

City of Austin-Department of Aviation Austin-Bergstrom International Airport Master Plan

Technical Advisory Committee Meeting #3

April 18, 2018

**THE AIRPORT OF CHOICE
FOR CENTRAL TEXAS**



Austin-Bergstrom
International Airport



DISCUSSION TOPICS

Introduction

2040 ABIA Master Plan Schedule

Aviation Forecast Overview

Basis of Demand Capacity Analysis

Summary of Airport Facility Needs

Alternatives Analysis

Next Steps



ABIA 2040 MASTER PLAN SCHEDULE



Austin-Bergstrom
International Airport



How Long Will this Take?



| Did You Know?: ABIA is Ranked 4th Best U.S. Domestic Airport

Voting Criteria: Access, Check-in/Security,
Design Shopping and Restaurants/Bars

#1: Portland International Airport (PDX)

#2: Indianapolis International Airport (IND)

#3: Tampa International Airport (TPA)

#4: Austin-Bergstrom Int. Airport (AUS)

#5: Minneapolis-St. Paul International Airport (MSP)



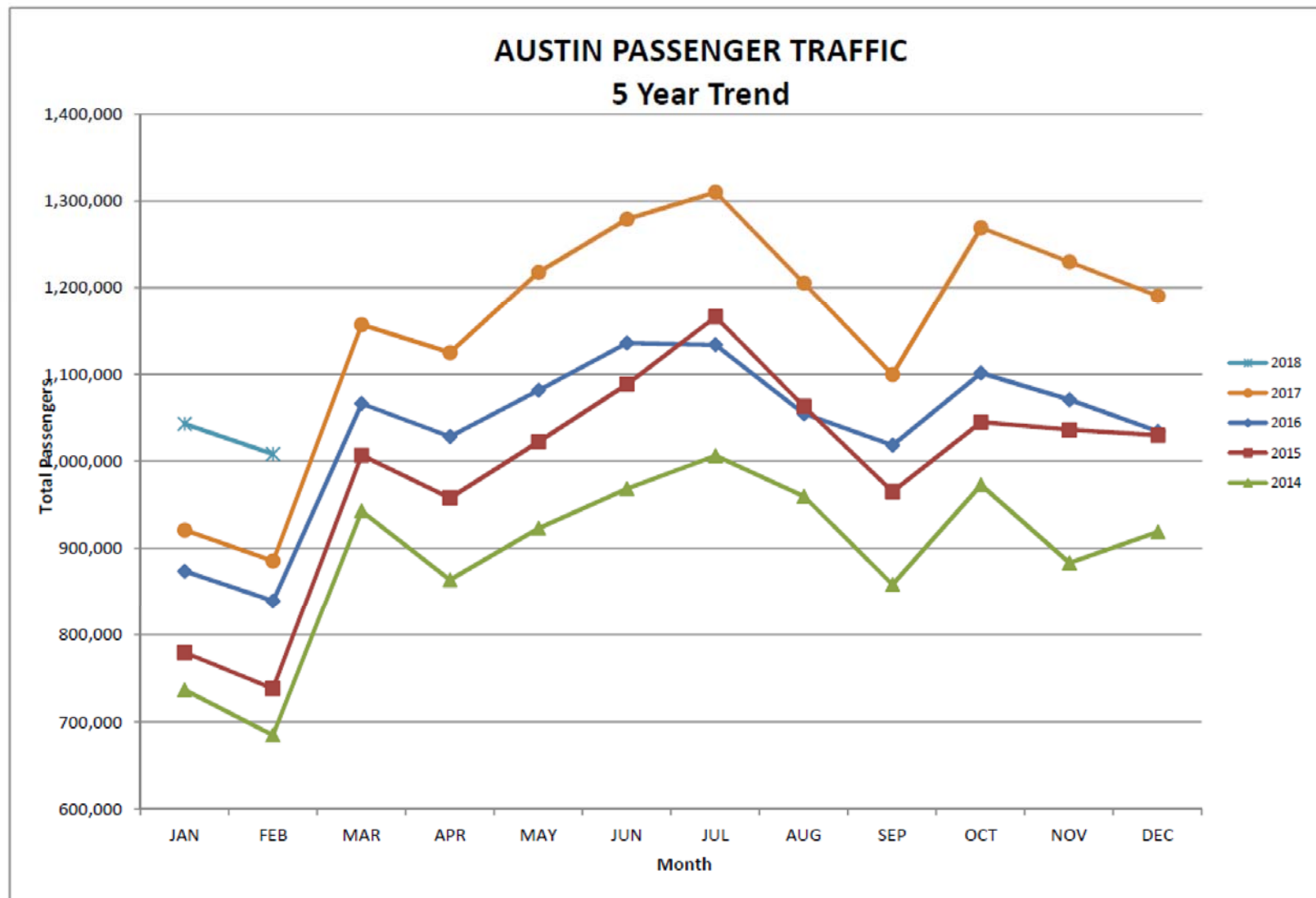
AVIATION FORECAST OVERVIEW



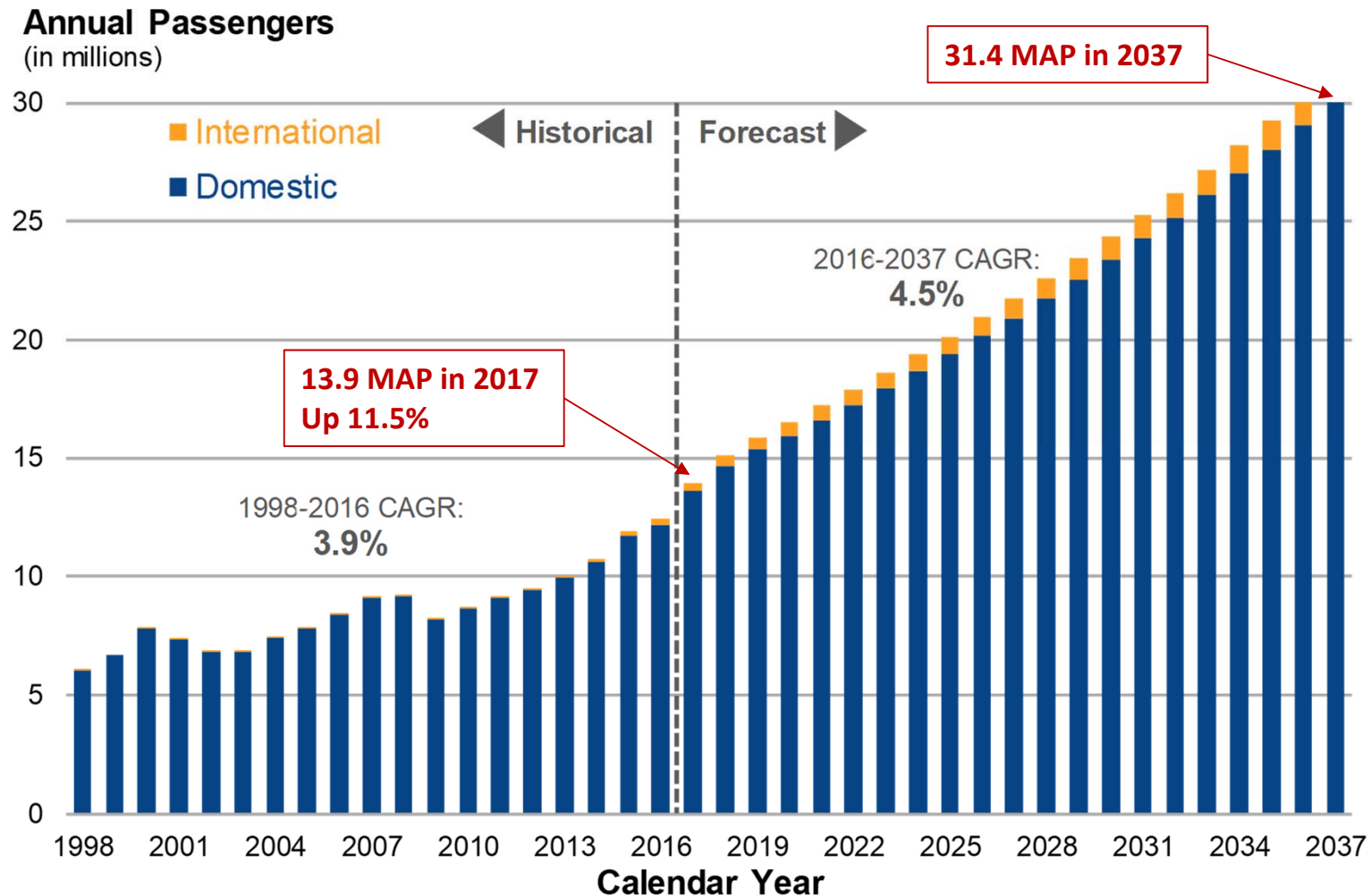
Austin-Bergstrom
International Airport



ABIA Historical Passenger Traffic



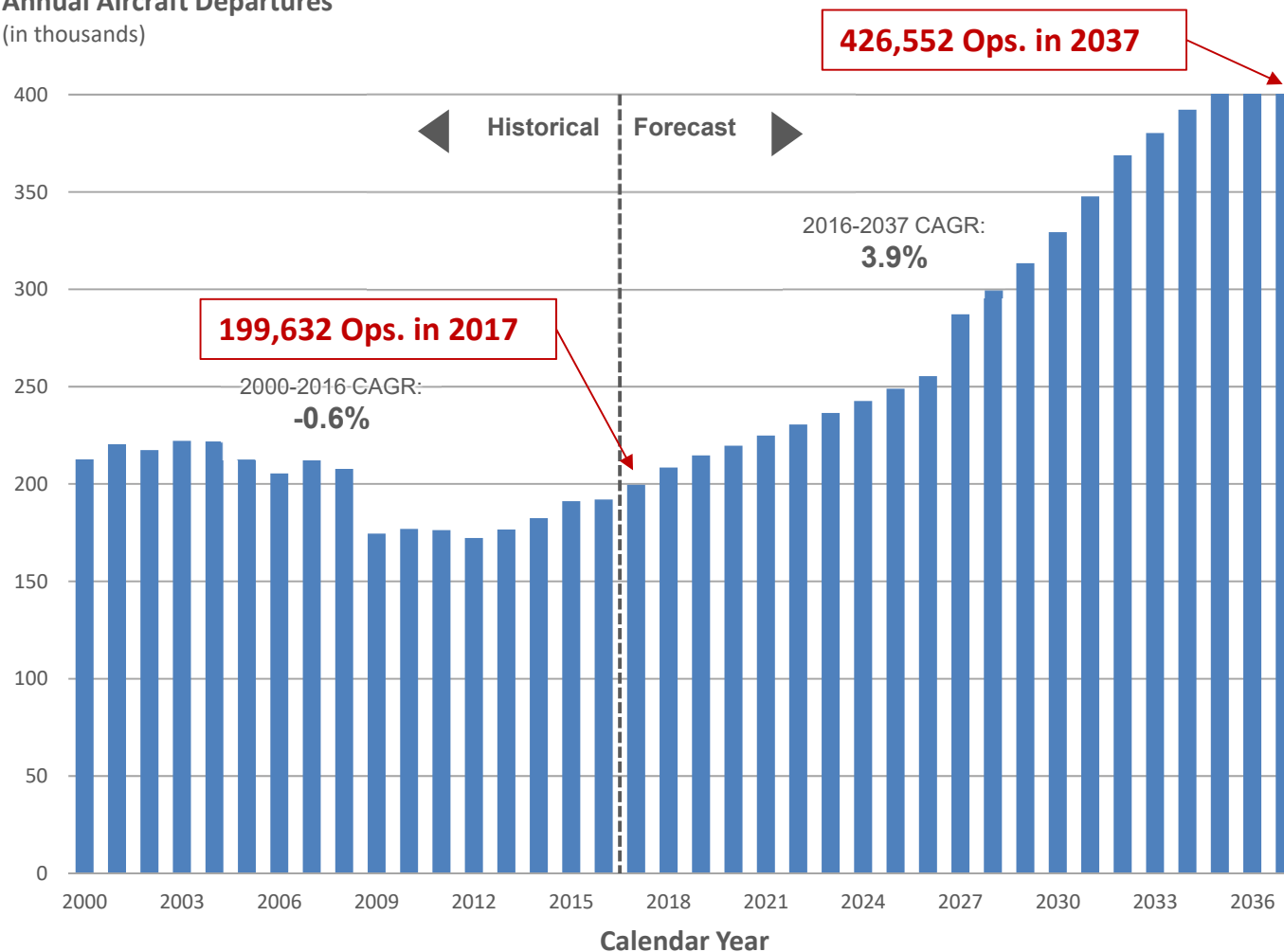
ABIA Enplaned Passenger 4.5% Compound Annual Growth Rate



ABIA Aircraft Operations

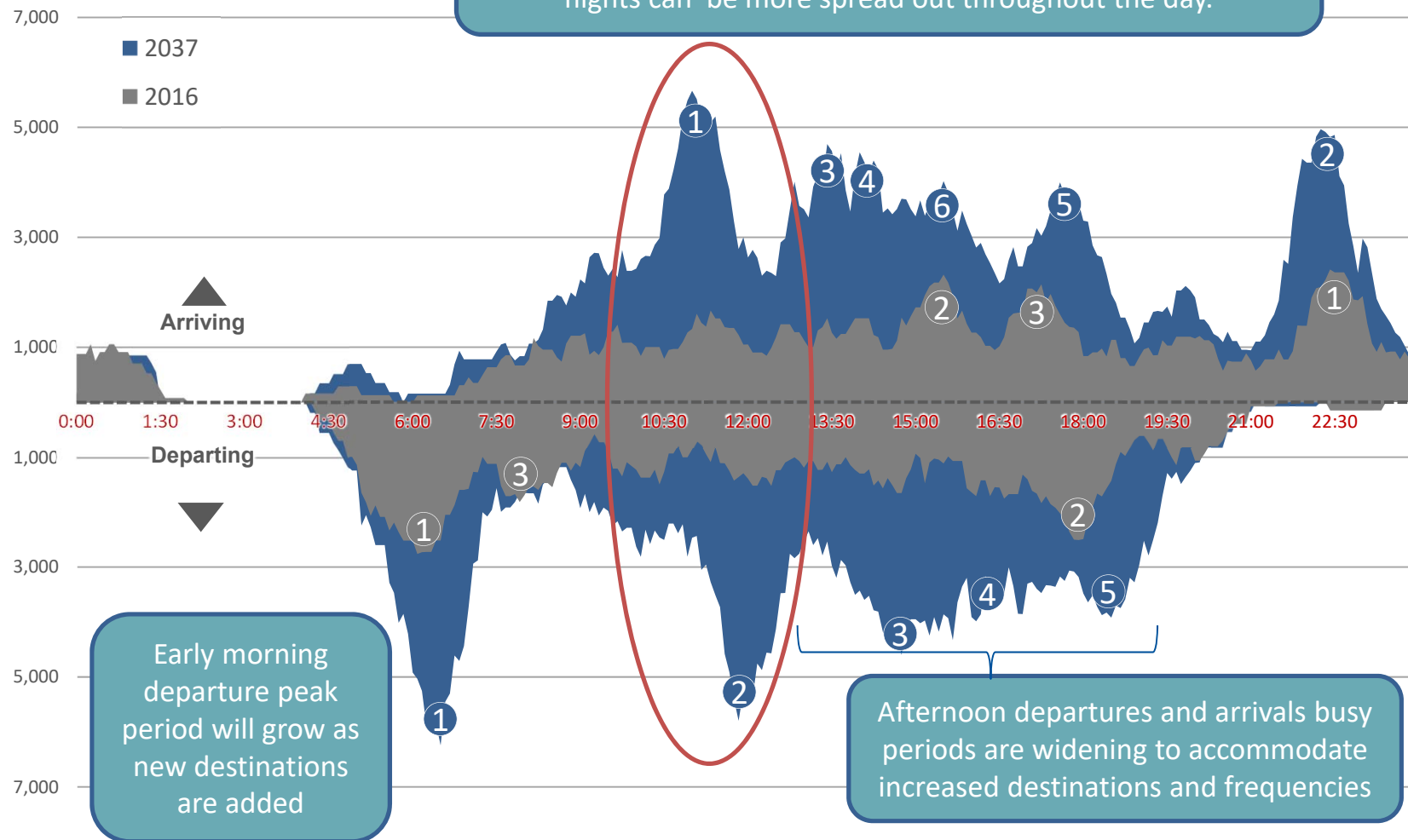
3.9% Compound Annual Growth Rate

Annual Aircraft Departures
(in thousands)



