WICHITA
DWIGHT D. EISENHOWER
NATIONAL AIRPORT

AIRPORT MASTER PLAN

AGENDA

Planning Advisory Committee (PAC)
Meeting #3
Tuesday, August 5
1:30 pm

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1. Welcome/Introductions
2. Review of the Master Plan Process
3. Sustainability Elements (Garver)
4. Facility Requirements
5. Alternatives
6. Wrap Up Discussion

PROJECT TEAM

Coffman Associates – Airport Consultants

Prime Consultant: Responsible for all aspects of the master plan. Airport planning, environmental analysis, sustainability planning, land use planning, capital improvement plan, airport layout plan.

MTZ – Martinez Geospatial

FAA required Airports Geographic Information System (AGIS) survey. Aeronautical surveys, data collection, and aerial photography.

GARVER

Engineering support for alternatives and CIP, recycling plan, solar feasibility, alternative fuels analysis, drainage and utilities analysis, detention pond analysis, cargo analysis, GSE electrification analysis.

hubpoint – Strategic Advisors

Air cargo forecasts and market assessment.

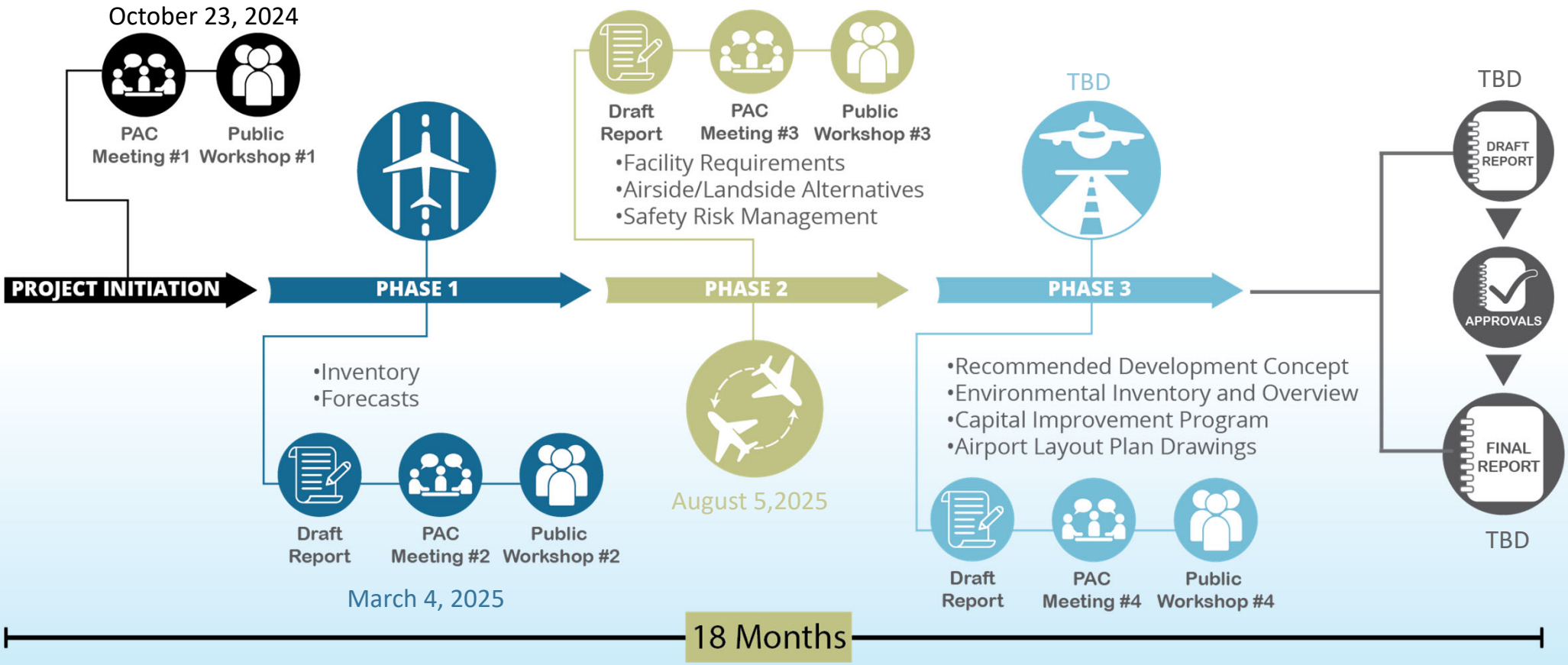
LANDRY SMS

Moderator for potential Safety Risk Management (SRM) and/or Comparative Safety Assessment.

Security 1st Title

Title and deed research for airport property.

MASTER PLAN PROCESS



1954 Commercial Airlines

Braniff Airways
Continental Airlines
Trans World Airlines (and two feeder lines)
Central Airlines
Ozark Airlines

Wichita Municipal Airport, 1954

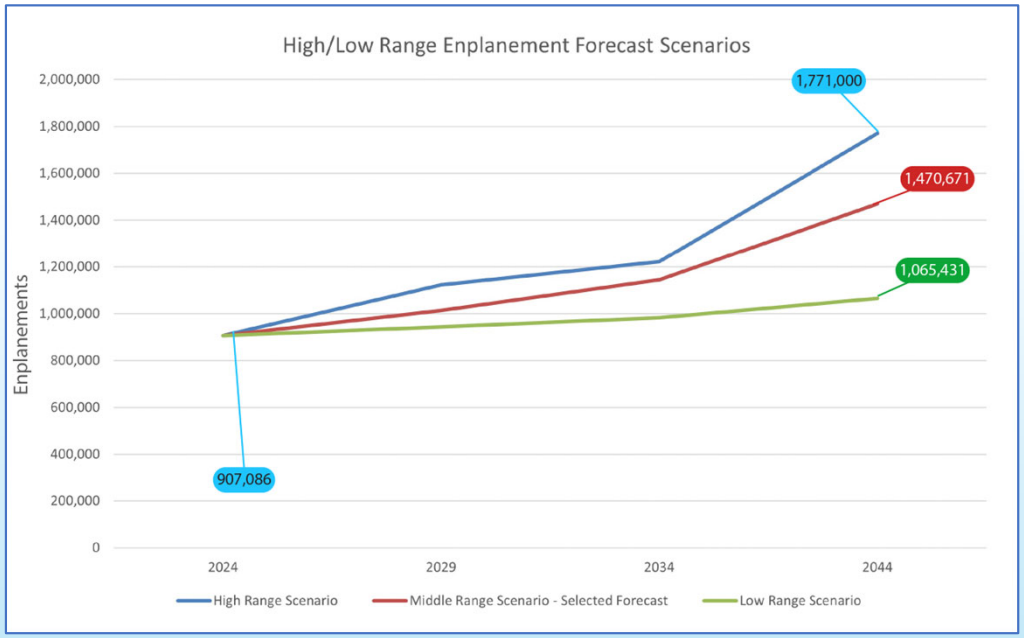
Table 1B: Economic Impact

	Employment	Payroll	Output
ICT	20,583	$1,206,734,800	$4,978,579,200
KS Airports	33,993	$1,848,815,800	$9,033,115,900

2016 Kansas Aviation Economic Impact Study

Table 2S: Range Scenario Enplanement Forecast

Scenario	2024	2029	2034	2044	CAGR
High Range Scenario	907,086	1,122,000	1,222,000	1,771,000	3.40%
Middle Range Scenario - Selected Forecast	907,086	1,014,108	1,144,094	1,470,671	2.45%
Low Range Scenario	907,086	944,317	983,076	1,065,431	0.81%



SUSTAINABILITY COMPONENTS REVIEW

1. Solar Array Siting and Feasibility Analysis
2. Alternative Aviation Fuels White Paper
3. Airport Recycling, Reuse, and Waste Reduction Plan (ARRWRP)

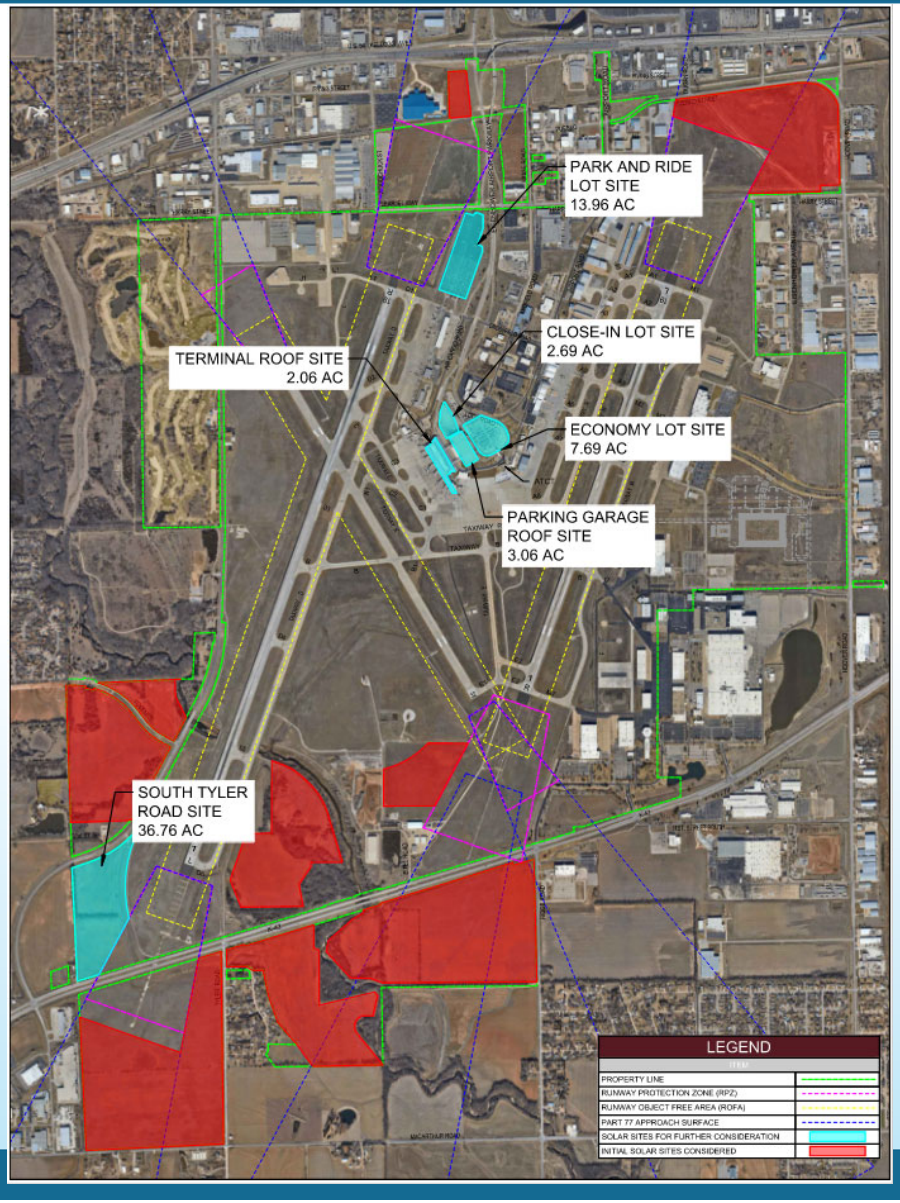
SOLAR ARRAY SITING AND FEASIBILITY

- Identification of potential sites refined over multiple discussions
  - FAA design standards
  - Floodplains
  - Electrical connections
  - Ancillary benefits

- Sites refined through discussions with electrical utility, site visit

SOLAR ARRAY SITING AND FEASIBILITY

Sites Considered



Site Name	Site Size (acres)	Scalability	Potential Generation – Year 1 (Annual AC kWh)	Potential Utilization	Cost Estimate	Potential Ancillary Benefits	Evaluation Notes
Close-In Parking Lot	2.69	Moderate	2,750,226	Direct offset of airport power consumption	$2,682,558	Panel canopies provide covered parking – parking rates can be adjusted accordingly.	High public visibility and passenger benefit. Site may be partially shaded by garage at certain times of year.
Economy Parking Lot	7.69	High	8,242,994	Direct offset of airport power consumption	$6,997,976	Panel canopies provide covered parking – parking rates can be adjusted accordingly.	High public visibility and passenger benefit. Site may be partially shaded by garage at certain times of year.
Park and Ride Parking Lot	13.96	High	14,444,717	Direct offset of airport power consumption	$14,112,585	Panel canopies provide covered parking – parking rates can be adjusted accordingly.	Lot has lower utilization rate than other lots.
Parking Garage Roof	3.06	Low	3,204,930	Direct offset of airport power consumption	$3,125,762.64	Panel canopies increase covered parking availability in garage.	Potential line of sight impacts from ATCT* to west airfield.
South Tyler Road**	36.76	High	57,161,412	Direct offset of airport power consumption and/or future adjacent development	$39,748,503.57	Close proximity to potential development site.	Could serve future development directly across Tyler Road.
Terminal Building Roof	2.06***	Low	1,861,225	Direct offset of airport power consumption	$2,076,065	Close proximity to existing electrical infrastructure.	Smallest site - exact area available for solar would require further analysis.

Table Notes: *Air Traffic Control Tower
****The South Tyler Road site was assessed using single axis panels.**
*****Areas with skylights and rooftop utilities were omitted from site size calculation.**

SOLAR ARRAY SITING AND FEASIBILITY

- Recommended next steps
  - Select preferred site(s)
  - Initiate utility coordination
  - Identify required electrical infrastructure upgrades, if any
  - Initiate design and construction

ALTERNATIVE AVIATION FUELS

- Hydrogen, electric, and sustainable aviation fuels (SAF) reviewed for white paper

- Hydrogen
  - Still experimental
  - Storage & distribution are significant challenges
  - Production requires significant energy (may negate environmental benefits)

  - Airport should monitor industry developments

ALTERNATIVE AVIATION FUELS

- Electric
  - Current tech focused on small aircraft/advanced air mobility
    - In use for flight training at some airports
  - Battery weight and capacity/range are challenges
  - Benefits of electric-powered aircraft will increase as renewable energy production increases

  - Airport should plan for sufficient electrical infrastructure to support growing operations of both fixed wing & eVTOL aircraft

ALTERNATIVE AVIATION FUELS

- Sustainable Aviation Fuels (SAF)
  - Environmental benefits heavily dependent on production method
  - Distribution often reduces environmental benefits
  - SAF still generates emissions when used
  - Significant additional scaling of production is needed to meet current goals and improve airports access

  - Airport should maintain dialogue with airlines and other major turbine operators regarding goals and local demand

AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION PLAN

- Included per FMRA Act of 2012 – Section 133
- Scope of plan limited to WAA-controlled facilities
- Airport currently recycles cardboard, paper (from WAA offices), various maintenance materials
- Previous single-stream recycling discontinued when new terminal opened
  - May be opportunities to restart single-stream recycling with waste vendor
- May be other partnership opportunities to reduce waste (concessionaires, community organizations, etc)

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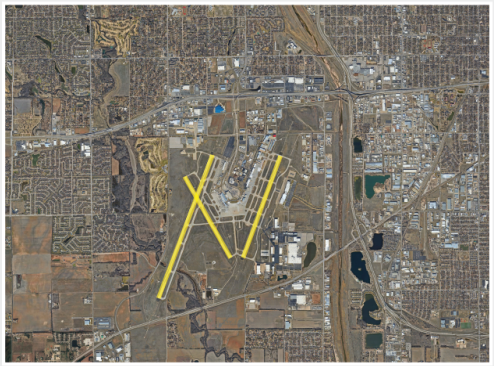
Chapter 3
Facility Requirements

AIRPORT MASTER PLAN

Exhibit 3A: Airfield Capacity Factors

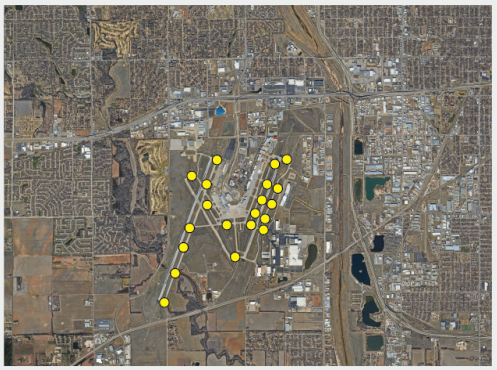
AIRFIELD LAYOUT

Runway Configuration



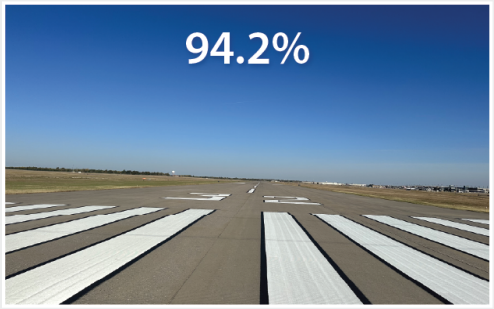
Runway Use

Number of Exits

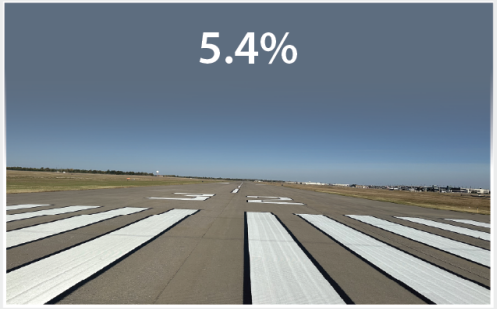


WEATHER CONDITIONS

VMC (VFR)
Visual Meteorological Conditions



IMC (IFR)
Instrument Meteorological Conditions



PVC
Poor Visibility Conditions

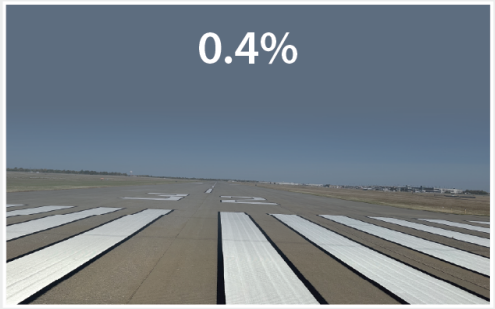


Exhibit 3A: Airfield Capacity Factors

AIRCRAFT MIX

Category A & B Aircraft (0-12,500 lbs)

Category C Aircraft (12,500-300,000 lbs)

Category D Aircraft (>300,000 lbs)

