City of Austin

ABIA 2040 Master Plan

Technical Advisory Committee Meeting #2

October 19, 2017

Austin-Bergstrom International Airport

Meeting Topics

- 2040 Master Plan Schedule Status
- TAC/PAC Visioning Meeting Summary
- Aviation Forecast Overview
- Preliminary Runway Alternatives
- Runway Alternatives Evaluation Criteria
- Runway Alternatives Evaluation Matrix
- Next Steps

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2040 Master Plan Schedule Status

ABIA 2040 Master Plan Schedule Status

- **Draft Aviation Forecast**:
  - Aug. 10th Text Report to ABIA
  - Aug. 30th Issued to Airlines
  - Issue to FAA (TBD)
- **Draft Inventory Chapter**:
  - Sept. 11th to ABIA
- **Airport Advisory Commission Meeting**:
  - Sept. 13th Visioning
- **1st Public Workshop:**
  - Oct. 12th Visioning
- **Facility Requirements:**
  - Begin to develop future requirements based on draft derivative forecasts

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TAC/PAC Visioning Meeting Summary

TAC Visioning Summary

Why is Austin Unique?

- Food
- Live music
- Culture
- Destination city
- Festivals
- Technology

ABIA Strengths

- Food
- Land available for growth
- Cell phone lot
- Close-in parking/CONRAC
- Good air service
- Friendly staff

Why is ABIA Special/Unique?

- Airport layout
- Local retail
- Clean terminal-natural light
- Regional access
- Passenger experience

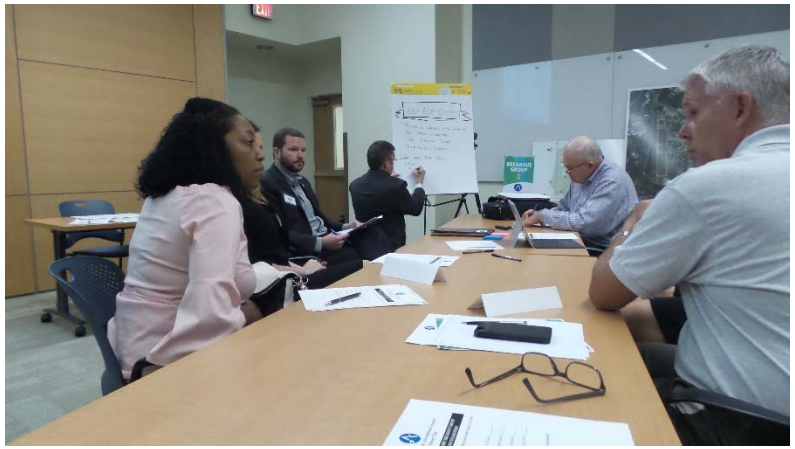
ABIA Weaknesses

- Roadway traffic congestion
- No rail connection downtown
- Crowded curbside
- Limited international flights
- Poor roadway signage on airport

TAC Visioning Summary

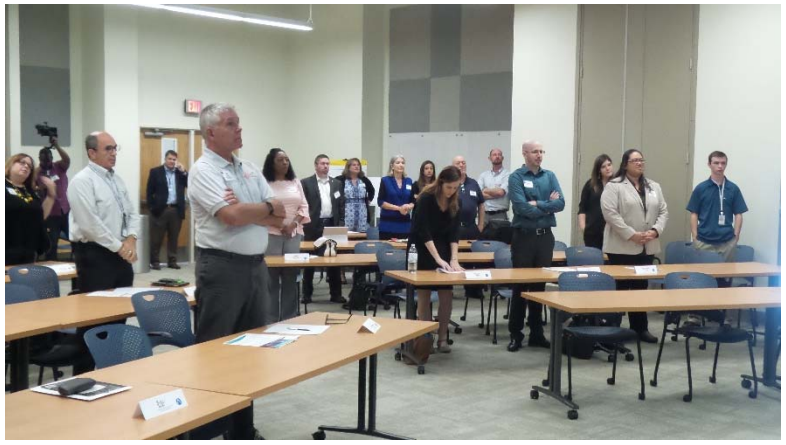
ABIA's Competition?

- DFW/IAH/HOU for international service
- Megabus/bus services



ABIA Competitive Advantage?

- Central location in Texas
- Easy movement between gates
- Destination city
- Local food
- Passenger experience



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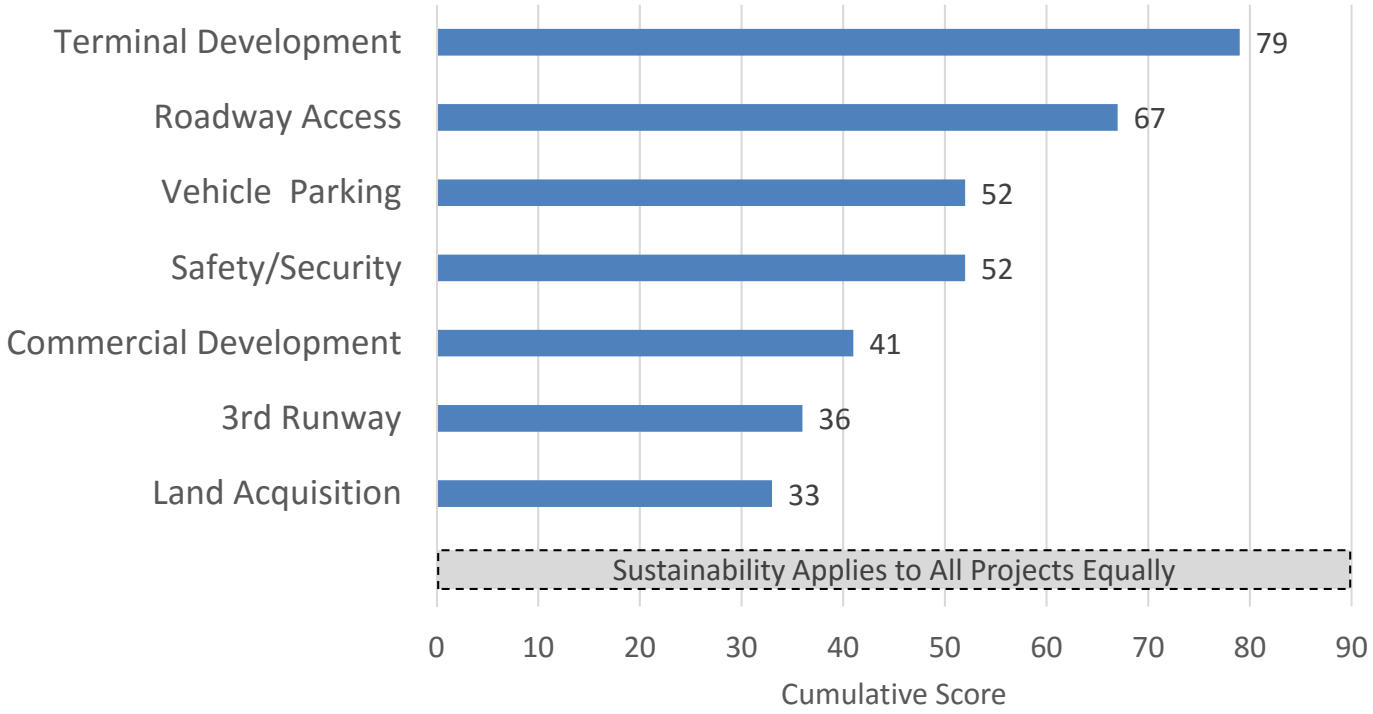
TAC Master Plan Key Issues Ranking



Terminal Development:

- Ability to grow the terminal and add capacity for future operations.
- Primary user experience.
- Without ability to handle increased passengers there is no need for the others.
- Without the terminals, the customer might shift to other airports.

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PAC Visioning Summary

Why is Austin Unique?

- Barton Springs pool
- *Live music*
- *Destination city*
- *Festivals*
- Locally owned restaurants

ABIA Strengths

- Austin character
- *Cell phone lot*
- *Close-in parking*
- Customer friendly
- Room to grow

Why is ABIA Special/Unique?

- Affordability of food
- Delta TSA line
- Clean terminal-feels new
- Close to downtown
- Valet parking

ABIA Weaknesses

- One road in and out
- *No rail connection downtown*
- *Crowded curbside*
- *Limited international flights*
- *Poor signage on roadways*

Similar response during TAC session

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PAC Visioning Summary

ABIA's Competition?

- *DFW/IAH/HOU for international service*
- *Megabus/bus services*

ABIA Competitive Advantage?

- *Central location in Texas*
- Terminal design
- *Destination city*
- *Local food*
- *Passenger experience*

Similar response during TAC session

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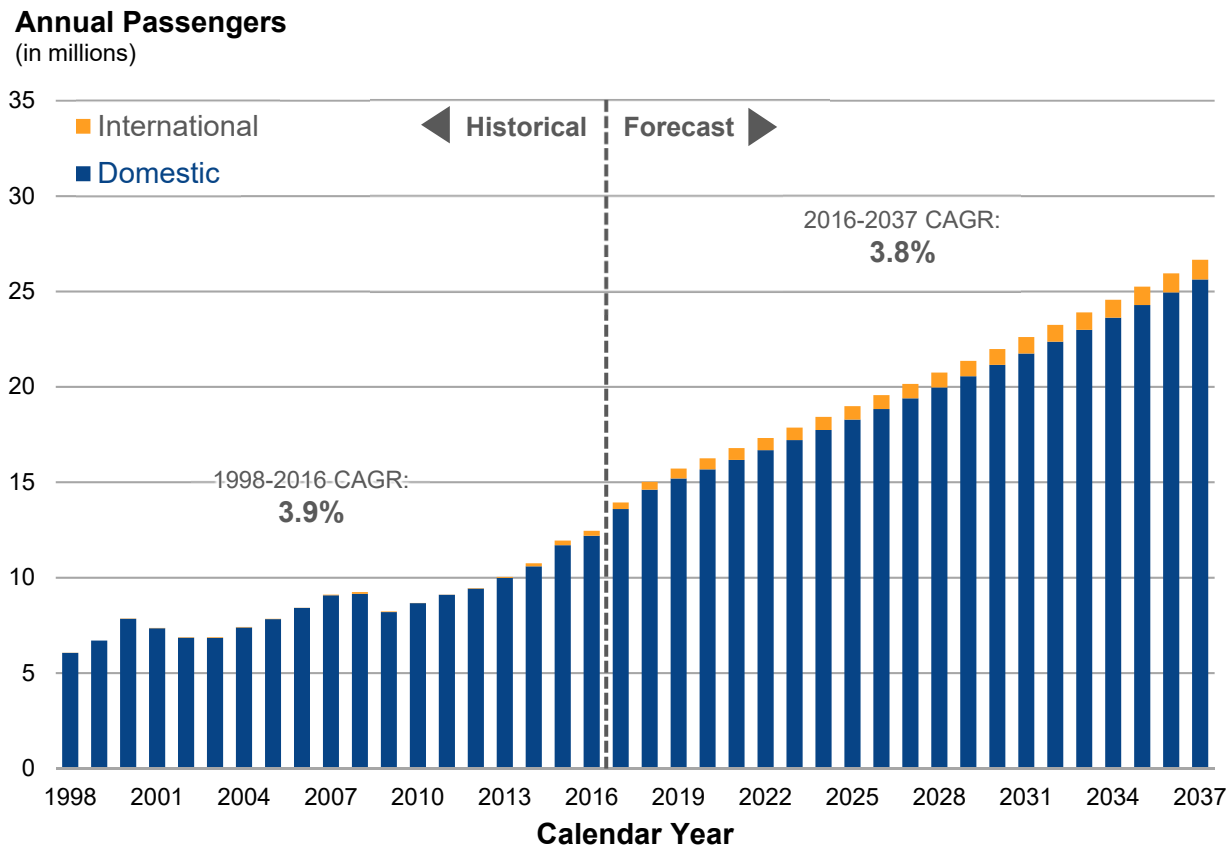
Aviation Forecast Overview

ABIA Total Passenger Forecast (Draft)

- Domestic passengers are forecast to increase from 12.2 million in 2016 to 25.6 million in 2037.
- International passengers are forecast to increase from 275,294 in 2016 to 1.0 million in 2037.
- Total passengers are forecast to increase from 12.4 million in 2016 to 26.7 million in 2037.
- 13.3 million passengers from July 2016 to July 2017