Peak Hour Growth

Hourly Seats Comparison - 2016 vs 2037



BASIS OF DEMAND CAPACITY ANALYSIS



Austin-Bergstrom
International Airport



Planning Activity Levels (PAL's)

**PAL 3
(2027)**

**PAL 4
(2037)**

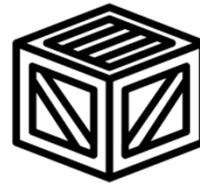
20-22



Million Annual Passengers

27-31

129,800 – 513,500



Tons of Enplaned Cargo

161,000 – 1.5 M

247,800 – 287,200



Annual Aircraft Operations

296,500 – 426,6000

SUMMARY OF AIRPORT FACILITY NEEDS



Austin-Bergstrom
International Airport



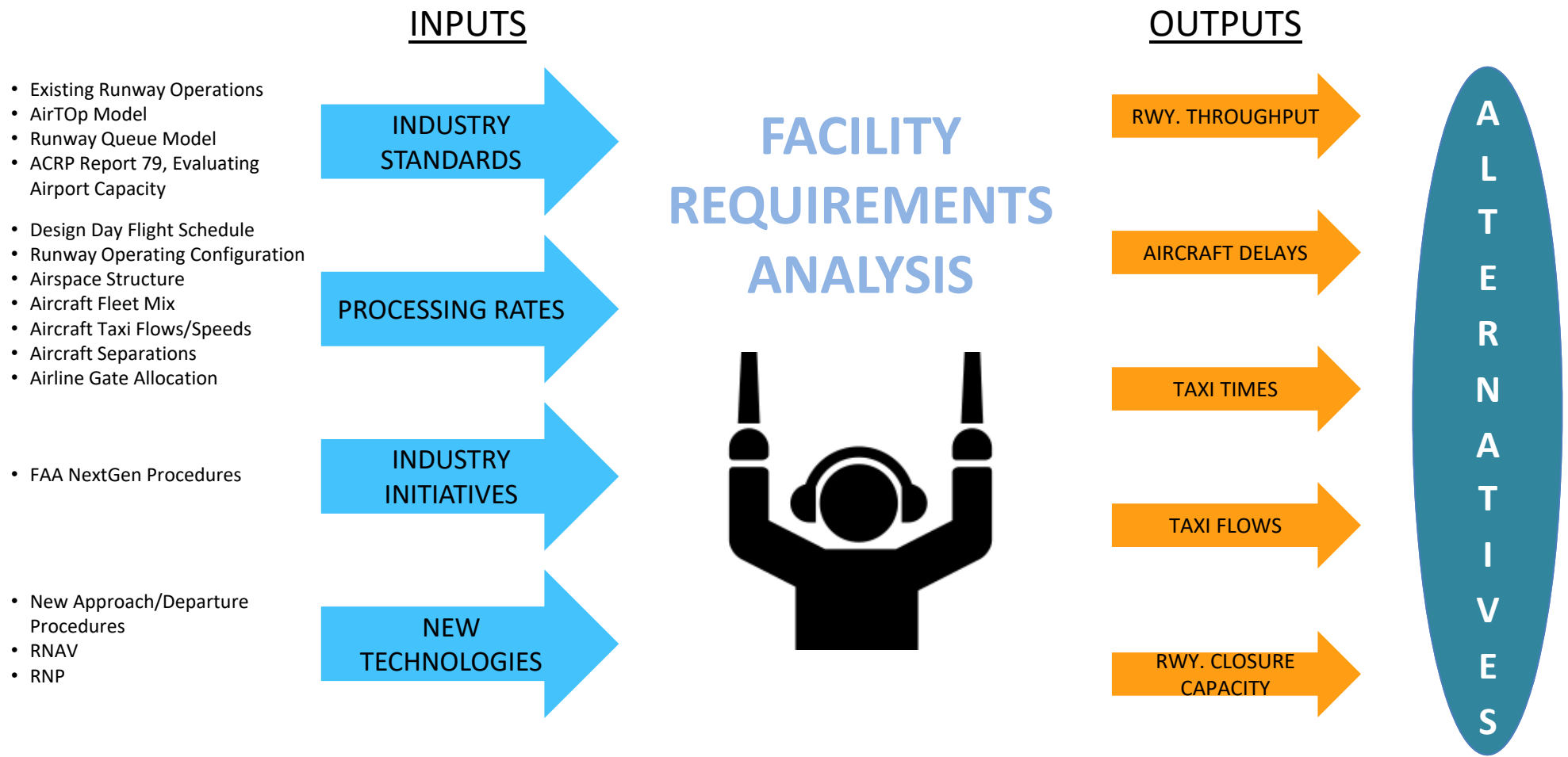
2037 AIRFIELD REQUIREMENTS



Austin-Bergstrom
International Airport



Runway Facility Requirements Approach



Effects of Closing Runways



Using data from the forecasting analysis, aviation planners predicted **how closing each runway will affect flight schedules** and delays.

Closure of Runway 17R-35L

The delay threshold of 10 minutes will be reached by **2032**, or 360,000 annual operations



Closure of Runway 17L-35R

The delay threshold of 10 minutes will be reached by **2029**, or 313,000 annual operations

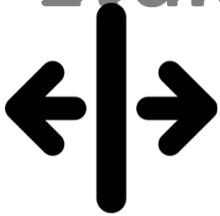
RUNWAY ALTERNATIVES AND EVALUATION



Austin-Bergstrom
International Airport



Runway Alternatives Evaluation Criteria



Runway Separation



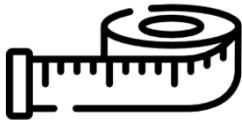
Environmental Impact



Constructability



Cost



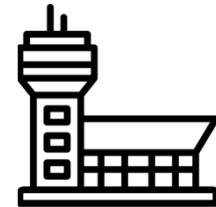
Runway Length



Annual Total
Movements



Peak Hour Balance



Potential Terminal
Development



Million Annual Passengers



Roadway Impact



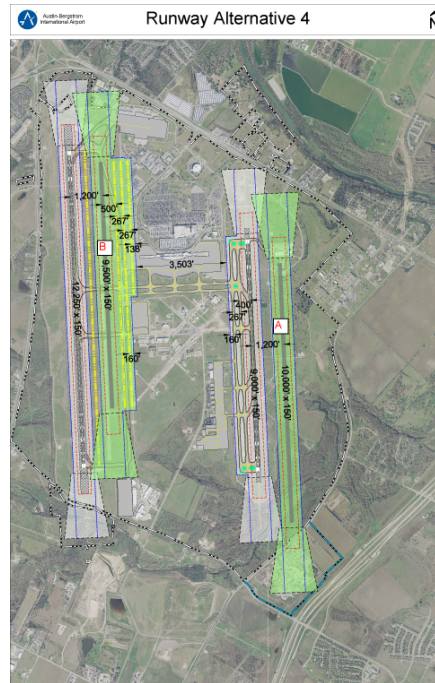
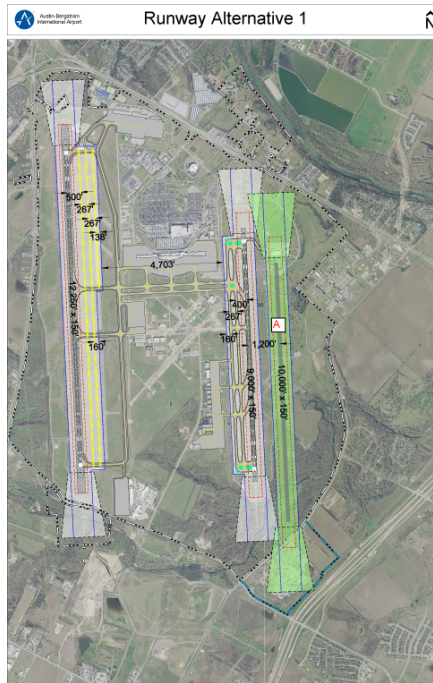
Land Development Impacts



Land Acquisition

Runway Alternatives Evaluation

Evaluation Criteria	Runway Alternatives Score													
	1	1a	2	3	3a	4	5	6	7	8	9	10	11	12
MAP	50.3	50.3	50.3	66.5	66.5	56.1	72.3	72.3	66.5	78.2	78.2	72.3	66.5	72.3
1. Runway centerline separation	○	○	○	+	+	○	+	+	+	+	+	+	+	+
2. Runway length	+	+	+	+	+	+	+	+	+	+	+	+	+	+
3. Peak hour balanced operations (arrivals and departure)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
4. Annual total movements (ATMs)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
5. Million annual passengers (MAP)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
6. Land acquisition	+	+	+	○	○	+	○	○	+	○	+	+	+	○
7. Environmental impacts	○	○	+	○	○	○	○	○	○	○	○	○	○	○
8. Off-airport roadway impacts	○	+	+	+	+	○	+	+	+	+	+	+	○	+
9. Off-airport land development impacts	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10. Potential terminal development	+	+	+	+	+	+	+	+	+	+	+	+	+	+
11. Constructability/Phasing	○	○	+	○	○	○	○	+	+	+	+	+	+	○
12. Development costs	○	○	+	○	○	○	○	+	+	+	+	+	+	○
TOTAL SCORE	7	4	9	4	2	5	4	0	1	0	-1	-1	2	4



Scoring:	Positive	+
	Neutral	○
	Negative	+

Includes “Off-Airport Land Development Impacts”

Runway Alternative 2 Summary

- Provides additional runway capacity well beyond the 20-year horizon
- Has minimal impacts to surrounding communities
- Relocate west support facilities and cargo complex
- Limits western expansion of the existing terminal and concourse gates
- Major gate expansion will be to the south

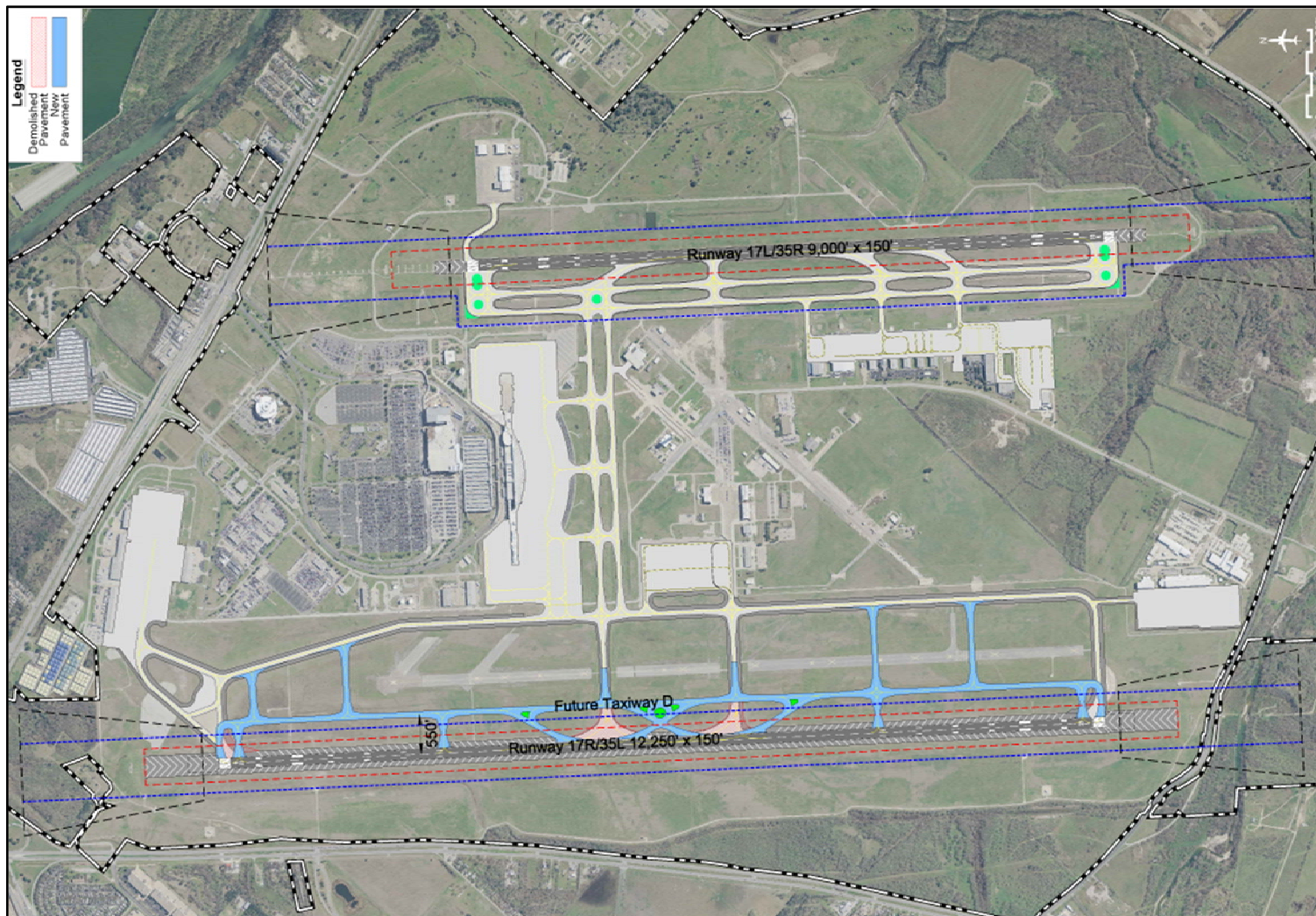


New Runway Supporting Facility Requirements

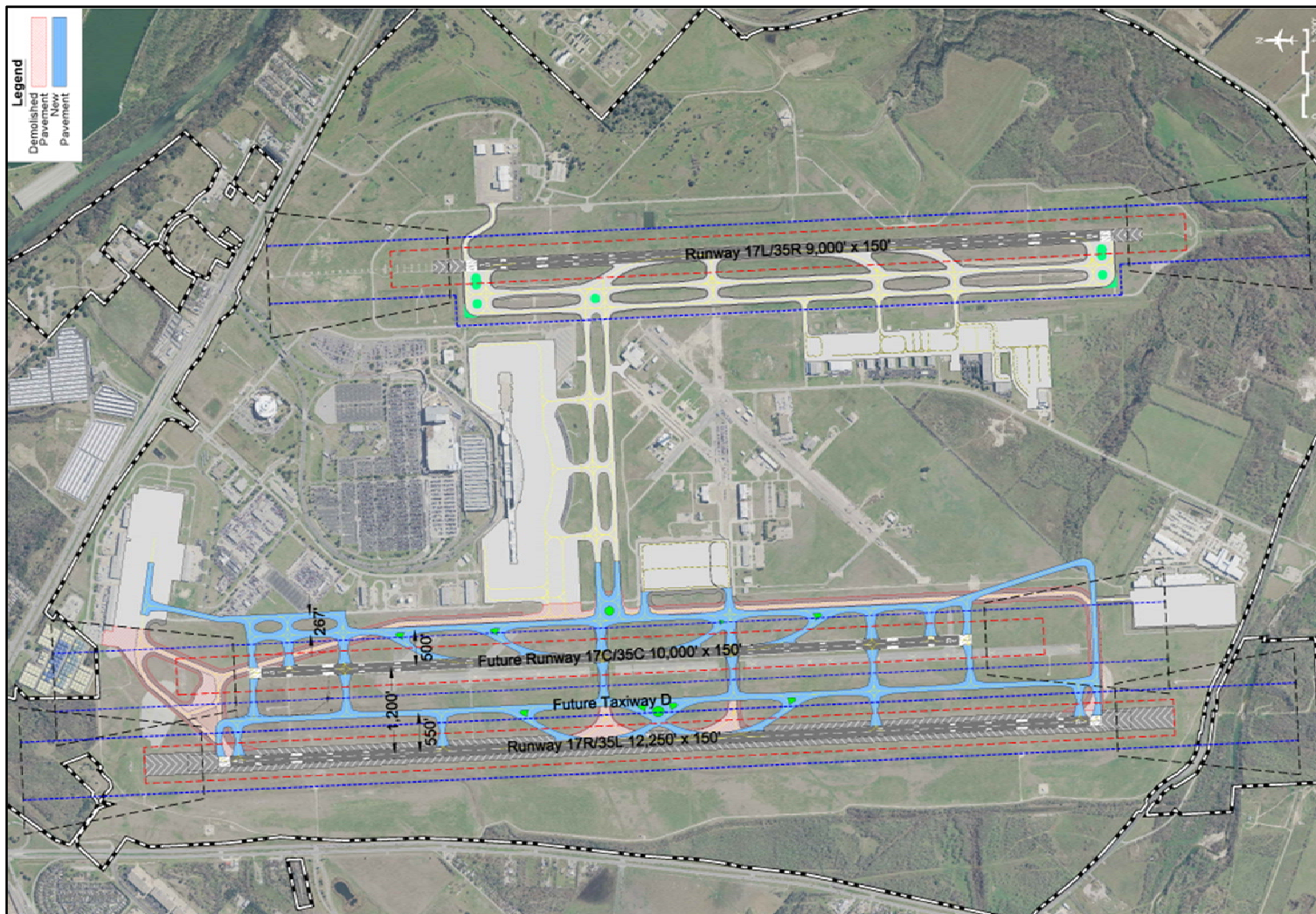
- Addition Construction Timing Considerations
 - Closure of existing runways for major maintenance (loss of capacity with 1 Rwy.)
 - Reconfiguration of Taxiway 'C'
 - Additional Rapid Exit Taxiways (RET's) to increase runway capacity
 - End Around Taxiways (EAT's) to reduce delays

