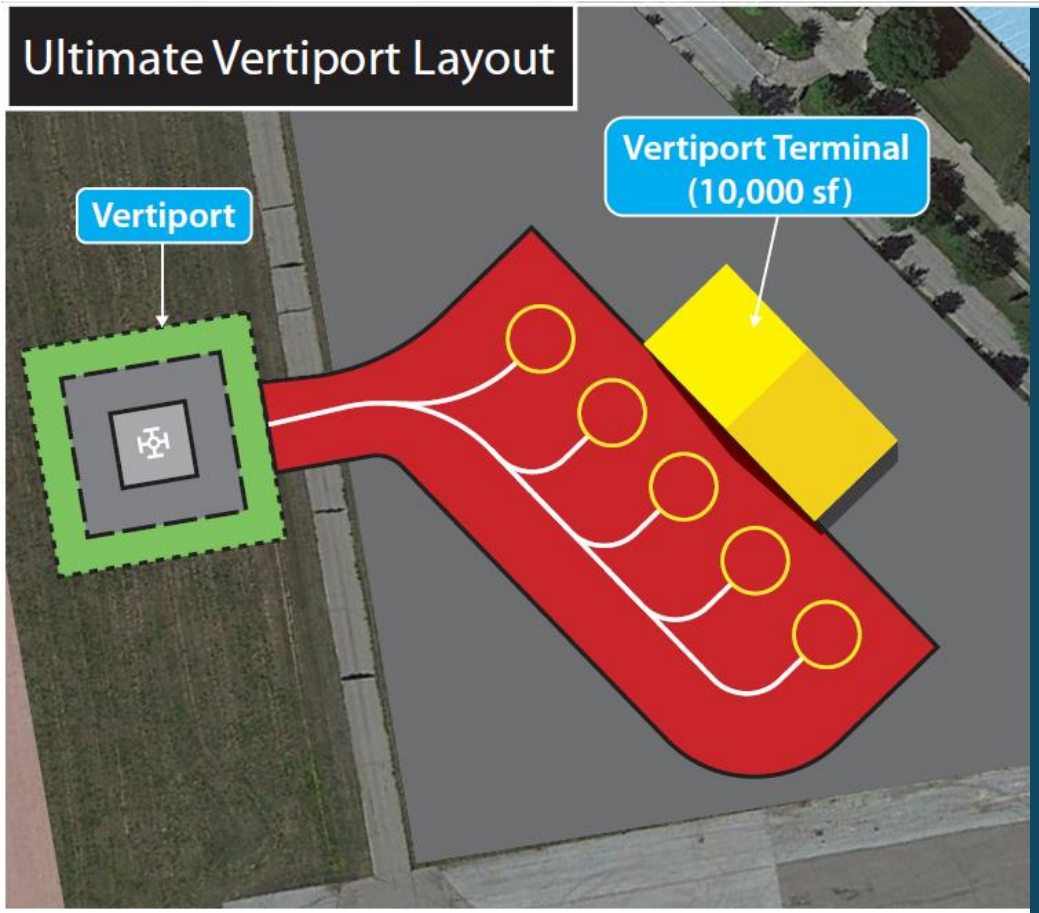
Fiscal Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	CAGR
AAM Departures							
Base	295,530	494,637	827,887	1,385,657	2,319,213	3,881,730	53.60%
Low*	206,871	346,246	579,521	969,960	1,623,449	2,717,211	53.60%
AAM Passengers							
Base	886,590	1,483,911	2,483,661	4,156,971	6,957,639	11,645,190	53.60%
Low	413,742	692,492	1,159,042	1,939,920	3,246,898	5,434,422	53.60%



CAGR: Compound annual Growth rate
*Base (risk-adjusted potential) is based on linear interpolation of ASSURE forecasts; Low forecast is 30% lower than base forecasts.
**Estimate of 3 passenger per departure in base range scenario and passenger per departure in the low range scenario.
Source: FAA Aerospace Forecasts FY 2024-2044

Vertiports

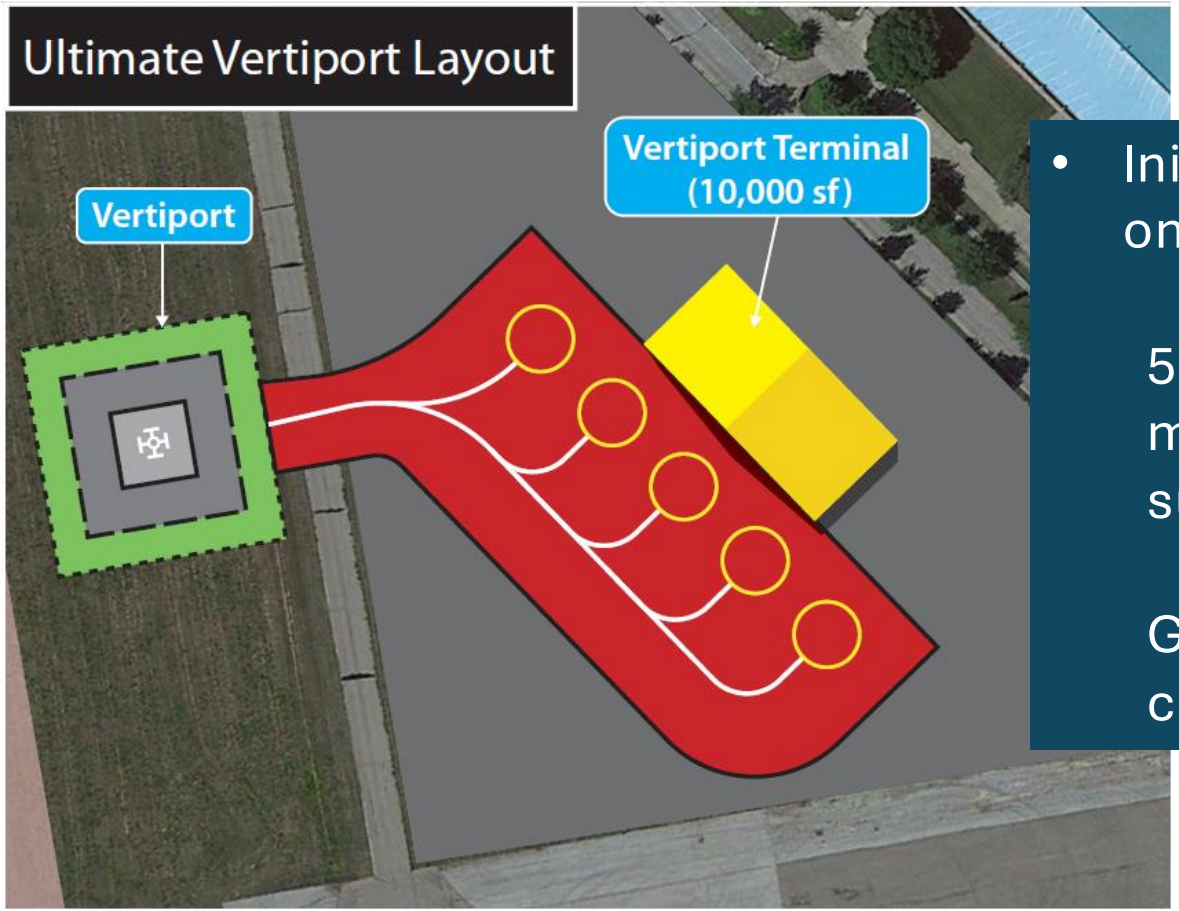
Vertiports



Draft Engineering Brief No. 105A

- Similar to heliport design
- Safety Areas:
  - -TLOF – touchdown/liftoff area
  - -FATO – final approach and takeoff area
  - -Safety area
- Minimum runway separation:
  - 300’ – small airplane
  - 500’ – large airplane
  - 700’ – heavy airplane