OPERATIONS

Arrivals

Departures

Touch-and-Go Operations

Total Annual Operations

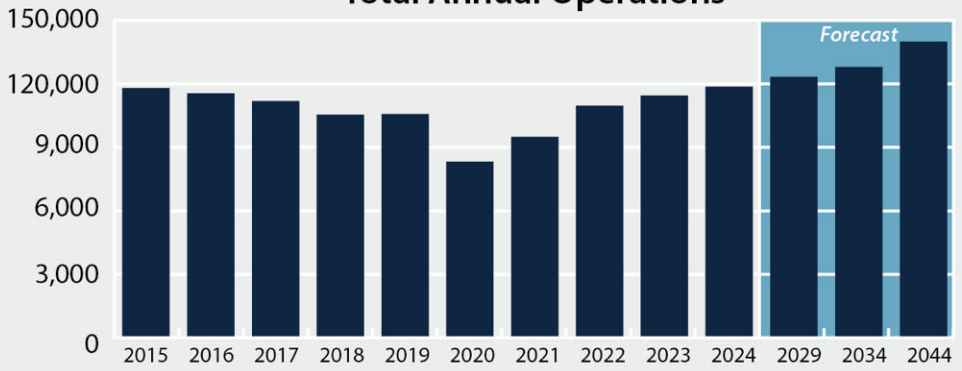


Exhibit 3B: Airfield Capacity Analysis

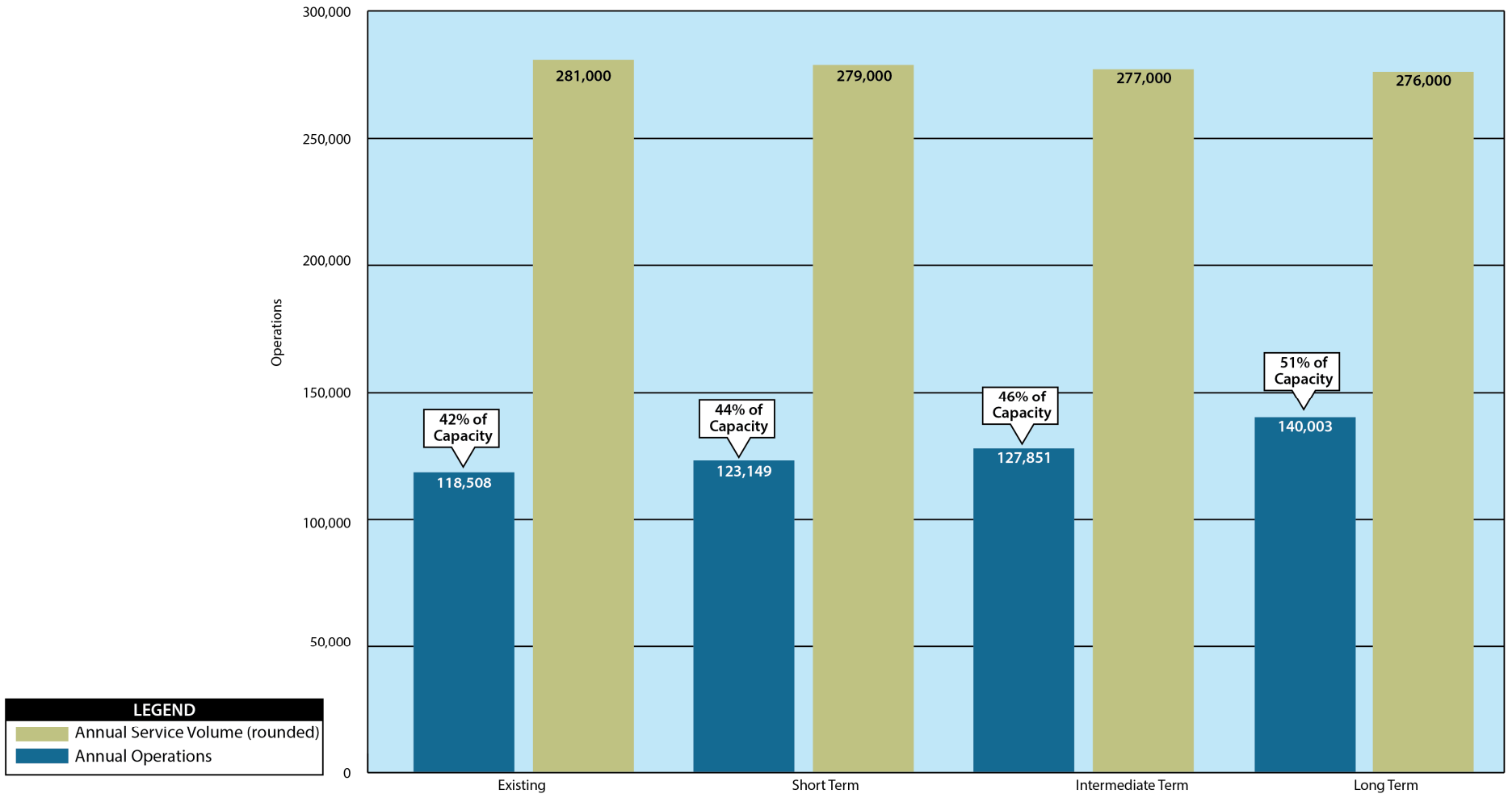


Figure 3J: Runway Design Standards

Airport Data Category	Design Standards		
Runway	**1L-19R**	**1R-19L**	**14-32**
Design Aircraft	D-IV-4	D-IV-4	C-III-3
Runway Design Code	D-IV-2400	D-IV-2400	C-III-4000
Lowest Visibility Minimums	½-mile	½-mile	¾-mile
RUNWAY DESIGN			
Runway Width	150'	150'	150'
Runway Shoulder Width	25'	25'	25'
Blast Pad	200' long x 200' wide	200' long x 200' wide	200' long x 200' wide
RUNWAY PROTECTION			
Runway Safety Area (RSA)			
Width	500'	500'	500'
Length Beyond Departure End	1,000'	1,000'	1,000'
Length Prior to Threshold	600'	600'	600'
Runway Object Free Area (ROFA)			
Width	800'	800'	800'
Length Beyond Departure End	1,000'	1,000'	1,000'
Length Prior to Threshold	600'	600'	600'
Runway Obstacle Free Zone (ROFZ)			
Width	400'	400'	400'
Length Beyond End	200'	200'	200'
Approach Runway Protection Zone (RPZ)			
Length	2,500'	2,500'	1,700'
Inner Width	1,000'	1,000'	1,000'
Outer Width	1,510'	1,510'	1,510'
Departure Runway Protection Zone (RPZ)			
Length	1,700'	1,700'	1,700'
Inner Width	500'	500'	500'
Outer Width	1,010'	1,010'	1,010'
RUNWAY SEPARATION			
Runway Centerline to:			
Holding Position	264'	264'	250'
Parallel Taxiway	400'	400'	400'
Note: All dimensions in feet			

Exhibit 3D: Airfield Safety Areas

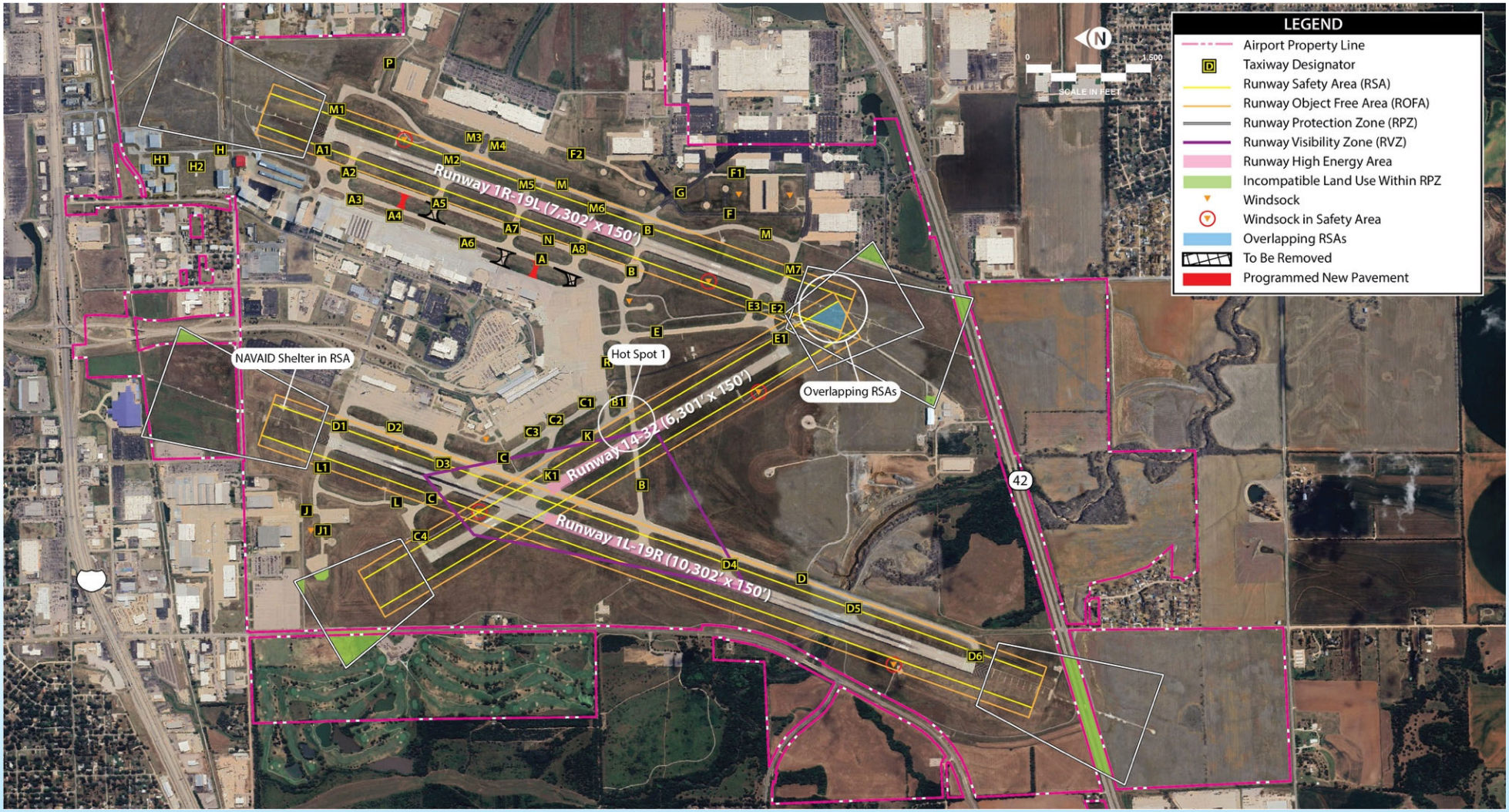


Figure 3P: Commercial Aircraft Takeoff Length

Aircraft Type	TAKEOFF LENGTH REQUIREMENTS (feet)						
	MTOW (lbs.)	Useful Load					
		60%	70%	80%	90%	100%
B737-700	154,500	5,500	6,400	7,400	8,500	10,900
B737-800	174,200	5,800	6,500	7,400	7,900	8,900
B737-900	174,200	6,600	7,600	8,900	9,700	11,900
B737-MAX8	181,200	5,500	6,000	6,500	7,100	7,900
B737-MAX9	194,700	6,600	7,400	7,900	9,100	10,300
B757-200	***240,000***	***5,300***	***5,800***	***6,600***	***7,600***	***8,700***
B767-200	315,000	5,000	5,600	6,000	6,500	7,100
B767-300	350,000	8,300	9,000	9,600	9,900	10,800
CRJ-900	82,500	5,600	6,100	6,500	7,000	7,600
ERJ-170	79,344	4,000	4,400	4,700	5,300	5,800
A320	169,750	6,300	6,900	7,400	7,900	8,500

- Airfield elevation: 1,332.6 feet MSL
- Mean maximum temp of the hottest month: 92.6°
- MTOW: maximum takeoff weight
- ***Boldface*** is representative of the current critical aircraft
- Length calculations above 30 are rounded up to next 100
- RED indicates calculated length is greater than the existing 10,302' runway length.

Runway Length Requirements

- Primary Runway 1L-19R (10,302’): Maintain existing length.
- Secondary Runway 1R-19L (7,302’): Consider 1,400’ extension for a total length of 8,702’).
- Crosswind Runway 14-32 (6,301’): Maintain a minimum of 6,140’

Figure 3U: Airline Peaking Activity Levels

Enplanements	2024 – Current	Short Term	Intermediate Term	Long Term
Annual	907,086	1,014,108	1,144,094	1,470,671
Peak Month	89,257	99,788	112,579	144,714
Design Day	2,879	3,219	3,632	4,668
Design Hour	653	730	824	1,059
Deplanements				
Design Hour	653	730	824	1,059
Total Passengers				
Design Hour	1,307	1,461	1,648	2,118
Commercial Operations				
Annual	23,893	24,665	26,353	32,907
Peak Month	2,266	2,339	2,499	3,120
Design Day	71	74	79	98
Design Hour	9	9	10	12
Departures/Arrivals				
Design Day	71	74	76	98
Design Hour	9	9	10	12

Figure 3W: Terminal Curb and Parking

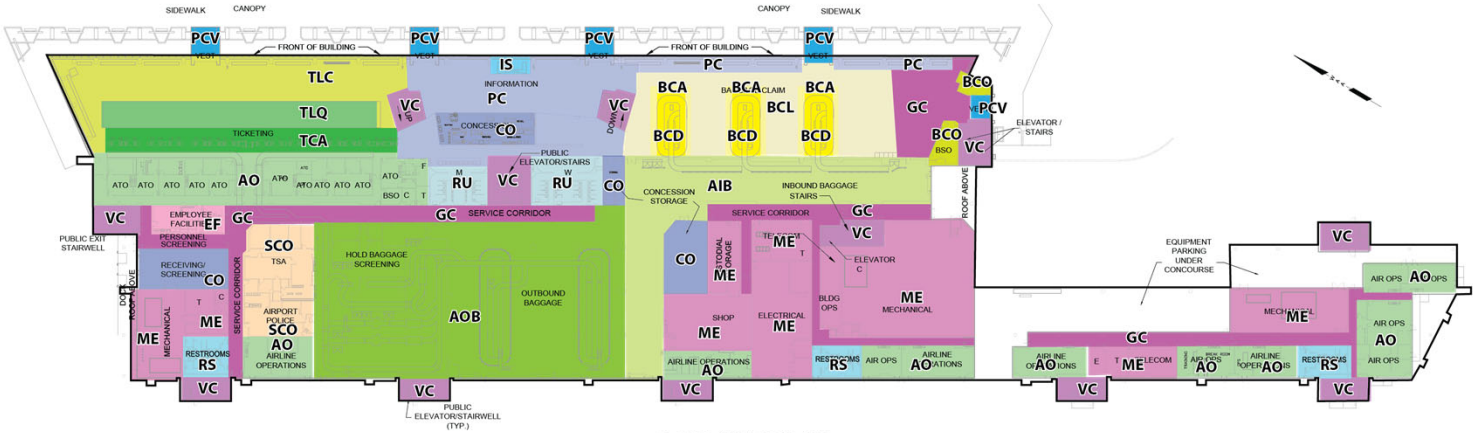
	Existing	Current Need	Short Term	Intermediate Term	Long Term
Terminal Curb					
Enplane Curb (ft)	750	290	260	290	370
Deplane Curb (ft)	650	410	640	720	910
Total Curb (ft)	**1,400**	**700**	**900**	**1,010**	**1,280**
Auto Parking					
Short Term	2,503	1,814	2,028	2,288	2,941
Long Term	1,088	777	869	981	1,260
Employee	271	181	203	229	294
Subtotal	***3,862***	***2,772***	***3,100***	***3,498***	***4,495***
Rental Car Parking					
Rental Car	400	345	386	436	560
Total All Parking	**4,262**	**3,117**	**3,486**	**3,934**	**5,055**

Figure 3BB: General Aviation and Support Facilities Summary

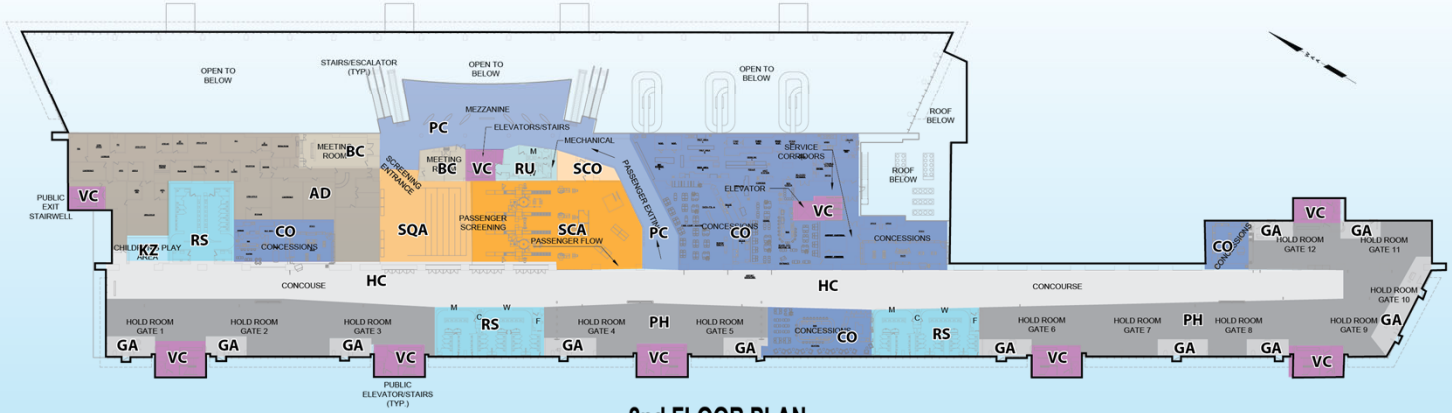
Parameter	Available	Short Term	Intermediate Term	Long Term
Based Aircraft	122	132	142	162
Additional General Aviation Hangar Space (s.f.)		30,000	60,000	120,000
Additional Aircraft Parking Apron (s.y.)		3,300	6,600	13,300
GA Vehicle Parking and Access		Add parking in association with new hangars		
Additional GA Terminal Services (s.f.)	26,600 (est.)	600	1,300	2,700
Additional Fuel Storage Capacity (gallons)	453,000	Vendor Decision	Vendor Decision	Vendor Decision
Perimeter Fencing (l.f.)	Approx. 48,000	Maintain and Replace as Needed	Maintain and Replace as Needed	Maintain and Replace as Needed
ARFF Building		Replace/ Upgrade Facility	Maintain	Maintain
ARFF Vehicles		Upgrade on a regular schedule		
Maintenance Facilities		Expand as needed		
Snow Removal Equipment		Upgrade on a regular schedule		