NEW RUNWAY & TAXIWAYS DEVELOPMENT SCHEDULE	YEARS						
	1	2	3	4	5	6	7
DESIGN / ENGINEERING							
ENVIRONMENTAL							
APPROVAL / PERMITTING PROCESS							
CONSTRUCTION / TESTING							

Recommended Runway 17R-35L & Taxiway 'D' Layout



Recommended New West Runway 17C-35C Layout



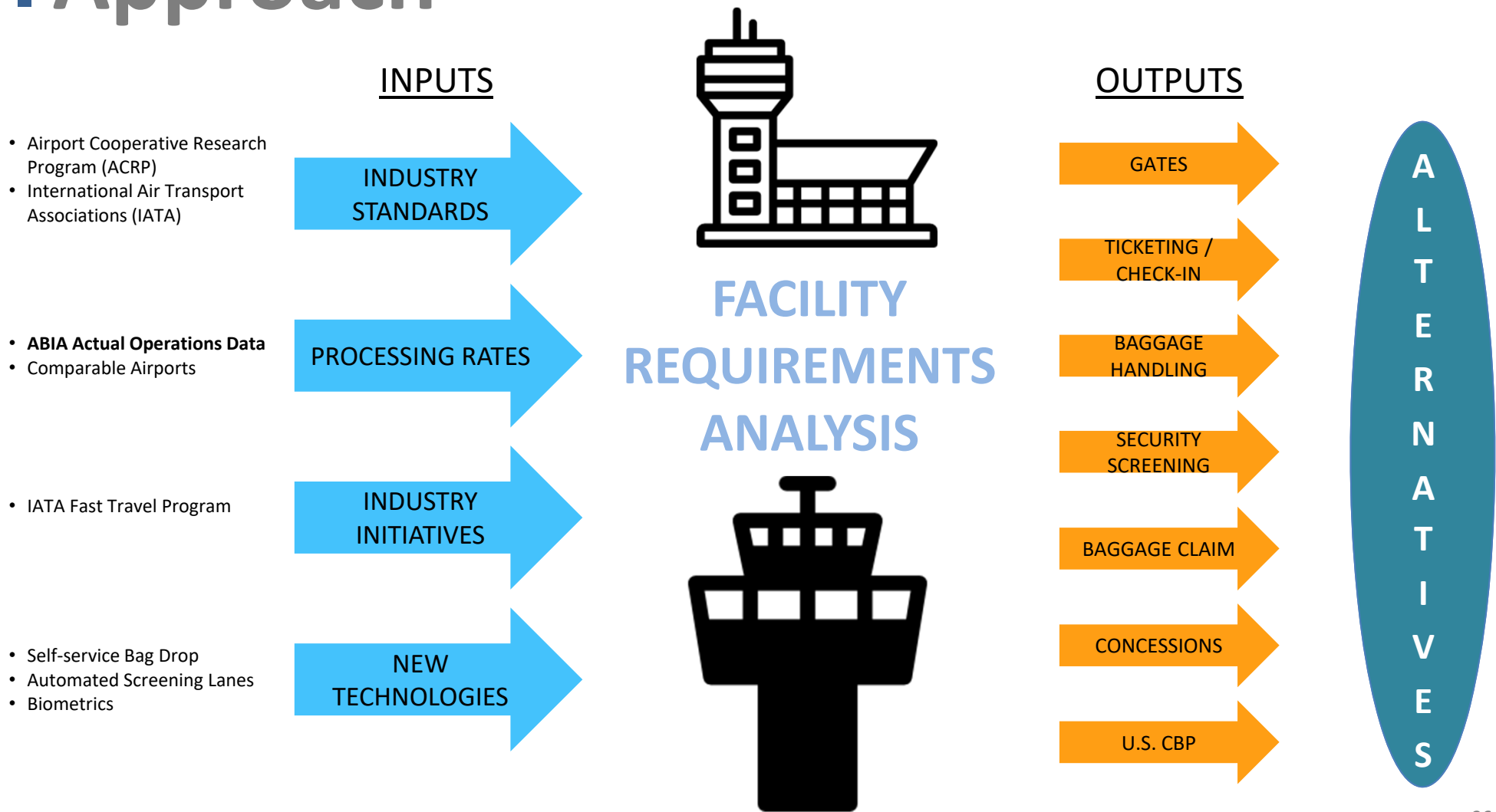
TERMINAL AND ROADWAY BREAKOUT SESSIONS



2037 TERMINAL REQUIREMENTS



Terminal Facility Requirements Approach



Demand/Capacity Terminal Facility Requirements Summary

TERMINAL FACILITIES	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
AIRCRAFT GATES	S	D	D	D
TICKETING/CHECK-IN	D	D	D	D
OUTBOUND BAGGAGE HANDLING	D	D	D	D
PASSENGER SECURITY SCREENING	D	D	D	D
CONCOURSE / HOLDROOMS	D	D	D	D
BAGGAGE CLAIM	D	D	D	D
CONCESSIONS	D	D	D	D
U.S. CUSTOMS & BORDER PROTECTION	D	D	D	D

- Outbound baggage handling is being addressed by current 5-year CIP
- Ticketing/Check-in, Passenger Security Screening, U.S. CBP and Concessions must be addressed in the first phase of expansion
- All terminal components require substantial expansion for PAL 2

Legend: **Sufficient**; **Deficient**

Terminal Expansion Strategy

TERMINAL EXPANSION SCHEDULE	YEARS								
	1	2	3	4	5	6	7	8	9
NEAR-TERM EXPANSION (2018-2021)									
DESIGN / ENGINEERING									
CONSTRUCTION									
LONG-TERM EXPANSION (2019-2024)									
DESIGN / ENGINEERING									
CONSTRUCTION / TESTING									

- Near-term expansion will provide immediate terminal and gate capacity to address current short-falls
- Long-term expansion will be constructed in phases to provide additional capacity in increments to accommodate growth as it occurs

Terminal Gate Requirements

- 12 additional gates will be required to meet the 10-year demand (PAL 3)
- 28 additional gates will be required for PAL 4
- Gate requirements include a 10% operational reliability factor

GATES	Existing (2019) ^{1/}	PAL 1 (2019)	PAL 2 (2022)	PAL 3 (2027)	PAL 4 (2037)
BJT & South Terminal					
Domestic	32	32	34	42	57
International	4	3	5	6	7
SUB-TOTAL GATES	36	35	39	48	64
Remote RONS	42	42	45	58	74
TOTAL POSITIONS	78	77	84	106	138

1/ Existing 2019 includes BJT east expansion, South Terminal gates and Maintenance Ramp remote RON positions.

Ticketing/Check-in Facility Requirements

TICKETING/CHECK-IN		Existing (2019)*	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
Curbside Check-in	Positions	18	10	13	15	19
Curbside Check-in Area	Sq. Ft.	2,400	1,955	2,530	2,875	3,680
Full Service Agent Positions	Positions	91**	24	27	33	44
Bag Drops	Positions		71	80	98	135
Kiosks		64	84	95	117	162
Check-in Hall Area	Sq. Ft.	36,150	61,410	69,230	84,755	115,805
Airline Ticket Offices (ATO)	Sq. Ft.	12,450	8,970	9,545	11,845	16,215

Notes: * Includes South Terminal; ** Full Service and Bag Drop positions are counted the same in the current arrangement as agents are required for either function. Future requirements are based on fully automated self-service Bag Drops as part of 1-step or 2-step processes.

Source: Landrum & Brown

- BJT ticketing/check-in hall is substantially undersized
- Expansion/reconfiguration of BJT ticketing/check-in hall should facilitate increased implementation of Self-service Bag Drops and Kiosks

Legend: **Sufficient**; **Deficient**

Ticketing/Check-in Facility Parameters

PARAMETER	METRIC	BASIS
Ratio of Pax Using Agent Check-in	15%	IATA Fast Travel Program Target ***
Ratio of Pax Using Self-Service Check-in	60%	IATA Fast Travel Program Target ***
Ratio of Pax Using Online Check-in Only*	20%	IATA Fast Travel Program Target ***
Ratio of Pax Using Curbside Check-in	5%	Similar to ABIA operations
TOTAL	100%	
Ratio of Pax in First/Business/Premium	10%	Typical for other similar airports
Ratio of Pax Using Bag Drop**	45%	Typical for other similar airports
Allowance for Counter/Kiosk Redundancy	10%	Industry planning standard
Agent Check-in Processing Time (sec)	150	Industry planning standard
Curb Check-in Processing Time (sec)	120	Industry planning standard
Kiosk Processing Time (sec)	90	Industry planning standard
Bag Drop Processing Time (sec)	120	Industry planning standard
Agent Check-in Max Queue Time (mins)	2-10	IATA Optimum LOS
Curb Check-in Max Queue Time (mins)	2	IATA Optimum LOS
Kiosk Max Queue Time (mins)	2	IATA Optimum LOS
Bag Drop Max Queue Time (mins)	5	IATA Optimum LOS
Queue Area per Pax (square feet)	12	IATA Optimum LOS
Depth of Circulation Corridor (feet)	30	Industry planning standard
Airline Ticket Office Area per EQA (sq. ft.)	200	ACRP Report 25

Notes: Pax = passengers; sec = seconds; mins = minutes; EQA = equivalent aircraft; * Passengers who check-in online and go straight to the Security Checkpoint; ** Passengers who check-in at a kiosk or online and have bags to check; *** IATA Fast Travel Program targets 80% self-service utilization by 2020

Source: Landrum & Brown

Outbound Baggage Handling System Requirements – CBIS

CHECKED BAGGAGE INSPECTION SYSTEM (CBIS)	Existing (2019)	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
EDS (Units)	6*	6*	3**	4**	5**
EDS with “N+1” Redundancy (Units)	6*	8*	4**	5**	6**
Outbound Baggage Screening Area	32,900	30,590	33,235	39,790	49,105

Notes: * Units in current configuration prior to BHS Project completion, excludes South Terminal EDS machine

** Calculated per PGDS based on projected demand

Sources: TSA Planning Standards and Design Guidelines (PGDS) Version 6, VTC bagStream 7.2 AUS Future Projections

- PALs 2-4 requirements assume a new CBIS is operational and optimally configured, allowing the EDS machines to operate at maximum throughput (~
- Existing CBIS area height limitations (~9 feet) restrict optimal configuration of BHS before and after EDS machines, thereby limiting the throughput

Legend: **Sufficient**; **Deficient**

Outbound Baggage Handling System Requirements – CBRA

CHECKED BAGGAGE RECONCILIATION AREA (CBRA)	Existing (2019)	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
ETD Workstations (Units)	12*	12*	18**	22**	28**
ETD Devices (Units)	6*	6*	9**	11**	14**

Notes: * Units in current configuration prior to BHS Project completion, Excludes South Terminal

** Calculated per PGDS based on projected demand

Sources: TSA Planning Standards and Design Guidelines (PGDS) Version 6, VTC bagStream 7.2 AUS Future Projections

- Additional CBRA capacity will be required for PAL 2 once the CBIS is reconfigured

Legend: **Sufficient**; **Deficient**

Outbound Baggage Handling System Requirements – Make-up

OUTBOUND BAGGAGE MAKE-UP	Existing (2019)	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
Make-up Carousels (Units)	10*	10*	6**	7**	9**
Carousel Presentation Length (lf)	1,670*	1,670*	987**	1,187**	1,453**
Outbound Baggage Make-up Area (sq. ft.)	43,150	36,455	39,100	46,920	57,500

Notes: * 10 units in current confined configurations (including East Expansion) and does not account for lost presentation space, excludes South Terminal

** Calculated according to flight schedule with optimized unit sizing and cart spacing

Source: VTC bagStream 7.2 AUS Future Projections

- Baggage make-up carousels (size and quantity) are sufficient for long-term growth
- Additional area around the carousels will be required for PAL 3 and beyond

Legend: **Sufficient**; **Deficient**

Passenger Security Screening Facility Requirements

PASSENGER SECURITY SCREENING		Existing (2019)	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
Security Checkpoint	Lanes	17*	23	24	30	40
Security Checkpoint Area, Incl. Queue	Sq. Ft.	22,750	47,400	49,700	63,900	87,500

Notes: * Includes South Terminal
Source: Landrum & Brown

- BJT Checkpoints 2 and 3 are substantially undersized in terms of lanes and area

Legend: **Sufficient**; **Deficient**

Passenger Security Screening Parameters

PARAMETER	METRIC	BASIS
Standard Lane Throughput (pph)	150	TSA CDG
Pre-Check Lane Throughput (pph)	210	Typical for other similar airports
Ratio of Passengers using Pre-Check	40%	Current ABIA operation*
Area per Standard Lane (sq. ft.)	1,500	TSA CDG – Optimal Footprint
Queue Area per Person (sq. ft.)	12	IATA Optimum LOS

Notes: PPH = passengers per hour

* Based on interviews with TSA representatives at ABIA – 30 to 40% of passengers are registered or eligible for Pre-Check

Source: Landrum & Brown

Concourse/Holdroom Requirements

CONCOURSE/HOLDROOM		Existing (2019)*	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
Narrowbody Holdrooms		34	33	36	46	59
Narrowbody Holdroom Area	sq. ft.	106,200	98,670	107,640	137,540	176,410
Widebody Holdrooms		2	3	3	4	5
Widebody Holdroom Area	sq. ft.	9,000	16,215	16,215	21,620	27,025
Circulation Corridor	sq. ft.	89,600	125,350	135,125	173,650	221,950

Notes: * Includes South Terminal
Source: Landrum & Brown

- Additional narrow-body and wide-body holdrooms will be required by PAL 2
- Airside circulation corridor is narrow; future gate expansion should be sized similar to East Expansion

Legend: **Sufficient**; **Deficient**

Concessions Requirements

CONCESSIONS		Existing (2019)*	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
Pre-security Concessions	sq. ft.	3,950	10,695	11,730	13,685	18,055
Post-security Concessions	sq. ft.	67,900	95,680	105,340	122,590	162,150
Concessions Support	sq. ft.	5,500	15,985	17,595	20,470	27,025

Notes: * Includes South Terminal
Source: Landrum & Brown

- Insufficient space exists both pre- and post-security to maximize concession area and revenue
- Future terminal and gate expansion should provide diverse areas for pre- and post-security concessions

Legend: **Sufficient**; **Deficient**

Airside Concourse Parameters

PARAMETER	METRIC	BASIS
Holdroom Area – ADG V Gate (sq. ft.)	4,700	ACRP Report 25
Holdroom Area – ADG III Gate (sq. ft.)	2,600	ACRP Report 25
Circulation Corridor Width (feet)	35	Similar to BJT East Expansion
Concessions Area per 1,000 Enplaned Passengers (sq. ft.)	11.75	ACRP Report 54 – moderate to high range. Includes Duty Free.
Concessions Support Space (percent of total concessions area)	15	ACRP Report 54
Area per Airline / Premium Lounge (sq. ft.)	7,500	Average of ABIA lounges, including new Delta Sky Club

Notes: ADG = Airplane Design Group; ACRP Report 25 – Airport Passenger Terminal Planning and Design; ACRP Report 54 – Resource Manual for Airport In-Terminal Concessions