Vertiports

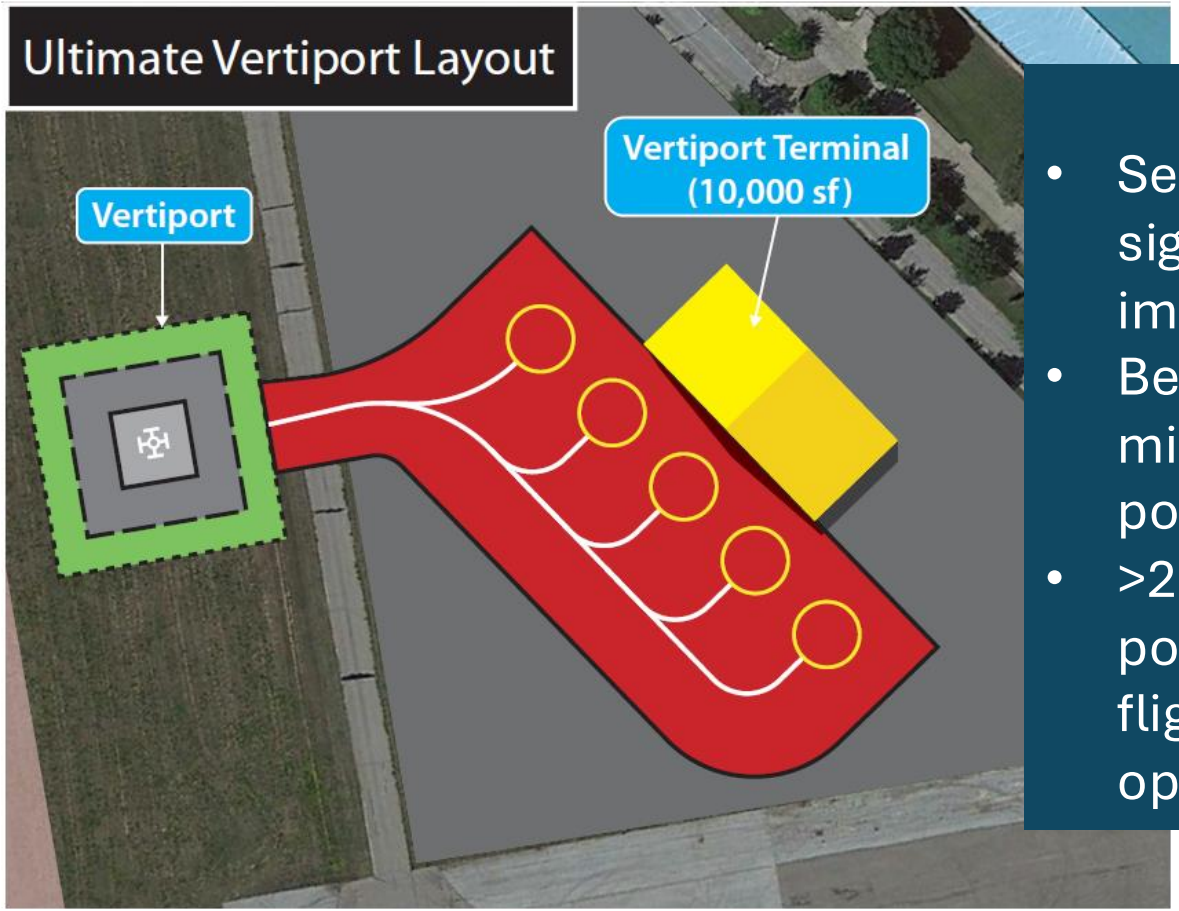


- Initial manufacturer estimates on electrical infrastructure:

  500-kilowatt (kW) to 1.0-megawatt (MW) power supply per charger

  Goal is to provide 80% charge in 15-25 minutes

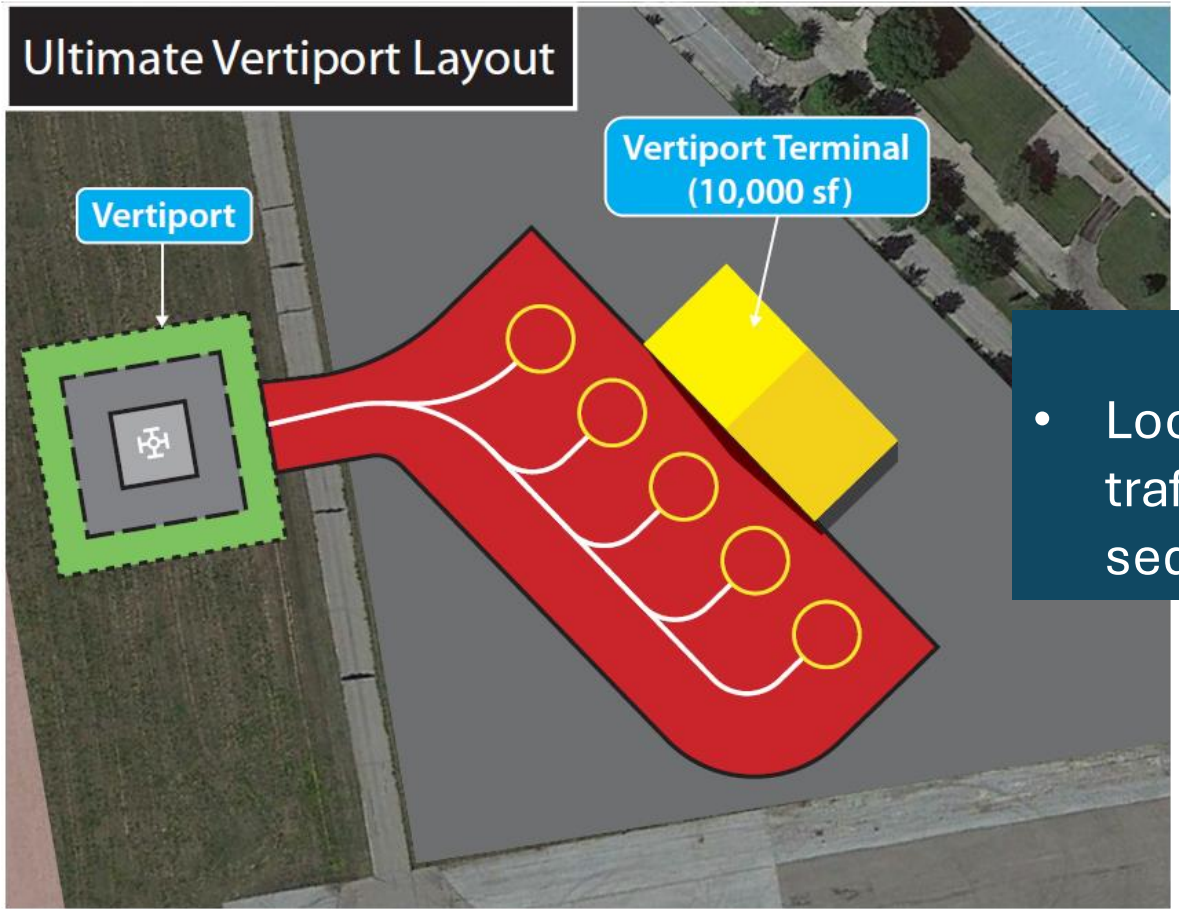
Vertiports



Wake Turbulence

- Separation <700’ from runway significant operational impacts
- Between 700’ and 2,499’ mitigation of impacts but still possibility of impacts
- >2,499’ has the greatest potential for independent flight paths and minimal operational disruptions