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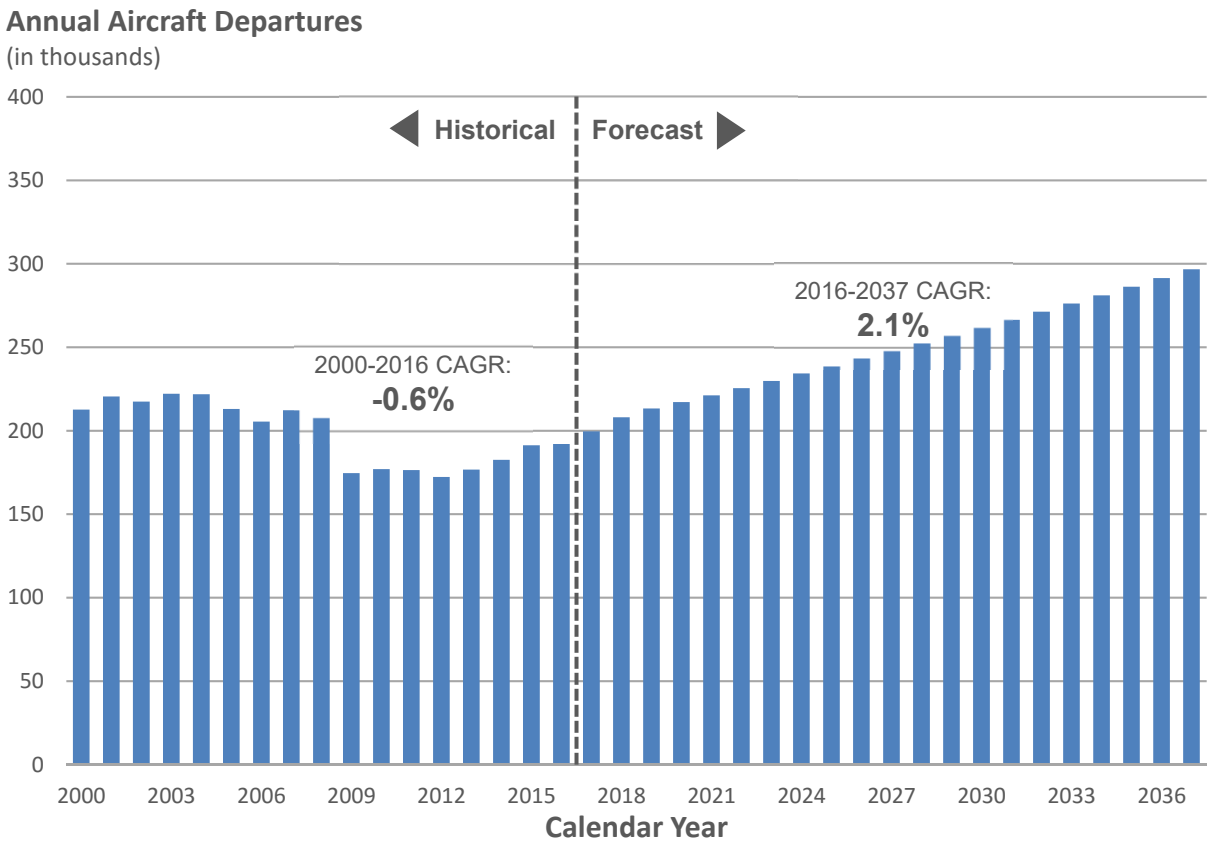
ABIA Total Aircraft Operations Forecast (Draft)

- Total aircraft operations are forecast to increase from 192,032 in 2016 to 296,708 in 2037, representing an average annual growth rate of 2.1 percent.



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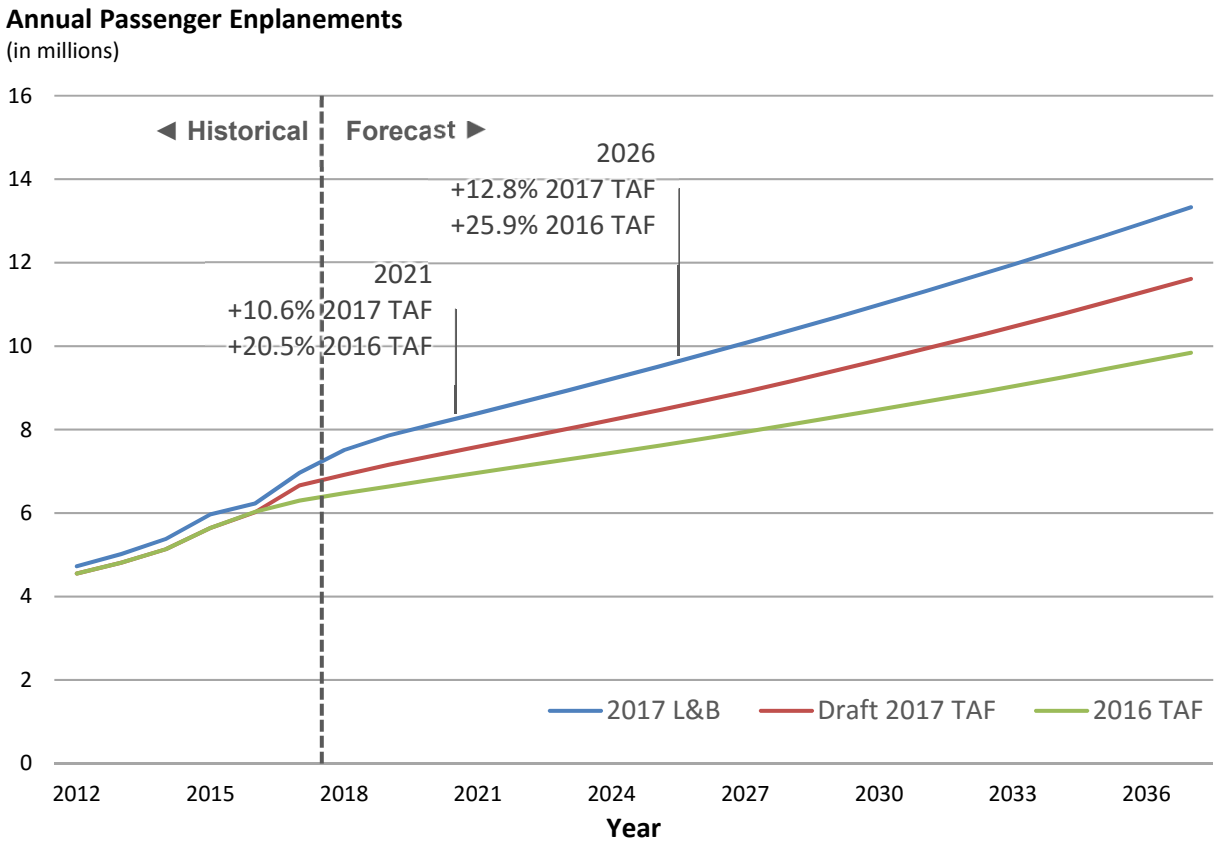
Annual Enplaned Passengers vs. FAA TAF

- The enplaned passenger forecast projects 20.5 percent more passengers than the 2016 TAF in 2021.
- The enplaned passenger forecast projects 10.6 percent more passengers than the 2017 Draft TAF in 2021.
- The enplaned passenger forecast projects 25.9 percent more passengers than the 2016 TAF in 2026.
- The enplaned passenger forecast projects 12.8 percent more passengers than the 2017 Draft TAF in 2026.



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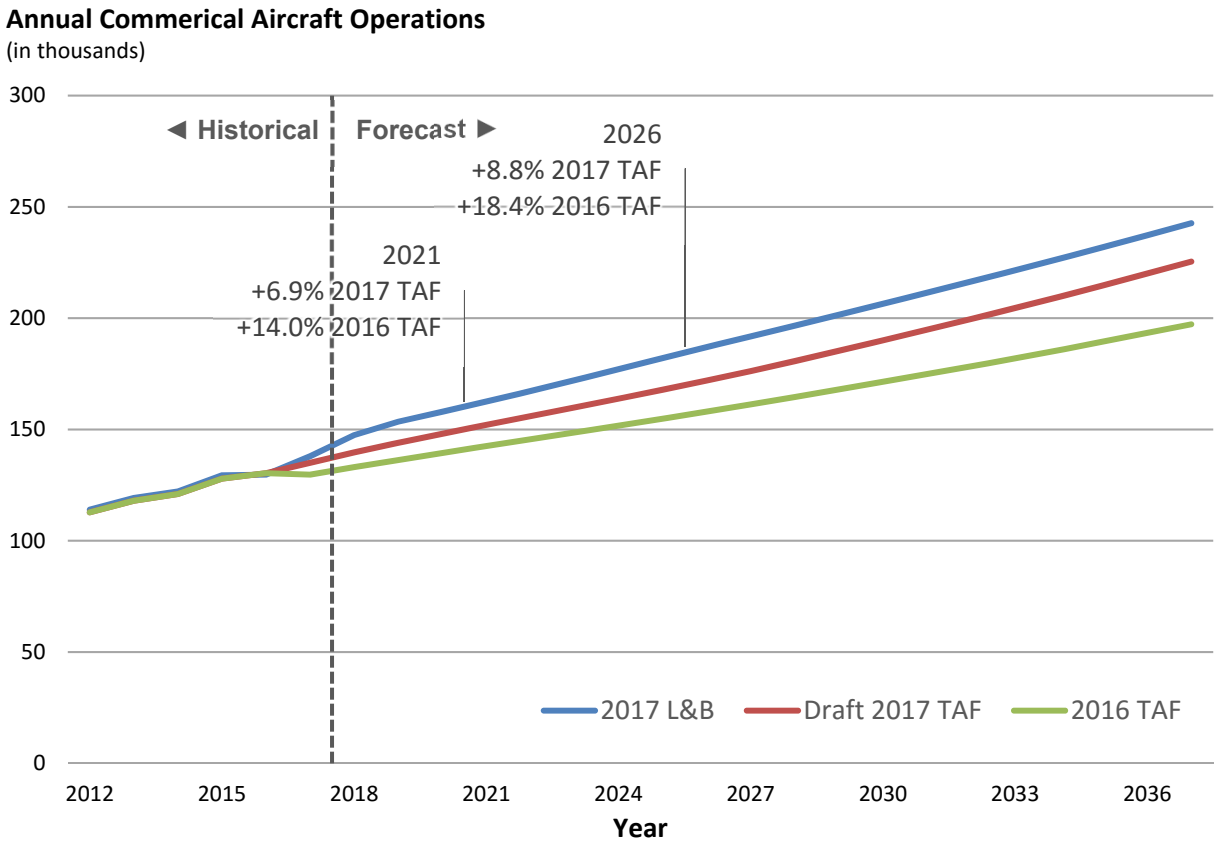
Commercial Aircraft Operations vs. FAA TAF

- By 2021, the commercial aircraft operations forecast projects 14.0 percent more operations than the 2016 TAF.
- By 2021, the commercial aircraft operations forecast projects 6.9 percent more operations than the 2017 Draft TAF.
- By 2026, the commercial aircraft operations forecast projects 18.4 percent more operations than the 2016 TAF.
- By 2026, the commercial aircraft operations forecast projects 8.8 percent more operations than the 2017 Draft TAF.