Exhibit 1N: Terminal Building

Functional Area	Exhibit ID	Level 1 (sf)	Level 2 (sf)
Ticketing/Check-In			
Ticket Counter Area	TCA	3,000	-
Ticket Lobby Que Area	TLQ	3,500	-
Ticket Lobby Circulation	TLC	8,100	-
Airline Operations	AO	18,400	-
Airline Operations/Outbound Baggage	AOB	22,400	-
Airline Operations/Inbound Baggage	AIB	10,200	-
Security Screening			
Security Checkpoint Area	SCA	-	6,600
Security Queue Area	SQA	-	3,800
Security Offices	SCO	3,600	600
Passenger Holdroom			
Passenger Holdroom	PH	-	23,200
Gate Area/Loading	GA	-	4,500
Holdroom Circulation	HC	-	21,900
Baggage Claim			
Bag Claim Device	BCD	2,500	-
Bag Claim Area	BCA	1,300	-
Bag Claim Lobby/Circulation	BCL	6,200	-
Bag Claim Office	BCO	700	-
Public Spaces			
Restrooms (Secure)	RS	1,500	7,400
Restrooms (unsecure)	RU	2,600	900
Concessions	CO	5,000	19,800
Public Circulation	PC	10,900	8,500
Public Circulation - Vestibules	PCV	2,000	-
Information Station	IS	300	-
Kids Zone	KZ	-	500
Administrative Space			
Administration Offices	AD	-	11,300
Business Center	BC	-	2,100
General Building Areas			
Structural Space (not shown)	SS	6,800	5,000
Mechanical/Electrical	ME	21,600	-
Vertical Circulation	VC	6,300	5,900
General Circulation	GC	10,200	-
Employee Facilities	EF	900	-
Terminal Building Area By Level		149,000	123,000
Gross Terminal Building Area		272,000	



1st FLOOR PLAN



2nd FLOOR PLAN

Exhibit 3G: Terminal Space Requirements

			Planning Activity Levels			
			Enplanements			
		Existing	Current Need	Short	Intermediate	Long
			907,086	1,014,108	1,144,094	1,470,671
Ticketing/Check-In						
Utilization Factor	90%	0	588	657	742	953
Agent Positions	#	30	24	27	31	40
Frontage	LF	200	144	162	186	240
Ticket Counter Area	SF	3,000	1,580	1,780	2,050	2,640
Ticket Lobby Que Area	SF	3,500	3,310	3,700	4,180	5,370
Ticket Lobby Circulation	SF	8,100	6,760	7,560	8,530	10,960
Airline Operations (AO)	SF	18,400	8,640	9,720	11,160	14,400
Outbound Baggage (AO)	SF	22,400	8,640	9,720	11,160	14,400
Inbound Baggage (AO)	SF	10,200	4,320	4,860	5,580	7,200
Subtotal Ticketing/Check-In Functions		***65,600***	***33,250***	***37,340***	***42,660***	***54,970***
Security Stations						
Number of Lanes	#	4	4	5	5	8
Station Area	SF	6,600	1,440	1,800	1,800	2,880
Queing Area	SF	3,800	2,100	2,350	2,650	3,410
TSA Administration/Operations	SF	4,200	2,800	3,500	3,500	5,600
Subtotal Security Station Functions		***14,600***	***6,340***	***7,650***	***7,950***	***11,890***
Passenger Holdrooms						
Gates	#	12	6	7	8	10
Holdroom Area	SF	23,200	12,230	13,670	15,430	21,700
Gate Area/Loading	SF	4,500	2,700	2,700	3,000	3,600
Circulation Area	SF	21,900	12,230	13,670	15,430	21,700
Subtotal Passenger Holdroom Functions		***49,600***	***27,160***	***30,040***	***33,860***	***47,000***
Baggage Claim						
Passengers Claiming Bags	85%	555	555	621	700	900
Claim Display Frontage	LF	312	250	280	320	410
Claim Device Floor Area	SF	2,500	2,000	2,240	2,560	3,280
Claim Devise Frontage	SF	1,300	1,000	1,120	1,280	1,640
Bag Claim Circulation Area	SF	6,200	7,940	8,870	10,020	12,870
Baggage Service Office	SF	700	500	560	640	820
Subtotal Baggage Claim Functions		***10,700***	***11,440***	***12,790***	***14,500***	***18,610***

Exhibit 3G:
Terminal Space Requirements

		Planning Activity Levels				
			Enplanements			
		Existing	Current Need	Short	Intermediate	Long
Concessions						
Food & Beverage	SF	16,900	10,890	12,170	13,730	17,650
Retail	SF	4,300	4,540	5,070	5,720	7,350
Support/Storage	SF	3,600	3,090	3,450	3,890	5,000
Subtotal Concession Functions		***24,800***	***18,520***	***20,690***	***23,340***	***30,000***
Airport Administration						
Administration Offices	SF	11,300	7,800	8,800	9,900	12,700
Business Center	SF	2,100	1,361	1,521	1,716	2,206
Employee Facilities	SF	900	907	1,014	1,144	1,471
FIS Facilities	SF	0	2,600	2,600	2,600	2,600
Subtotal Administration Functions		***14,300***	***12,668***	***13,935***	***15,360***	***18,977***
General Public Areas						
Circulation inc. Vestibules	SF	31,600	23,610	26,400	29,800	38,290
Other Public Areas[1]	SF	800	454	507	572	735
Restrooms	SF	12,400	6,270	7,010	7,910	10,170
Subtotal General Public Area Functions		***44,800***	***30,334***	***33,917***	***38,282***	***49,195***
FUNCTIONAL AREA TOTAL						
Total Functional Area	**SF**	**224,400**	**139,711**	**156,362**	**175,952**	**230,642**
BUILDING SYSTEMS/SUPPORT						
Mechanical/HVAC	SF	21,600	11,180	12,510	14,080	18,450
Vertical Circulation/Structural Space/ General Storage	SF	26,000	13,970	15,640	17,600	23,060
TOTAL TERMINAL						
Gross Building Area	**SF**	**272,000**	**164,861**	**184,512**	**207,632**	**272,152**

[1]Information Station, Kids Zone, Nursing Station, Pet Relief, etc. Note: Level of Service C+ is applied

Exhibit 3K: General Aviation Apron Project

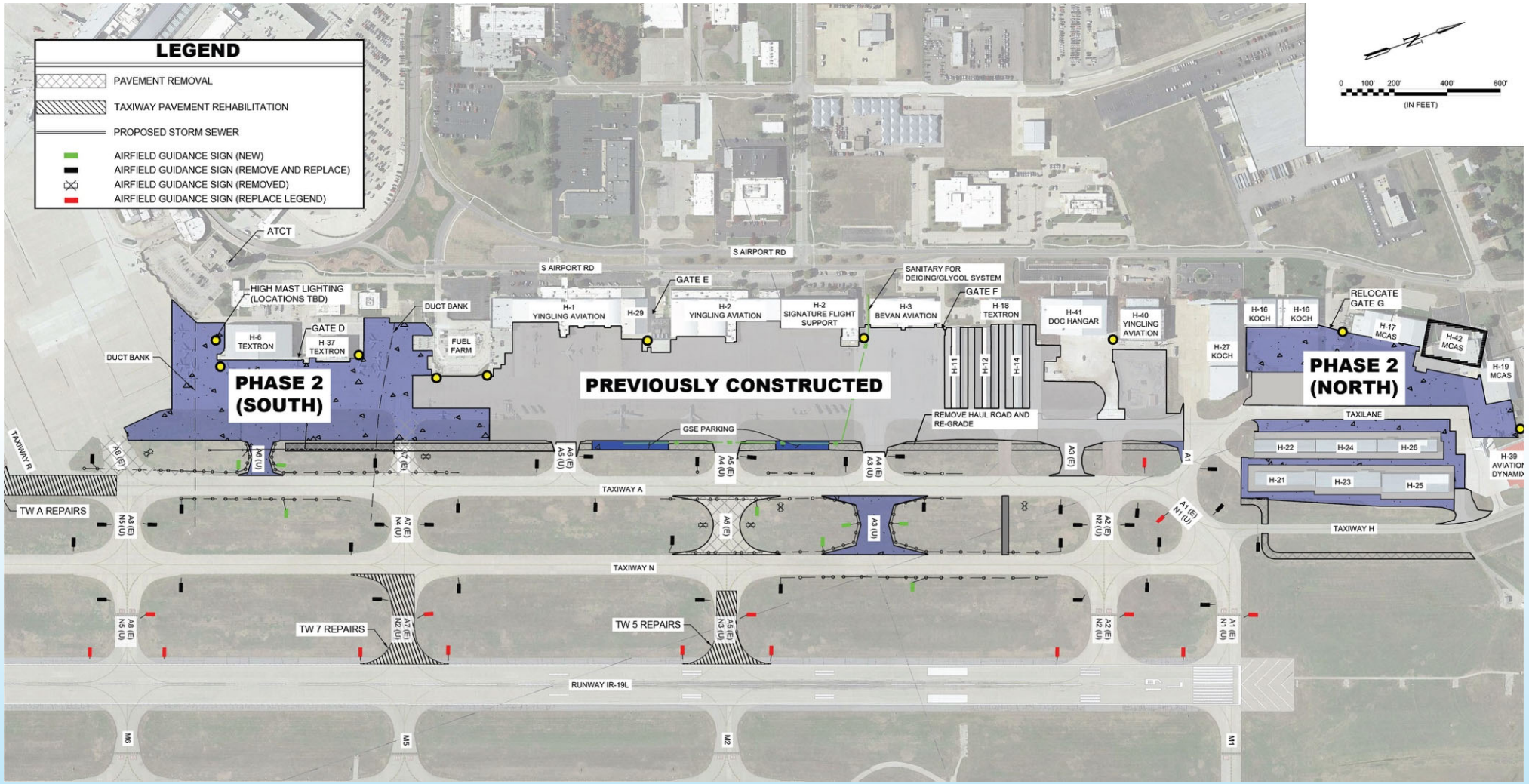
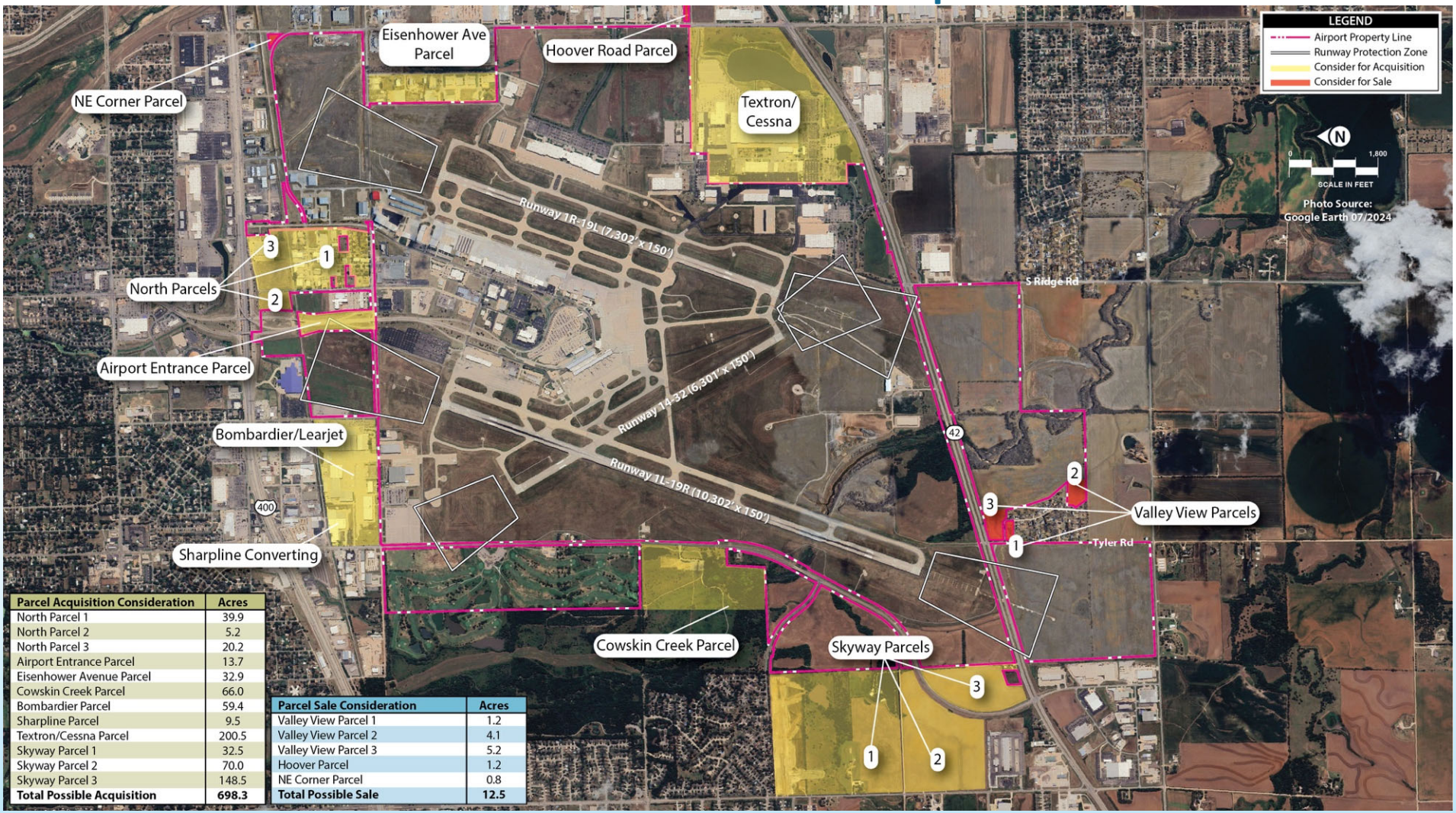


Exhibit 3M: Potential Land Acquisition



Parcel Acquisition Consideration	Acres
North Parcel 1	39.9
North Parcel 2	5.2
North Parcel 3	20.2
Airport Entrance Parcel	13.7
Eisenhower Avenue Parcel	32.9
Cowskin Creek Parcel	66.0
Bombardier Parcel	59.4
Sharpline Parcel	9.5
Textron/Cessna Parcel	200.5
Skyway Parcel 1	32.5
Skyway Parcel 2	70.0
Skyway Parcel 3	148.5
Total Possible Acquisition	**698.3**

Parcel Sale Consideration	Acres
Valley View Parcel 1	1.2
Valley View Parcel 2	4.1
Valley View Parcel 3	5.2
Hoover Parcel	1.2
NE Corner Parcel	0.8
Total Possible Sale	**12.5**