Vertiports



Traffic Pattern

- Locating a vertiport under a traffic pattern can result in sequencing delays

DENTON ENTERPRISE AIRPORT

AIRPORT MASTER PLAN

Chapter 4

Airport Development Alternatives

Table 4A: Airside Planning Considerations

#	Non-Standard/Deficient Condition	Applicable Design Standard	Proposed Action(s) to be Evaluated
1	Runway 18L-36R has only one exit taxiway within the designated 2,000' to 4,000' range from the landing threshold for airfield capacity calculation purposes.	FAA AC 150/5060-5, Change 2, *Airfield Capacity and Delay*	Consider adding additional exits within the target range to enhance airfield capacity.
2	Runway 18L-36R has applied declared distances to meet FAA RSA/ROFA design standards. A standard RSA/ROFA on a RDC C-II-2400 and C/D-III-2400 runway extend 1,000 feet from the end of the runway. There are currently only 500' of RSA/ROFA to the south of the runway and only 600' of RSA/ROFA to the north of the runway.	FAA AC 150/5300-13B, *Airport Design,* Appendix H, H.1.5.b	As part of the master plan process, the FAA expects a review of reasonable mitigation measures to reduce or eliminate the use of declared distances.
3	At 5,003 feet long, Runway 18R-36L is limited in its ability to serve small and mid-sized business jet aircraft at 60 percent useful loads.	FAA AC 150/5325-4B, *Runway Length Requirements for Airfield Design,* Paragraph 306	Consider extension options to a minimum length of 5,500 feet to satisfy the FAA recommended length to accommodate 75 percent of business jets operating at 60 percent useful loads.
4	Portions of the RPZs on each runway are not controlled by the airport via fee ownership or avigation easement. Affected property totals approximately 10 acres.	FAA AC 150/5190-4B, *Airport Land Use Compatibility Planning*, §2.2.5	Establish control via new avigation easements or fee ownership of all properties within the RPZs.
5	Runway 18R-36L is not equipped with a full-length parallel taxiway, which is required for runways with instrument approaches with visibility minimums down to ¾-mile.	FAA AC 150/5300-13B, *Airport Design,* Appendix K, Table K-1	Consider adding a parallel taxiway to Runway 18R-36L.
6	The north and south intersections of Taxiway B and Taxiway A result in non-standard taxiway geometry conditions, including direct-access and irregular turning angles.	FAA AC 150/5300-13B, *Airport Design,* Paragraph 4.3	Consider taxiway design improvements to mitigate non-standard geometry.

REIL = runway end identifier lights
ROFA = runway object free area
RPZ = runway protection zone
RSA = runway safety area

Source: Coffman Associates analysis

Table 4A: Airside Planning Considerations

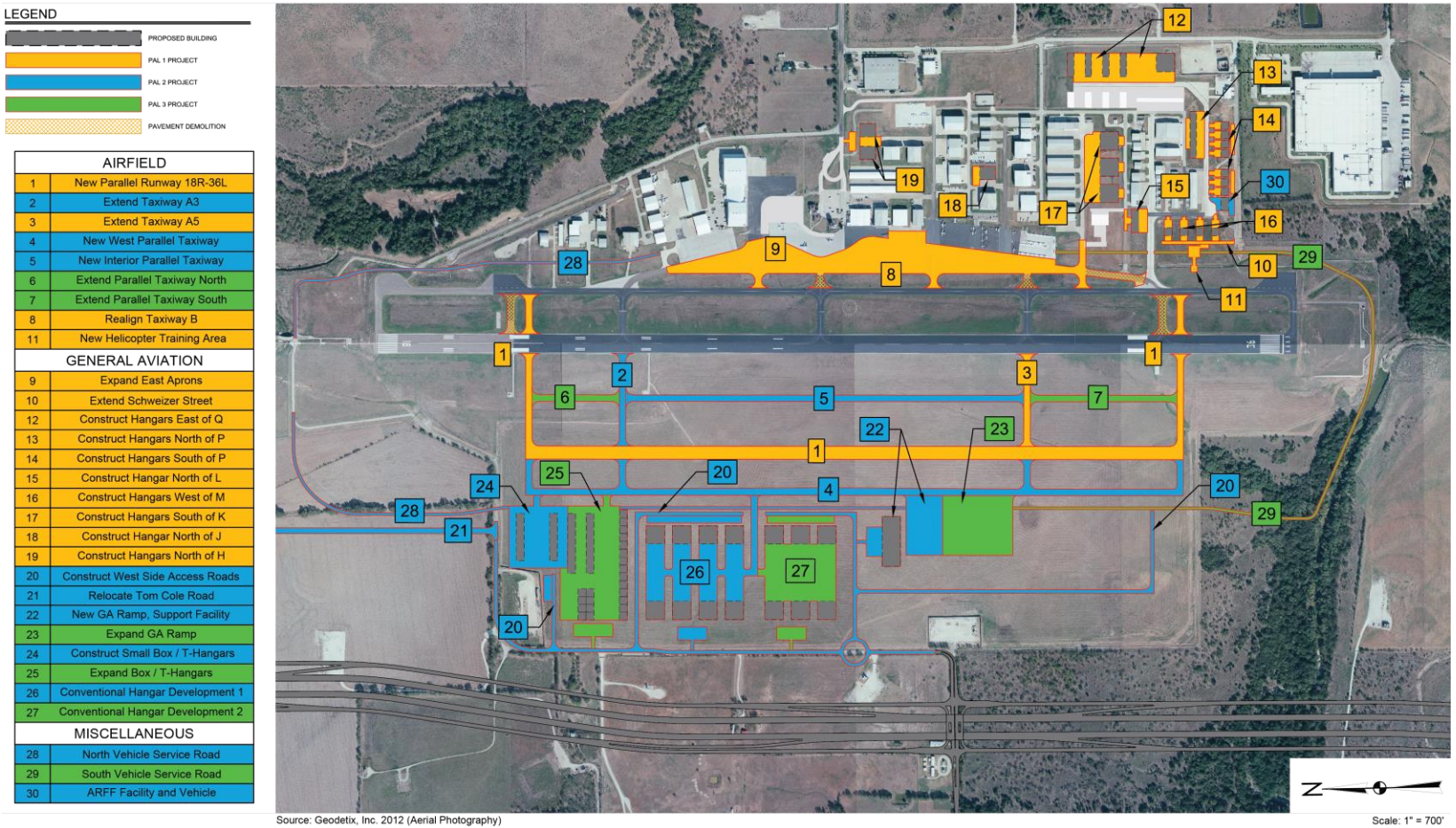
#	Non-Standard/Deficient Condition	Applicable Design Standard	Proposed Action(s) to be Evaluated
1	Runway 18L-36R has only one exit taxiway within the designated 2,000' to 4,000' range from the landing threshold for airfield capacity calculation purposes.	FAA AC 150/5060-5, Change 2, *Airfield Capacity and Delay*	Consider adding additional exits within the target range to enhance airfield capacity.
2	Runway 18L-36R has applied declared distances to meet FAA RSA/ROFA design standards. A standard RSA/ROFA on a RDC C-II-2400 and C/D-III-2400 runway extend 1,000 feet from the end of the runway. There are currently only 500' of RSA/ROFA to the south of the runway and only 600' of RSA/ROFA to the north of the runway.	FAA AC 150/5300-13B, *Airport Design,* Appendix H, H.1.5.b	As part of the master plan process, the FAA expects a review of reasonable mitigation measures to reduce or eliminate the use of declared distances.
3	At 5,003 feet long, Runway 18R-36L is limited in its ability to serve small and mid-sized business jet aircraft at 60 percent useful loads.	FAA AC 150/5325-4B, *Runway Length Requirements for Airfield Design,* Paragraph 306	Consider extension options to a minimum length of 5,500 feet to satisfy the FAA recommended length to accommodate 75 percent of business jets operating at 60 percent useful loads.
4	Portions of the RPZs on each runway are not controlled by the airport via fee	FAA AC 150/5190-4B, *Airport Land Use Compatibility Planning,*	Establish control via new avigation easements or fee ownership of all