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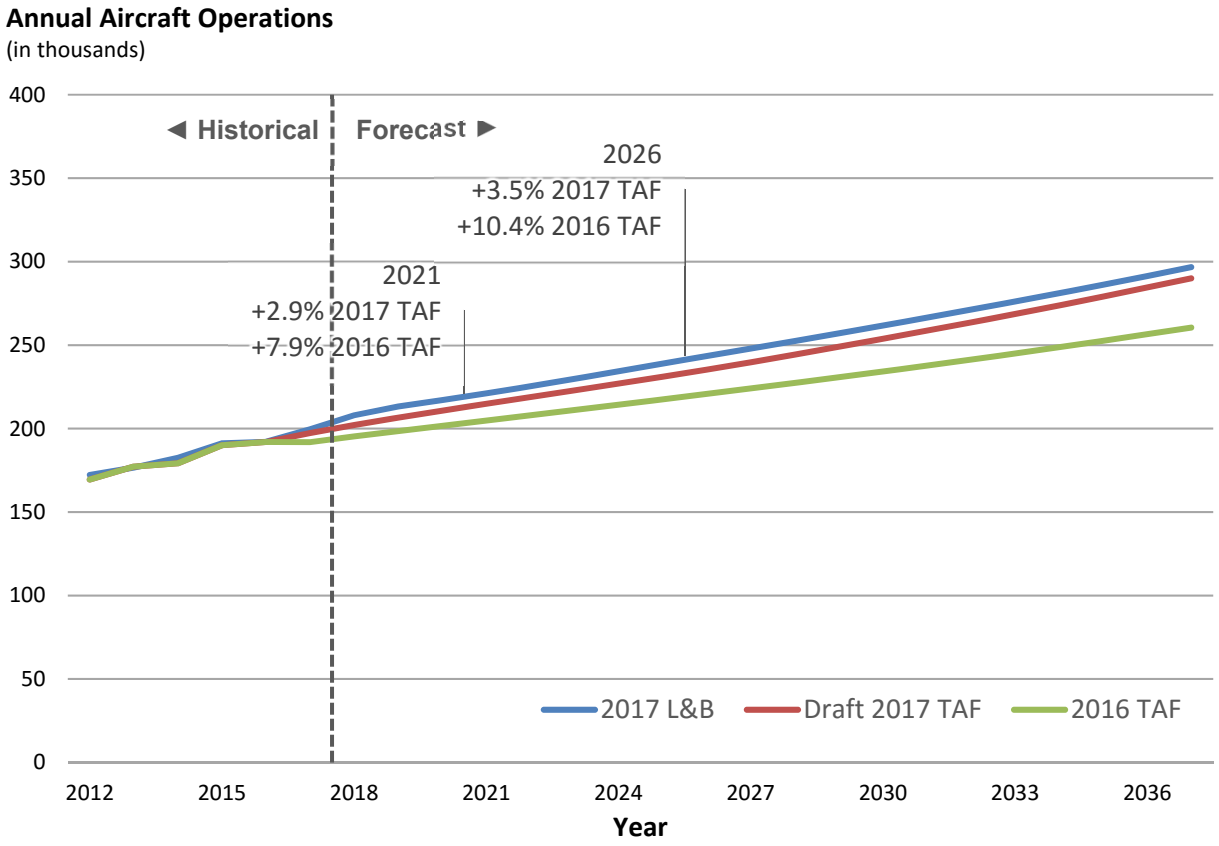
Total Aircraft Operations vs. FAA TAF

- By 2021, the total aircraft operations forecast projects 7.9 percent more operations than the 2016 TAF.
- By 2021, the total aircraft operations forecast projects 2.9 percent more operations than the 2017 Draft TAF.
- By 2026, the total aircraft operations forecast projects 10.4 percent more operations than the 2016 TAF.
- By 2021, the total aircraft operations forecast projects 3.5 percent more operations than the 2017 TAF.



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FAA TAF Variances

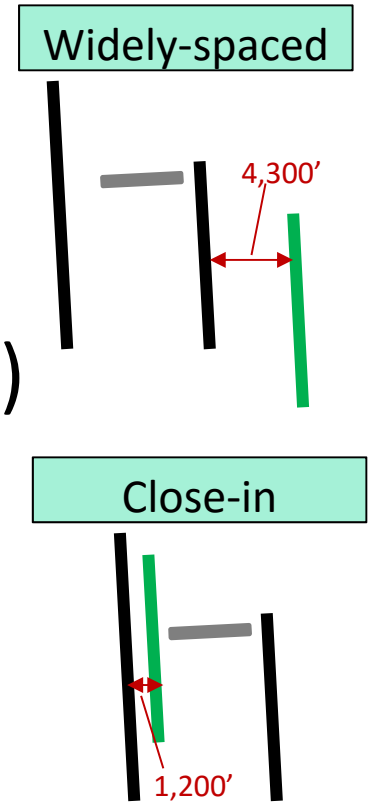
- When comparing the base year to the Draft 2017 TAF, the 2017 L&B forecast has the following:
  - 3.5 percent more enplanements
  - 0.5 percent fewer commercial operations
  - Same number of total operations
- When comparing 2017 to the Draft 2017 TAF, the 2017 L&B forecast has the following:
  - 4.6 percent more enplanements
  - 2.2 percent more commercial operations
  - 1.1 percent more total operations

Year	Percent Variance		
	Enplanements	Commercial Operations	Total Operations
2016	3.5%	-0.5%	0.0%
2017	4.6%	2.2%	1.1%
2021	10.6%	6.9%	2.9%
2026	12.8%	8.8%	3.5%

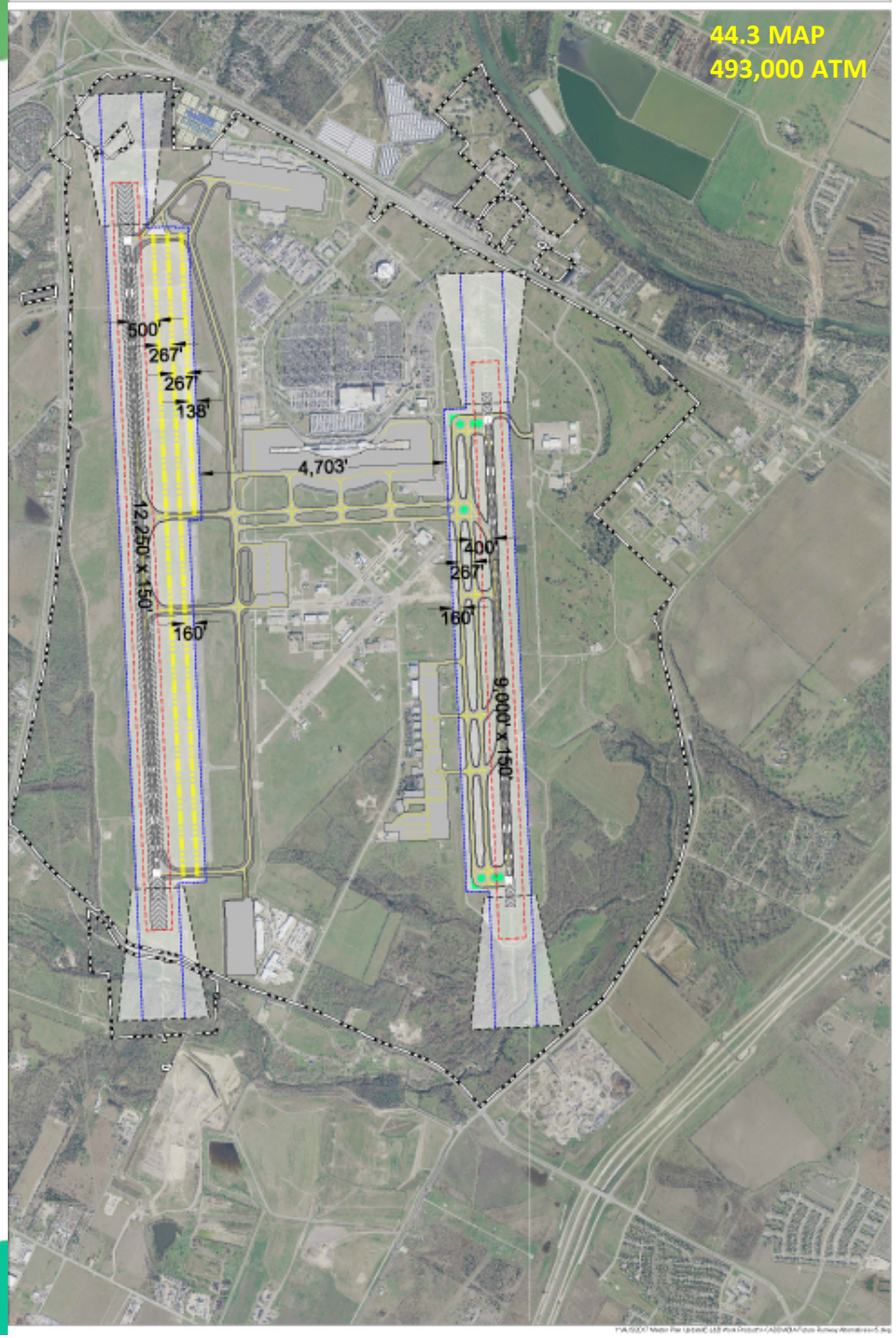
Preliminary Runway Alternatives

Runway Development Approach

- Triple simultaneous Instrument Flight Rule (IFR) operations for ADG-V aircraft
  - Widely-spaced parallel runways
    - Minimum 4,300’ separation
- Dependent Instrument Flight Rule (IFR) operations
  - Close-in spaced parallel runways
    - Minimum 1,200’ separation