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NATIONAL AIRPORT

Chapter 4
Alternatives

AIRPORT MASTER PLAN

Exhibit 4A: Current ALP

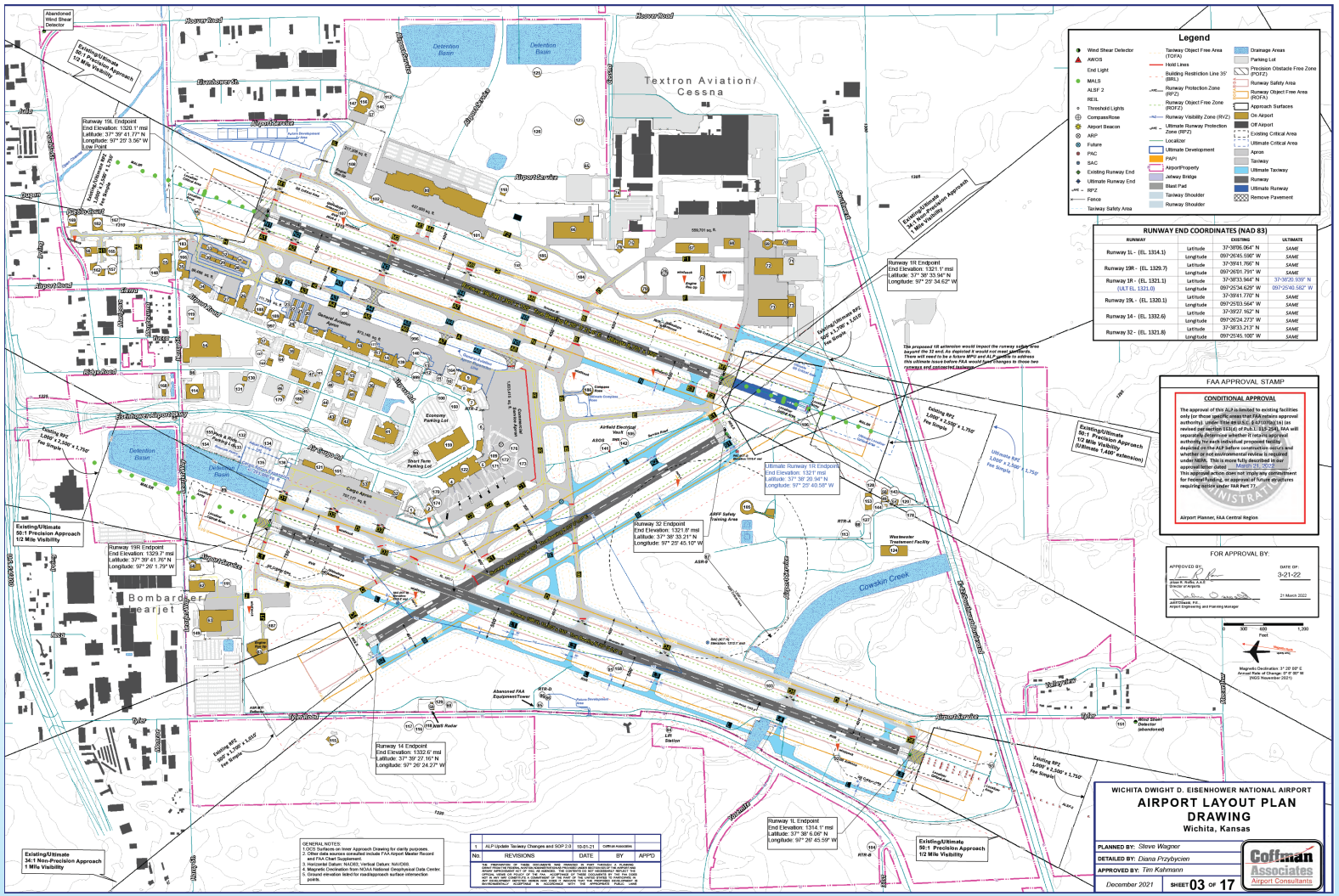


Exhibit 4B: Overlapping RSAs

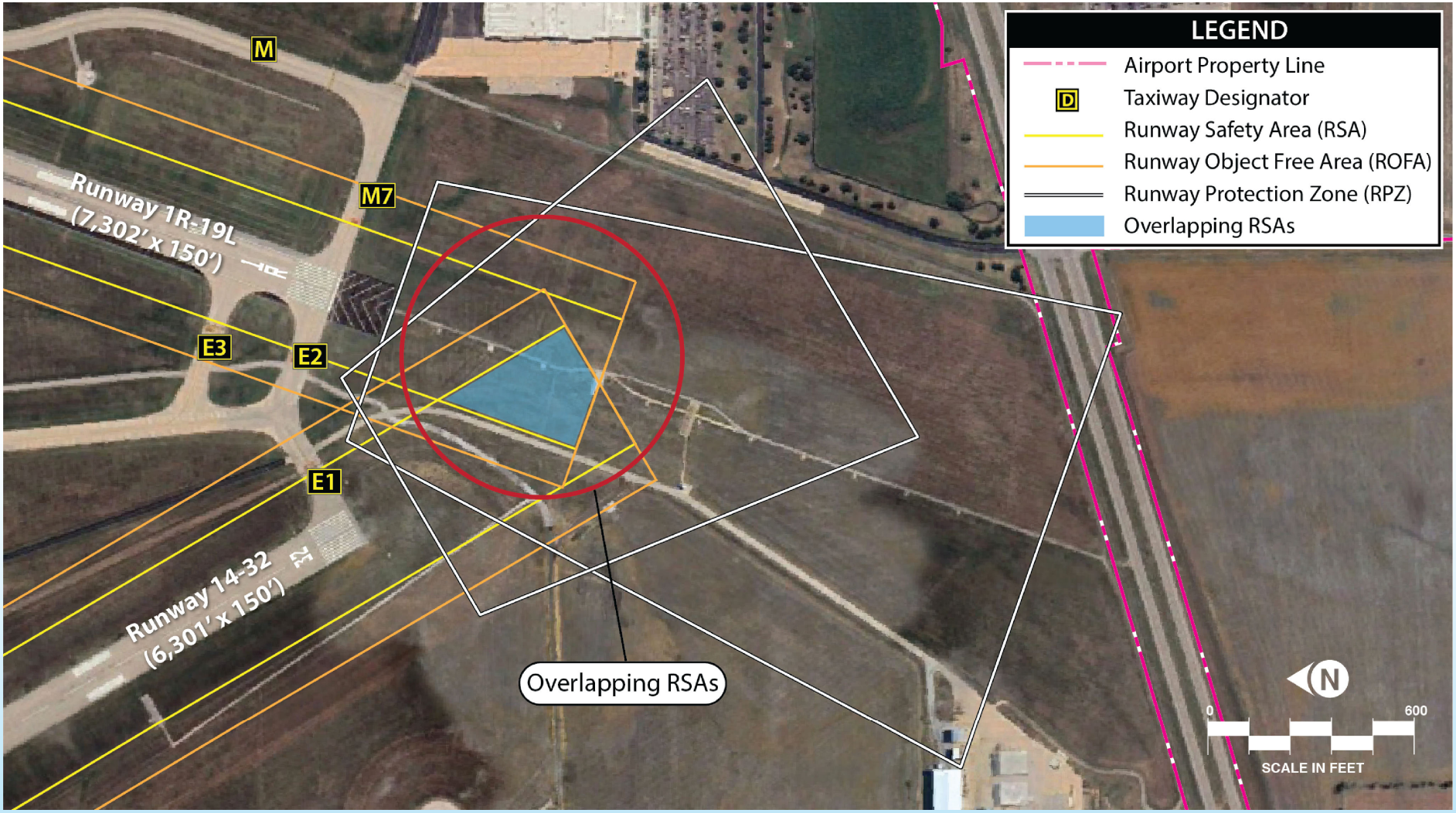


Exhibit 4C: Alternative 1 – Shorten Runway 14-32

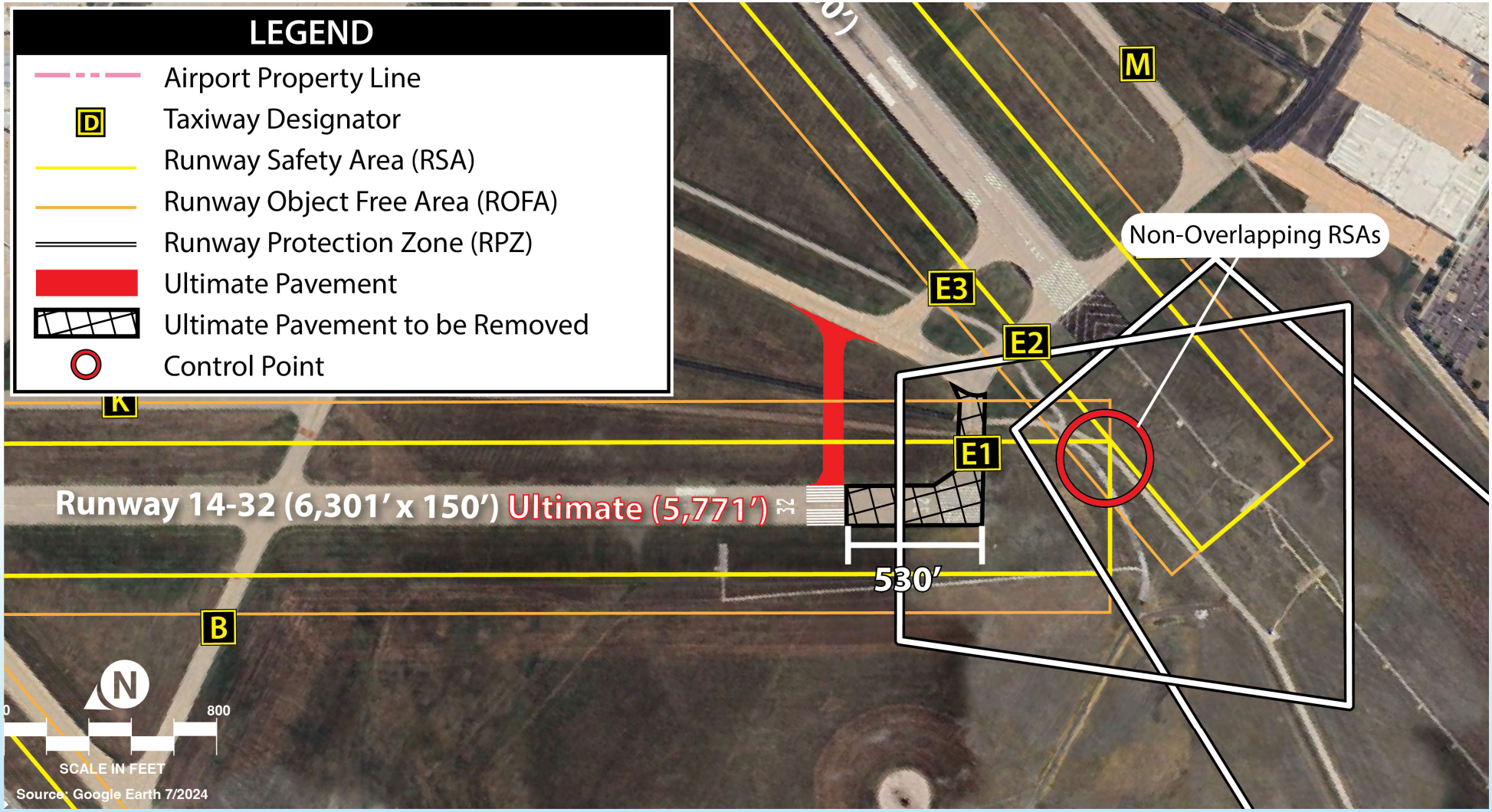


Exhibit 4D: Alternative 2 – Shift/Extend Runway 14-32

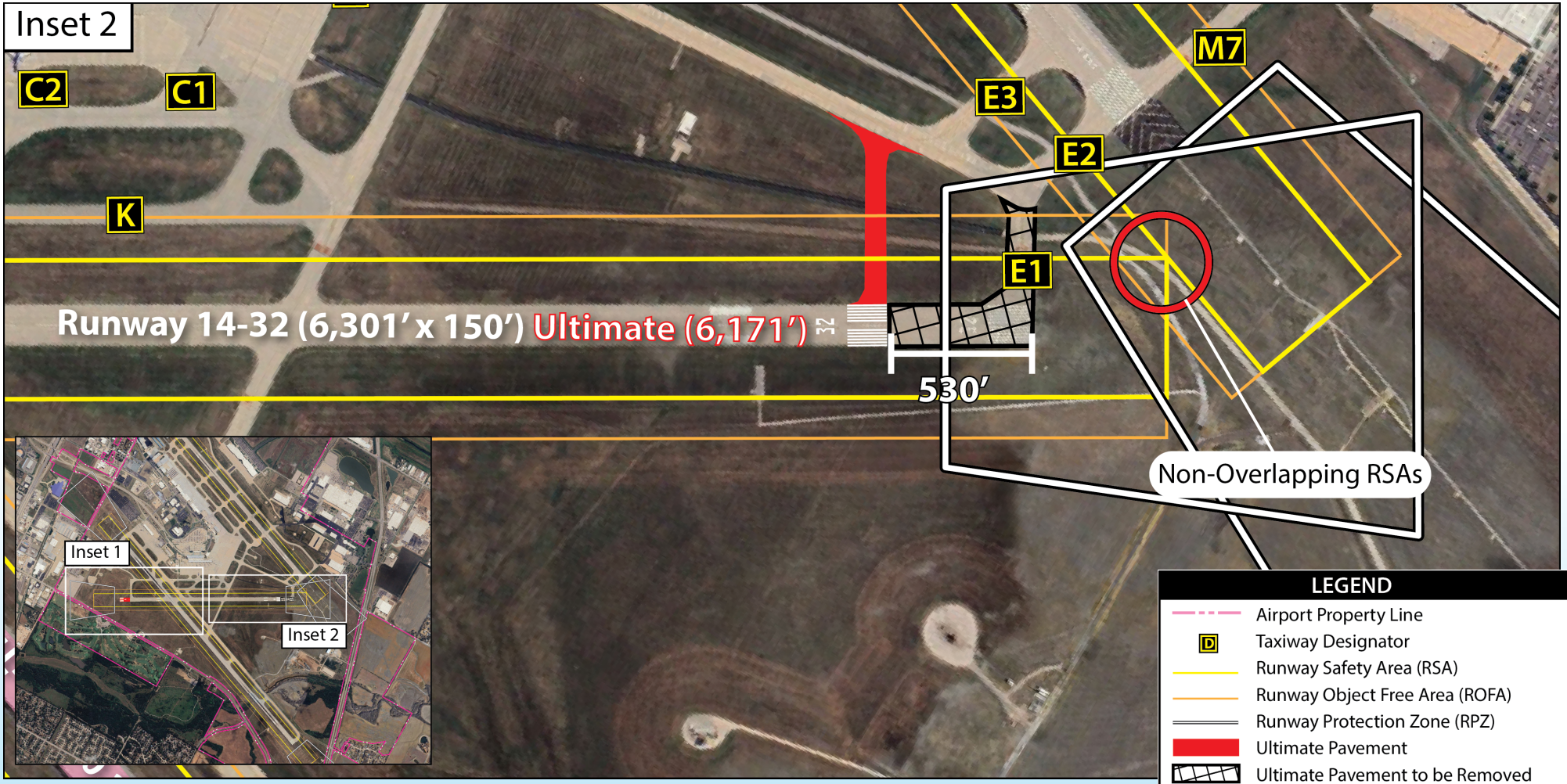


Exhibit 4D: Alternative 2 – Shift/Extend Runway 14-32

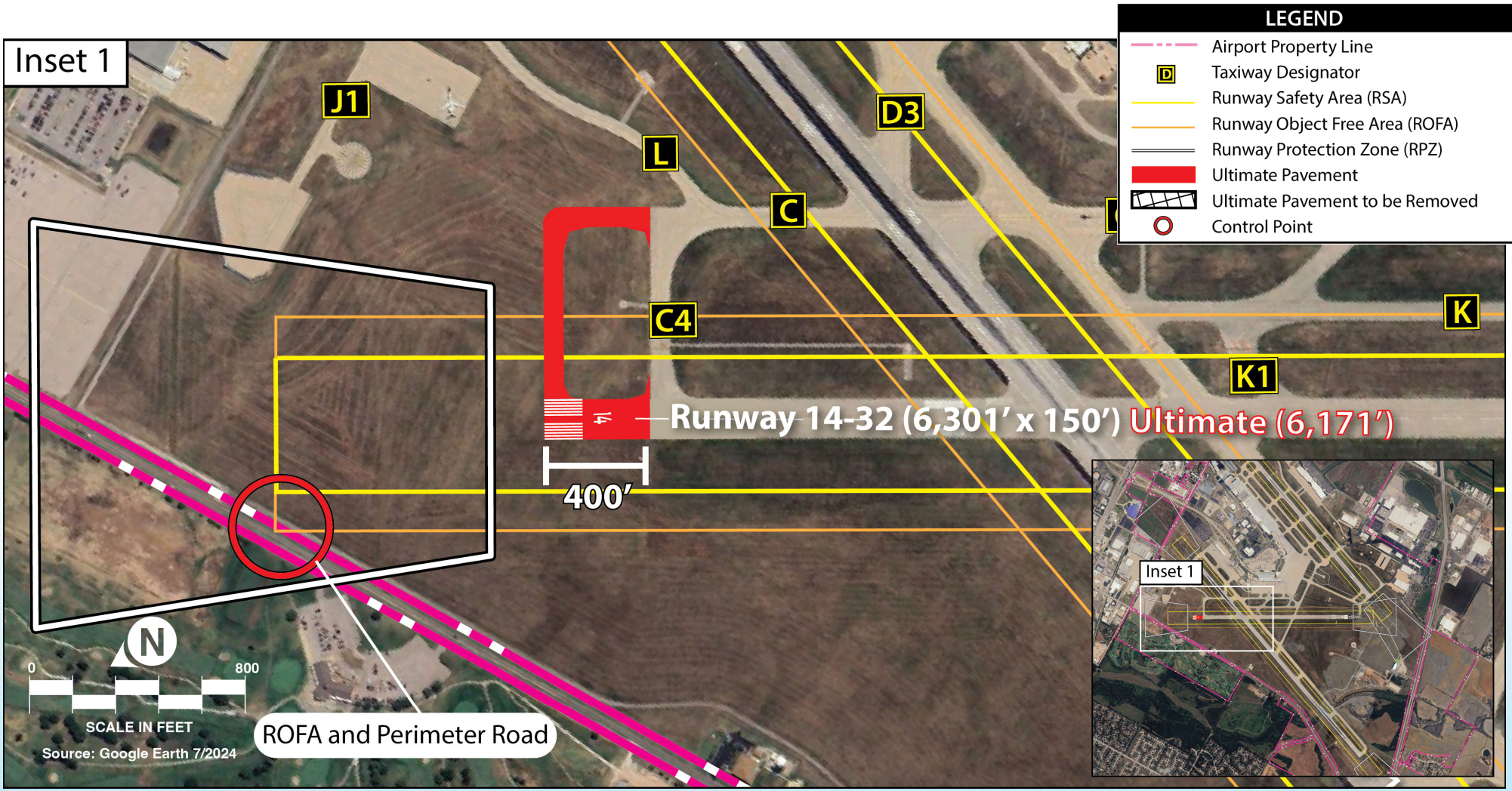


Exhibit 4E: Alternative 3 – Runway 14-32 Declared Distances

Parameters	Runways 14	32
Takeoff Run Available (TORA)	6,301′	6,301′
Takeoff Distance Available (TODA)	6,301′	6,301′
Accelerate Stop Distance Available (ASDA)	5,771′	6,301′
Landing Distance Available (LDA)	5,771′	6,171′

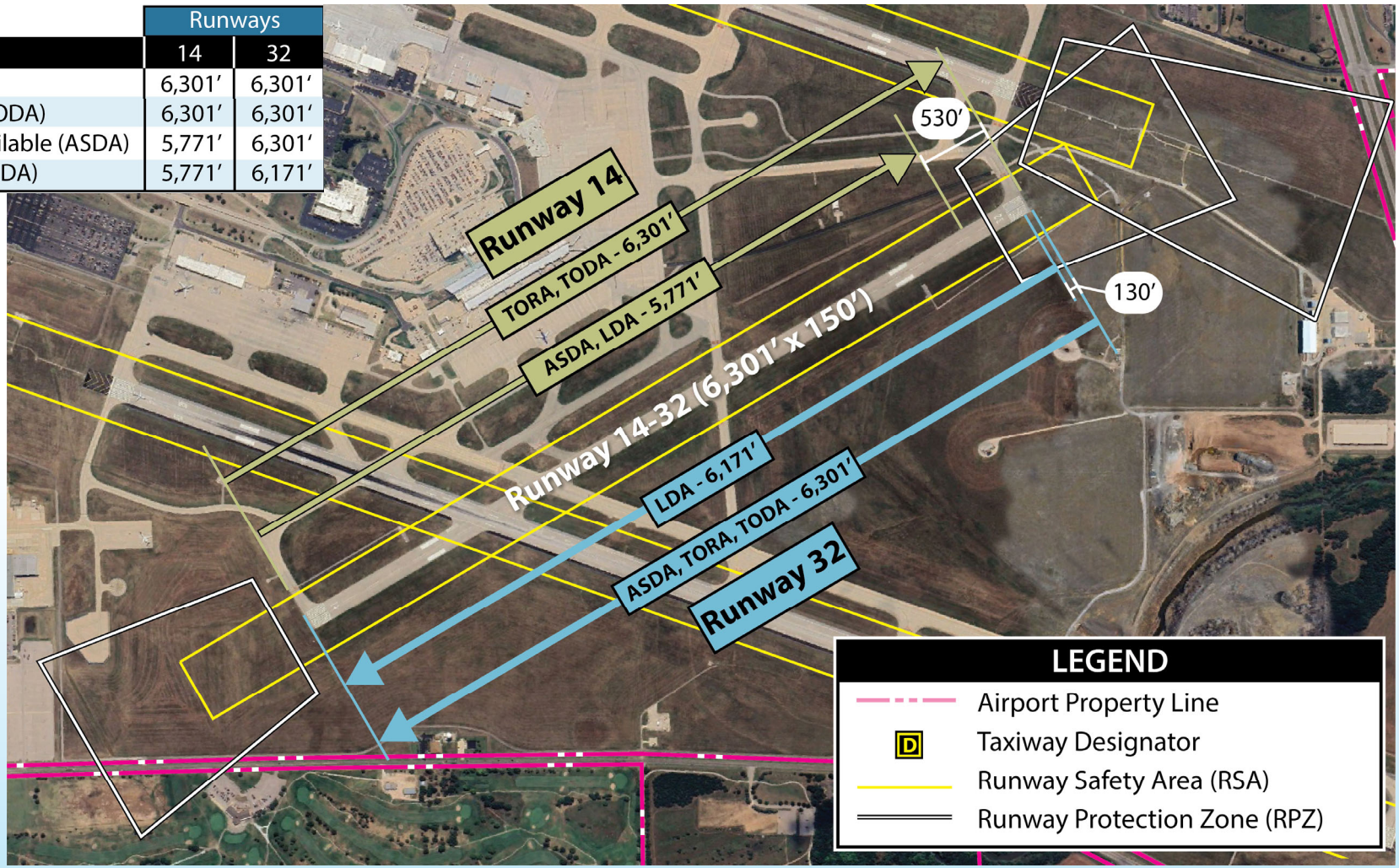


Exhibit 4F: Alternative 4 – Runway 14-32 Declared Distances with Extension

Parameters	Runways 14	32
Takeoff Run Available (TORA)	6,701′	6,701′
Takeoff Distance Available (TODA)	6,701′	6,701′
Accelerate Stop Distance Available (ASDA)	6,171′	6,701′
Landing Distance Available (LDA)	6,171′	6,571′