	RSA/ROFA to the north of the runway.		
3	At 5,003 feet long, Runway 18R-36L is limited in its ability to serve small and mid-sized business jet aircraft at 60 percent useful loads.	FAA AC 150/5325-4B, *Runway Length Requirements for Airfield Design,* Paragraph 306	Consider extension options to a minimum length of 5,500 feet to satisfy the FAA recommended length to accommodate 75 percent of business jets operating at 60 percent useful loads.
4	Portions of the RPZs on each runway are not controlled by the airport via fee ownership or avigation easement. Affected property totals approximately 10 acres.	FAA AC 150/5190-4B, *Airport Land Use Compatibility Planning*, §2.2.5	Establish control via new avigation easements or fee ownership of all properties within the RPZs.
5	Runway 18R-36L is not equipped with a full-length parallel taxiway, which is required for runways with instrument approaches with visibility minimums down to ¾-mile.	FAA AC 150/5300-13B, *Airport Design,* Appendix K, Table K-1	Consider adding a parallel taxiway to Runway 18R-36L.
6	The north and south intersections of Taxiway B and Taxiway A result in non-standard taxiway geometry conditions, including direct-access and irregular turning angles.	FAA AC 150/5300-13B, *Airport Design,* Paragraph 4.3	Consider taxiway design improvements to mitigate non-standard geometry.

REIL = runway end identifier lights
ROFA = runway object free area
RPZ = runway protection zone
RSA = runway safety area

Source: Coffman Associates analysis

Exhibit 4A: Previous Airport Master Plan



Source: Geodetix, Inc. 2012 (Aerial Photography)

Scale: 1" = 700'

Source: Denton Enterprise Airport Master Plan, 2015

Exhibit 4B: Airfield Alternative 1

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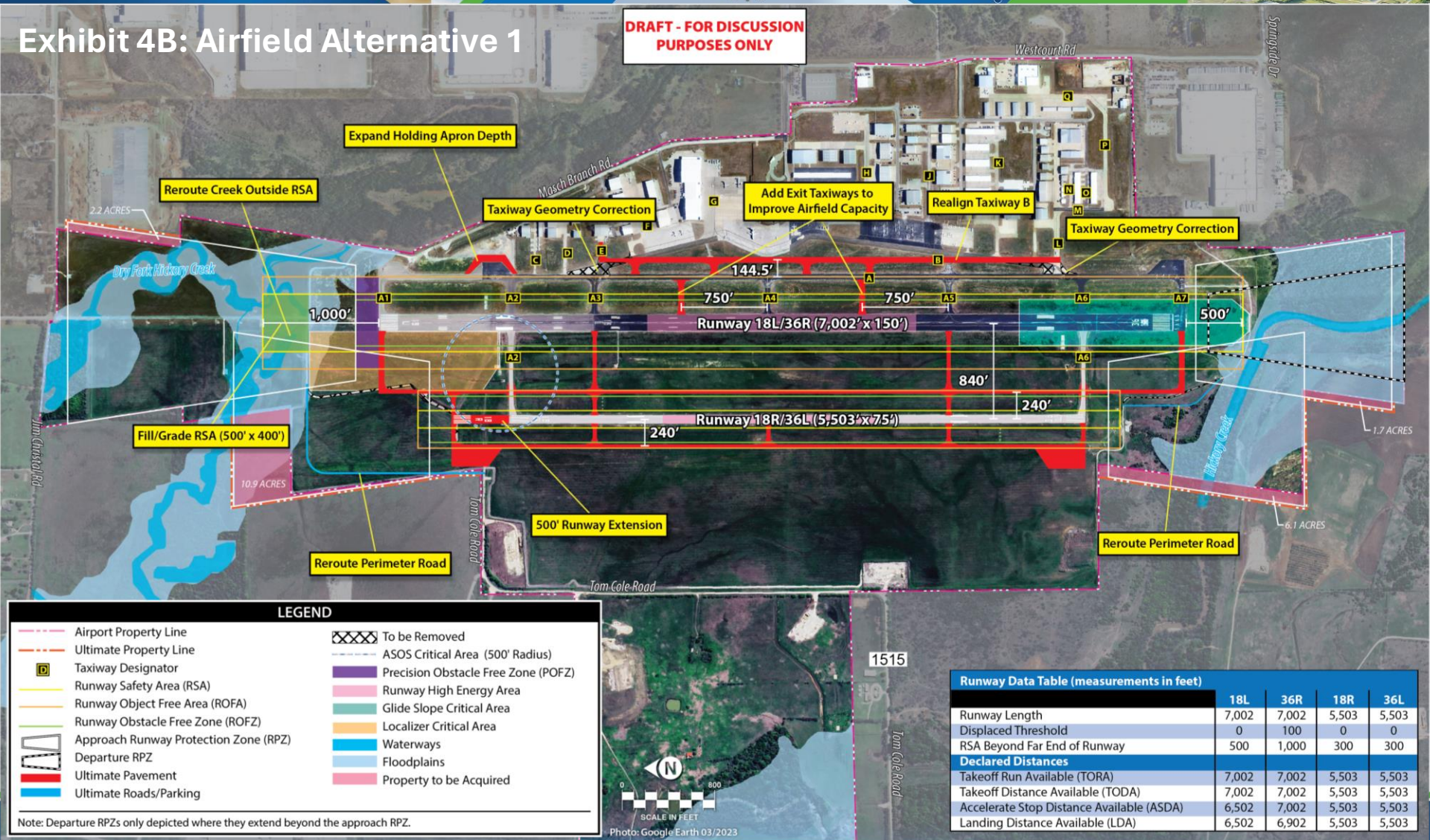

LEGEND

- Airport Property Line
- Ultimate Property Line
- Taxiway Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Approach Runway Protection Zone (RPZ)
- Departure RPZ
- Ultimate Pavement
- Ultimate Roads/Parking
- To be Removed
- ASOS Critical Area (500' Radius)
- Precision Obstacle Free Zone (POFZ)
- Runway High Energy Area
- Glide Slope Critical Area
- Localizer Critical Area
- Waterways
- Floodplains
- Property to be Acquired

Note: Departure RPZs only depicted where they extend beyond the approach RPZ.