Existing Runways



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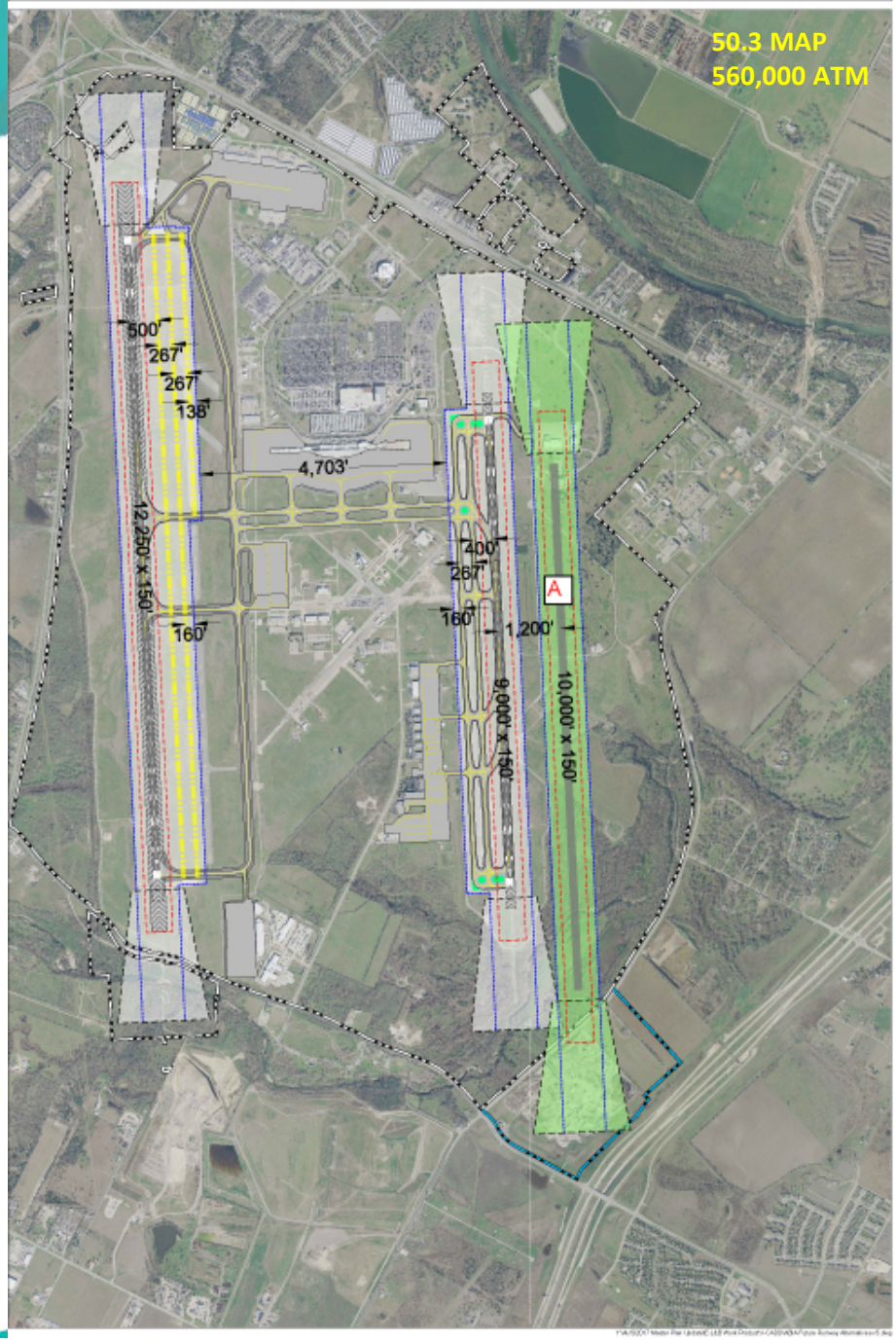
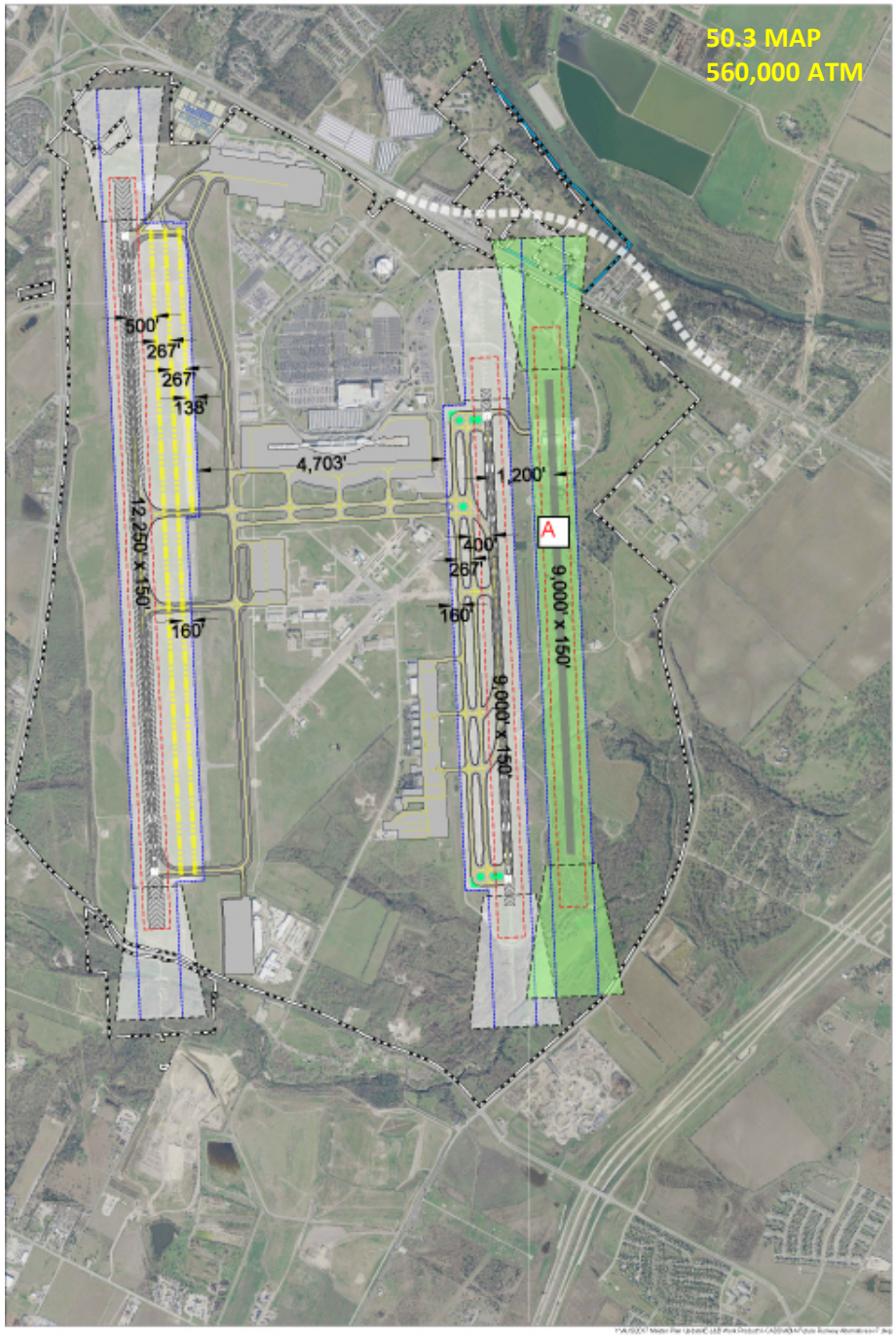
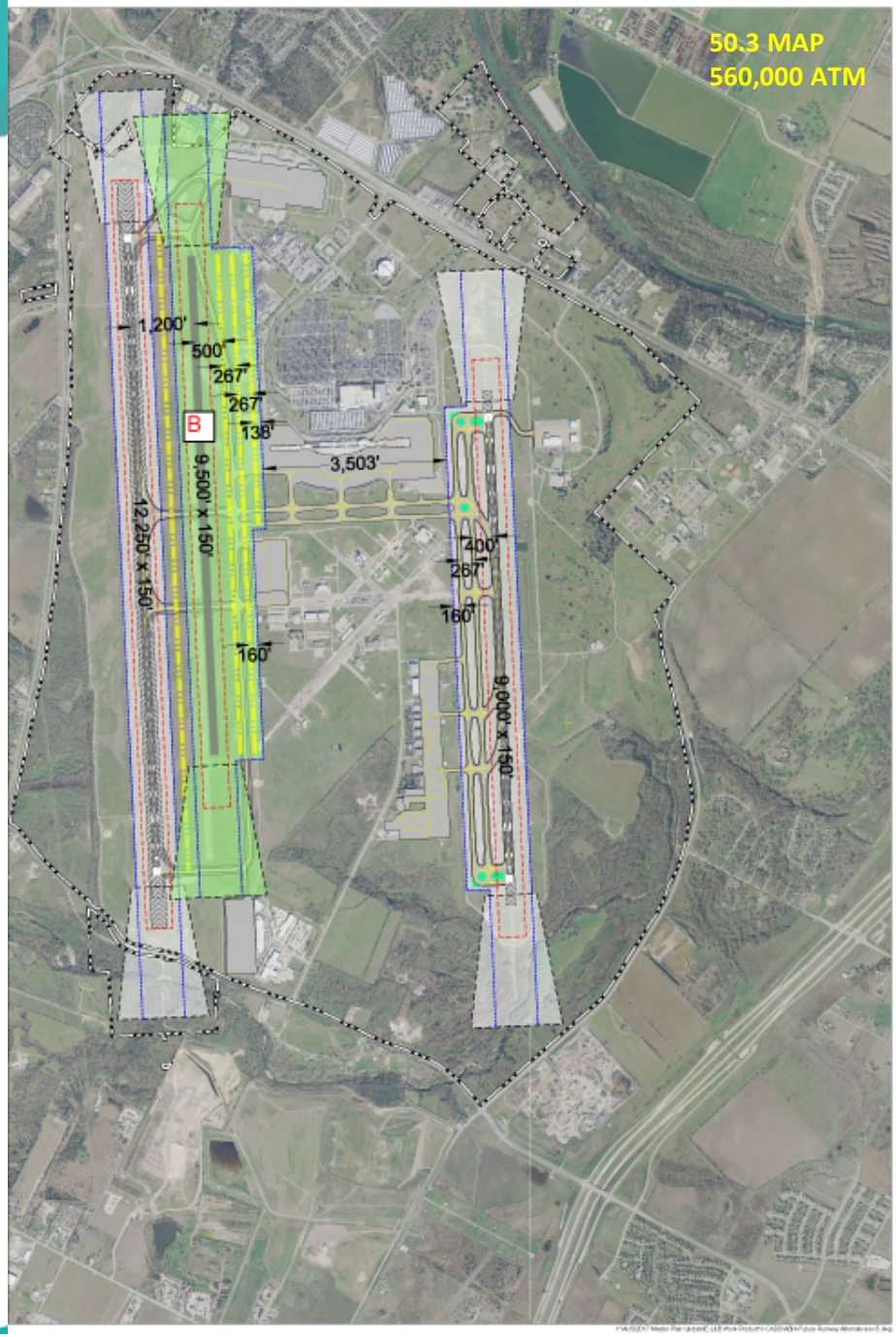
Runway Alternative 1