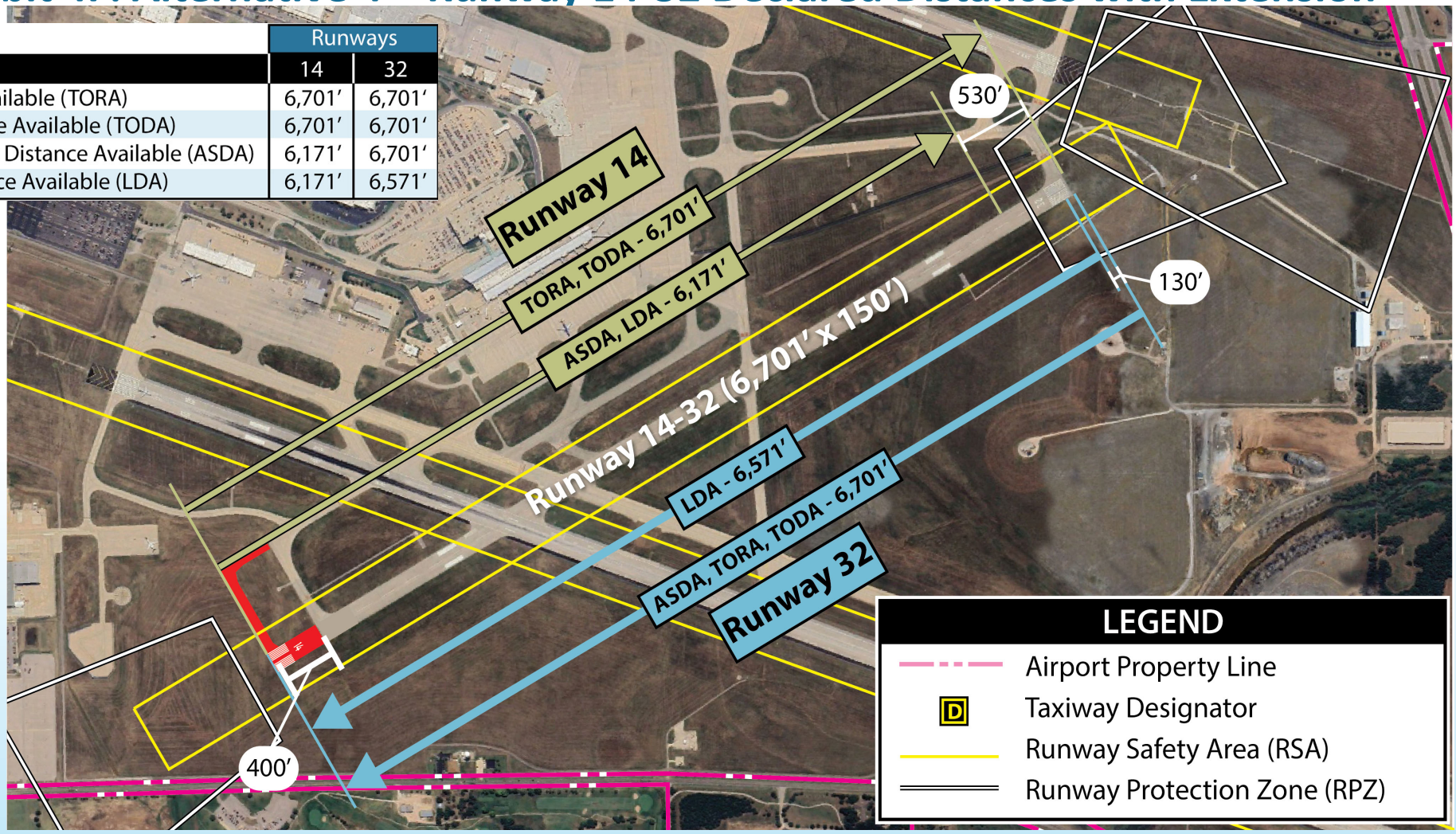


Exhibit 4G: Alternative 5 – Crossing Runways

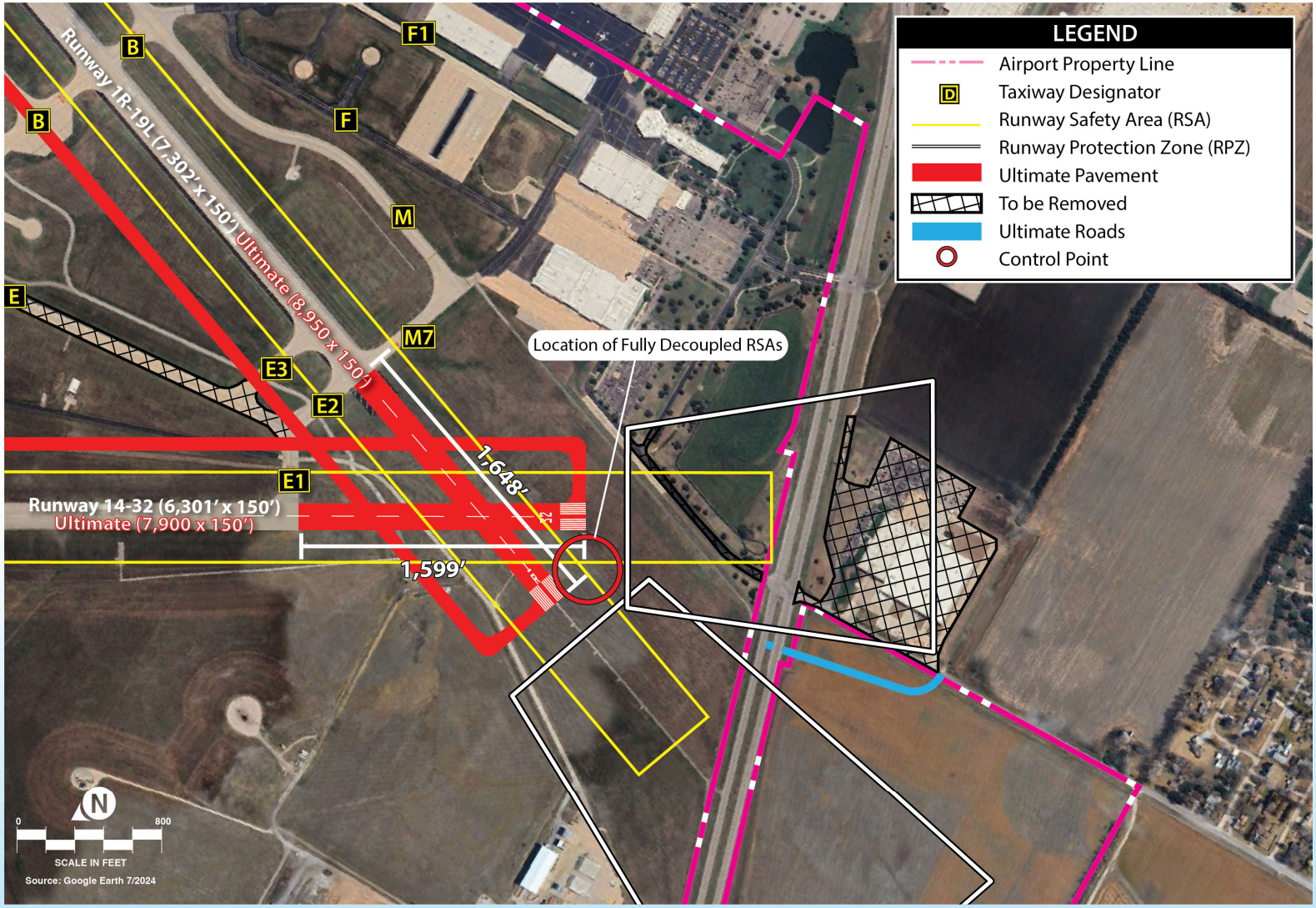


Exhibit 4J: Extending Taxiways K and N (Option 1)

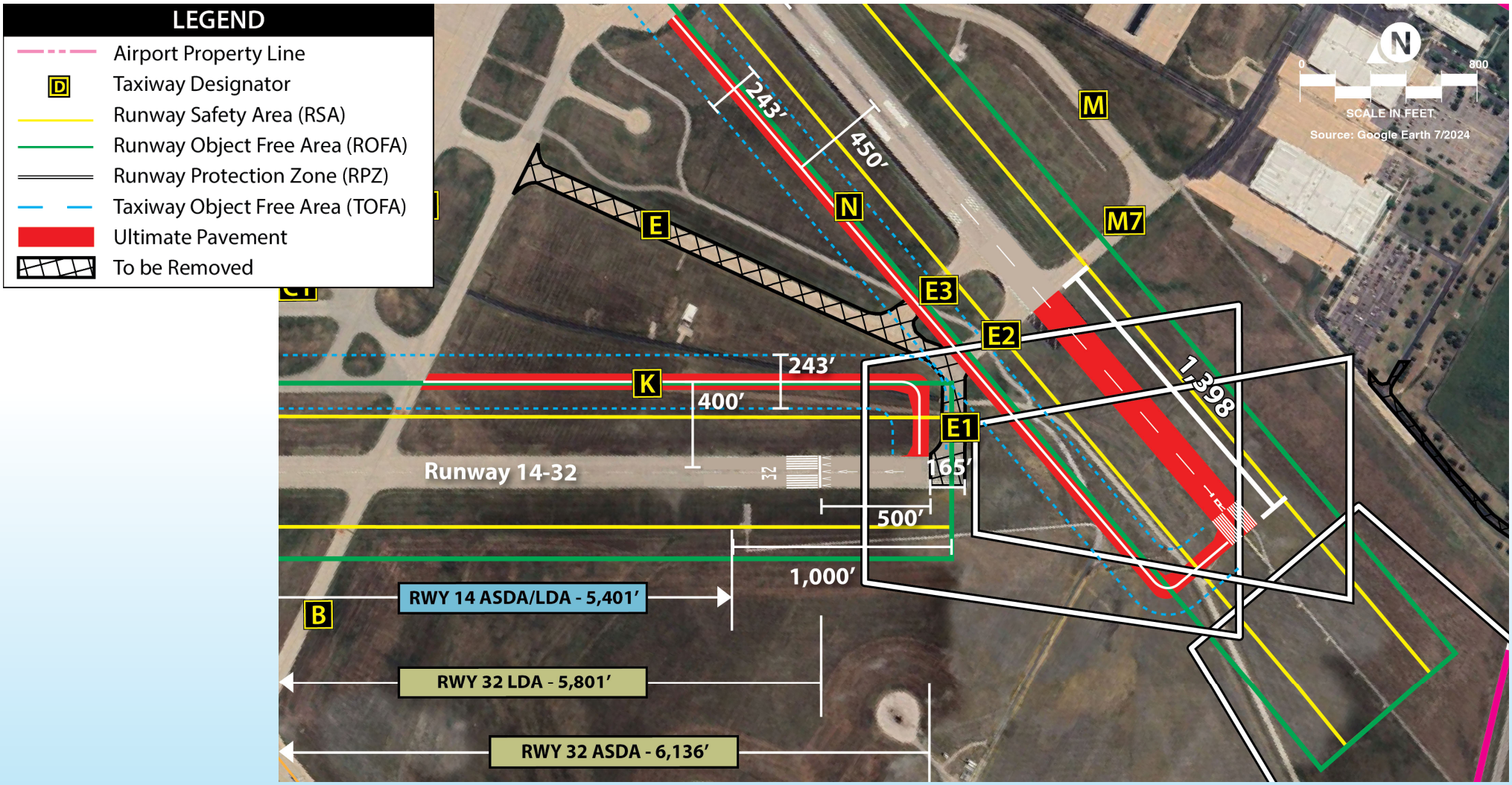


Exhibit 4J: Extending Taxiways K and N (Option 2)