Sources: Landrum & Brown

Domestic Baggage Claim Requirements

DOMESTIC BAGGAGE CLAIM	Existing (2019)*	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
Peak 15 Minute Bank of Flights	7	7	7	10	12
Bag Claim Units (Units)	8	7	7	10	12
Bag Claim Presentation Length (lf)	1,050	980	980	1,400	1,680
Baggage Claim Hall (sq. ft.)	53,500	58,075	60,950	82,800	104,650
Baggage Service Offices (sq. ft.)	3,050	4,370	5,060	6,210	8,625
Inbound Baggage Handling Area (sq. ft.)	8,100	13,340	13,340	18,975	22,770

Notes: * Includes South Terminal

Source: VTC bagStream 7.2 AUS Future Projections

- Existing baggage claim capacity is sufficient for PAL 2
- Additional baggage claim devices and area are required for PAL 3
- Additional area for Baggage Services Offices should be provided in PAL 3 terminal expansion
- Additional area for Inbound Baggage Handling should be provided in PAL 3 terminal expansion

Legend: **Sufficient**; **Deficient**

U.S. Customs & Border Protection Facility Requirements

CONCOURSE/HOLDROOM		Existing (2019)	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
Sterile Corridor	sq. ft.	17,800	21,600	21,600	29,900	43,100
Document Verification Officer	Positions	10	6	8	12	12
Global Entry Kiosks	Devices	8	8	8	8	8
Automated Passport Control Kiosks	Devices	8	13	13	13	13
Primary Processing and Inspection	sq. ft.	8,400	8,600	11,300	16,700	16,700
Secondary Processing and Inspection	sq. ft.	3,000	2,700	2,835	2,835	2,835
Operational Support	sq. ft.	8,000	6,345	9,180	10,395	10,395
Baggage Claim Devices		1	2	3	3	3
Baggage Claim Frontage	LF	198	440	660	660	660
Baggage Claim Hall	sq. ft.	6,500	18,975	30,590	31,280	31,280

- Additional APC Kiosks are required for PAL 1
- An additional baggage claim unit is required for PAL 1; should be sized for a wide-body aircraft

Legend: **Sufficient**; **Deficient**

2037 TERMINAL ALTERNATIVES



| Objectives for Terminal Alternatives

Address near-term expansion requirements

Maintain or increase number of available gates during construction of the next phase

Minimize disruption to passengers or operations during expansion

Maintain or enhance passenger experience

Invest in the near-term while maintaining flexibility to adapt in the long-term

Terminal Facility Evaluation Criteria



Maintains ABIA Experience



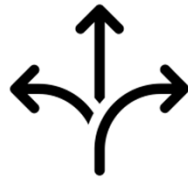
Intuitive Wayfinding



Flexible Gate Growth



Passenger Movement



Operational Flexibility



Air Traffic Control Flexibility



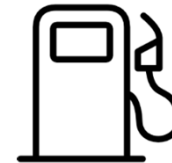
New Central Plant



General Aviation Impacts



Impacts on Current CIP Projects



Fuel Storage Impacts

Terminal Expansion Opportunities & Considerations

Future West Runway Configuration

NORTHWEST TERMINAL AREA

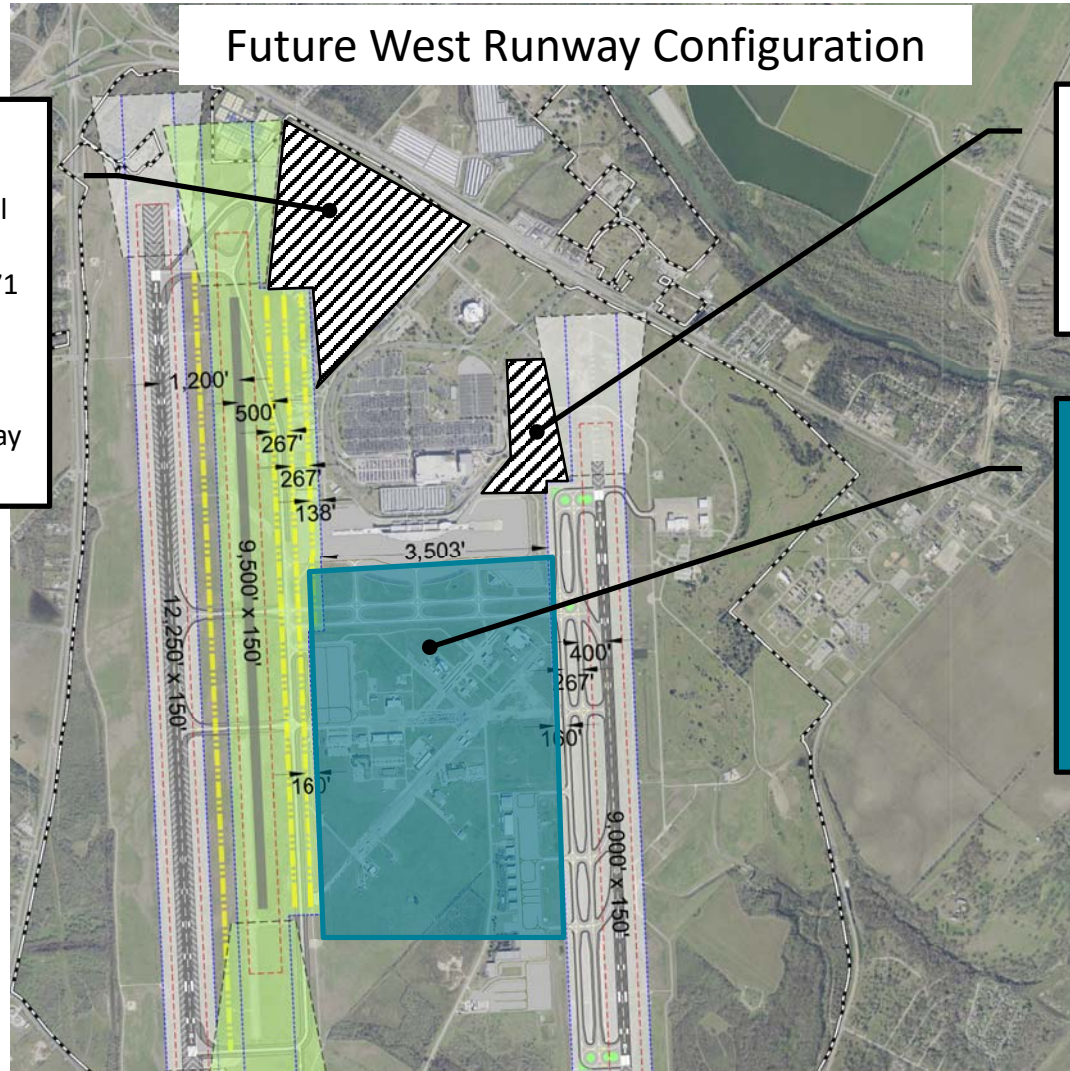
- Minimal area for terminal & parking
- Difficult access from SH 71
- Runway protection
- Unbalanced aircraft movement and long taxi-times to/from east runway

EAST TERMINAL AREA

- Limited expansion opportunity due to size of area, Central Plant and runway protection

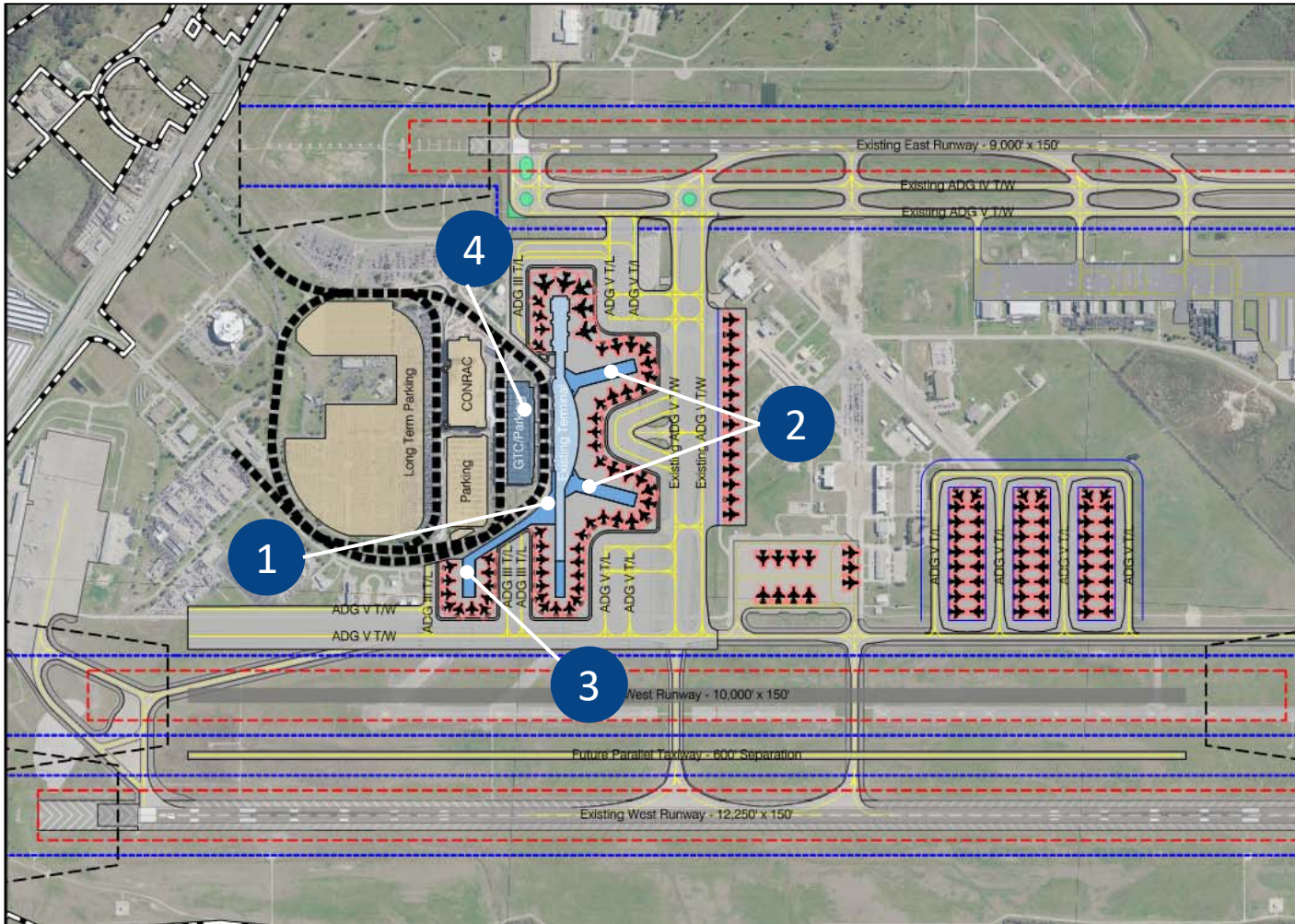
SOUTH TERMINAL AREA

- Compatible with future West Runway
- Requires substantial new infrastructure
- May split access/egress between SH 71 and US 183
- May impact FAA ATCT and General Aviation



Terminal Alternative 1

Maximize Barbara Jordan Terminal Capacity



Key Attributes:

1. Expanded BJT Processor
2. South pier concourses
3. Northwest concourse
4. Convert Garage 1 to Parking & GTC

Pros:

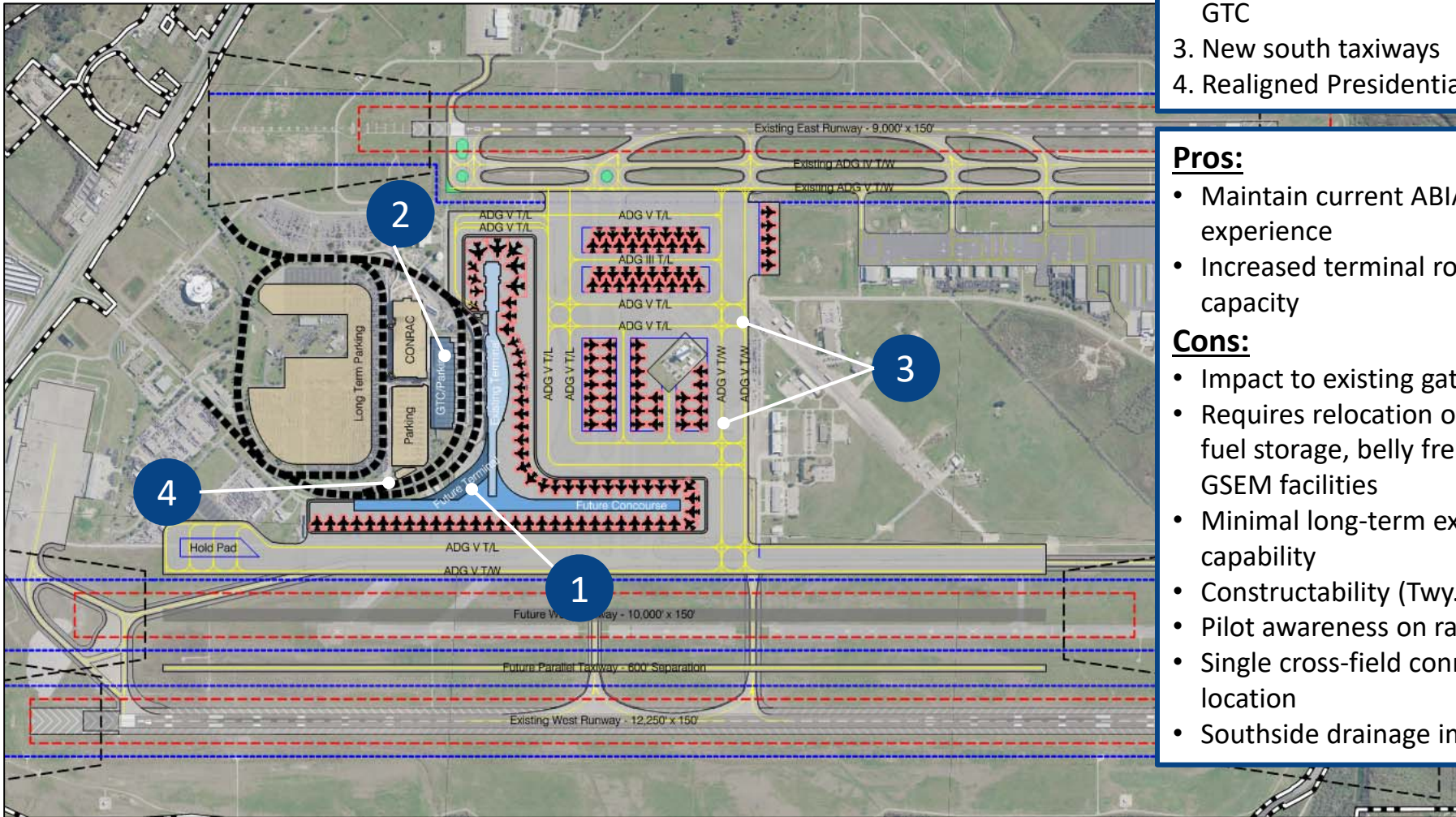
- Immediate terminal expansion (West Infill)
- Maintain current ABIA experience

Cons:

- Impact to existing gates
- Complicated pax. wayfinding
- Requires relocation of existing fuel storage, belly freight, & GSEM facilities
- Minimal long-term expansion capability
- Constructability (Twy. B grade)
- Pilot awareness on ramp

NOTE: ALL OPTIONS REFLECT 64 CONTACT GATES (59 ADG III, 5 ADG V)

Redeveloped Barbara Jordan Terminal



Key Attributes:

1. West terminal and concourse
2. Convert Garage 1 to Parking & GTC
3. New south taxiways
4. Realigned Presidential Blvd

Pros:

- Maintain current ABIA experience
- Increased terminal roadway capacity

Cons:

- Impact to existing gates
- Requires relocation of existing fuel storage, belly freight & GSEM facilities
- Minimal long-term expansion capability
- Constructability (Twy. B grade)
- Pilot awareness on ramp
- Single cross-field connection location
- Southside drainage impacts