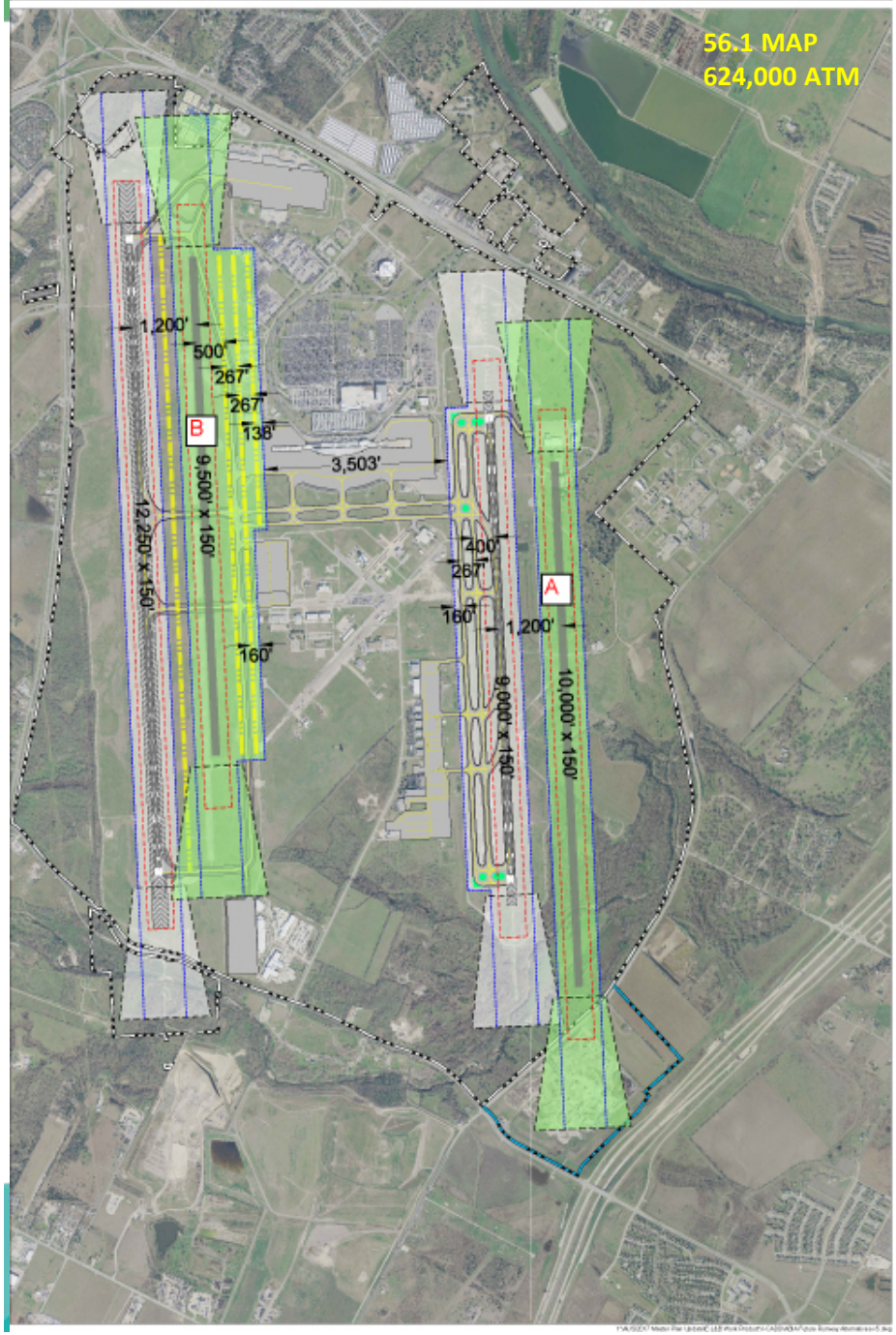
Runway Alternative 1a

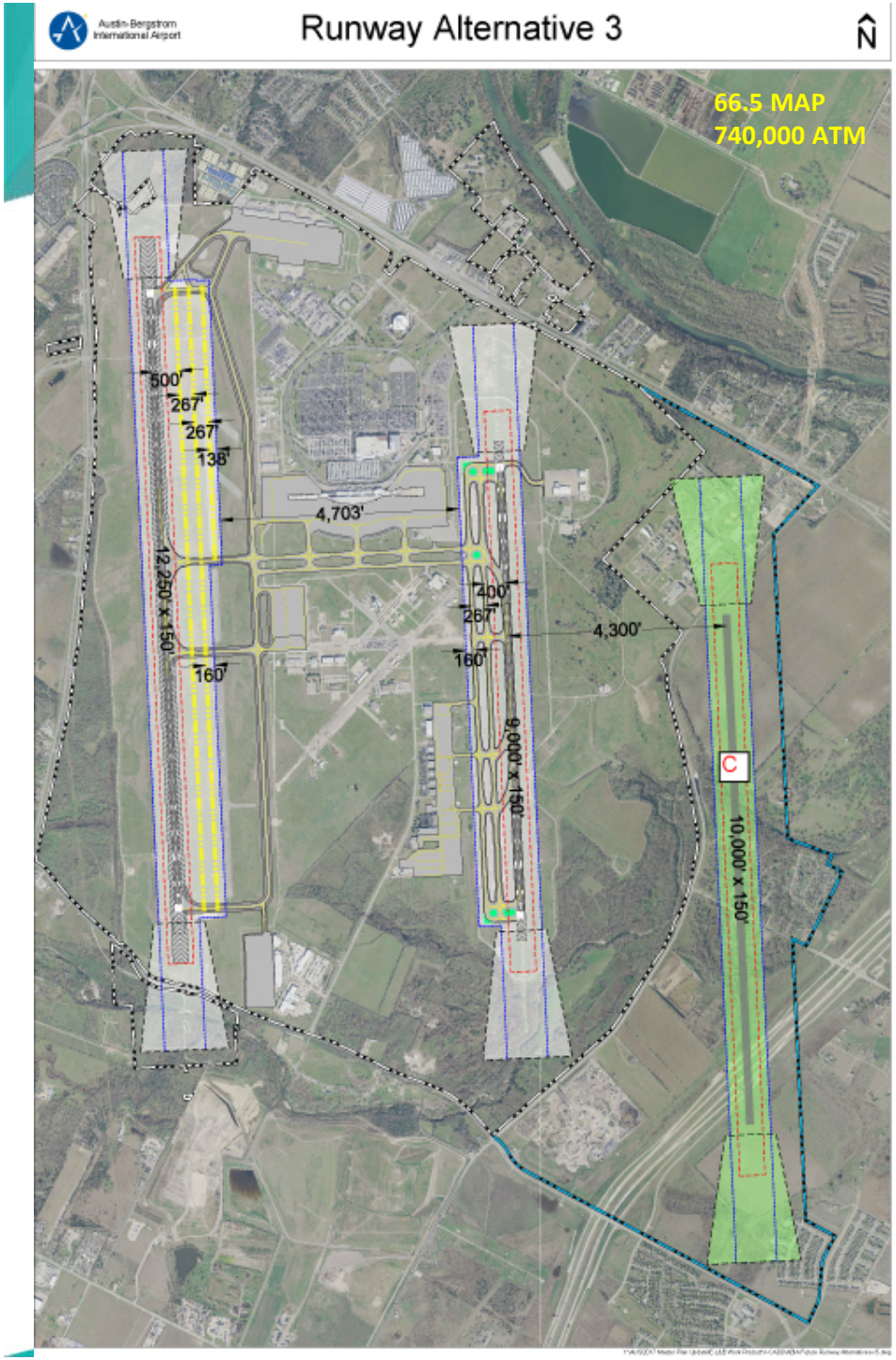


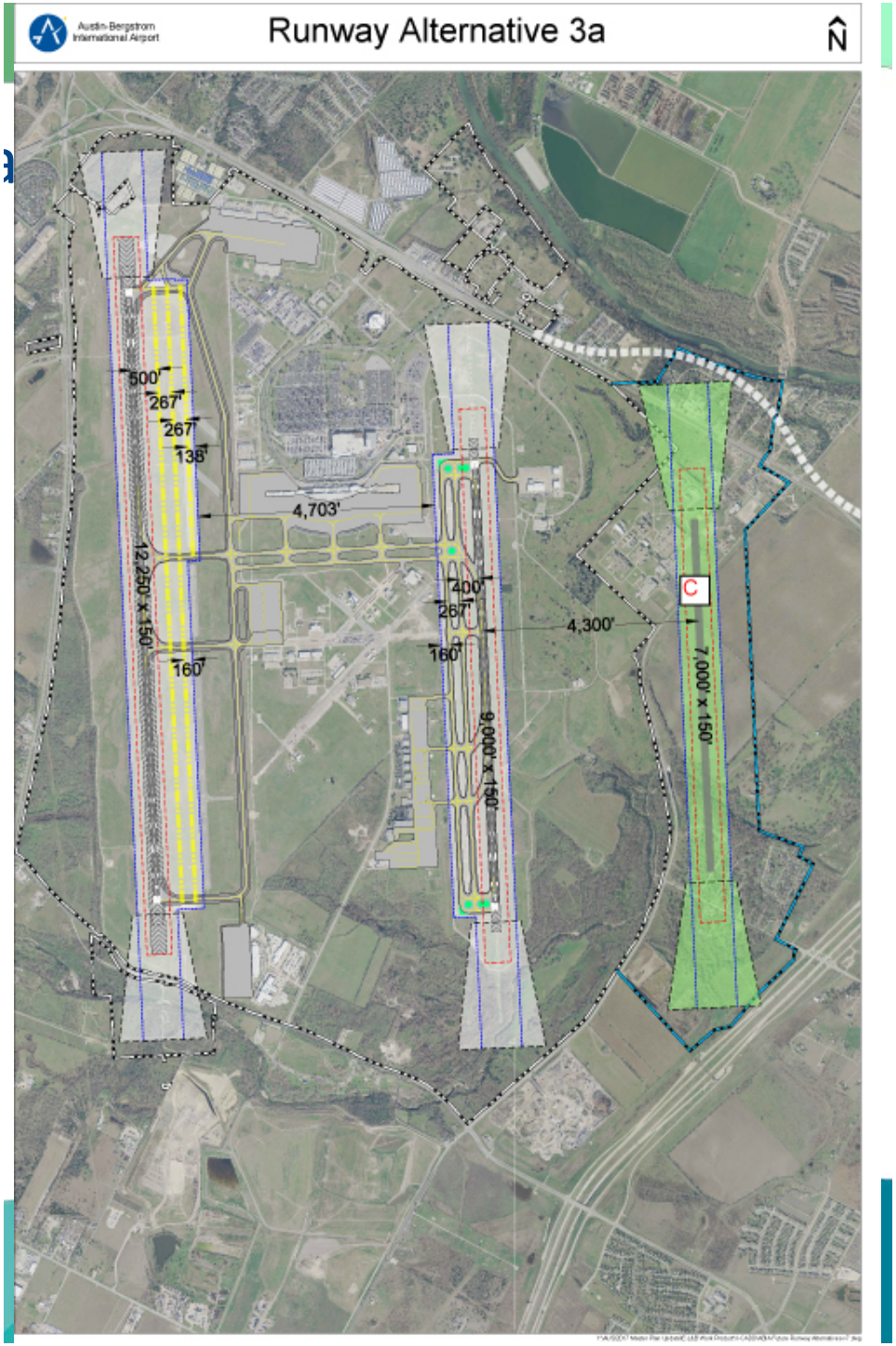
Runway Alternative 2



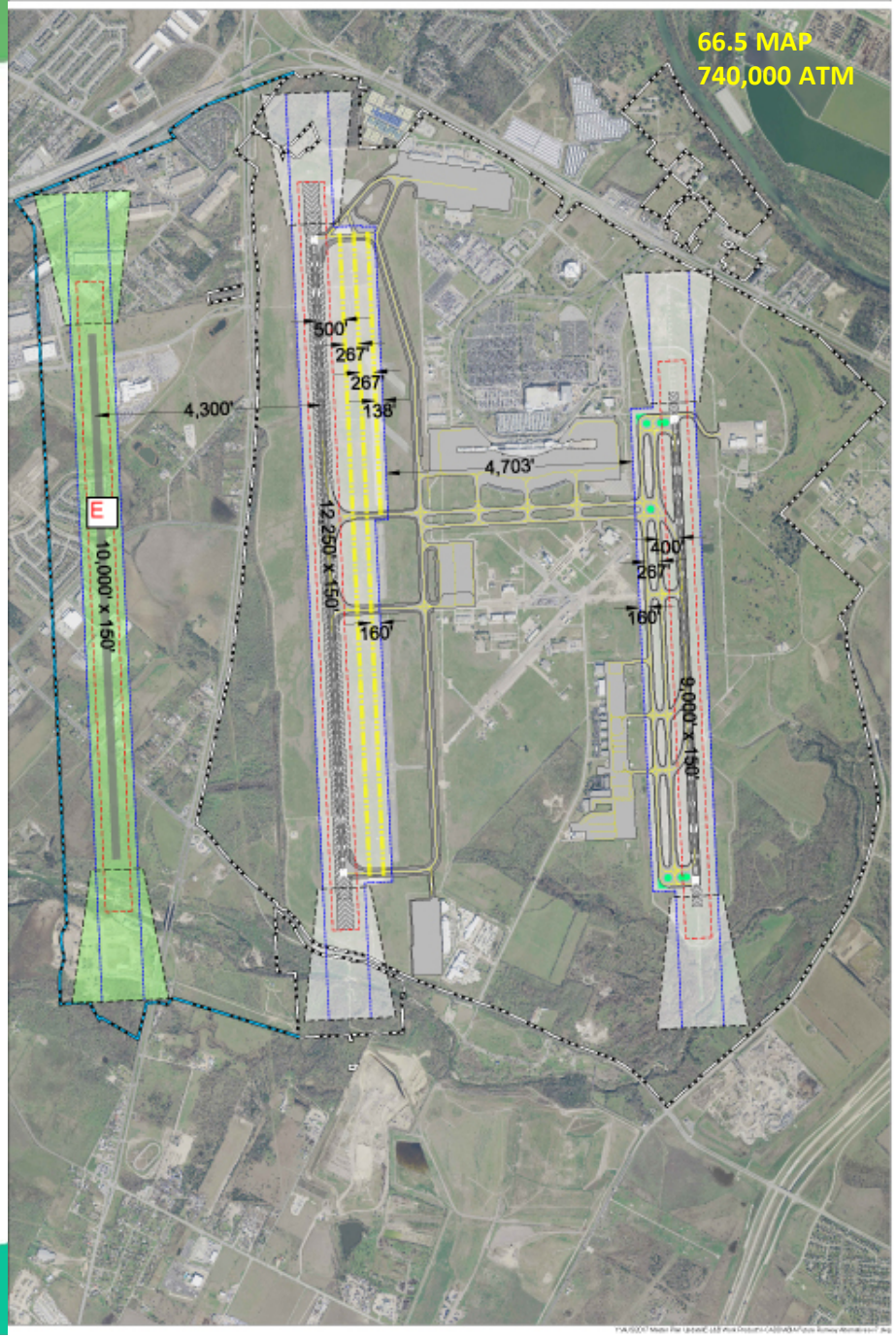
Runway Alternative 4




Austin-Bergstrom International Airport
Runway Alternative 3
N
66.5 MAP
740,000 ATM
500'
267'
267'
138'
4,703'
12,250' x 150'
400'
267'
160'
4,300'
9,000' x 150'
C
10,000' x 150'


Austin-Bergstrom International Airport
Runway Alternative 3a
N
500'
267'
267'
138'
4,703'
12,250' x 150'
400'
267'
160'
4,300'
C
9,000' x 150'
7,000' x 150'

Runway Alternative 11



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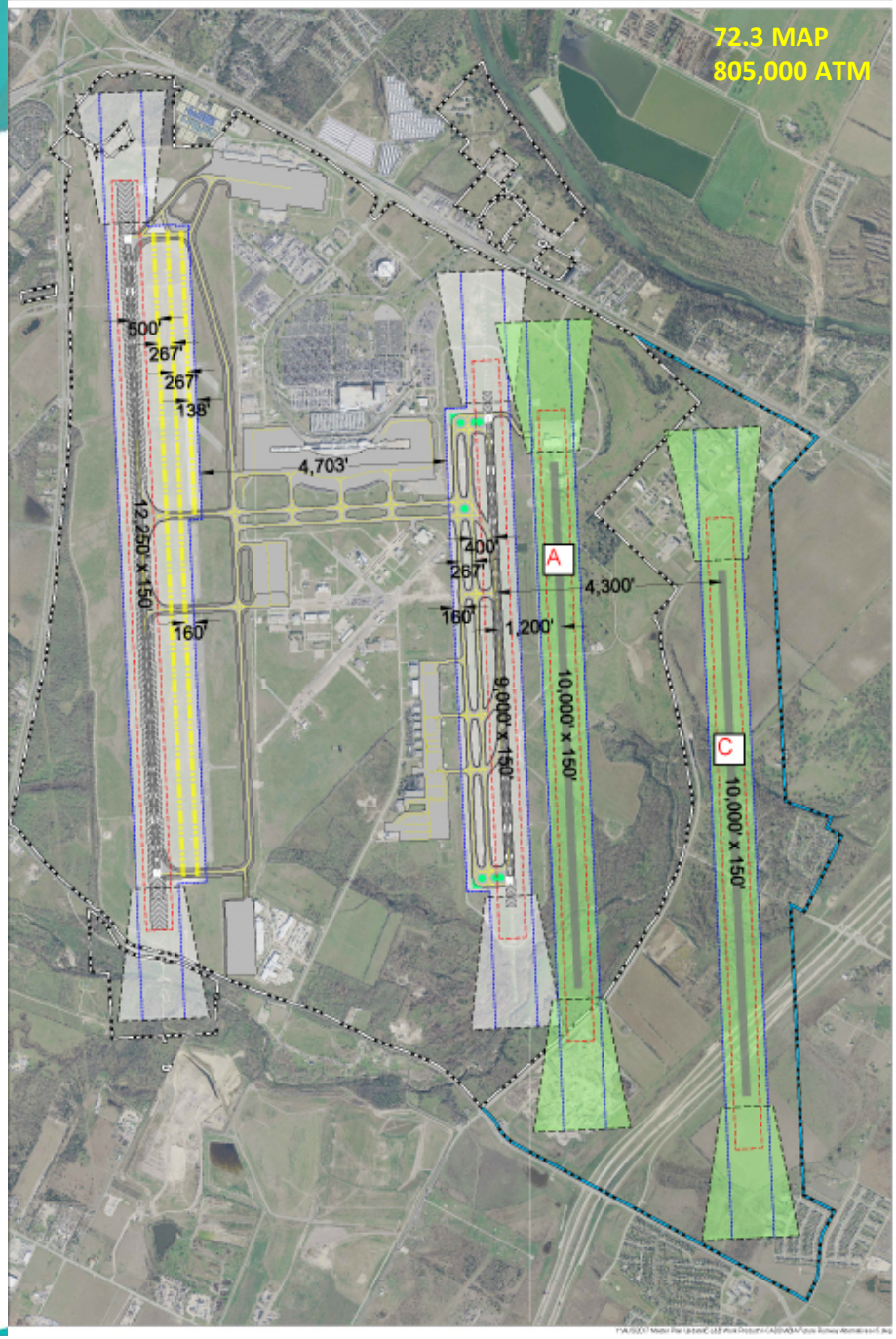
Runway Alternative 5