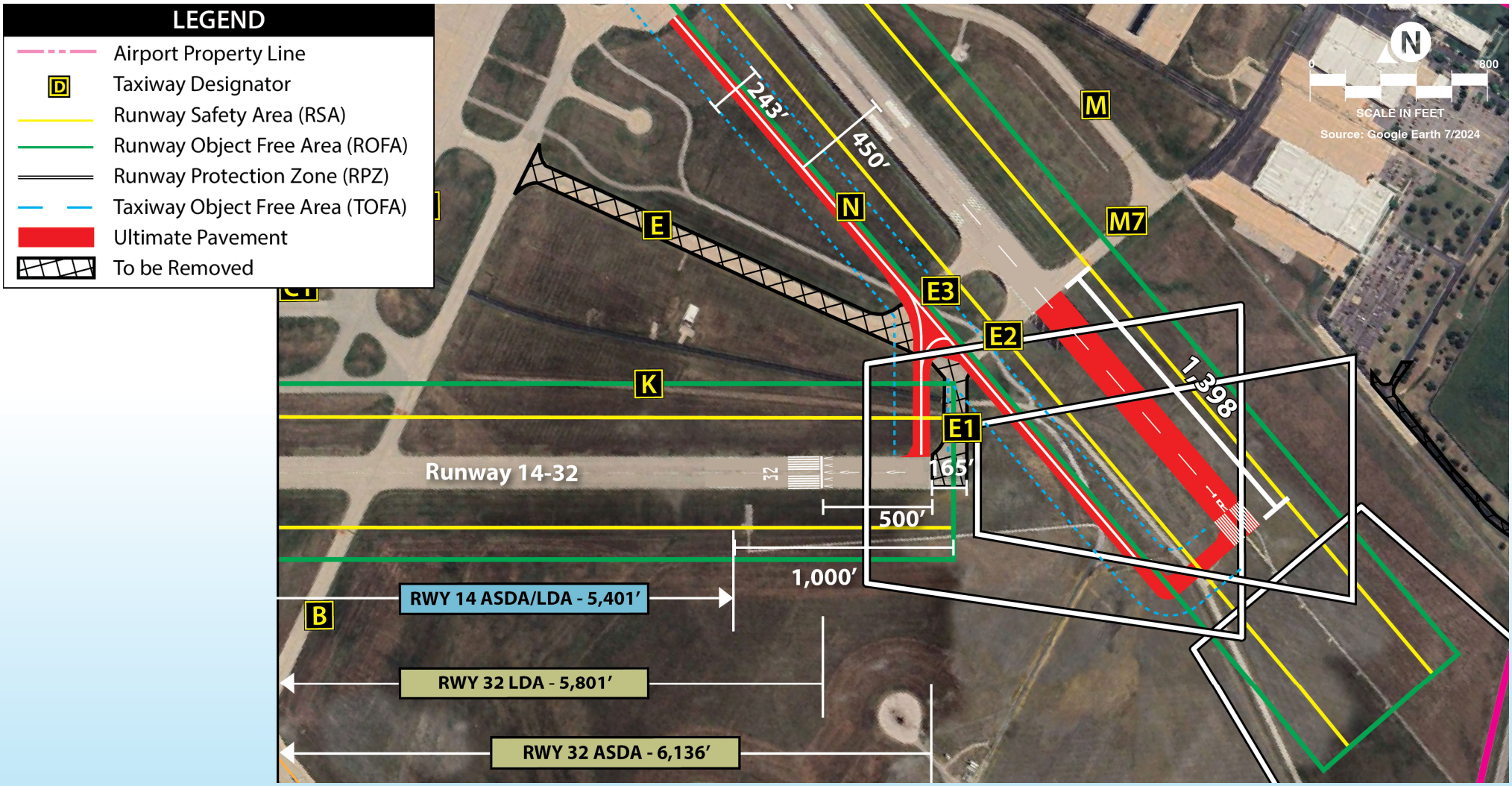


Exhibit 4L: Hot Spot Mitigation Options

Exhibit 4L: Hot Spot Mitigation Options

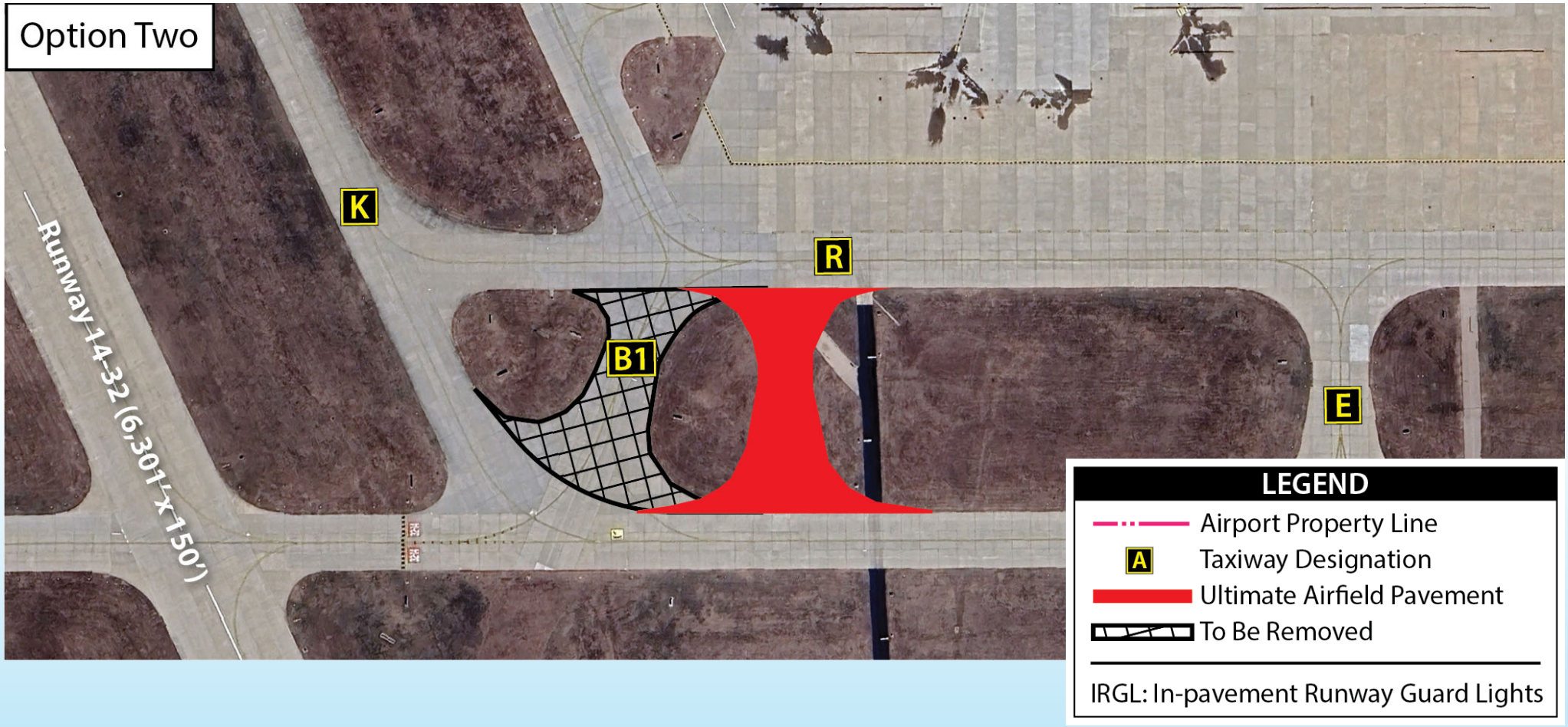


Exhibit 4L: Hot Spot Mitigation Options

Exhibit 4M:
Terminal Expansion

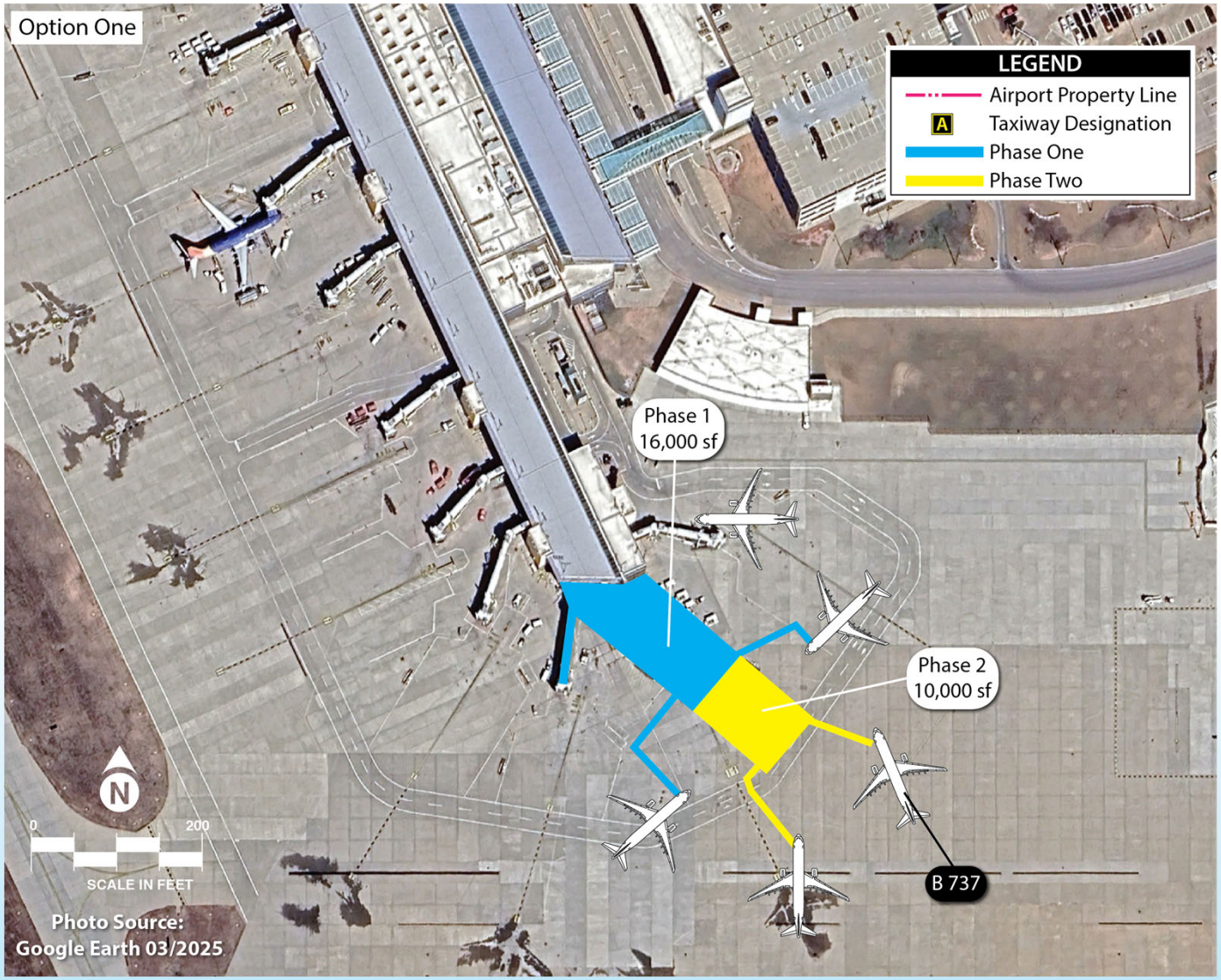


Exhibit 4M:
Terminal Expansion

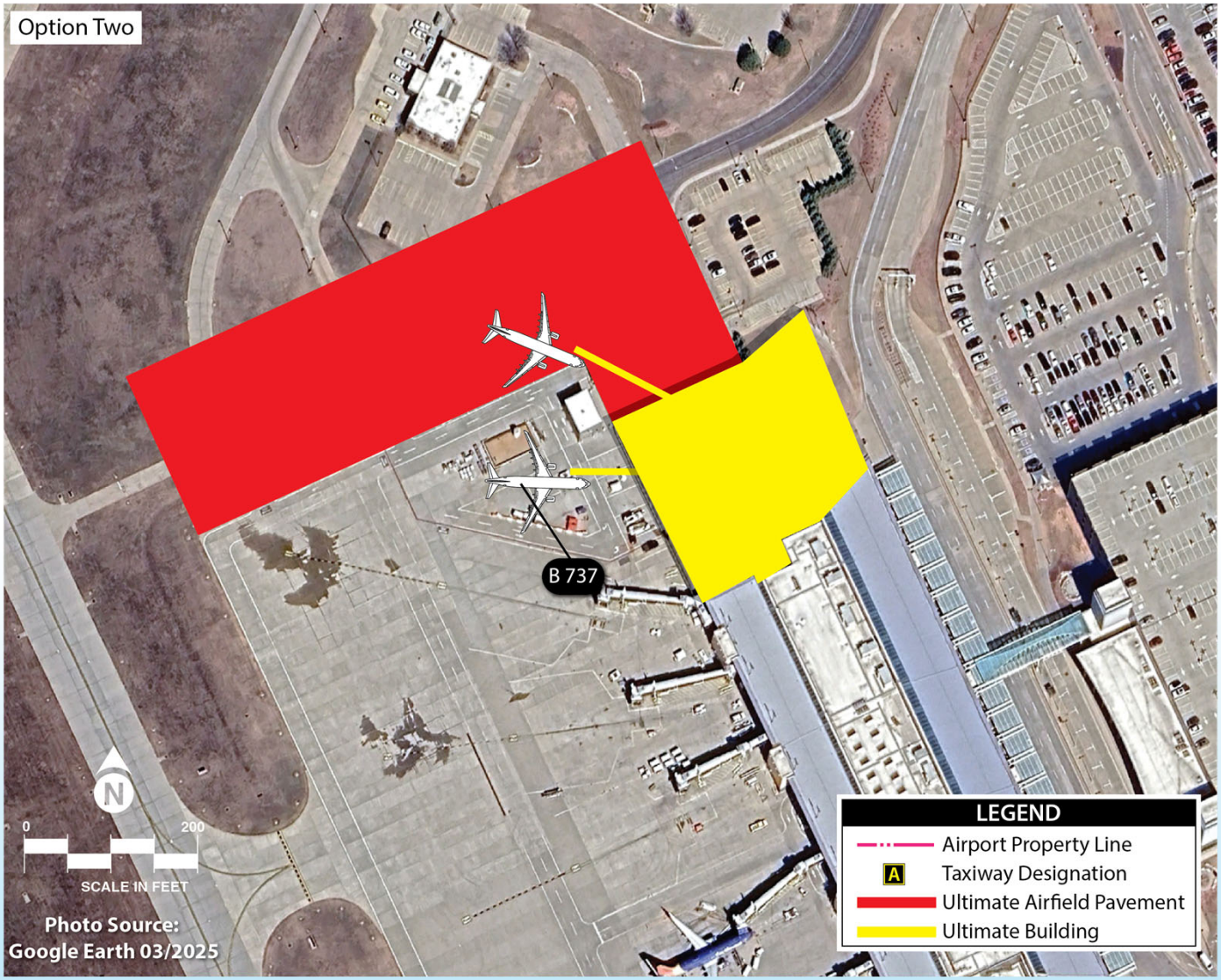
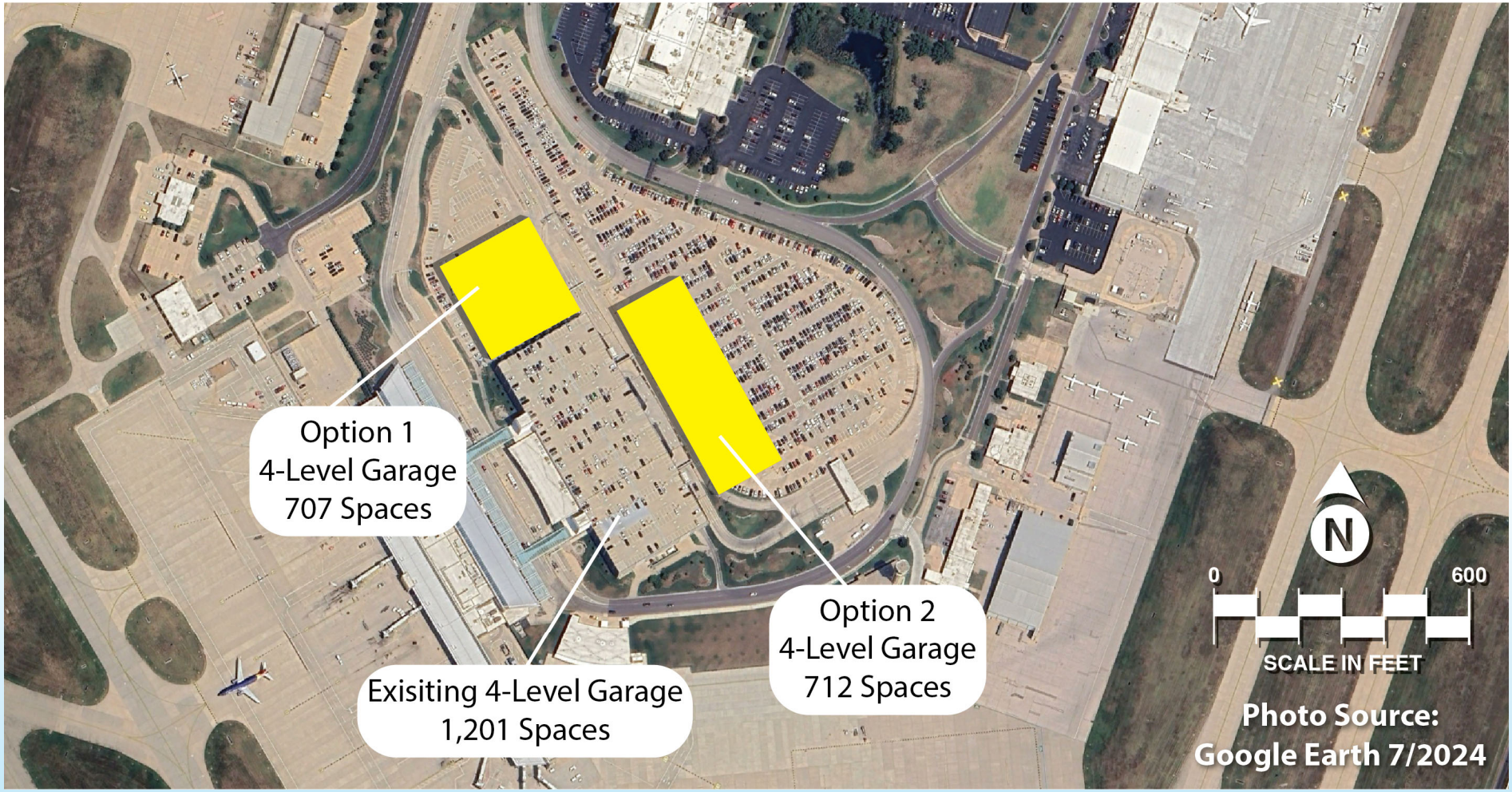


Exhibit 4N: Parking Structure Options



Remain-Overnight (RON) Aircraft Parking

- The airport can have as many as 13 commercial aircraft remain-overnight.
- There are 11 gate positions and 4 RON parking spots.
- Additional RON parking is needed in the near term.