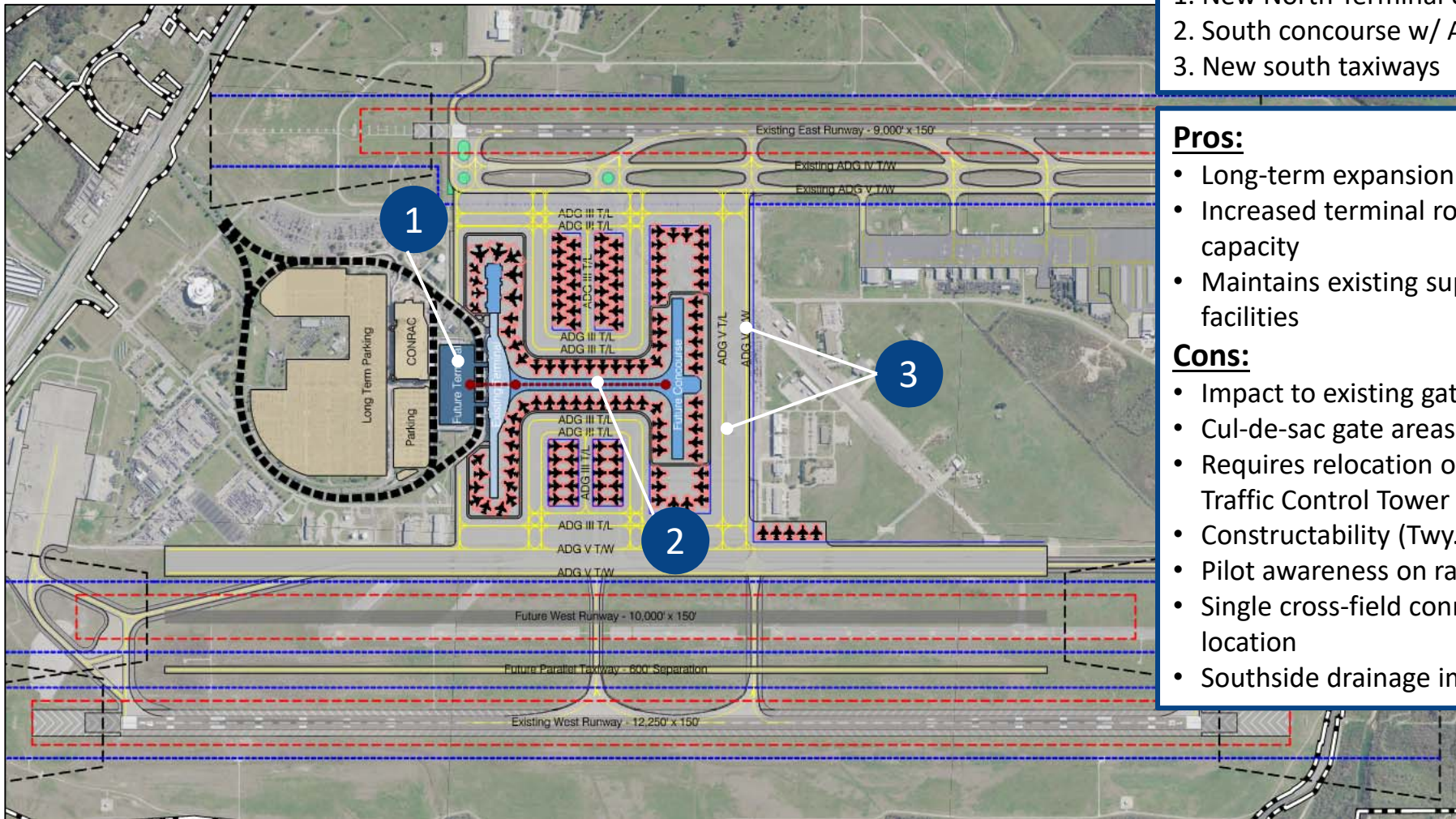
NOTE: ALL OPTIONS REFLECT 64 CONTACT GATES (59 ADG III, 5 ADG V)

New North Terminal with South Concourse

1. New North Terminal & GTC
2. South concourse w/ APM
3. New south taxiways

- Long-term expansion flexibility
- Increased terminal roadway capacity
- Maintains existing support facilities

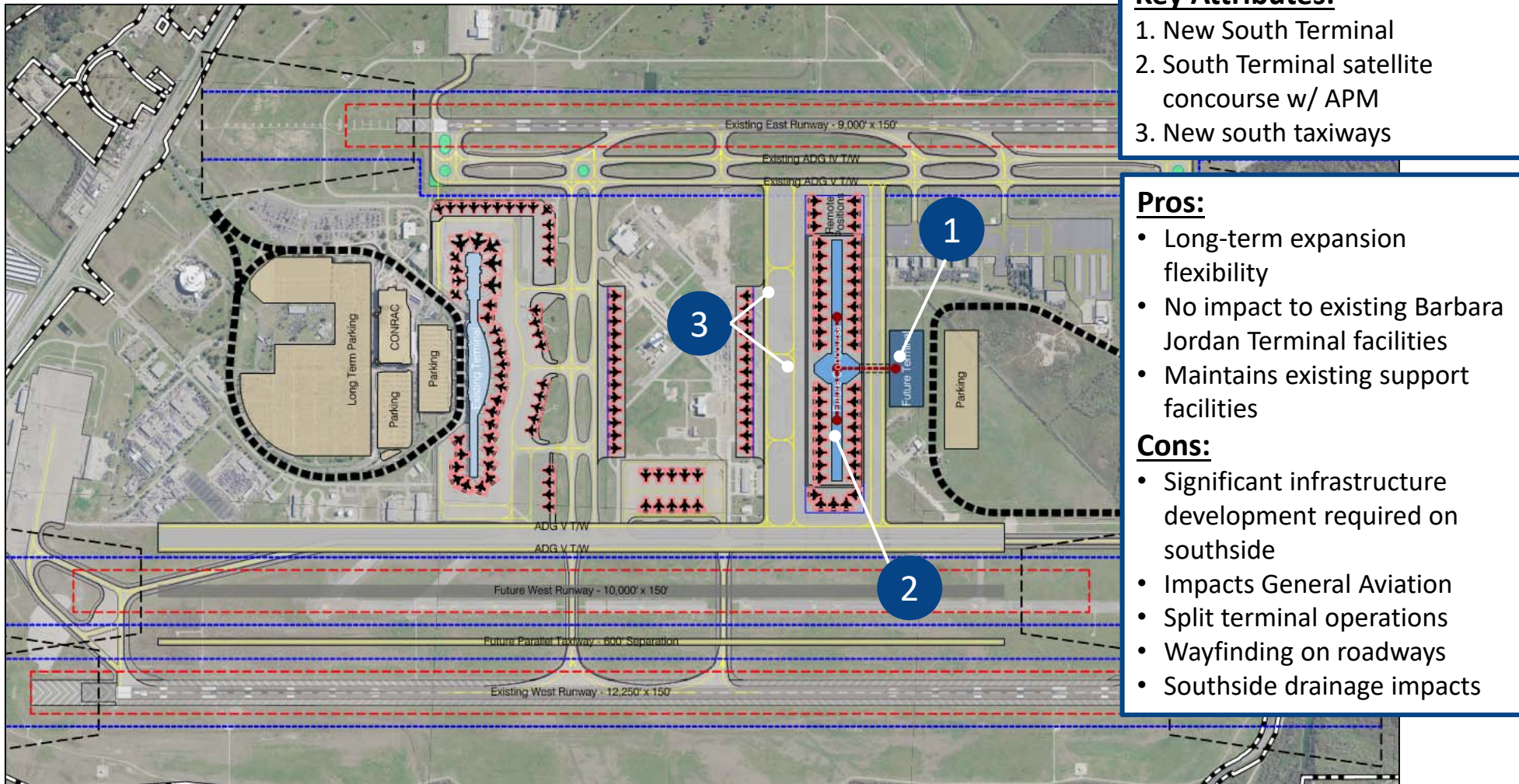
- Impact to existing gates
- Cul-de-sac gate areas
- Requires relocation of Air Traffic Control Tower
- Constructability (Twy. B grade)
- Pilot awareness on ramp
- Single cross-field connection location
- Southside drainage impacts



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Terminal Alternative 5

New South Terminal with Satellite Concourse



Key Attributes:

1. New South Terminal
2. South Terminal satellite concourse w/ APM
3. New south taxiways

Pros:

- Long-term expansion flexibility
- No impact to existing Barbara Jordan Terminal facilities
- Maintains existing support facilities

Cons:

- Significant infrastructure development required on southside
- Impacts General Aviation
- Split terminal operations
- Wayfinding on roadways
- Southside drainage impacts

NOTE: ALL OPTIONS REFLECT 63 CONTACT GATES (59 ADG III, 5 ADG V)

Comparison of Terminal Alternatives – Master Plan Horizon

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Criteria	Maximize BJT Capacity	Redeveloped BJT	North Term. + S. Concourse	North Term. + Satellite Concourse	South Term. + Satellite Concourse
Maintains ABIA Experience	Y	Y	Y*	Y*	Y*
Intuitive Passenger Wayfinding	N	Y	Y	Y	N
Flexible Gate Growth	Y	Y	Y	Y	Y
Requires Automated Transit	N	N	Y	Y	Y
Operational Flexibility	Y	Y	Y	Y	Y
Impacts Current CIP Projects	N	Y	N	N	N
ATCT to Remain	Y	Y	N	Y	Y
C.U.P. to Remain	Y	Y	Y	Y	Y**
Impacts General Aviation	N	N	N	N	Y
Fuel Farm to Remain	N	N	Y	Y	Y
Ease of Constructability	N	N	N	N	N
Intuitive Pilot Wayfinding	N	N	N	Y	Y

* Automated Transit used to maintain curb-to-gate convenience

** Second CUP likely required

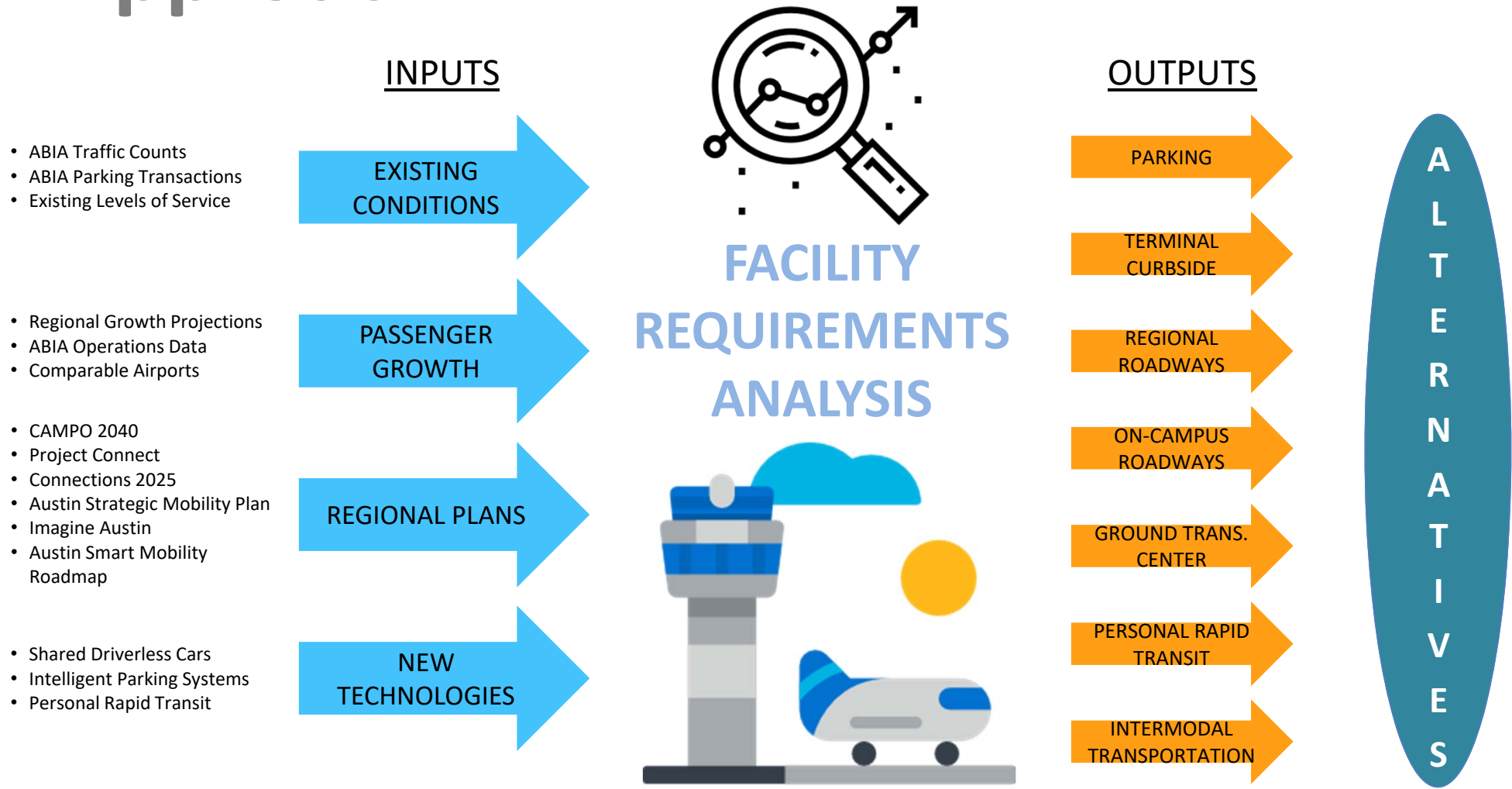
2037 LANDSIDE REQUIREMENTS



Austin-Bergstrom
International Airport



Landside Facility Requirements Approach



Demand/Capacity Regional Roadways Requirements Summary

PARKING AREAS	EXISTING V/C RATIO	PAL 1 16.0 MAP	PAL 2 17.0 MAP	PAL 3 20.0 MAP	PAL 4 27.0 MAP
SH130 – HAROLD GREEN TO SH71	0.18	0.18	0.30	0.59	1.17
SH130 – BURLESON RD TO SH71	0.17	0.18	0.30	0.61	1.23
SH71 – US183 TO SH130	0.82	0.84	0.81	0.70	0.49
US183 – MONTOPOLIS TO SH71	0.83	0.83	0.62	0.84	1.28
US183 – BURLESON RD TO SH71	0.75	0.78	0.85	0.98	1.23
FM973 – FM812 TO SH71	0.46	0.51	0.56	0.64	0.80
FM973 – FM969 TO SH71	0.26	0.28	0.40	0.68	1.23
BURLESON RD	0.47	0.49	0.52	0.57	0.67

Legend: LOS A / B; LOC C / D; LOS E / F

Presidential Blvd Roadway Segments – LOS in 2037 with No Improvements

SEGMENTS ON PRESIDENTIAL	AM LOS		PM LOS	
	2017	2037	2017	2037
SH71 to Hotel Drive	A	B	A	F
Hotel Dr. to Spirit of Austin Ln.	A	B	A	F
Spirit of Austin Ln. to Long Term Parking Entrance	A	C	B	F
Long Term Parking Entrance to Lower And Upper Curb Divergence	A	B	B	F
Lower Curbside Divergence to Garage A Exit	A	A	C	F
Garage A Exit to Start of Lower Curbside	A	A	F	F

SEGMENTS ON PRESIDENTIAL	AM LOS		PM LOS	
	2017	2037	2017	2037
Upper Curbside Divergence to Start of Upper Curbside	B	E	B	F
End of Lower Curbside Garage A Entrance	A	A	D	F
End of Upper Curbside Garage A Entrance	B	F	C	F
Garage A Entrance to Parking Lot G Exit	A	B	B	F
Parking Lot G Exit CONRAC Entrance	A	A	A	F
CONRAC Entrance Hotel Drive	A	A	A	F
Hotel Drive Exit SH 71	A	B	B	F

Legend: LOS A / B; LOC C / D; LOS E / F

Intersections – LOS in 2037 with No Improvements

INTERSECTION	AM LOS		PM LOS	
	2017	2037	2017	2037
SH71 WB Frontage at Spirit of Texas	B	E	C	F
SH71 EB Frontage at Spirit of Texas	A	F	B	F
SH71 WB Frontage at Presidential	C	C	C	F
SH71 EB Frontage at Presidential	D	D	D	F
Spirit of Texas at Hotel Dr.	A	F	D	F

INTERSECTION	AM LOS		PM LOS	
	2017	2037	2017	2037
Hotel Dr. at Employee Ave	A	A	A	E
Hotel Dr. at Presidential	A	A	A	F
Spirit of Texas at Spirit of Austin	A	F	B	F
Spirit of Texas at Rental Car Rd	A	A	A	F
Burleson Rd at General Aviation Ave.	A	C	B	B