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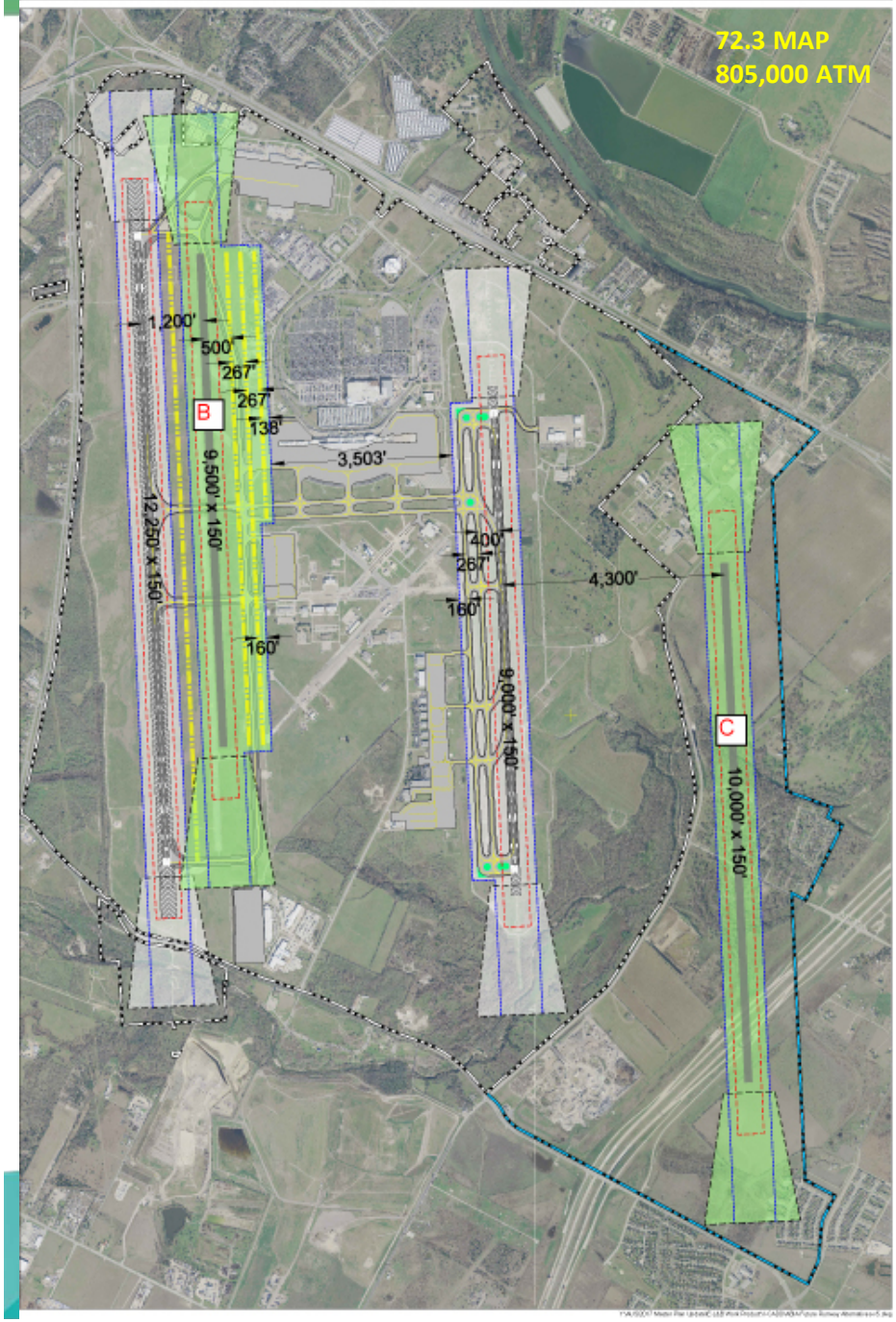
Runway Alternative 6



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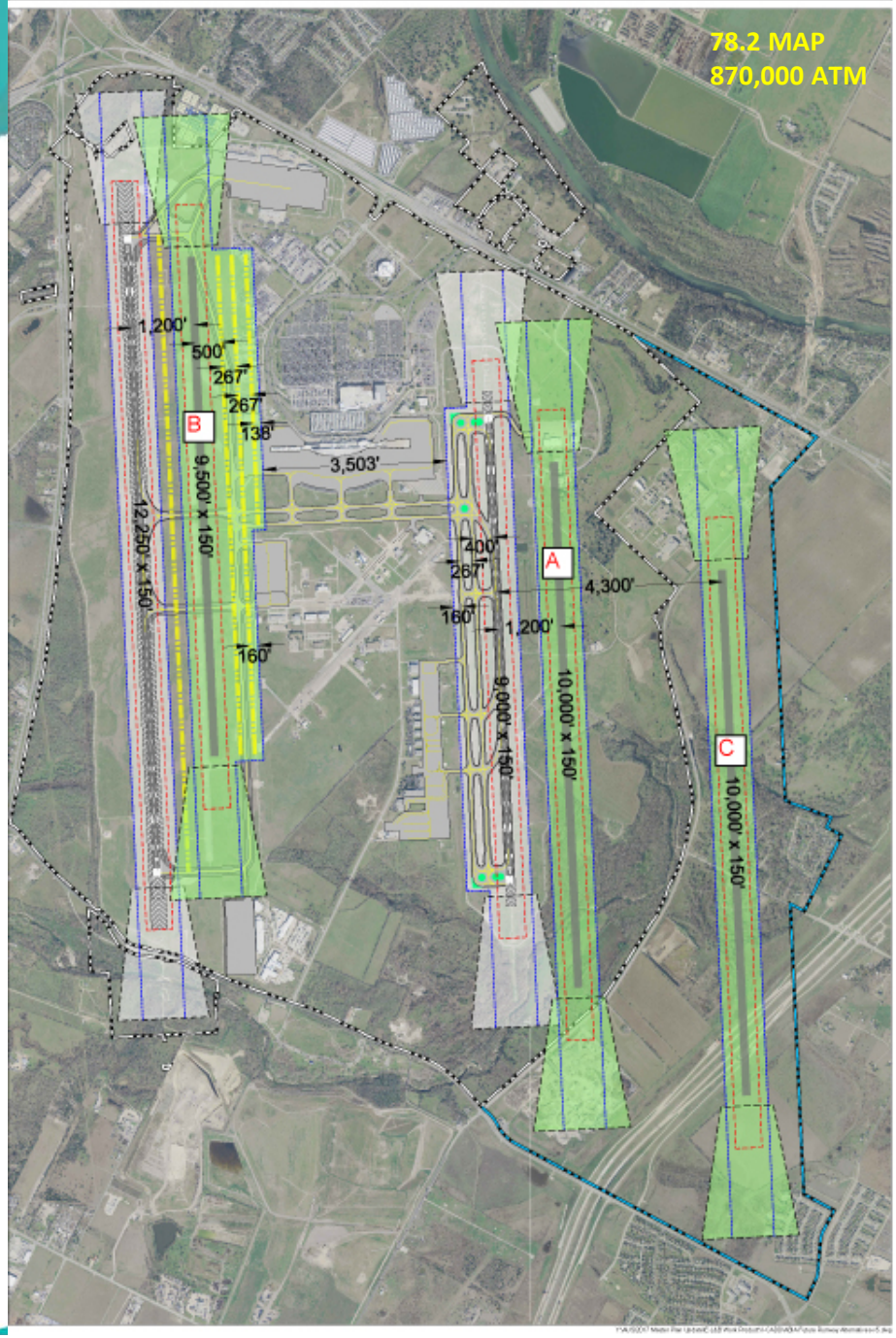
Runway Alternative 8