Runway Data Table (measurements in feet)

	18L	36R	18R	36L
Runway Length	7,002	7,002	5,503	5,503
Displaced Threshold	0	100	0	0
RSA Beyond Far End of Runway	500	1,000	300	300
Declared Distances				
Takeoff Run Available (TORA)	7,002	7,002	5,503	5,503
Takeoff Distance Available (TODA)	7,002	7,002	5,503	5,503
Accelerate Stop Distance Available (ASDA)	6,502	7,002	5,503	5,503
Landing Distance Available (LDA)	6,502	6,902	5,503	5,503

Exhibit 4C: Airfield Alternative 2

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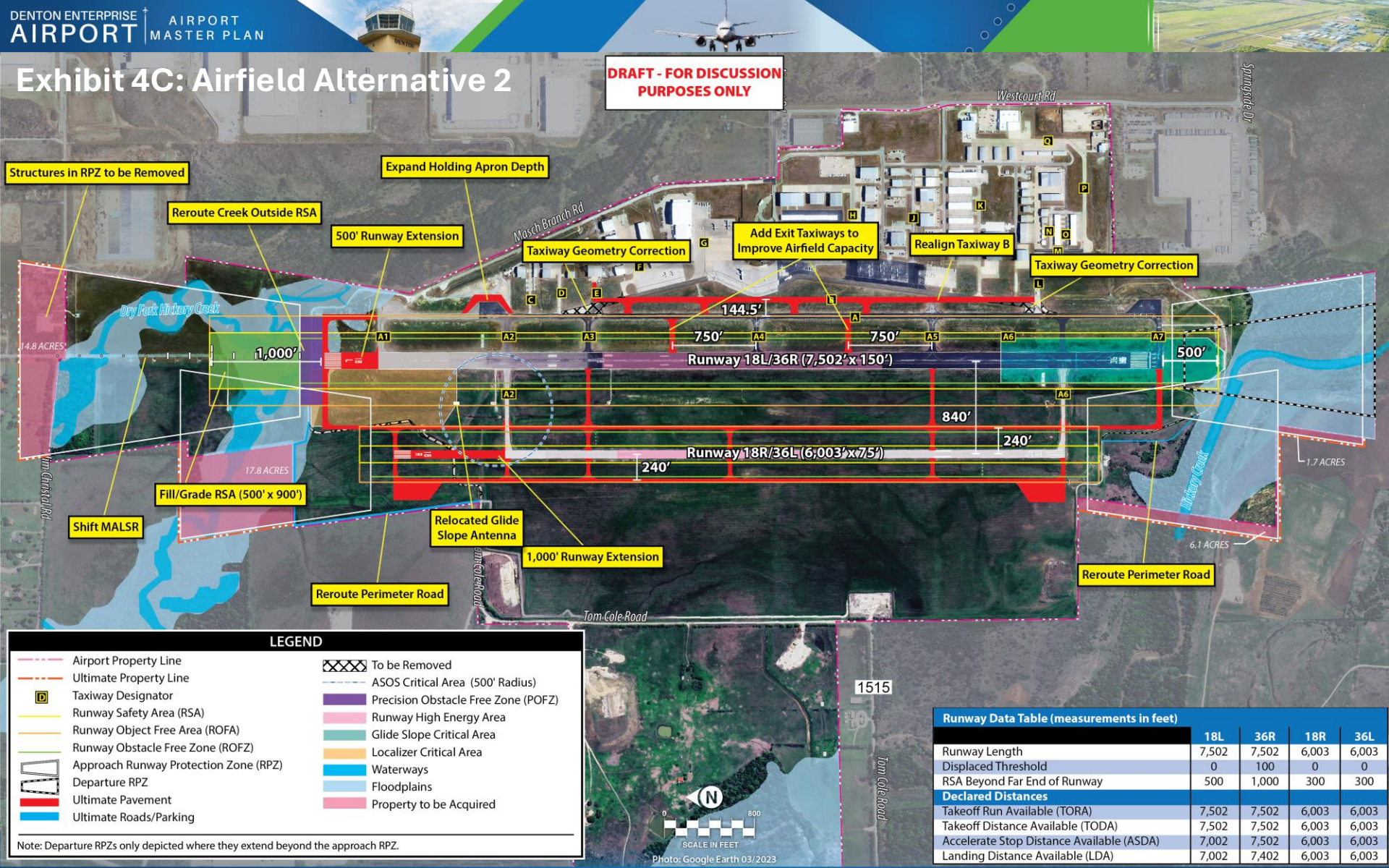

LEGEND

- Airport Property Line
- Ultimate Property Line
- Taxiway Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Approach Runway Protection Zone (RPZ)
- Departure RPZ
- Ultimate Pavement
- Ultimate Roads/Parking
- To be Removed
- ASOS Critical Area (500' Radius)
- Precision Obstacle Free Zone (POFZ)
- Runway High Energy Area
- Glide Slope Critical Area
- Localizer Critical Area
- Waterways
- Floodplains
- Property to be Acquired

Note: Departure RPZs only depicted where they extend beyond the approach RPZ.

Runway Data Table (measurements in feet)

	18L	36R	18R	36L
Runway Length	7,502	7,502	6,003	6,003
Displaced Threshold	0	100	0	0
RSA Beyond Far End of Runway	500	1,000	300	300
Declared Distances				
Takeoff Run Available (TORA)	7,502	7,502	6,003	6,003
Takeoff Distance Available (TODA)	7,502	7,502	6,003	6,003
Accelerate Stop Distance Available (ASDA)	7,002	7,502	6,003	6,003
Landing Distance Available (LDA)	7,002	7,402	6,003	6,003

Exhibit 4D: Airfield Alternative 3

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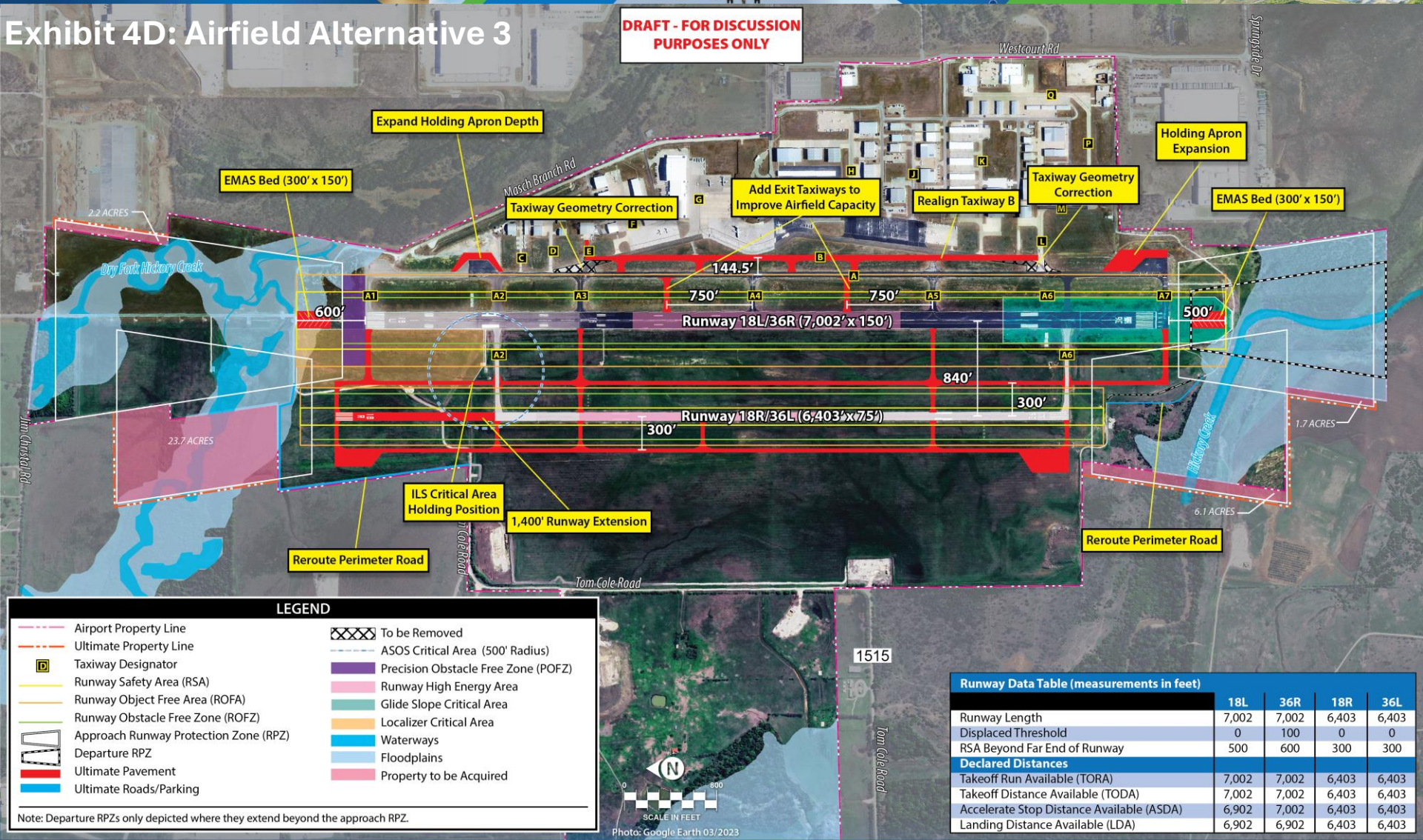