Legend: LOS A / B; LOC C / D; LOS E / F

Terminal Curbside – LOS in 2037 with No Improvements

LOCATION	AM SECONDS IN QUEUE	AM LOS	AM SECONDS IN QUEUE	AM LOS	PM SECONDS IN QUEUE	PM LOS	PM SECONDS IN QUEUE	PM LOS
	2017		2037		2017		2037	
Upper Level – Inner Lane	2	A	46	C	4	B	20	B
Upper Level – Outer Lane	18	B	62	C	18	B	32	B
Lower Level – Inner Lane	0	A	1	A	135	F	472	F
Lower Level – Outer Lane	0	A	11	A	102	E	418	F

Legend: LOS A / B; LOC C / D; LOS E / F

Terminal Curbside Loading/Unloading Lane LOS in 2037 with No Improvements

MODE	FUTURE PEAK HOUR TRAFFIC VOLUME STOPPED AT CURBSIDE	AVERAGE DWELL TIME [SECONDS]	DEMAND IN LINEAR LENGTH [FT]	CURBSIDE LOADING / UNLOADING EFFECTIVE LENGTH [FT]	CURB UTILIZATION RATIO	CURBSIDE LANES LOS BASED ON UTILIZATION FACTOR
Upper Level Curbside						
Individually Owned Vehicle	1144	65	870	820	1.06	B
On-Site Parking Shuttle	46	125	190	200	0.95	B
Off-Site Parking Shuttle	50	125	190	210	0.90	A
Lower Level Curbside						
Individually Owned Vehicle	1205	70	990	540	1.83	E
Taxi	166	375	750	590	1.27	C
On-Site Parking Shuttle	17	125	114	210	0.54	A
Off-Site Parking Shuttle	75	130	228	210	1.09	B
Transit	8	300	114	180	0.63	A

Legend: LOS A / B; LOC C / D; LOS E / F

Terminal Curbside Thru Lanes LOS with No Improvements

	FUTURE PEAK HOUR VOLUME (VPH)	FUTURE CAPACITY [VPH]	V/C RATIO	LOS
2019				
Curbside Upper Level	710	2790	0.25	B
Curbside Lower Level	910	2220	0.41	C
2022				
Curbside Upper Level	780	2790	0.28	B
Curbside Lower Level	1000	2220	0.45	C
2027				
Curbside Upper Level	900	2790	0.32	B
Curbside Lower Level	1160	2220	0.52	C
2032				
Curbside Upper Level	1040	2790	0.37	B
Curbside Lower Level	1340	2220	0.60	C
2037				
Curbside Upper Level	1200	2790	0.43	C
Curbside Lower Level	1540	2220	0.69	D

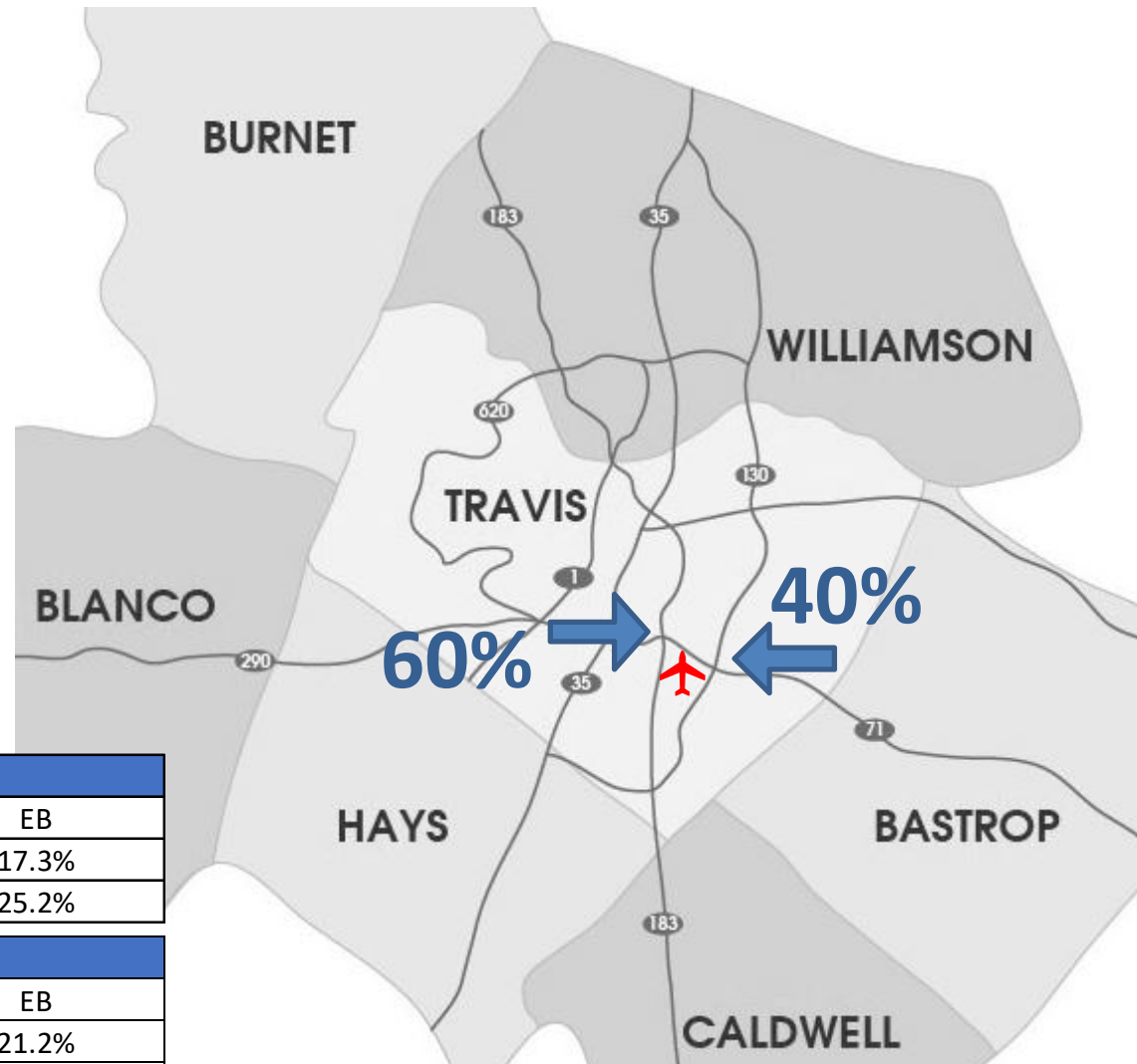
Legend: LOS A / B; LOC C / D; LOS E / F

PASSENGER TRAVEL ROUTES TO ABIA



Passenger Travel Routes to ABIA

- 60% of passengers are from Travis County
- The following counties account for 92% of passengers in order of percent
 - Travis
 - Williamson
 - Hays
 - Bell
 - Bexar
 - Bastrop
 - Brazos
- Percentages assume 1/3 of Travis County passengers use SH 130 to access airport



Presidential Boulevard

	NB (WB)	EB	NB (WB)	EB
AM Peak	803	168	82.7%	17.3%
PM Peak	1158	391	74.8%	25.2%

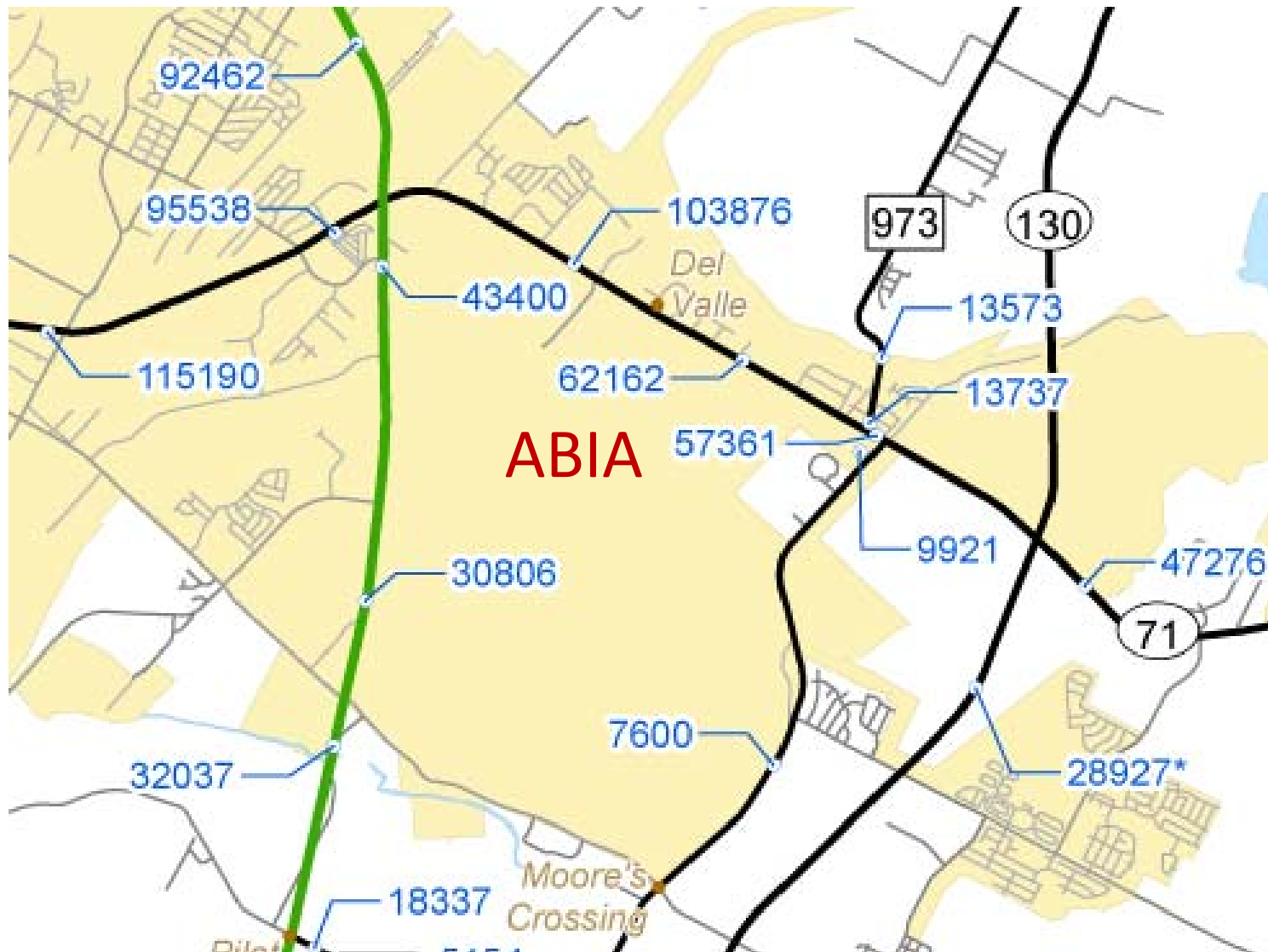
Spirit of Texas

	NB (WB)	EB	NB (WB)	EB
AM Peak	215	58	78.8%	21.2%
PM peak	363	136	72.7%	27.3%

ABIA ROADWAY TRAFFIC COUNTS



2016 Austin District Traffic Map



ABIA Traffic study

- Traffic counts taken July 21 – August 3, 2017 using video cameras
- Peak Day was July 28, 2017
- 24 hour counts to determine peak hours
- Classification counts determine % heavy vehicles and shuttles
- Turning movement counts to study intersection operations
- Traffic speed data for VISSIM modeling for existing and future conditions

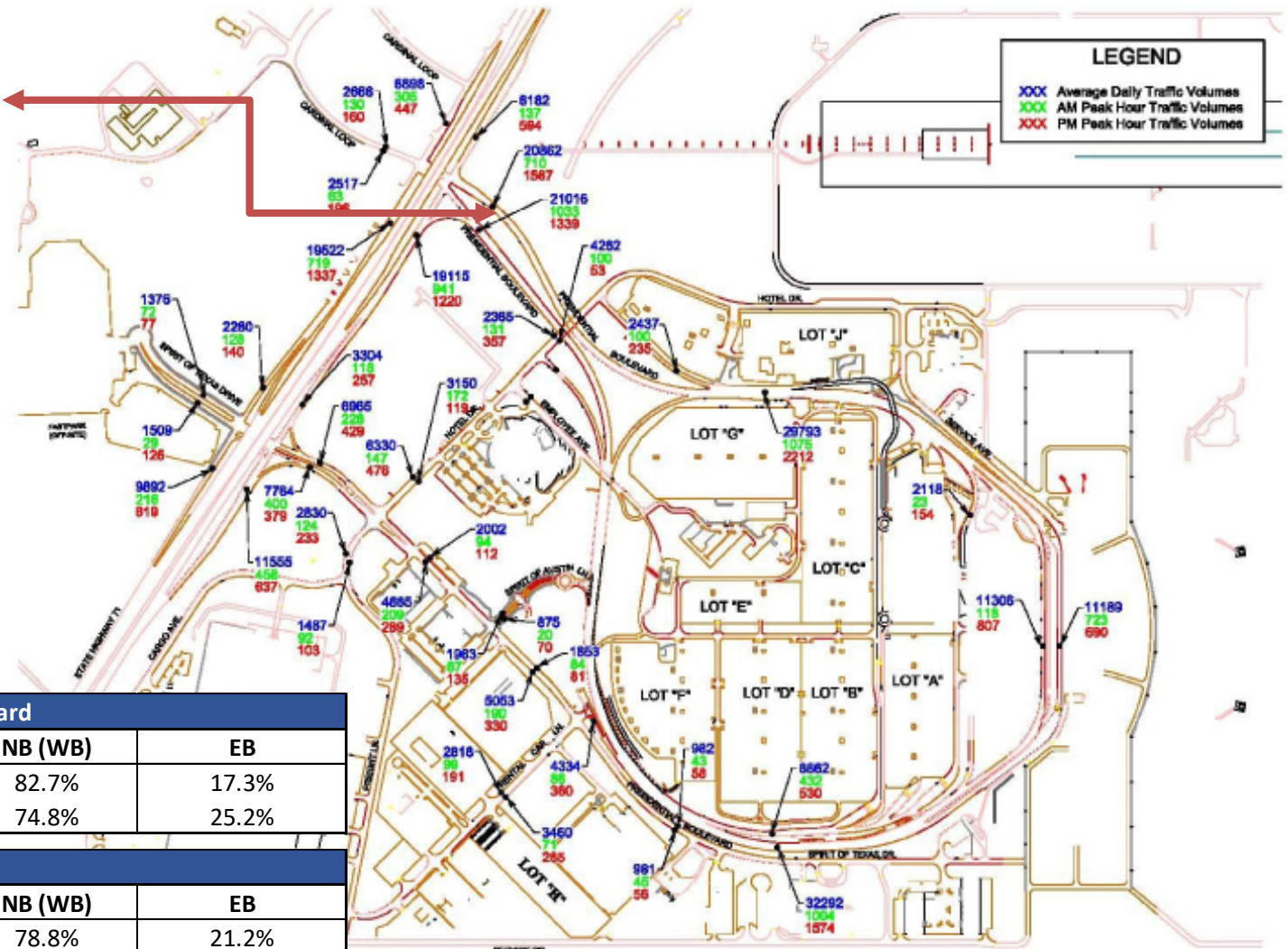


ABIA Existing Roadway Traffic Counts (2017)

ABIA MP - 2017 Traffic Counts

Presidential Blvd.
Heading west on
SH 71 – LOS D

710
1587



Presidential Boulevard				
	NB (WB)	EB	NB (WB)	EB
AM Peak	803	168	82.7%	17.3%
PM Peak	1158	391	74.8%	25.2%

Spirit of Texas				
	NB (WB)	EB	NB (WB)	EB
AM Peak	215	58	78.8%	21.2%
PM peak	363	136	72.7%	27.3%

ABIA Future Roadway Traffic Counts (2037)