78.2 MAP
870,000 ATM



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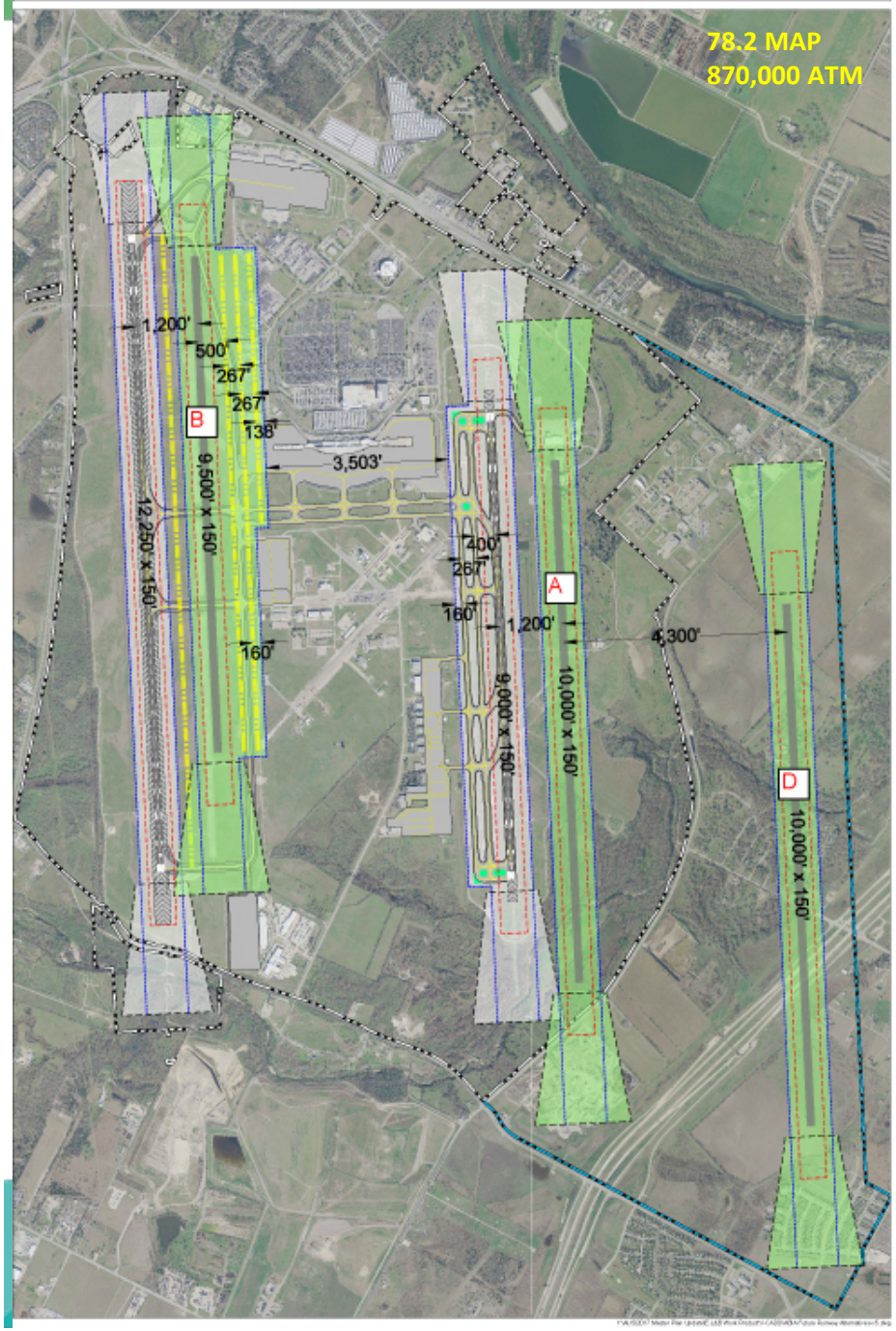
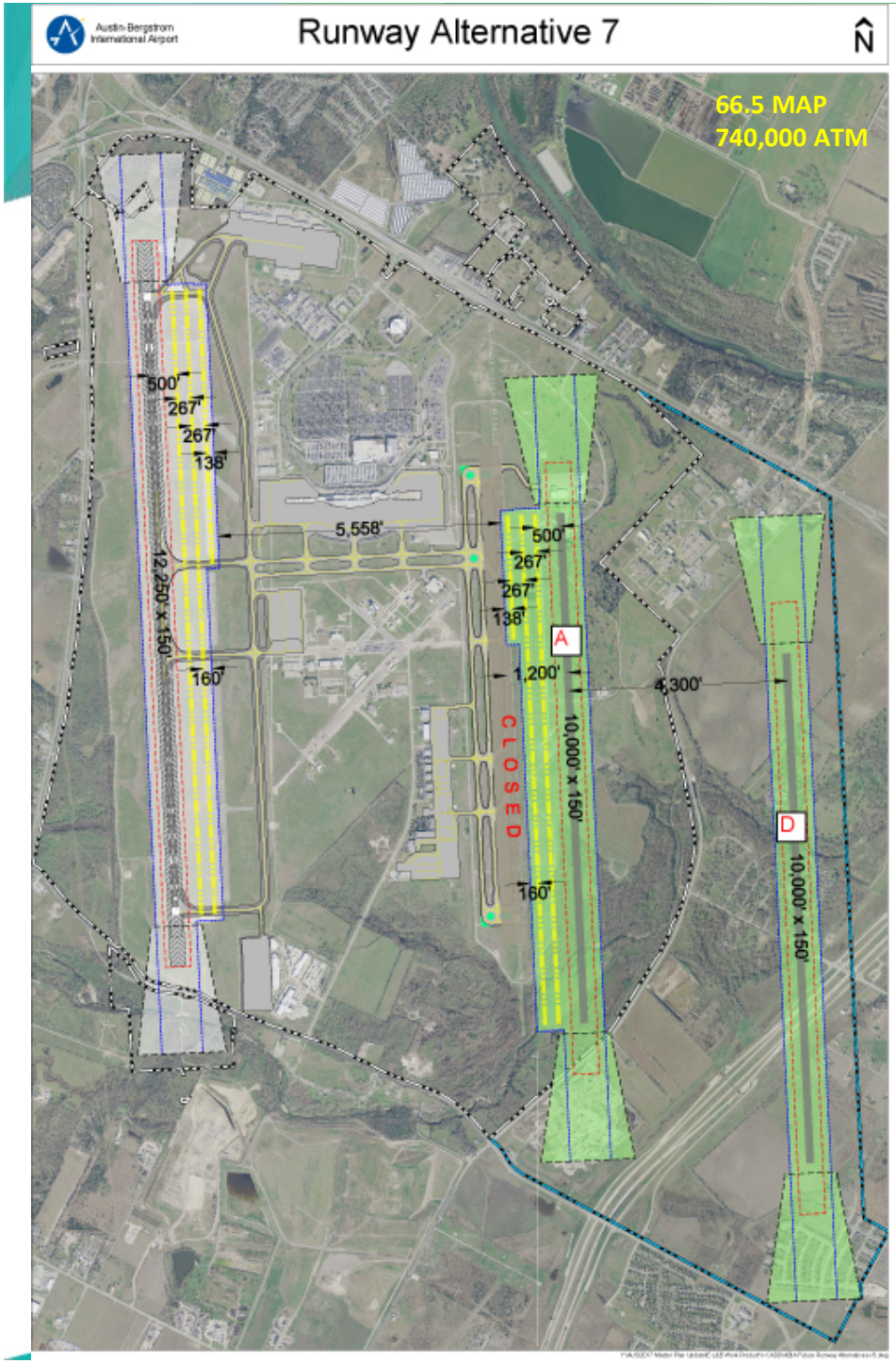
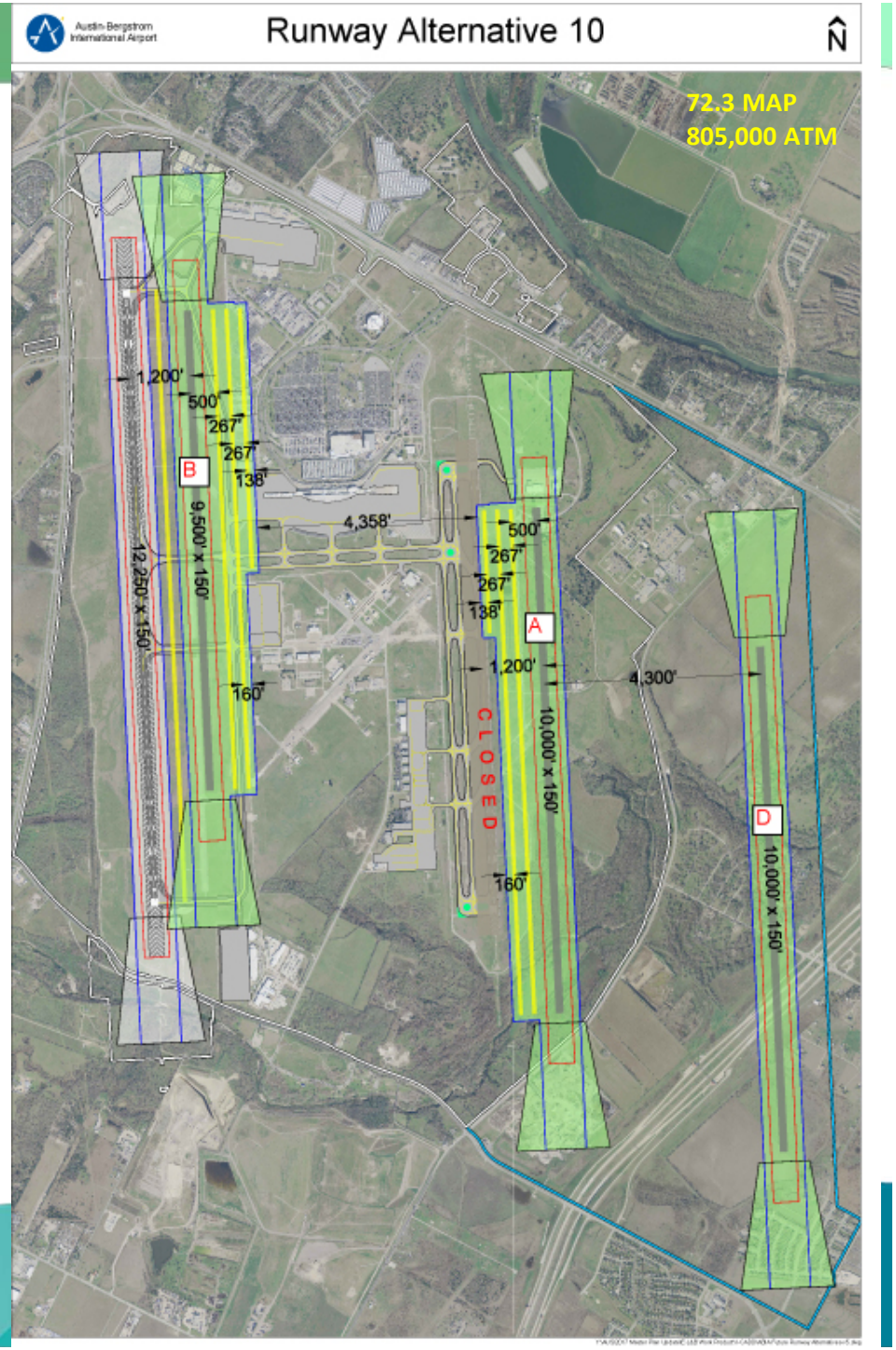
Runway Alternative 9

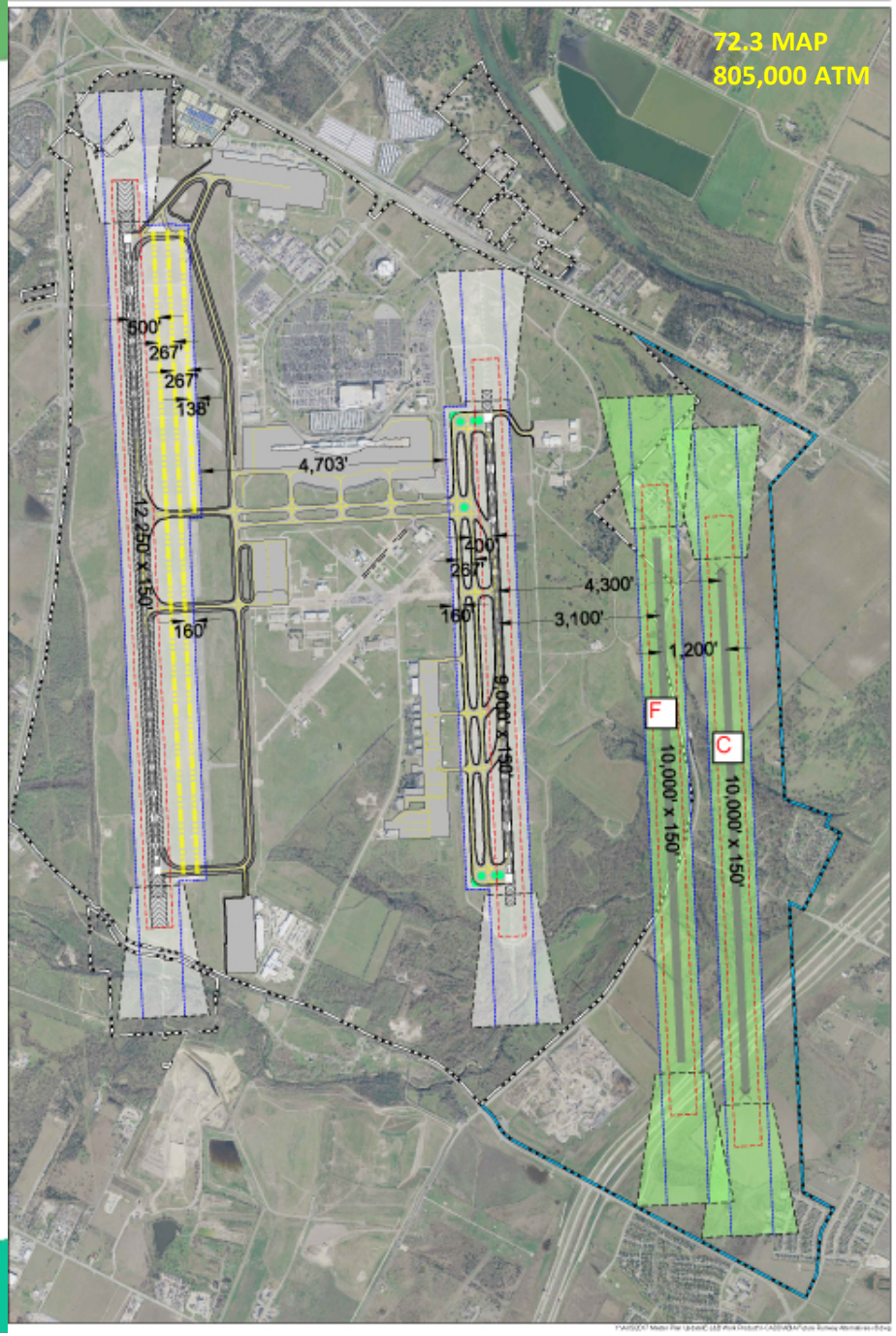
78.2 MAP
870,000 ATM




Austin-Bergstrom International Airport
Runway Alternative 7
N
66.5 MAP
740,000 ATM
500'
267'
267'
138'
5,558'
12,250' x 150'
160'
500'
267'
267'
138'
A
1,200'
4,300'
10,000' x 150'
CLOSED
160'
D
10,000' x 150'


Austin-Bergstrom International Airport
Runway Alternative 10
N
72.3 MAP
805,000 ATM
1,200'
500'
267'
267'
138'
B
9,500' x 150'
4,358'
12,250' x 150'
160'
500'
267'
267'
138'
A
1,200'
4,300'
10,000' x 150'
CLOSED
160'
D
10,000' x 150'

Runway Alternative 12



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Runway Alternative Capacities