Exhibit 4P:
Remote Apron Expansion

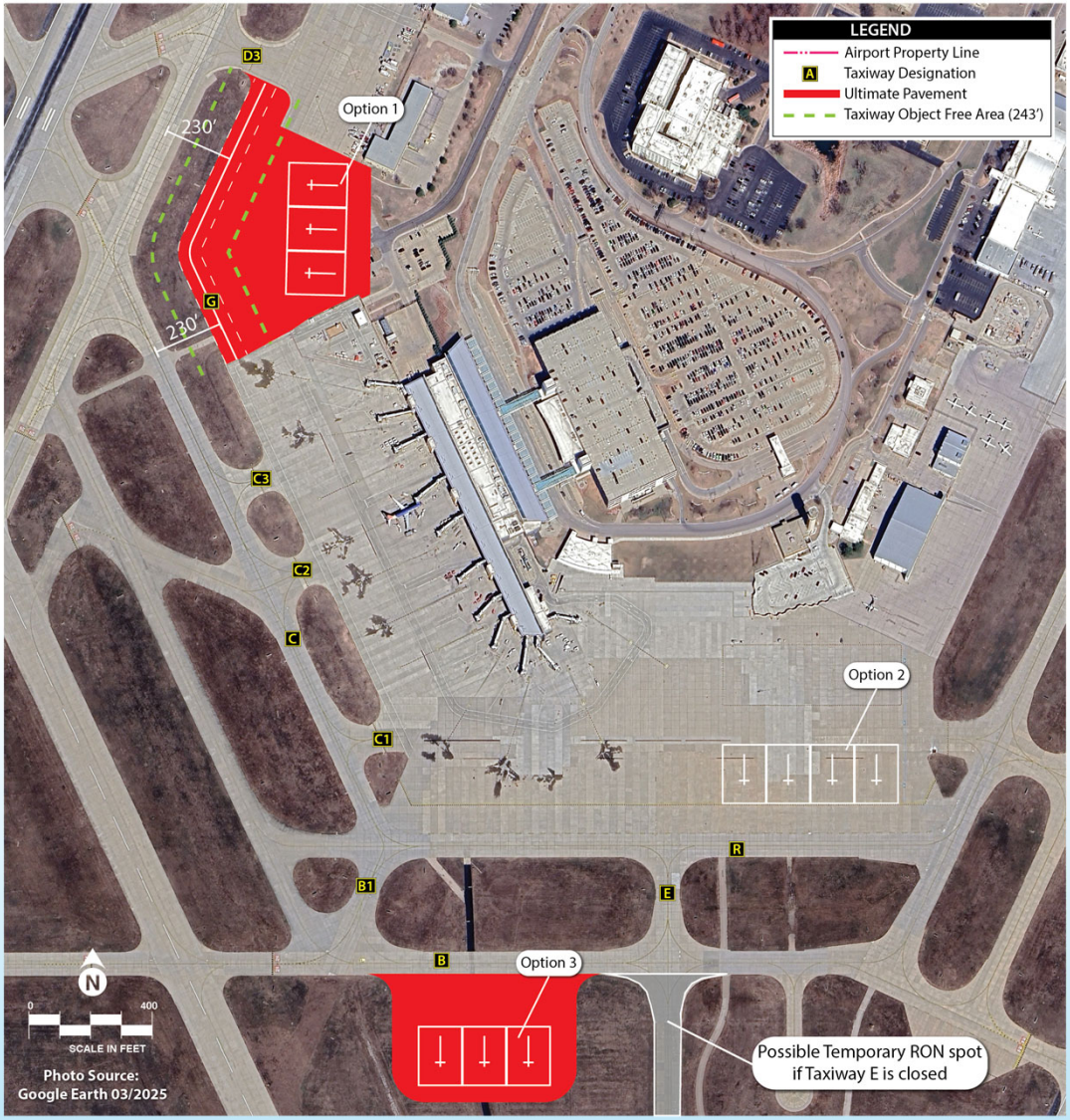


Exhibit 4Q: Parcel 18 Alternatives

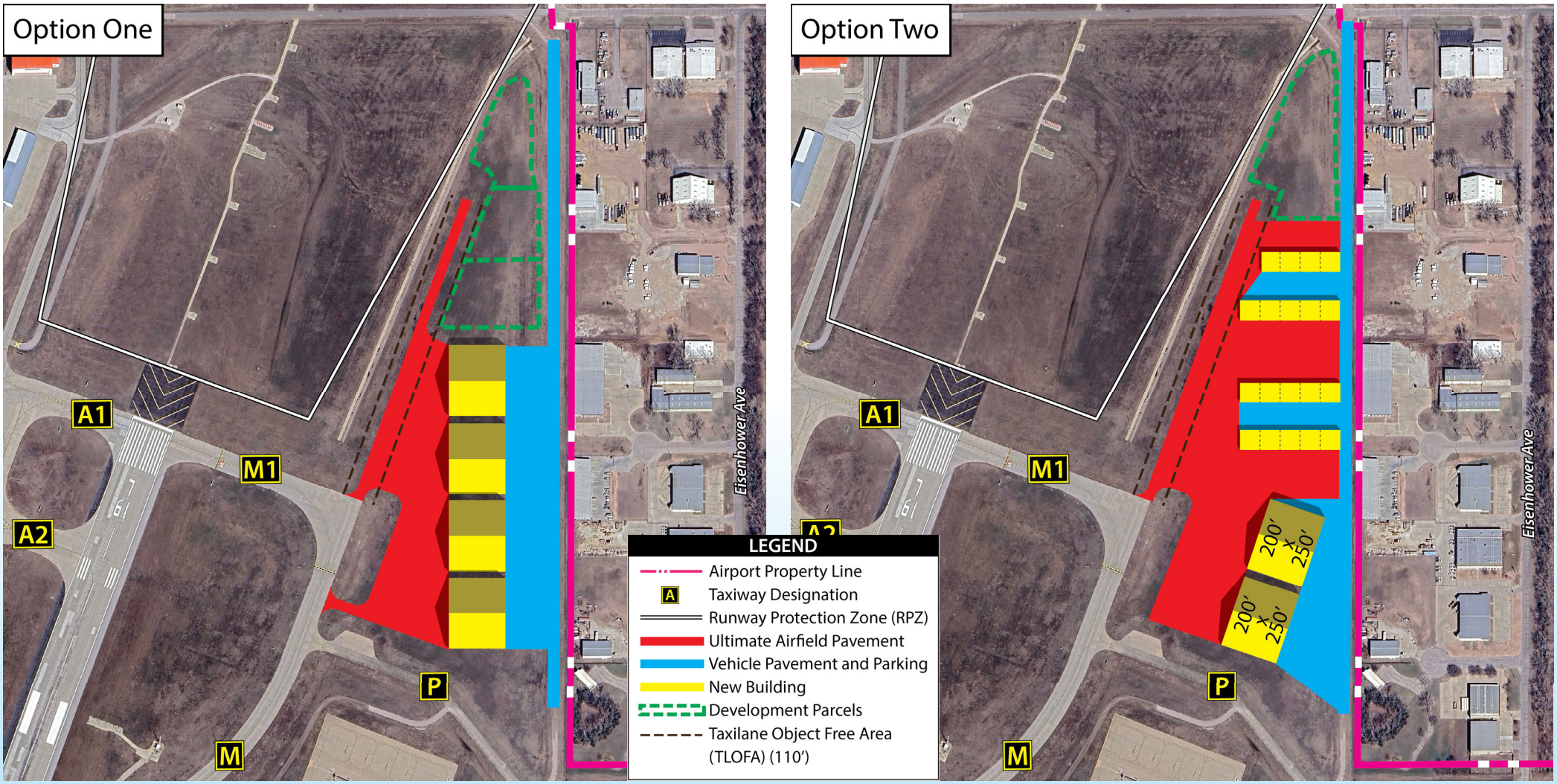


Exhibit 4R: Parcel 18 with S. Eisenhower Ave. Land

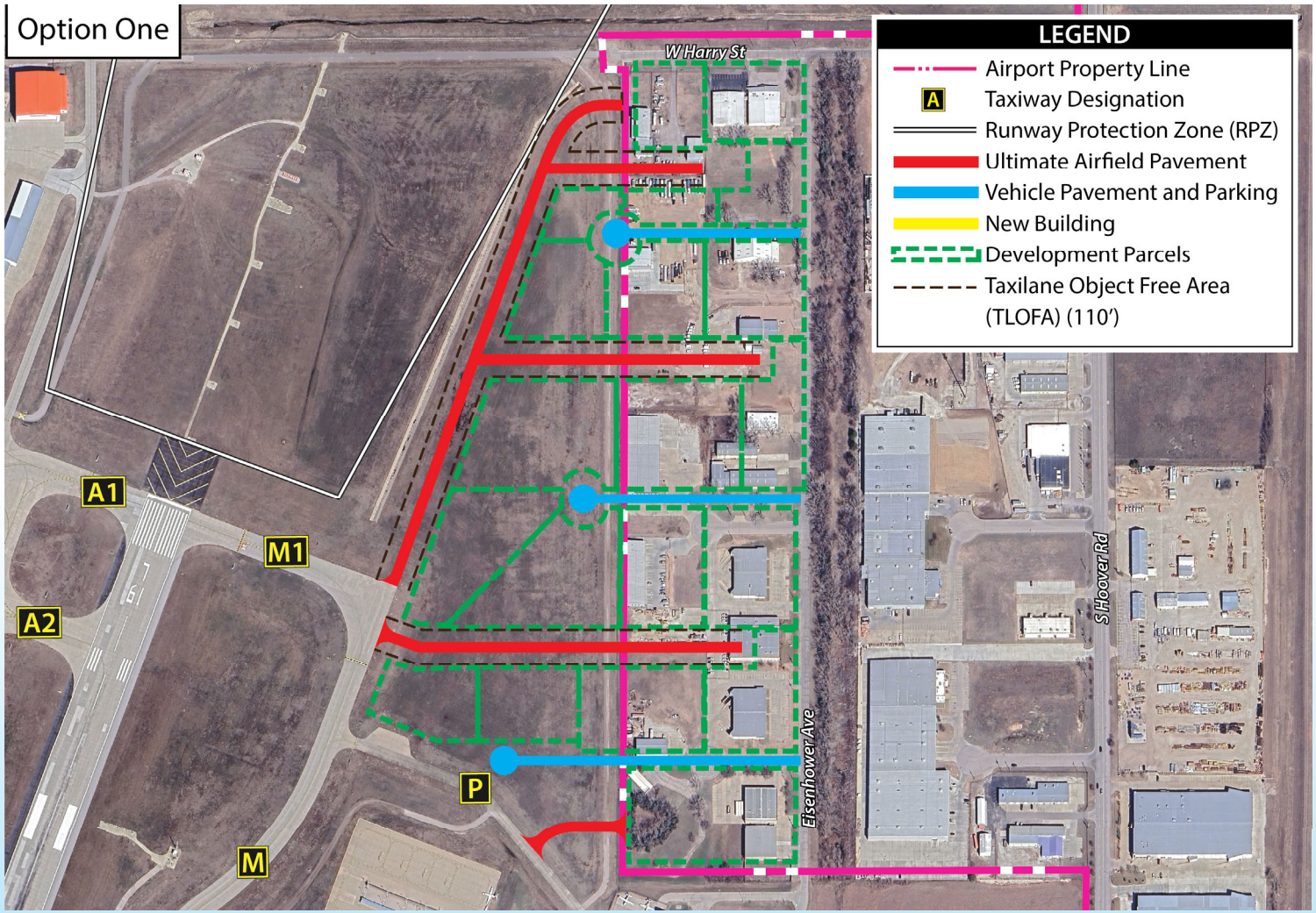


Exhibit 4R: Parcel 18 with S. Eisenhower Ave. Land

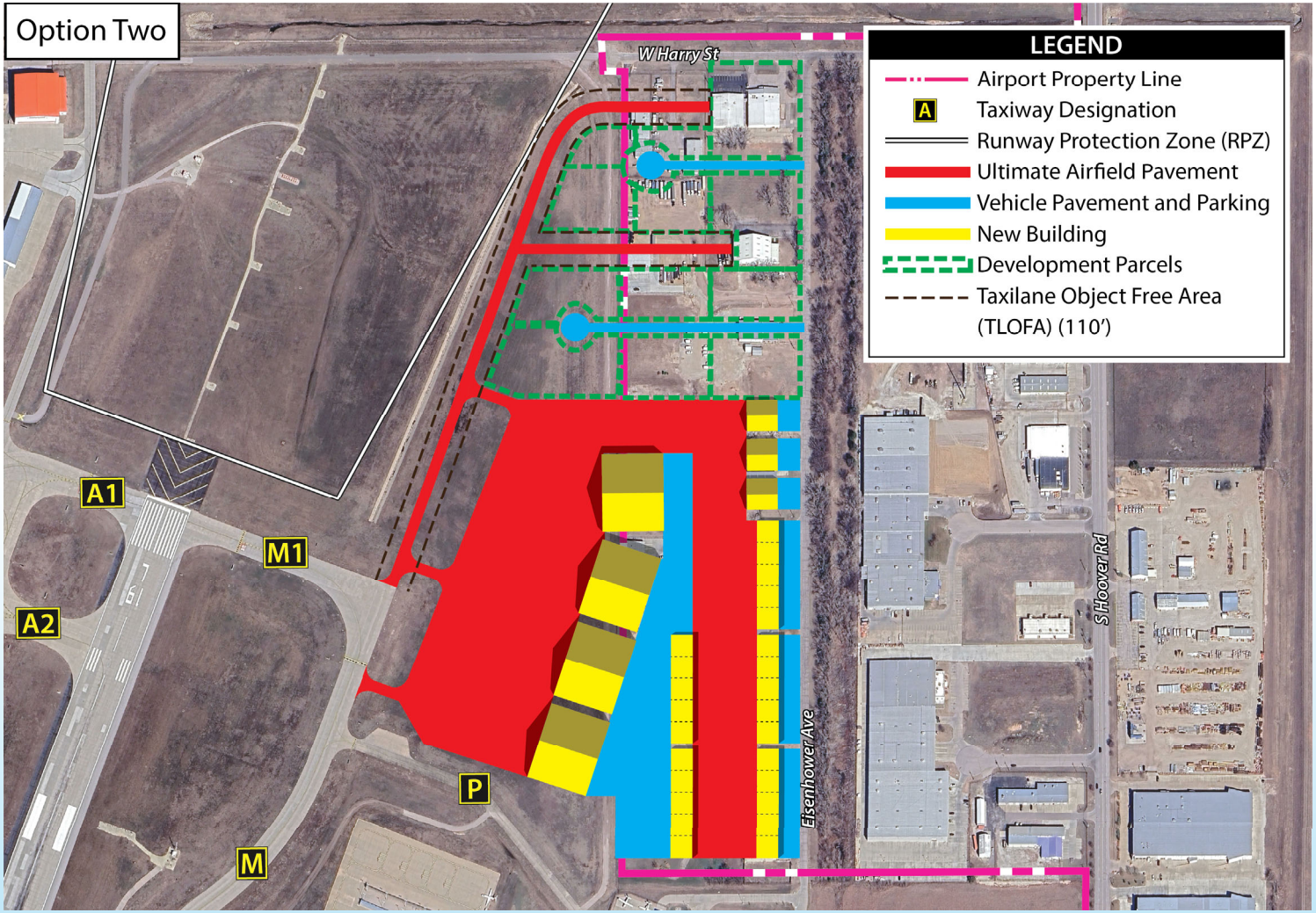


Exhibit 4S: North Parcel Aeronautical Expansion

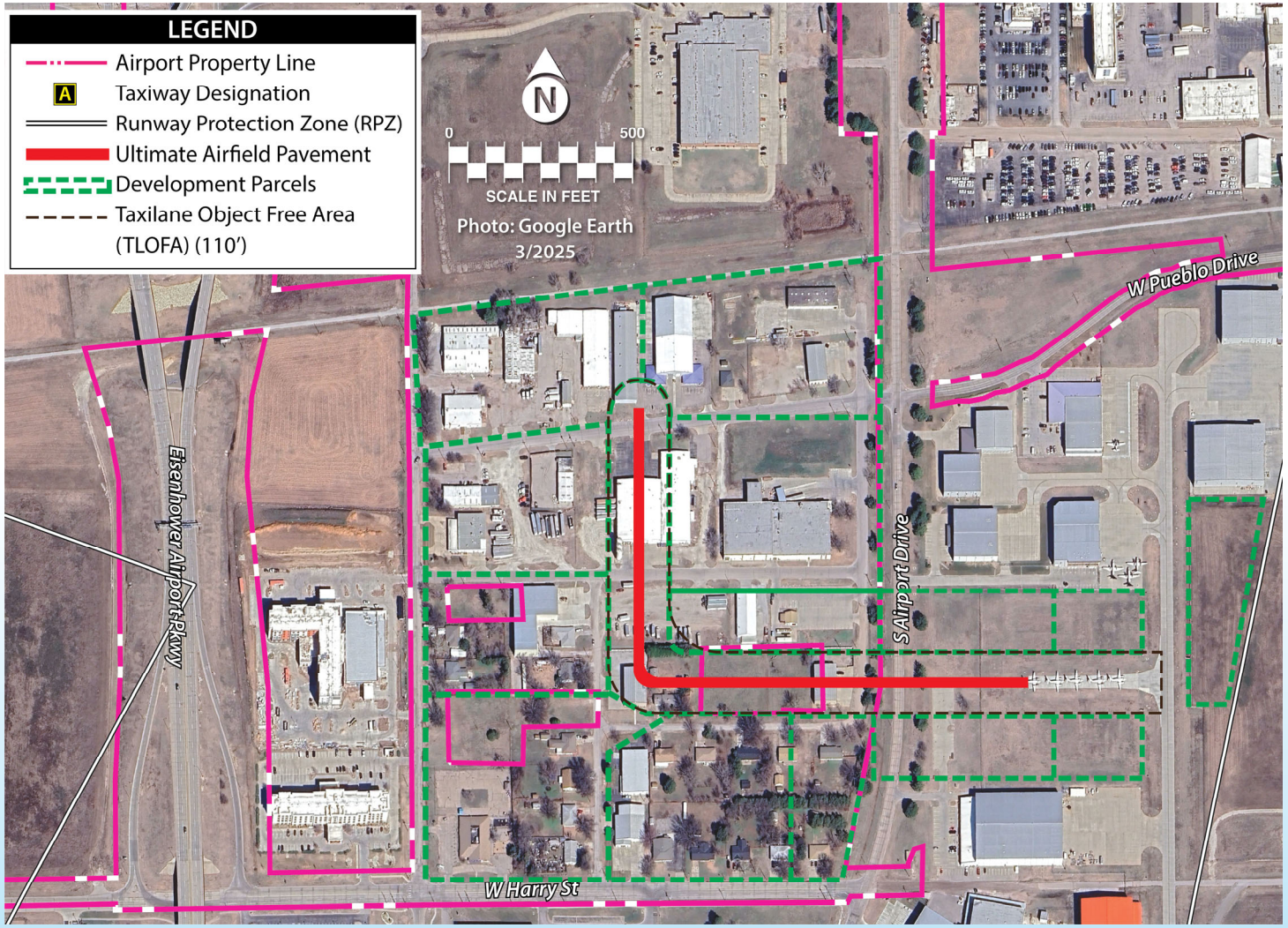


Exhibit 4T: South GA Hangar Expansion

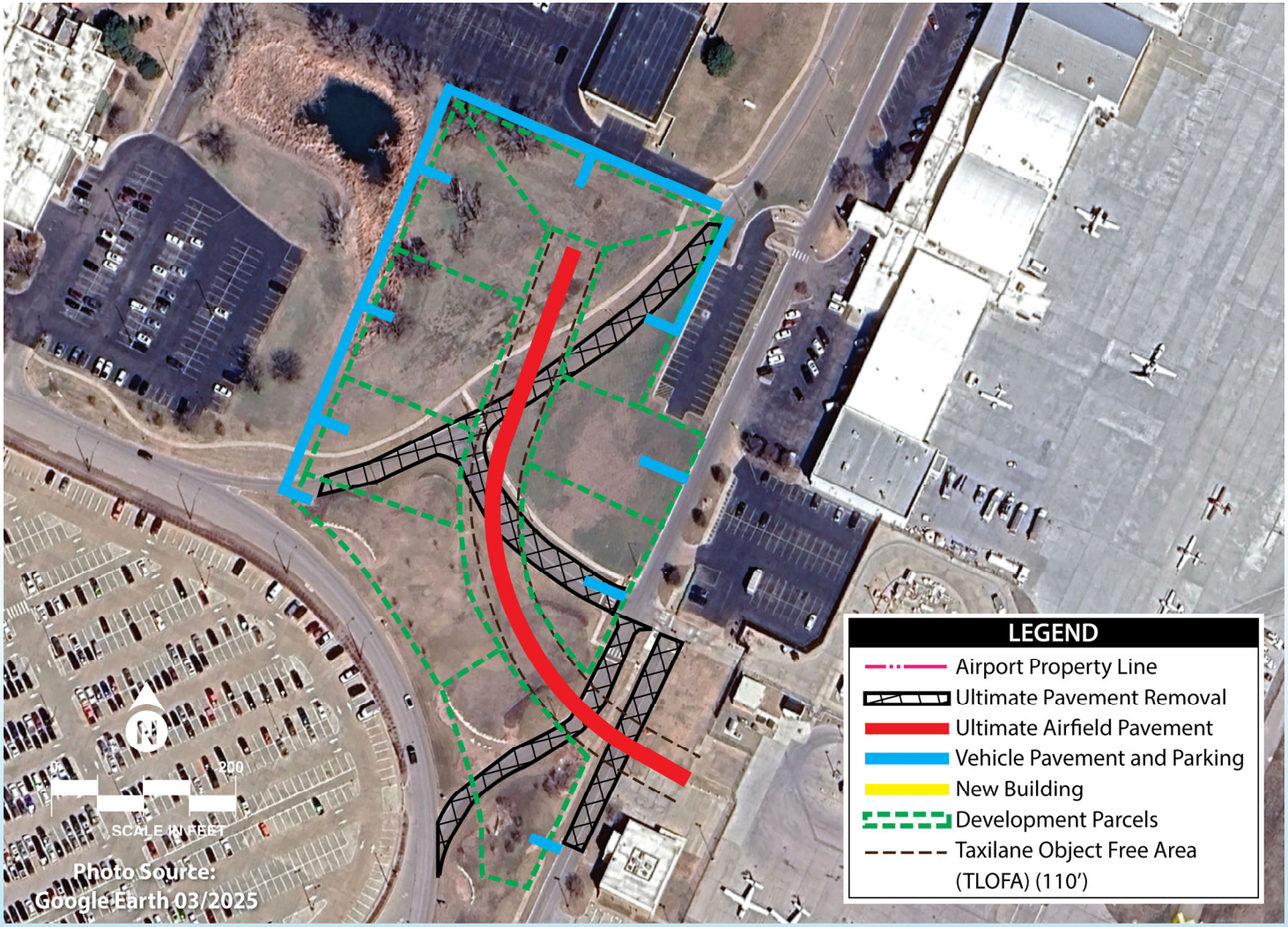