ABIA MP - 2037 Projected Traffic Volumes

Presidential Blvd.
Heading west on
SH 71 – LOS F

710

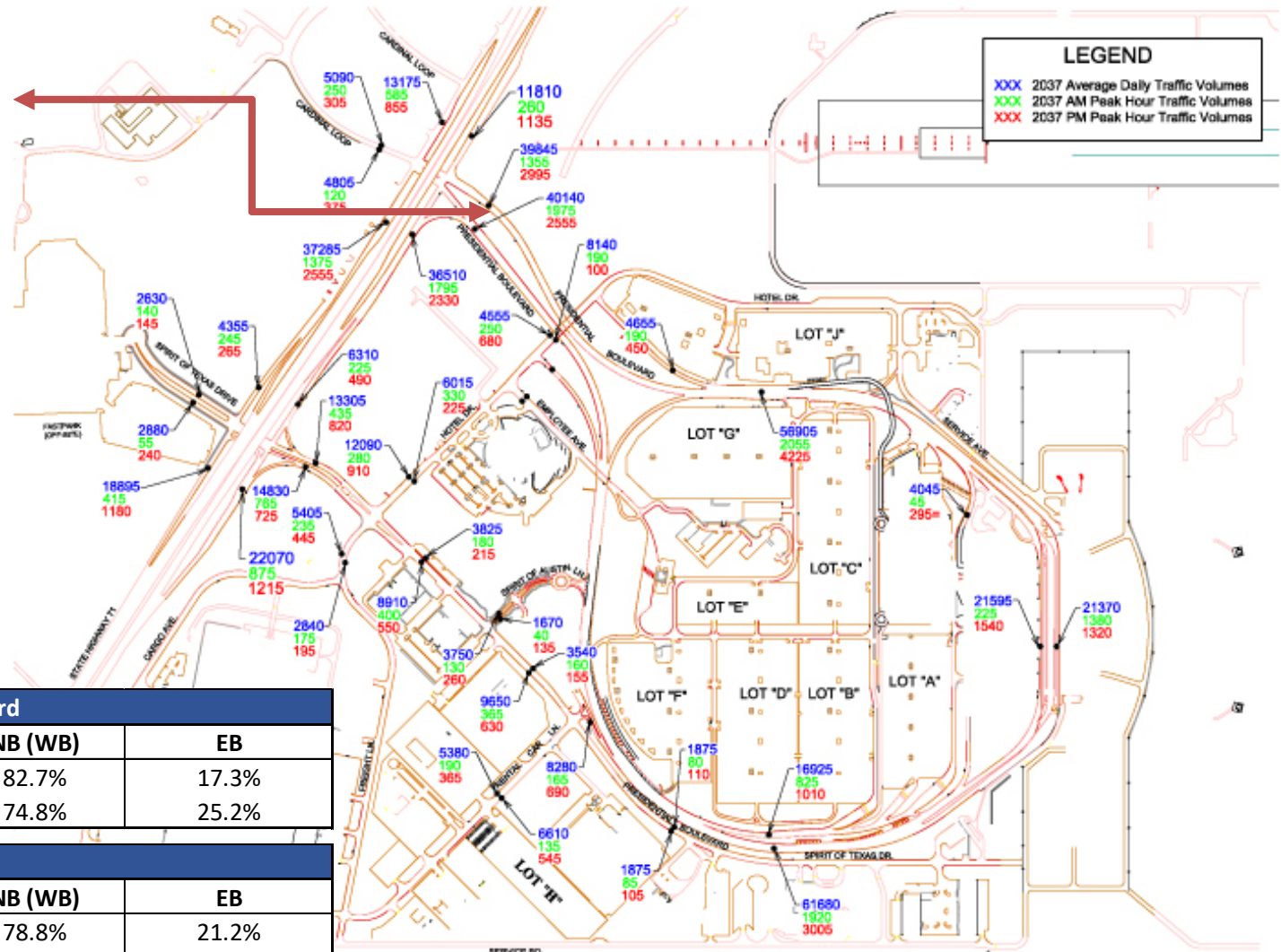
1587

Exist.
LOS D

1355

2995

Fut.
LOS F

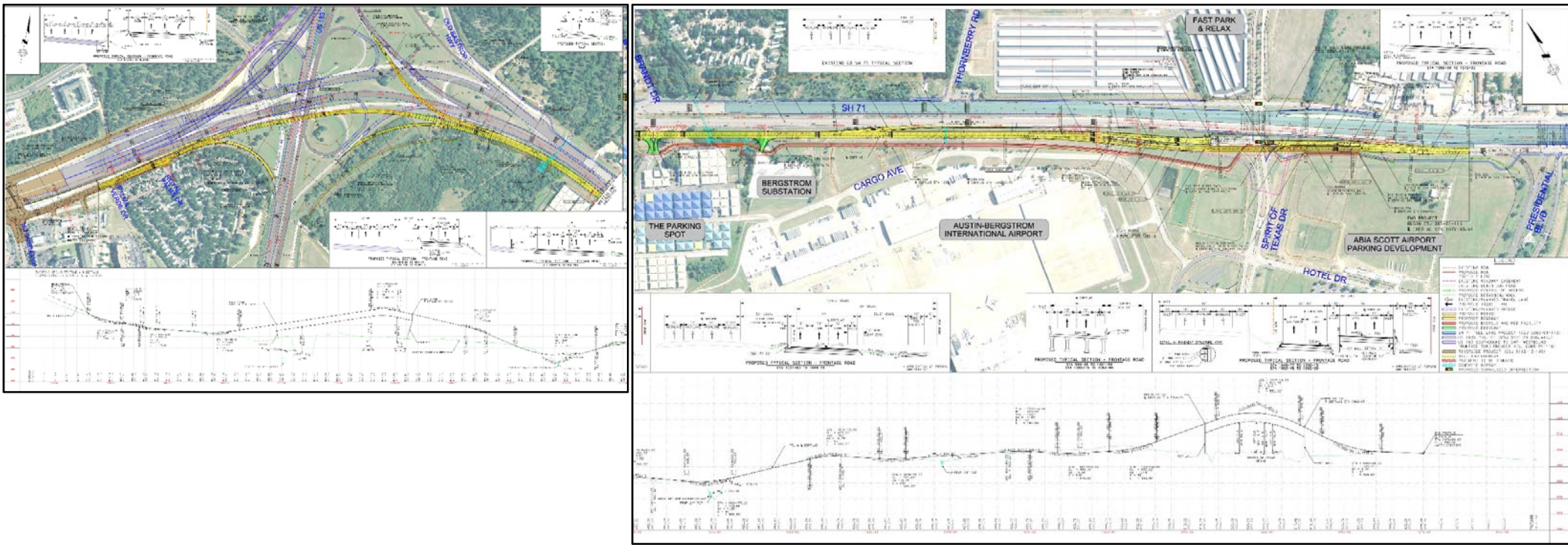


Presidential Boulevard				
	NB (WB)	EB	NB (WB)	EB
AM Peak	803	168	82.7%	17.3%
PM Peak	1158	391	74.8%	25.2%

Spirit of Texas				
	NB (WB)	EB	NB (WB)	EB
AM Peak	215	58	78.8%	21.2%
PM peak	363	136	72.7%	27.3%

SH 71 East Bound Frontage Roadway

- Access to ABIA from east bound SH 71 will need to exit before SR 183

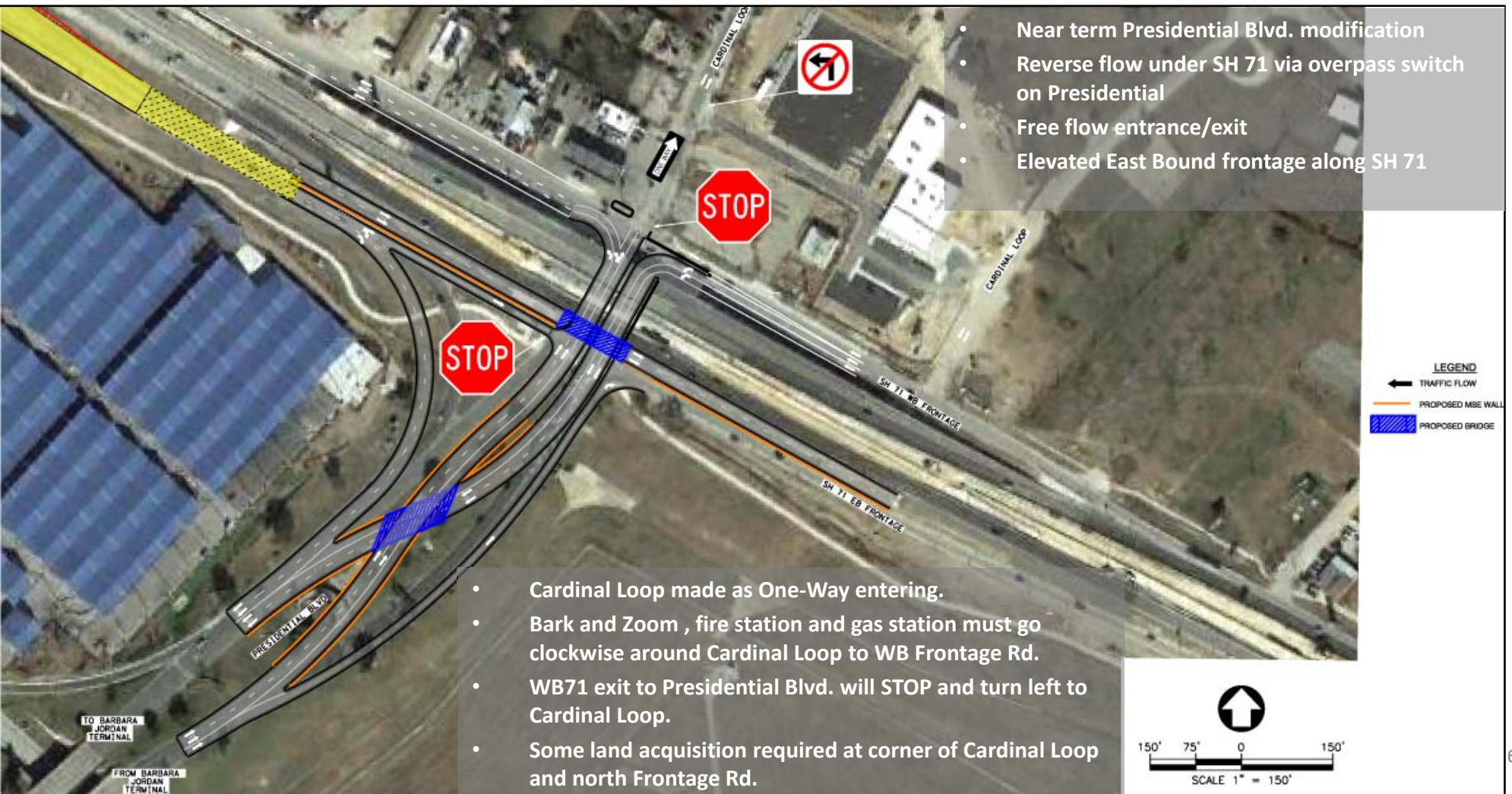


ABIA ROADWAY ALTERNATIVES



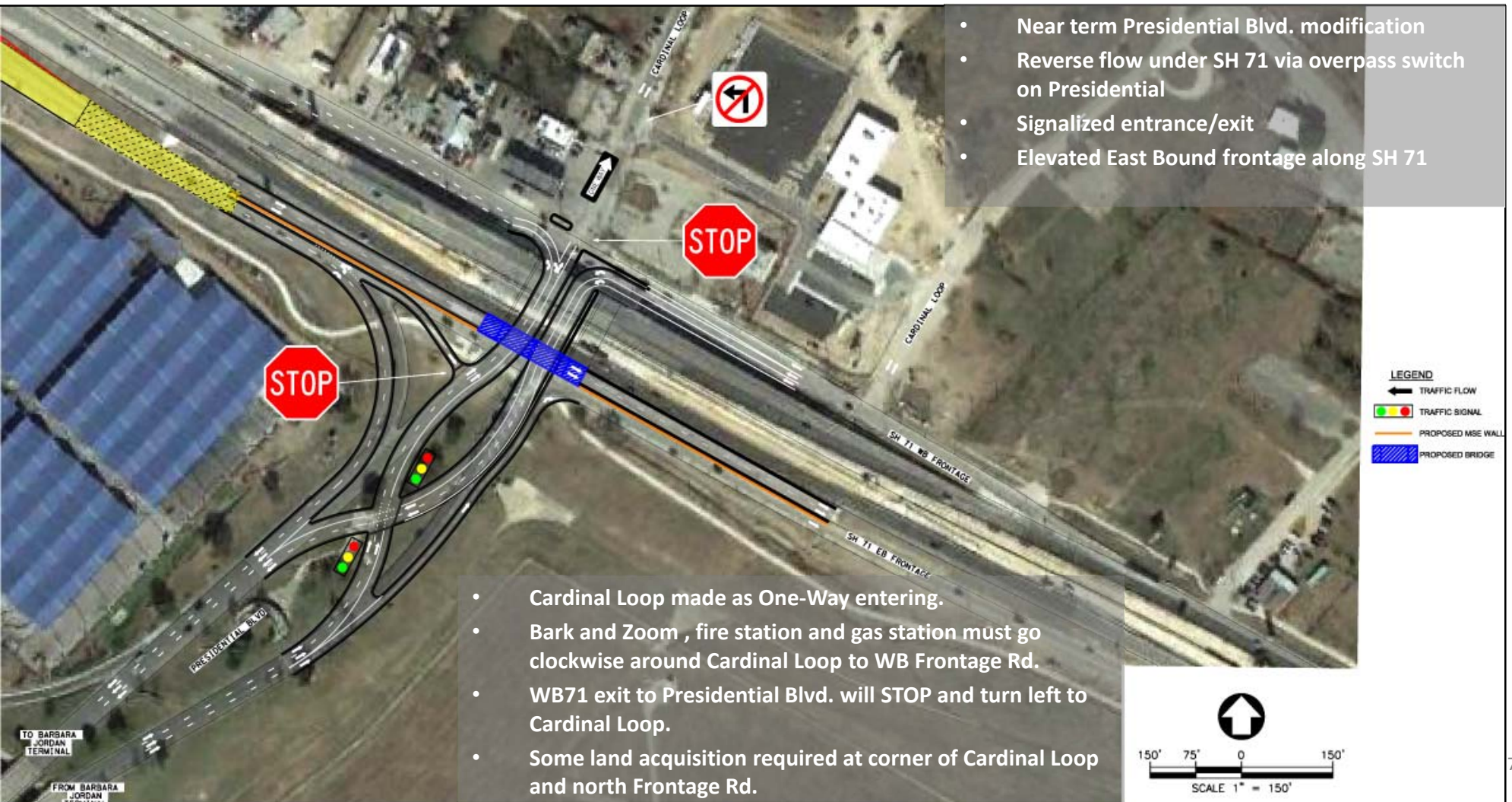
Alternative 1

Braided Left Turn (Near Term)



Alternative 2

Diverging Diamond (Near Term)