LEGEND

- Airport Property Line
- Ultimate Property Line
- Taxiway Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Approach Runway Protection Zone (RPZ)
- Departure RPZ
- Ultimate Pavement
- Ultimate Roads/Parking
- To be Removed
- ASOS Critical Area (500' Radius)
- Precision Obstacle Free Zone (POFZ)
- Runway High Energy Area
- Glide Slope Critical Area
- Localizer Critical Area
- Waterways
- Floodplains
- Property to be Acquired

Note: Departure RPZs only depicted where they extend beyond the approach RPZ.

SCALE IN FEET 0 800

Photo: Google Earth 03/2023

Runway Data Table (measurements in feet)

	18L	36R	18R	36L
Runway Length	7,002	7,002	6,403	6,403
Displaced Threshold	0	100	0	0
RSA Beyond Far End of Runway	500	600	300	300
Declared Distances				
Takeoff Run Available (TORA)	7,002	7,002	6,403	6,403
Takeoff Distance Available (TODA)	7,002	7,002	6,403	6,403
Accelerate Stop Distance Available (ASDA)	6,902	7,002	6,403	6,403
Landing Distance Available (LDA)	6,902	6,902	6,403	6,403

Table 4B: Landside Planning Considerations

#	Landside Component	Existing Capacity	Consideration
1	Aircraft Storage Hangars	736,720 sf of existing capacity	Increase total capacity by 571,680 sf.
2	Aircraft Parking Apron	60,175 sy of apron/parking	Increase total capacity by 44,725 sy.
3	Fuel Storage Capacity	36,340 gallons (Jet A); 37,340 gallons (100LL)	Increase Jet A storage by 69,849 gallons. Add a dedicated unleaded aviation fuel (100UL) tank.
4	Advanced Air Mobility (AAM)	None	Reserve space for future vertiport and support facility development.
5	Air Cargo	None	Reserve space for the potential development of an air cargo handling facility and dedicated apron and truck loading and staging areas.

sf = square feet
sy = square yards

Source: Coffman Associates analysis

Exhibit 4E: East Landside Alternative 1

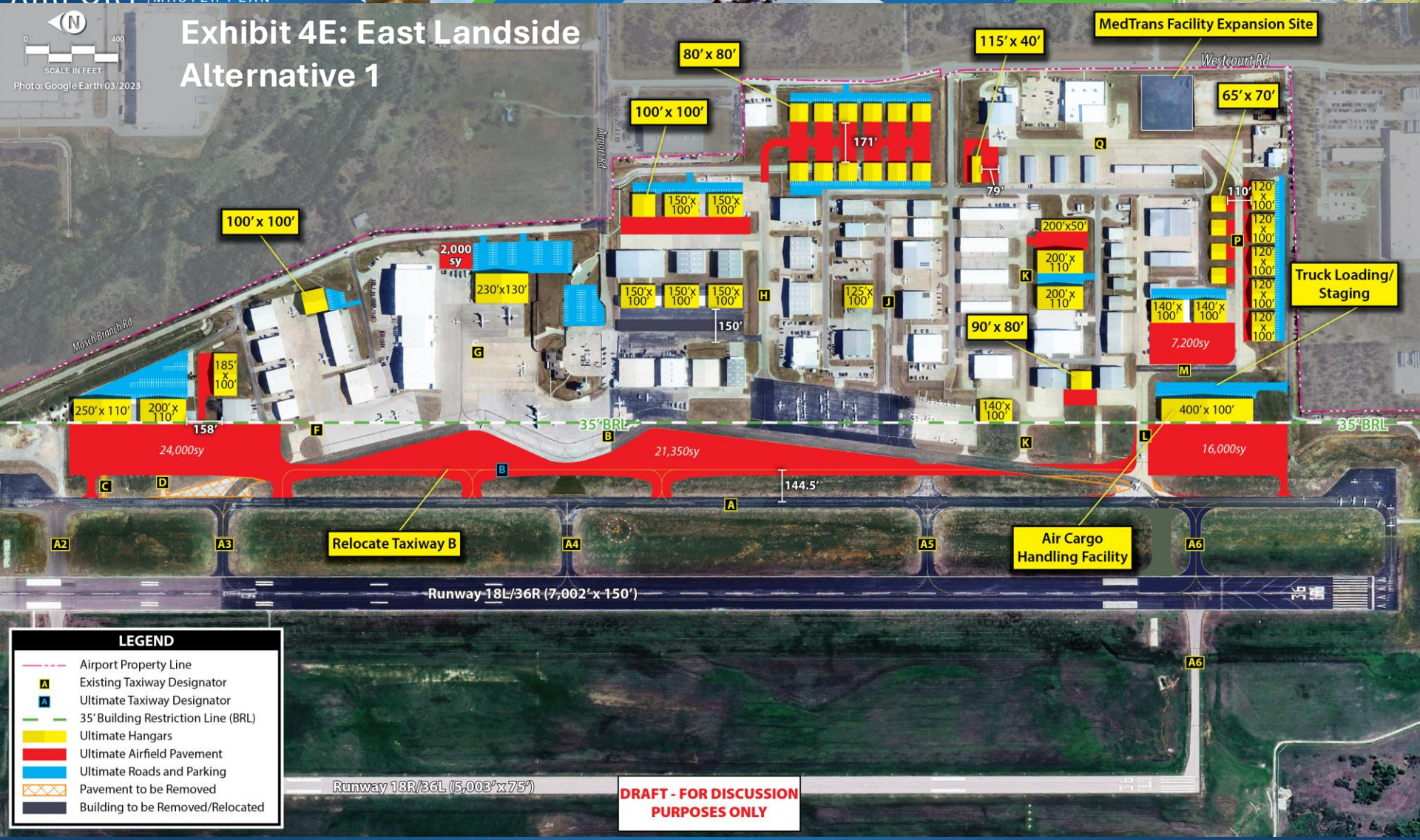

Exhibit 4F: East Landside Alternative 2

SCALE IN FEET 0 400

Photo: Google Earth 03/2023

LEGEND

- Airport Property Line
- A — Existing Taxiway Designator
- A — Ultimate Taxiway Designator
- 35' Building Restriction Line (BRL)
- Ultimate Hangars
- Ultimate Airfield Pavement
- Ultimate Roads and Parking
- Pavement to be Removed