Exhibit 4U:
West Side Parcel for Development

Exhibit 3H: Existing Air Cargo Facilities

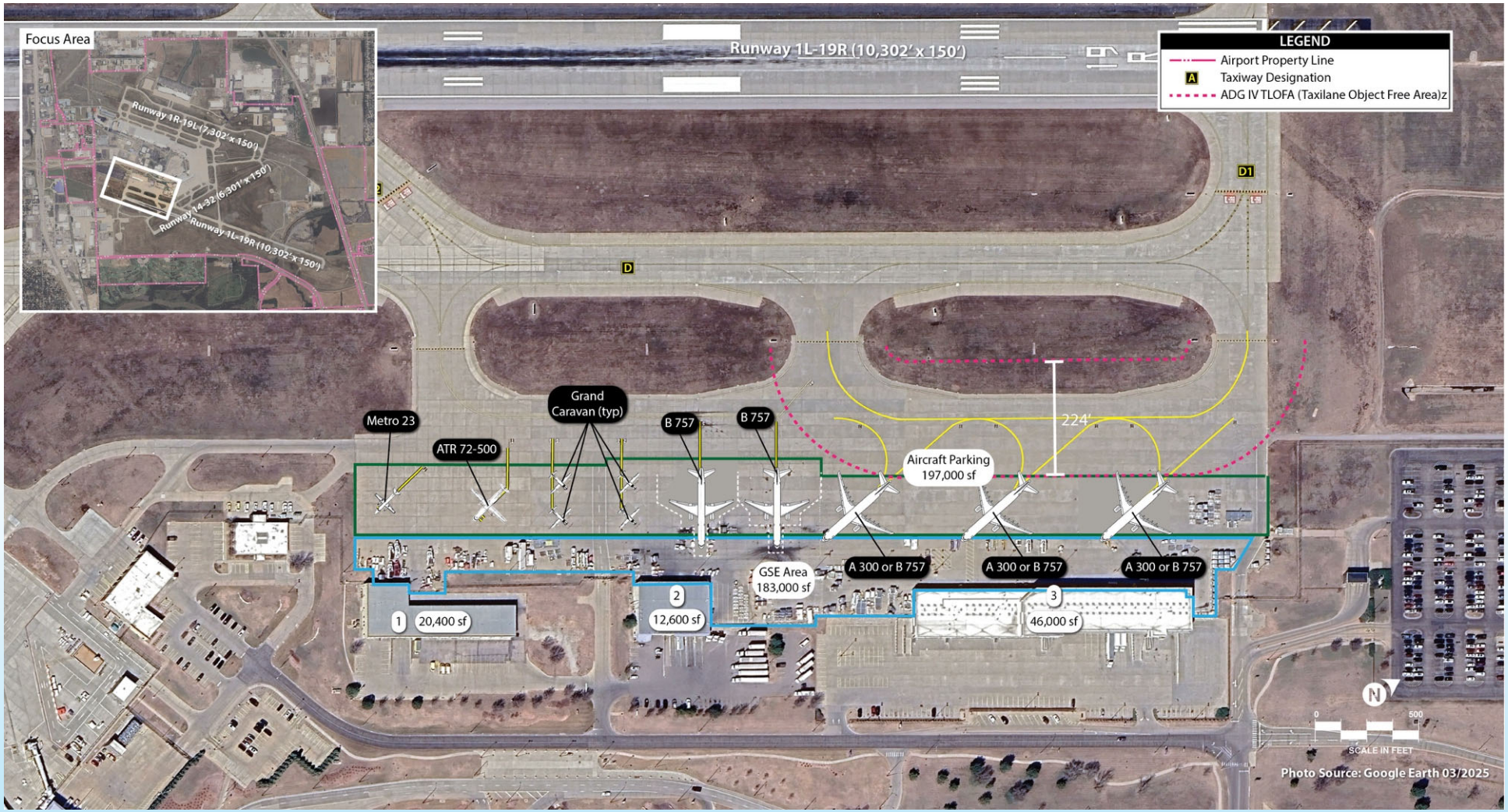


Exhibit 3J: Air Cargo Options from 2022 Study

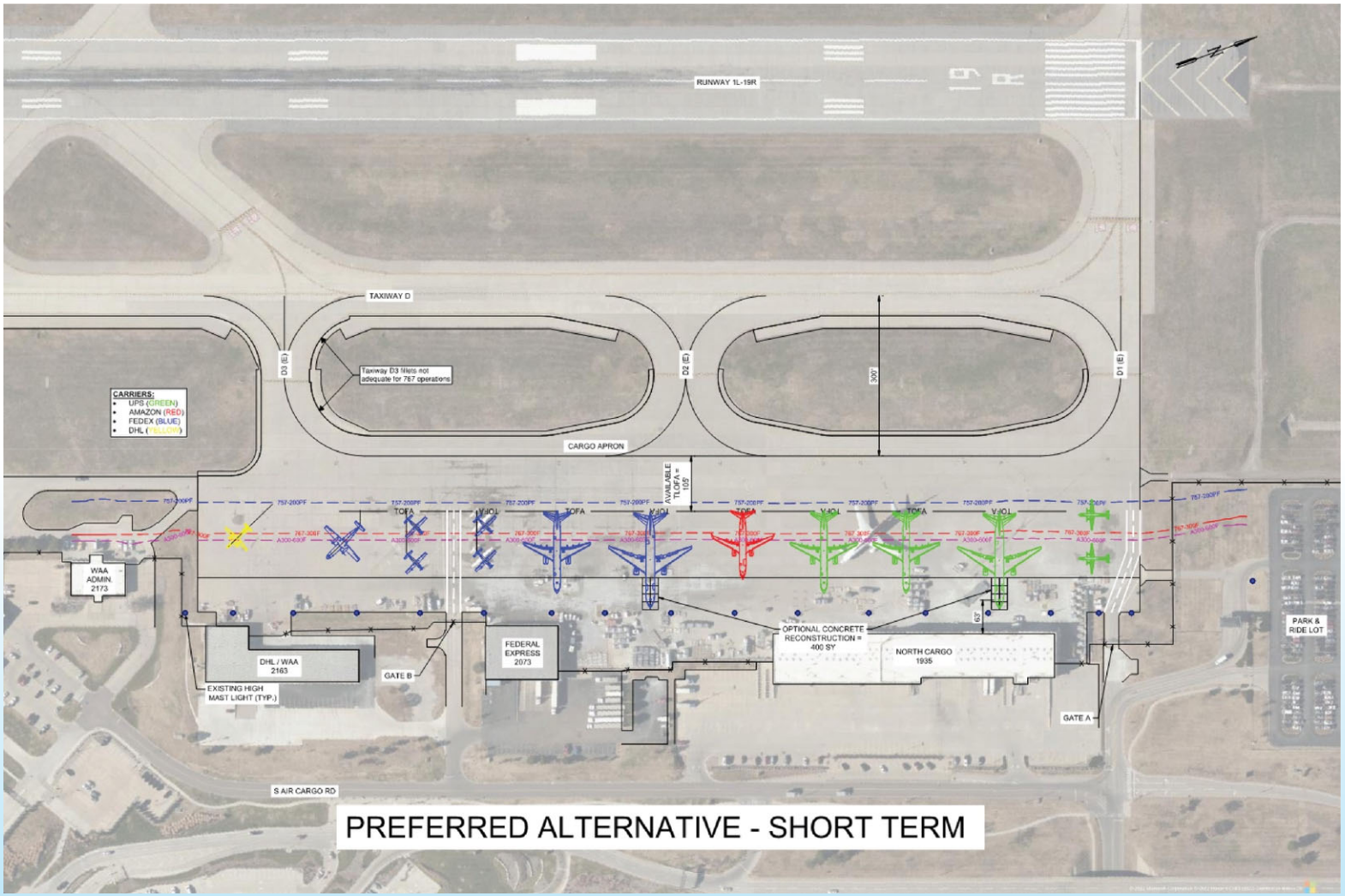


Exhibit 3J: Air Cargo Options from 2022 Study

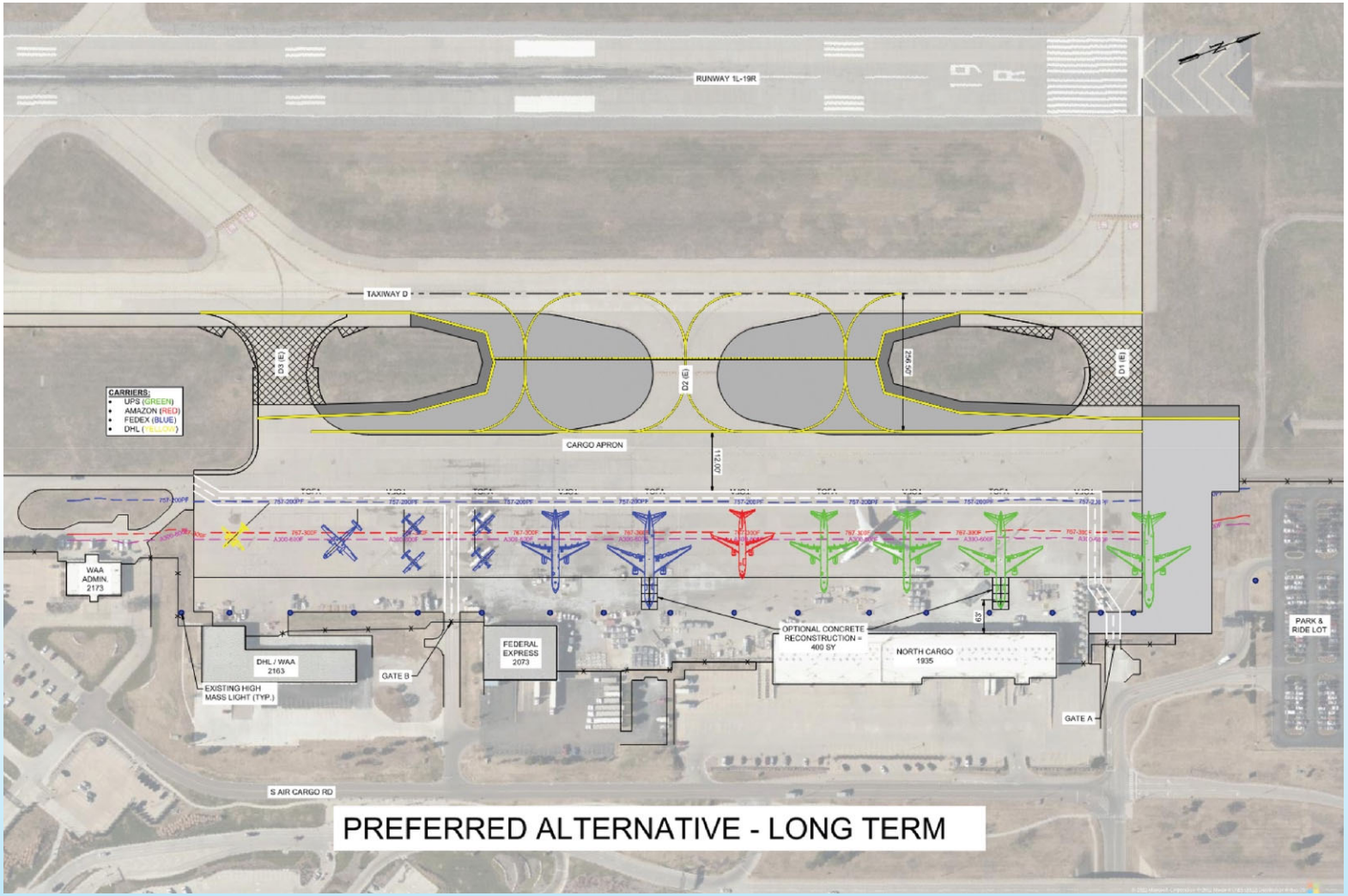


Exhibit 4V: Cargo Alts

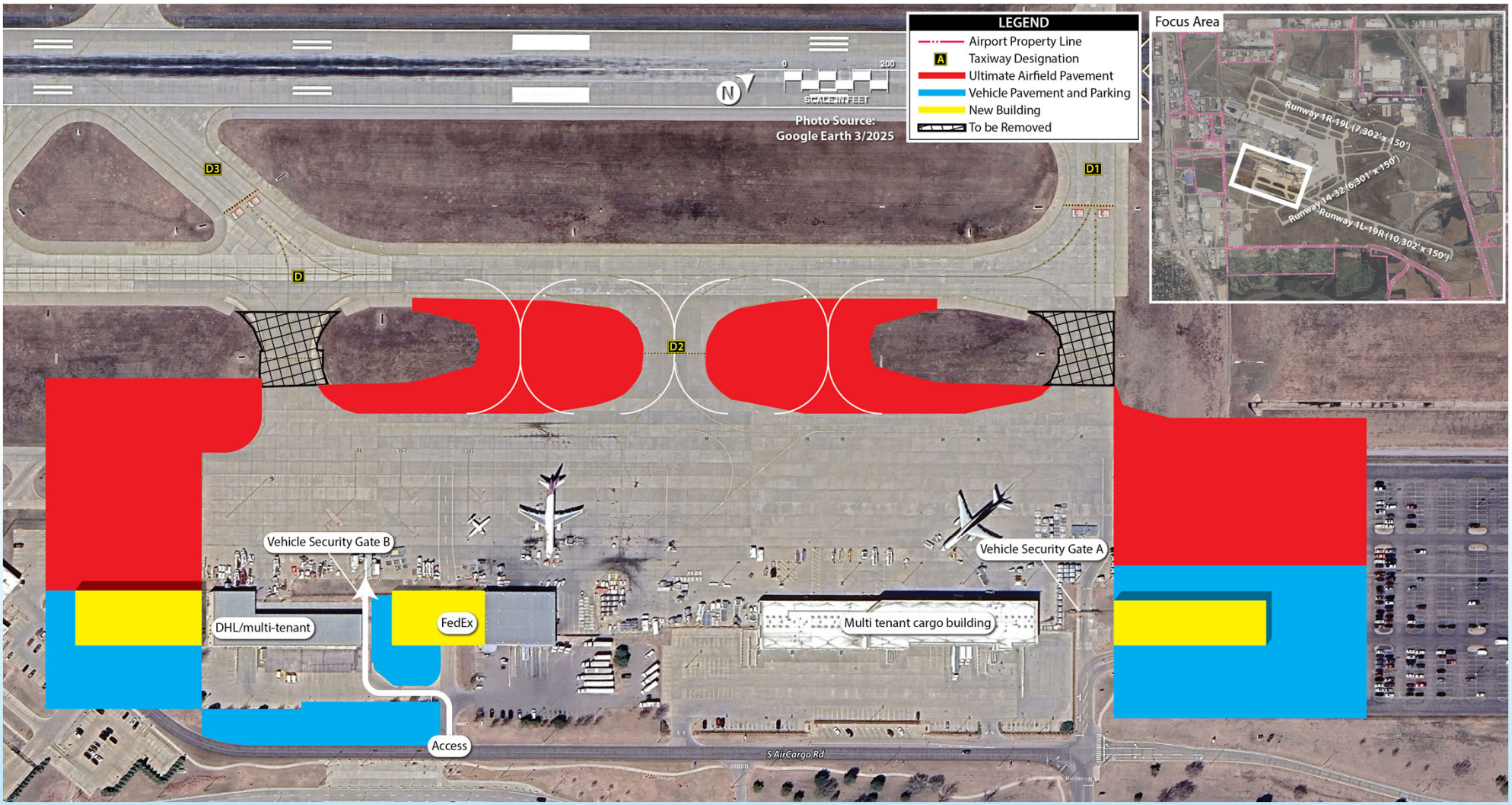


Exhibit 4W: Replacement ARFF/Admin Buildings

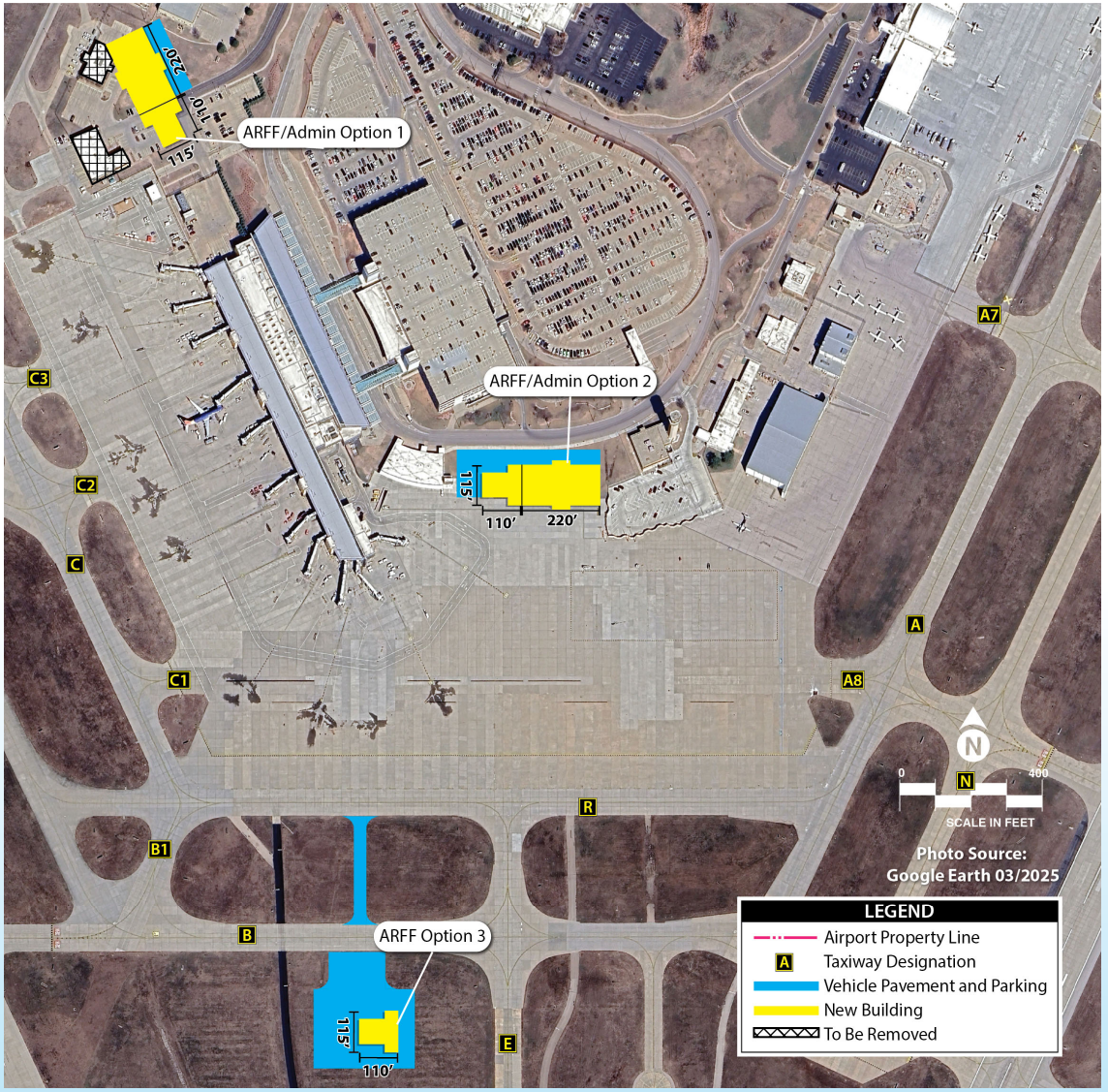


Exhibit 4Y: Replacement Tower Sites