Alternative 3

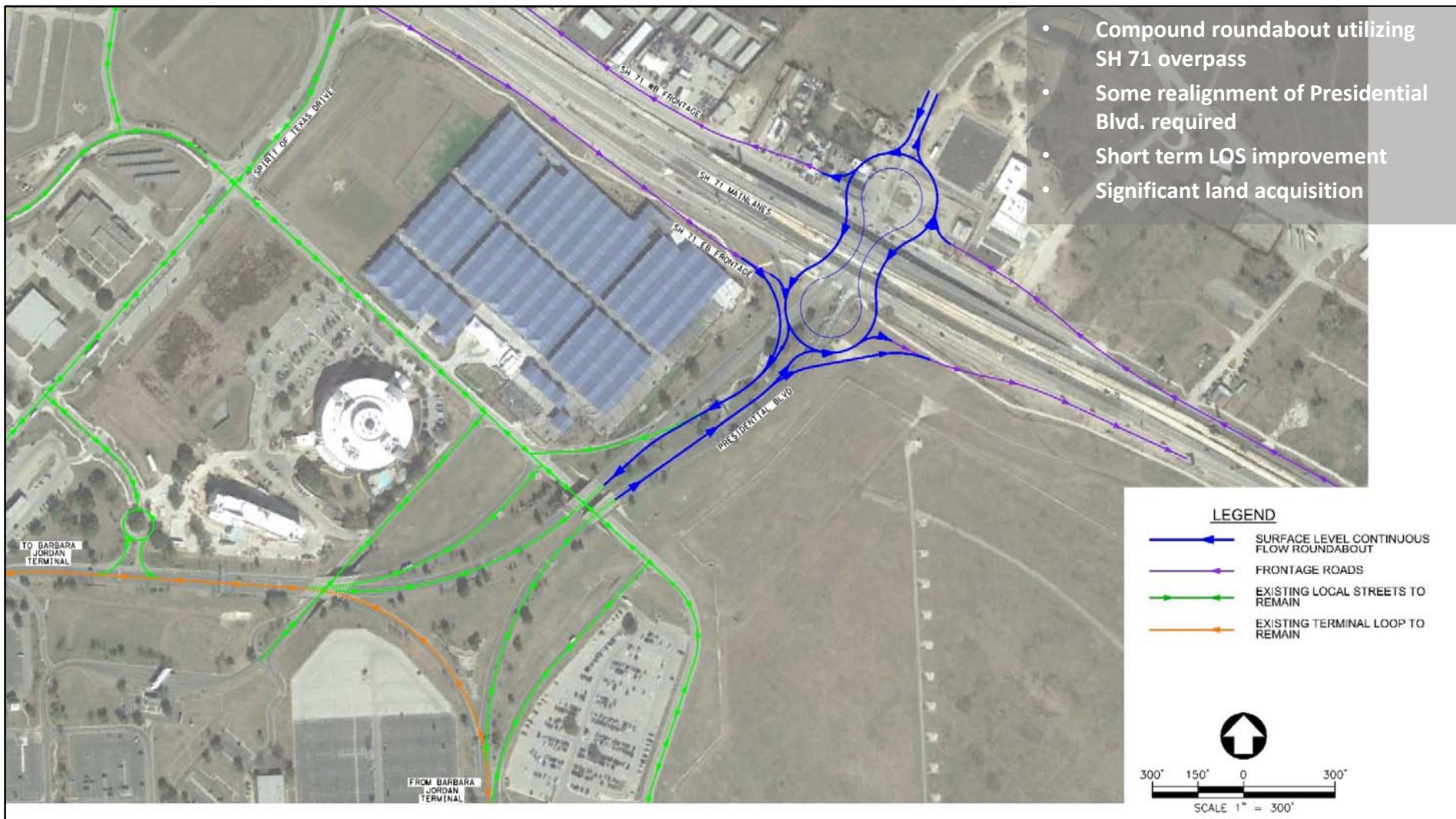
Elevated U-Turn (Near Term)

- Elevated U-Turn for West Bound exit
- Free flow entrance/exit
- Elevate SH 71 frontage roads
- Awkward driver experience (go east to go west on SR 71)



Alternative 4

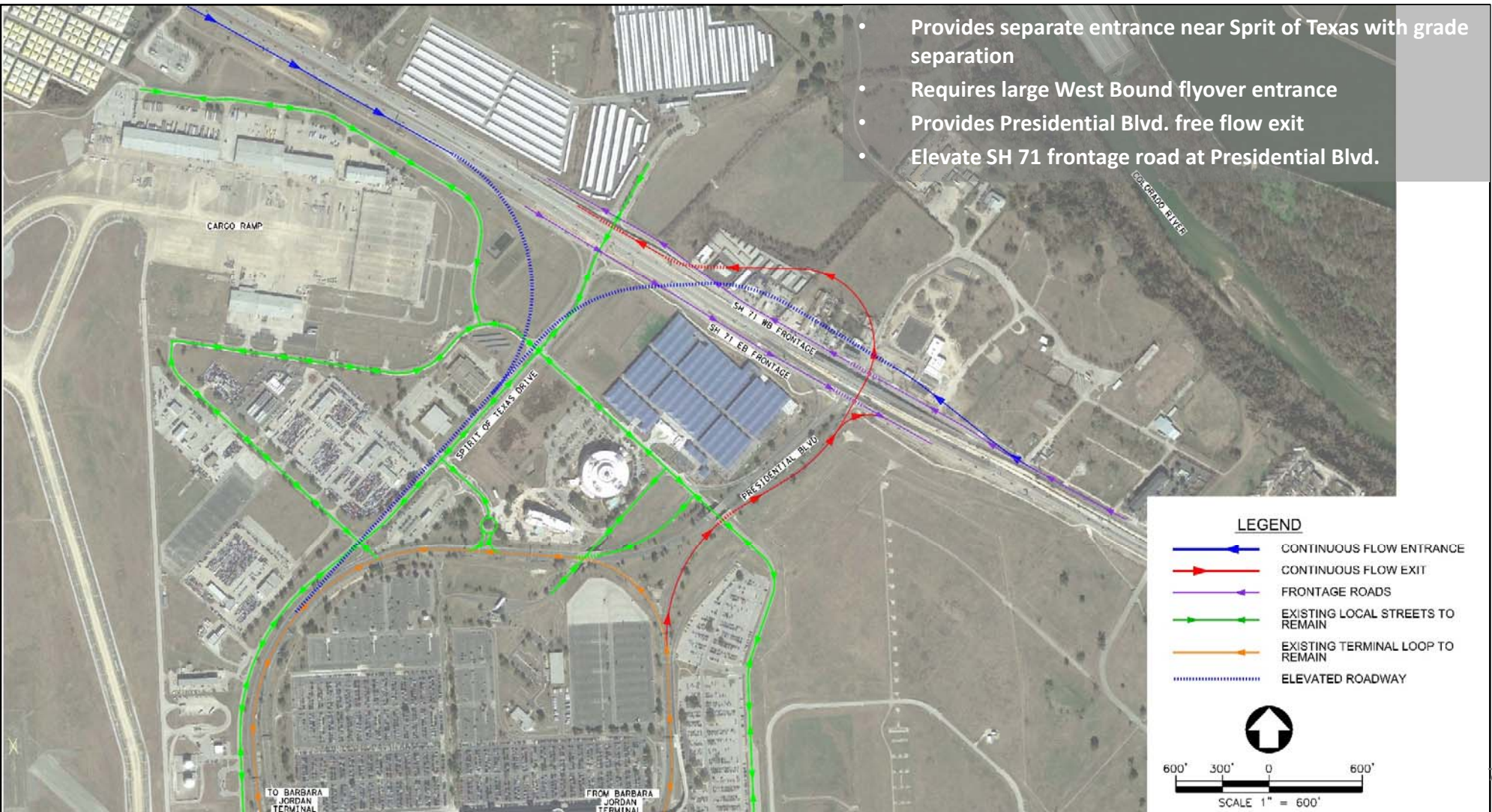
Roundabout (Near Term)



Alternative 5

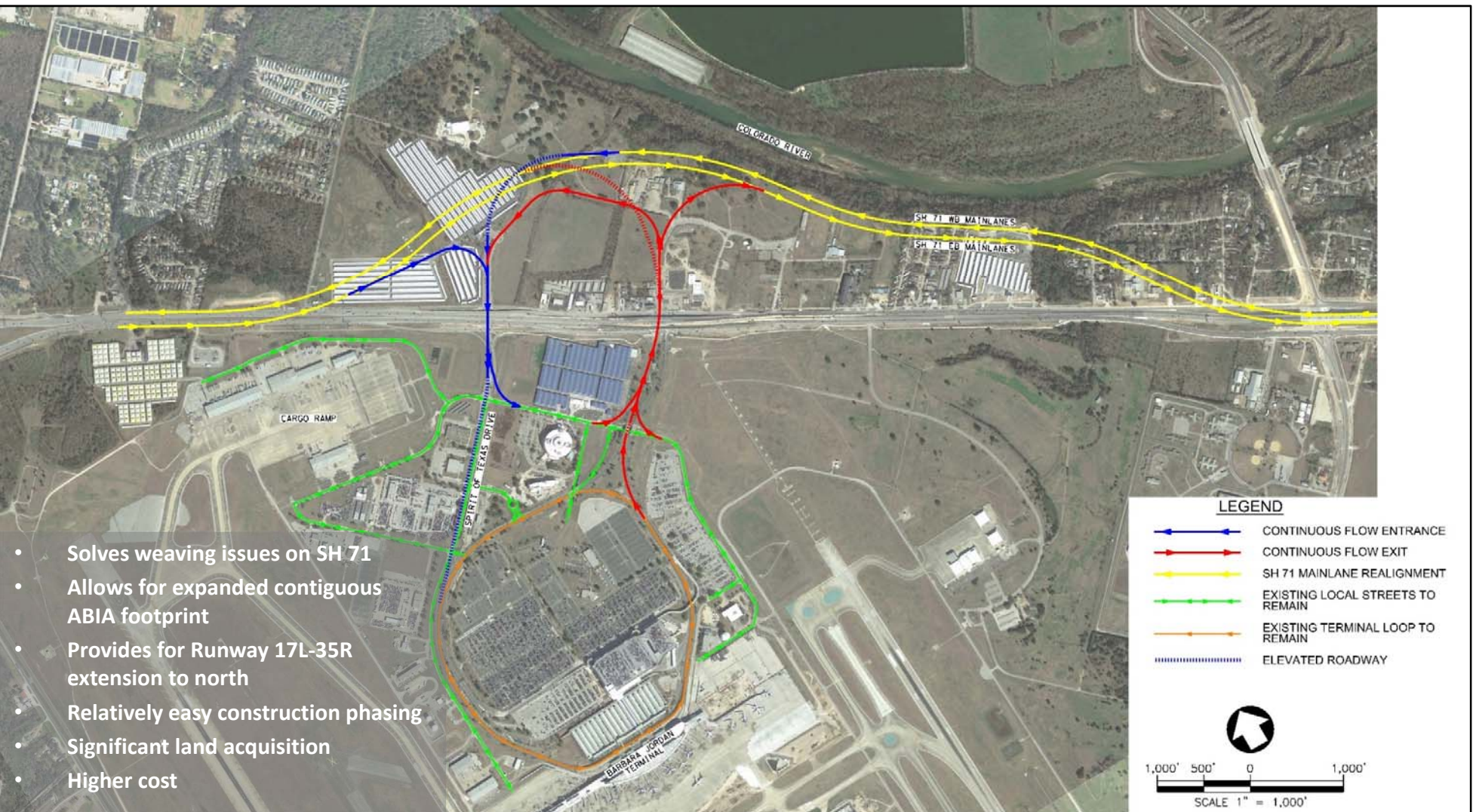
Separate Entrance (Ultimate)

- Provides separate entrance near Sprit of Texas with grade separation
- Requires large West Bound flyover entrance
- Provides Presidential Blvd. free flow exit
- Elevate SH 71 frontage road at Presidential Blvd.



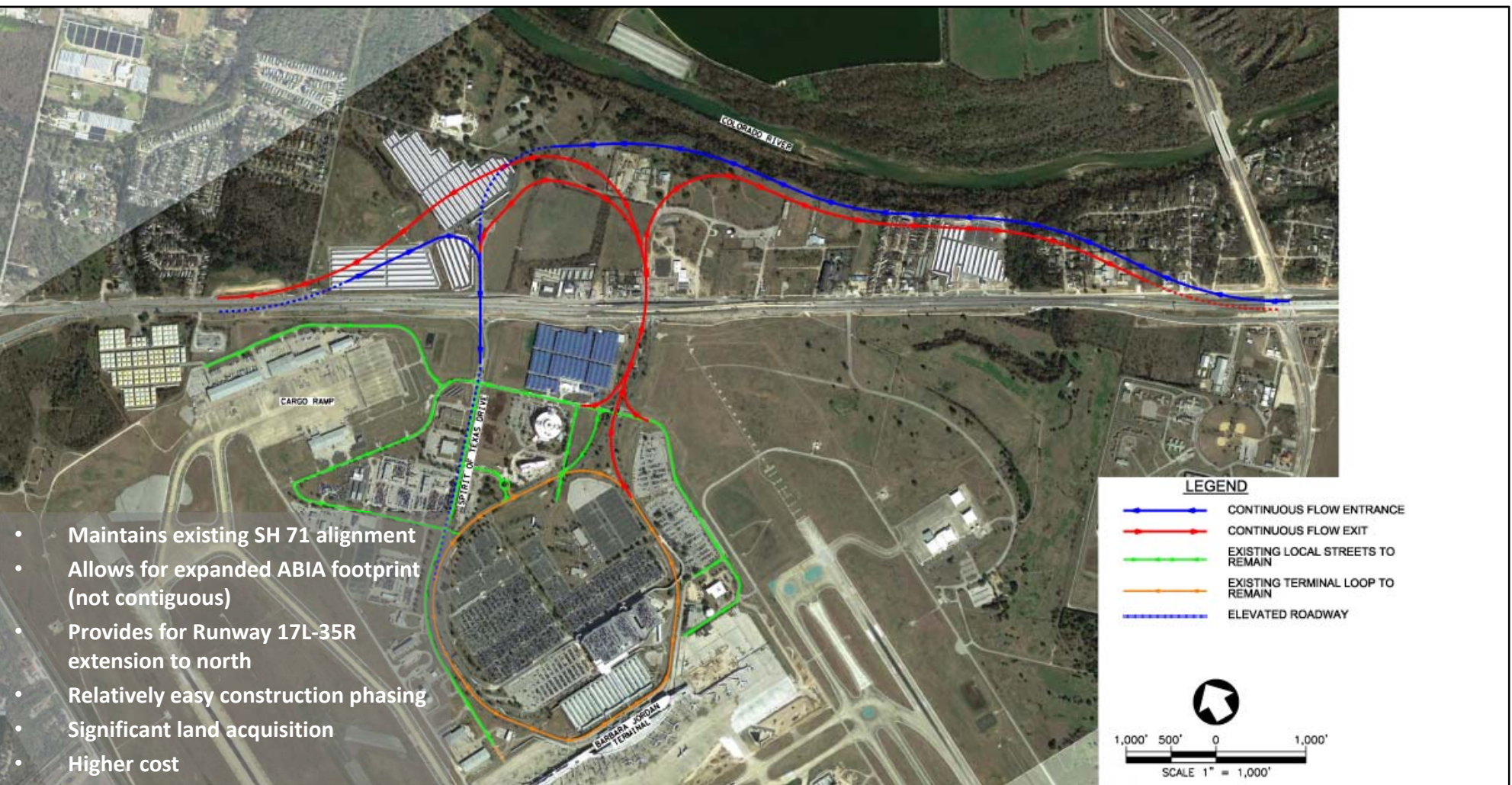
Alternative 6

Relocate SH 71 (Ultimate)



Alternative 7

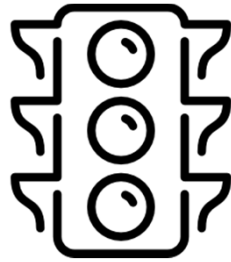
North Entrance Roads (Ultimate)



Evaluation Criteria for Roadway Alternatives



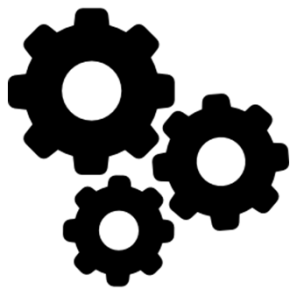
Clear and Simple



No Stops



Intermodal



Development



Sense of Place



Costs

Evaluation of Roadway Alternatives

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt .5	Alt. 6	Alt. 7
Criteria	Reverse Flow	DDI	Elevated U-Turn	Round-about	Separated Entrance	Relocate SH 71	North Entrance Rd.
Clear & Simple	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
No Stops	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sense of Place	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Intermodal	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Development	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Costs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
Notes	Low cost Near-term	Lower cost Near-term	Wrong way exit Near-term	Lower cost Near-term	Improves internal circulation	Improves Airport & runway options	Improves Airport development land

NEW TECHNOLOGY IMPACTS ON LANDSIDE FACILITY REQUIREMENTS



Shared Driverless Cars (SDC)

- Will be used >50% of the day compared to <5% for a car.
- A 2% penetration then equals a 20% penetration of vehicle miles traveled.
- One shared driverless car trip could replace multiple parking stalls.
- One shared driverless car could make ten+ trips a day (assuming a round trip takes about one hour).



Shared Driverless Cars (SDC)

- People who park for longer will switch first.
- Business travelers will also be early adopters.
- Rental car companies and TNCs will switch to driverless cars .
- Demand for on-airport rental car storage will decrease because cars can be automatically sent offsite for storage and maintenance.



Impacts of Shared Driverless Cars

Decrease

- Parking demand and revenue
- Rental car demand and revenue



Increase

- Off and on-campus roadway traffic congestion
- Curbside (upper and lower) congestion



NEXT STEPS



Austin-Bergstrom
International Airport



TAC Next Steps

- Project Advisory Committee (PAC) Meeting #2– April 18th (1-3pm)
- Public Workshop #2– April 19th (6-8:30pm)
- Next TAC Meeting #4 – late-September
 - Preferred Airport Layout
 - Implementation Plan
 - Financial / Costs