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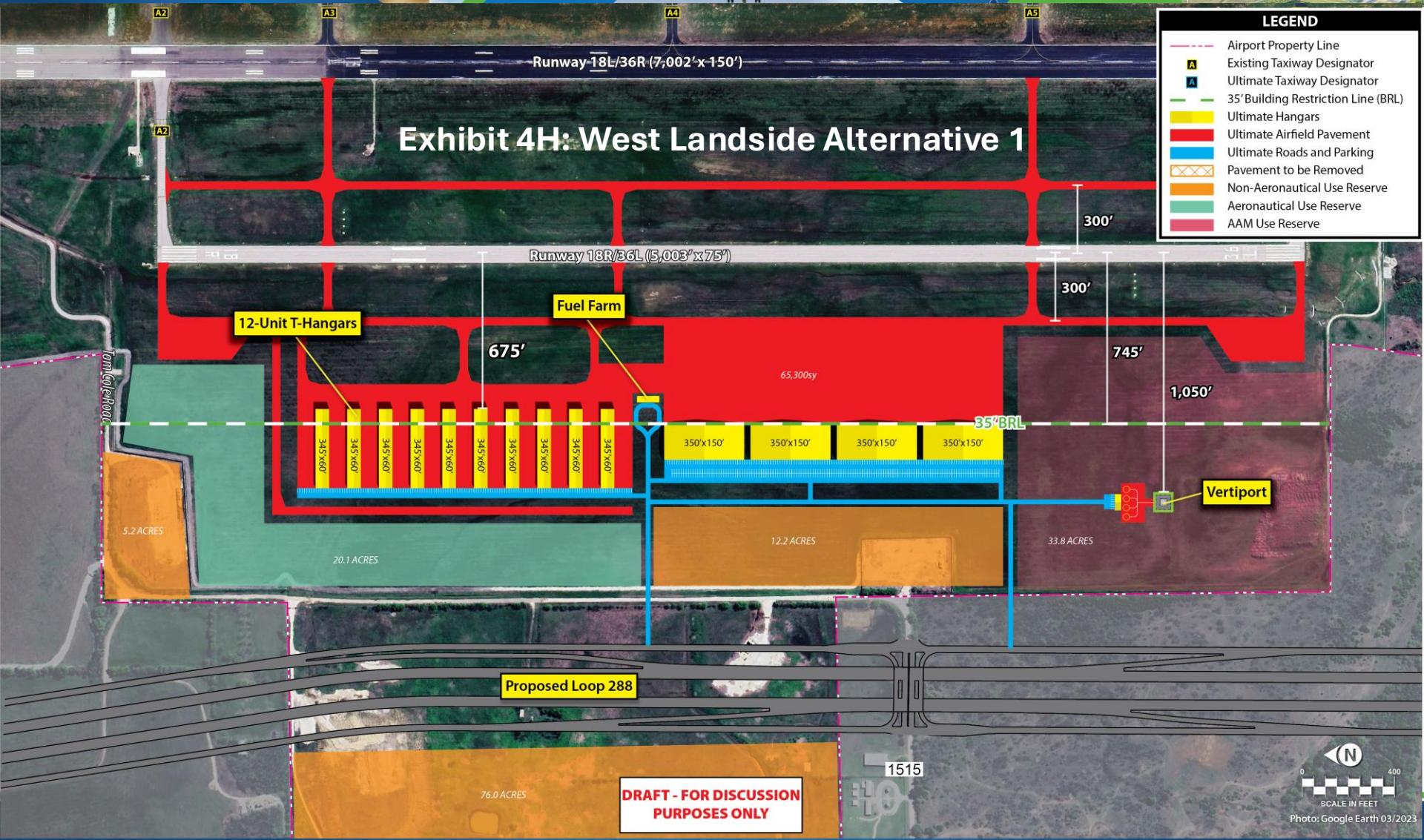
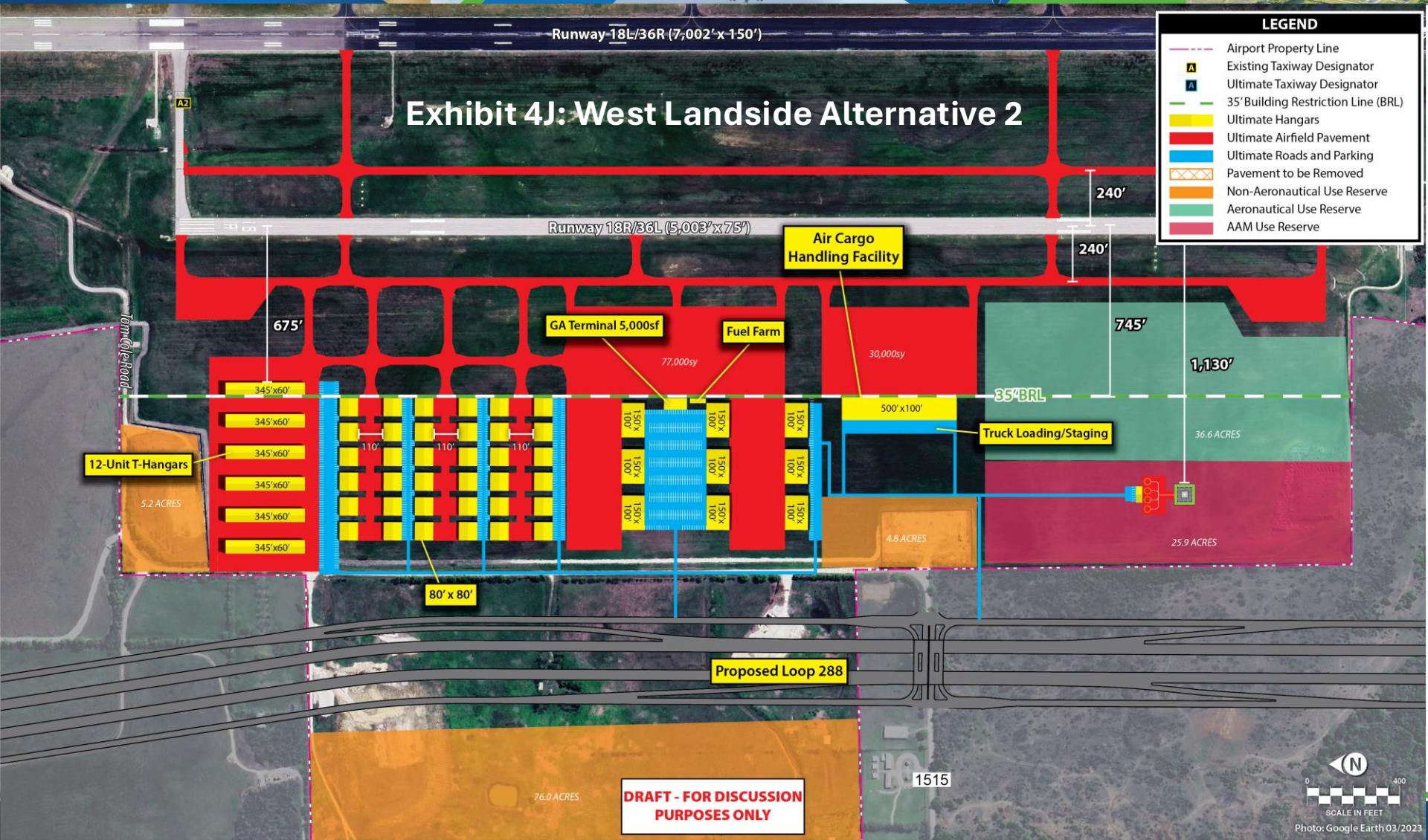
Exhibit 4G: East Landside Alternative 3
N
0
400
SCALE IN FEET
Photo: Google Earth 03/2023
70' x 60'
100' x 100'
Westcourt Rd
MedTrans Facility Expansion Site
Airport Rd
110'
79'
5,800sy
120'x 100'
Q
65' x 70'
110'
P
100' x 100'
9,700sy
230' x 170'
Masch Branch Rd
110'
H
125'x 100'
J
200'x50'
K
79'
65' x 70'
79'
G
35' BRL
35' BRL
2,700sy
K
L
E
F
B
C
D
66,125sy
A
A2
A3
No Taxi Island
A4
A5
A6
A7
Runway 18L/36R (7,002' x 150')
A6
Runway 18R/36L (5,003' x 75')
LEGEND
Airport Property Line
Existing Taxiway Designator
Ultimate Taxiway Designator
35' Building Restriction Line (BRL)
Ultimate Hangars
Ultimate Airfield Pavement
Ultimate Roads and Parking
Pavement to be Removed
DRAFT - FOR DISCUSSION PURPOSES ONLY


A2
A3
A4
A5
Runway 18L/36R (7,002' x 150')
Exhibit 4H: West Landside Alternative 1
LEGEND
Airport Property Line
Existing Taxiway Designator
Ultimate Taxiway Designator
35' Building Restriction Line (BRL)
Ultimate Hangars
Ultimate Airfield Pavement
Ultimate Roads and Parking
Pavement to be Removed
Non-Aeronautical Use Reserve
Aeronautical Use Reserve
AAM Use Reserve
300'
Runway 18R/36L (5,003' x 75')
300'
12-Unit T-Hangars
Fuel Farm
675'
745'
1,050'
65,300sy
35"BRL
345'x60'
350'x150'
Vertiport
5.2 ACRES
20.1 ACRES
12.2 ACRES
33.8 ACRES
Tom Go Jet Road
Proposed Loop 288
76.0 ACRES
1515
DRAFT - FOR DISCUSSION PURPOSES ONLY
N
0
400
SCALE IN FEET
Photo: Google Earth 03/2023


Runway 18L/36R (7,002' x 150')
Exhibit 4J: West Landside Alternative 2
LEGEND
Airport Property Line
Existing Taxiway Designator
Ultimate Taxiway Designator
35' Building Restriction Line (BRL)
Ultimate Hangars
Ultimate Airfield Pavement
Ultimate Roads and Parking
Pavement to be Removed
Non-Aeronautical Use Reserve
Aeronautical Use Reserve
AAM Use Reserve
A2
240'
240'
Runway 18R/36L (5,003' x 75')
Air Cargo Handling Facility
675'
GA Terminal 5,000sf
Fuel Farm
77,000sy
30,000sy
745'
1,130'
Tom Cole Road
345'x60'
345'x60'
345'x60'
345'x60'
345'x60'
345'x60'
35' BRL
500'x100'
Truck Loading/Staging
36.6 ACRES
12-Unit T-Hangars
5.2 ACRES
110'
110'
110'
150' x 100'
4.8 ACRES
25.9 ACRES
80' x 80'
Proposed Loop 288
76.0 ACRES
DRAFT - FOR DISCUSSION PURPOSES ONLY
1515
N
0
400
SCALE IN FEET
Photo: Google Earth 03/2023

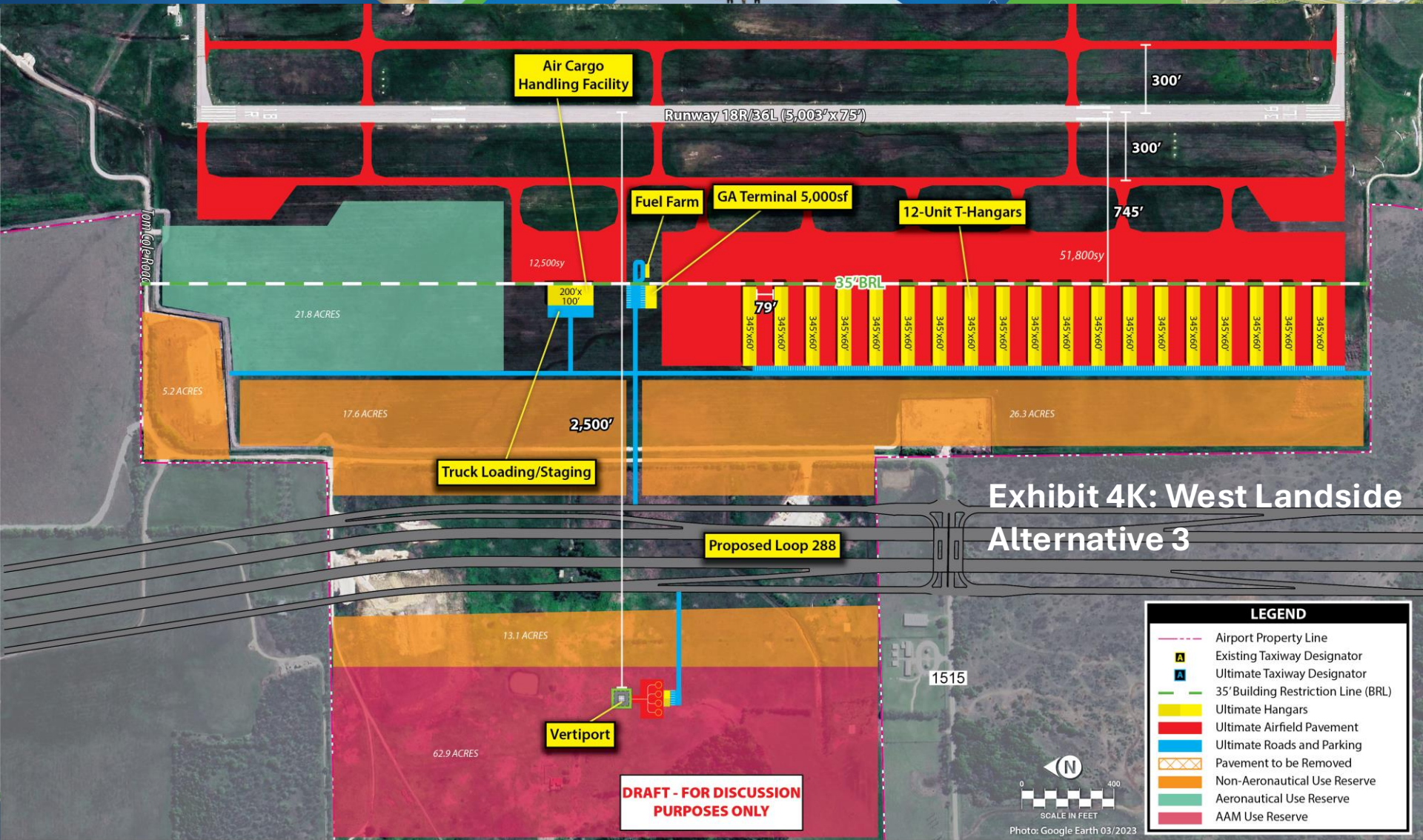


Exhibit 4K: West Landside Alternative 3

LEGEND

- Airport Property Line
- Existing Taxiway Designator
- Ultimate Taxiway Designator
- 35'Building Restriction Line (BRL)
- Ultimate Hangars
- Ultimate Airfield Pavement
- Ultimate Roads and Parking
- Pavement to be Removed
- Non-Aeronautical Use Reserve
- Aeronautical Use Reserve
- AAM Use Reserve

NEXT STEPS

- **Phase 3 Elements**
  - Recommended Development Concept
  - Capital Improvement Plan

- **PAC Meeting #4 & Public Workshop** – Summer 2025

QUESTIONS?

We want to hear from you!

Direct any questions or comments after this meeting to Eric Pfeifer with Coffman Associates at 816-524-3500 or epfeifer@coffmanassociates.com or visit the project website to submit comments online.

DTO.airportstudy.net