Runway Alternative	Peak Hour Arrivals		Peak Hour Departures		Balanced [1/]		Total Air Traffic Movements (ATMs) [2/]	Million Annual Passengers
	Arr.	Dept.	Arr.	Dept.	Arr.	Dept		
Existing	68	30	30	70	60	60	493,000	44.3
Alternative 1/1a	74	40	36	80	66	70	560,000	50.3
Alternative 2	74	40	36	80	66	70	560,000	50.3
Alternative 3/3a	106	30	30	110	90	90	740,000	66.5
Alternative 4	81	76	36	110	72	80	624,000	56.1
Alternative 5	112	40	36	120	96	100	805,000	72.3
Alternative 6	112	40	36	120	96	100	805,000	72.3
Alternative 7	106	30	30	110	90	90	740,000	66.5
Alternative 8	110	80	72	120	102	110	870,000	78.2
Alternative 9	110	80	72	120	102	110	870,000	78.2
Alternative 10	112	40	36	120	96	100	805,000	72.3
Alternative 11	106	30	30	110	90	90	740,000	66.5
Alternative 12	112	40	36	120	96	100	805,000	72.3

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1. Balanced is during non-peak periods
2. Reflects VFR runway capacities and no operational delays/restrictions. Overall annual movements will be less for IFR weather conditions.
3. Runway capacities based on the High Case Aviation Forecasts

Level	Direction	Forecast Aircraft Operations (High Case)				
		2016	2017	2019	2024	2037
Annual	Both	192,032	199,548	213,254	234,316	296,708
Peak Month	Both	16,202	17,073	18,329	20,231	25,829
Design Day	Both	598	622	662	724	910
Peak Hour	Arriving	29	28	31	34	42
	Departing	28	28	29	32	40
	Total	56	56	58	61	71

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Runway Alternatives Evaluation Criteria

Master Plan Goals for Runway Development

- Preserve capability for 1 new runway (minimum)
- Provide for quick and easy terminal gate expansion capability in first 5-10 years
- Minimize development costs and environmental impacts
- Ability to develop 2 new runways (ultimate)

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Evaluation Criteria

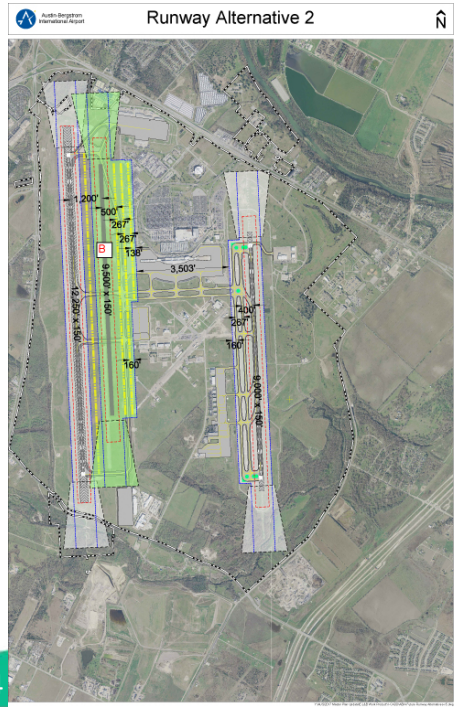
Evaluation Criteria	Description
1. Runway centerline separation	Separation from adjacent parallel runway to provide independent or dependent simultaneous operations (takeoff and landing). Provides added flexibility in runway use to meet future demand.
2. Runway length	Adequate length for maximum aircraft landing or takeoff weights for domestic and international destinations. Also used in the event another runway is closed for maintenance or emergency.
3. Peak hour balanced operations (arrivals and departure)	Total number of arrival and departure operations during the non-peak periods.
4. Annual total movements (ATMs)	Total number of annual aircraft movements.
5. Million annual passengers (MAP)	Total number of annual passengers the airfield can potentially deliver (estimated).
6. Land acquisition	Minimum land acquisition for the runway, parallel taxiway, safety areas and runway protection zone area.
7. Environmental impacts	Impacts that require major environment mitigation (land fill, Onion Creek, etc.).
8. Off-airport roadway impacts	Impact on the surrounding roadways that might require relocation, depressing or tunneling.
9. Off-airport land development impacts	Impact on the surrounding existing and proposed land development.
10. Potential terminal development	Distance between the parallel runways for future terminal(s), concourses and aircraft gates.
11. Constructability/Phasing	Ease of construction phasing with minimal impact on existing and future airport facilities, and the ability to add capacity in a timely manner. Life-cycle impact on existing facilities.
12. Development costs	Order of magnitude costs associated with land acquisition and major environmental mitigation.

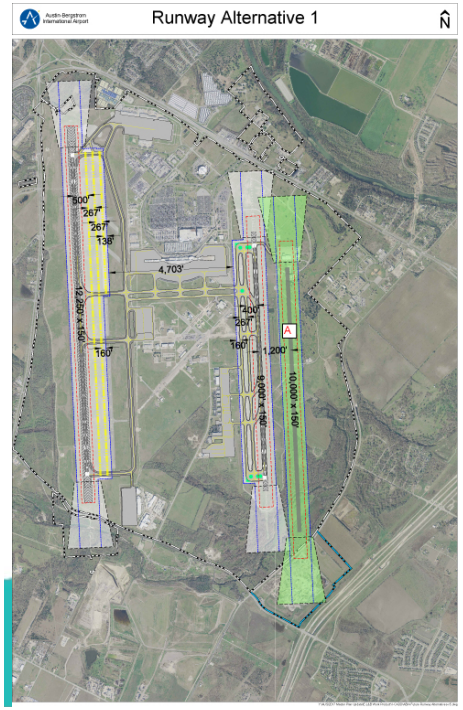
Runway Alternatives Evaluation Matrix

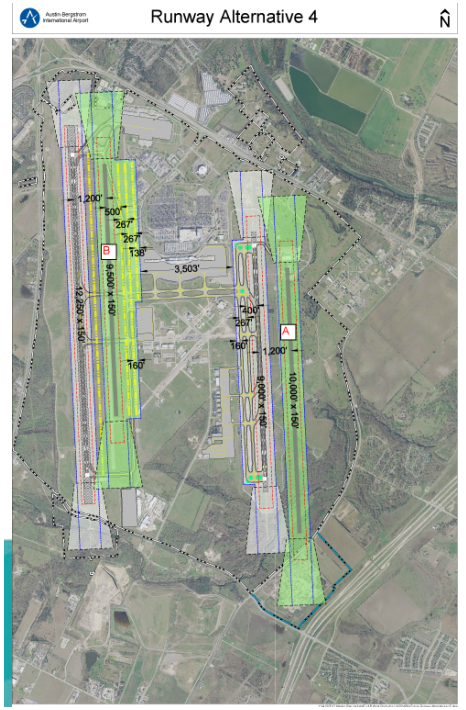
Evaluation Summary

Scoring:	Positive	✚
	Neutral	◯
	Negative	▬

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



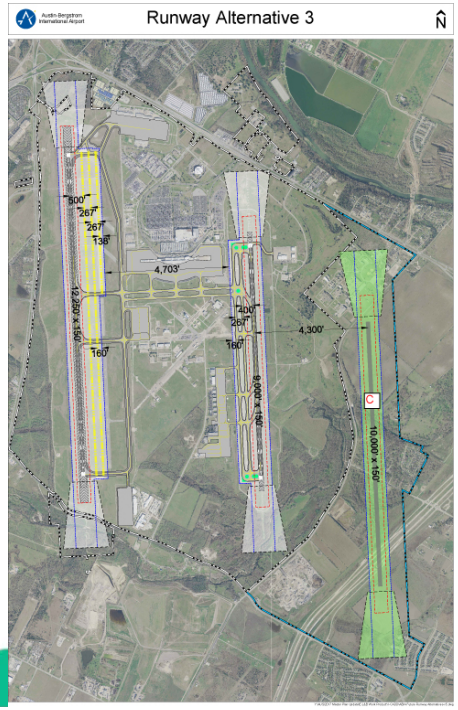


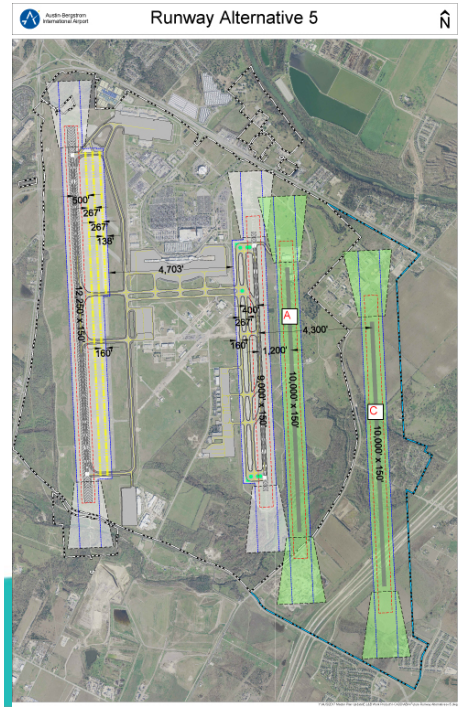


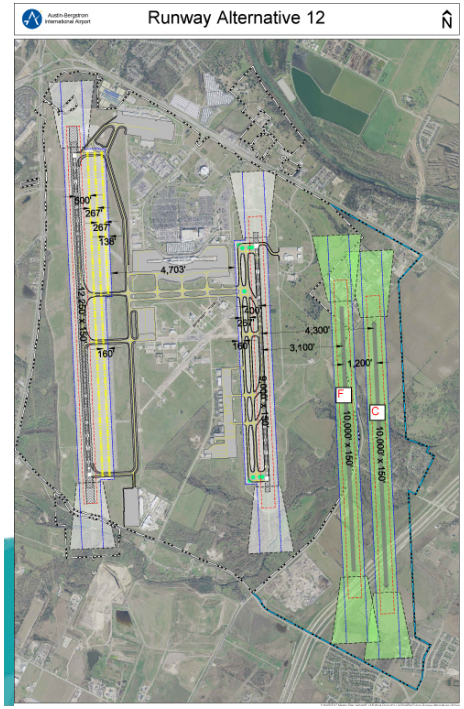
Evaluation Summary (cont.)

Scoring:	Positive	✚
	Neutral	●
	Negative	▬

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







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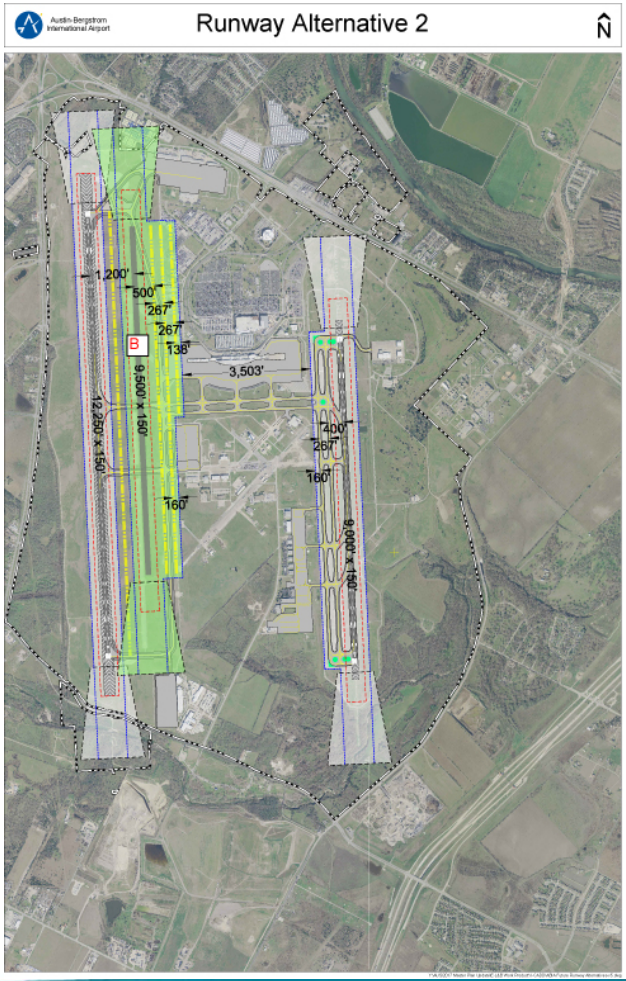
Runway Alternative 2 Summary (Score = 9)

- Alternative 2 provides additional runway capacity with the least amount of impacts
- Relocate west support facilities and cargo complex
- Limits expansion of the existing terminal and concourse gates
- Next gate expansion might be costly & remote



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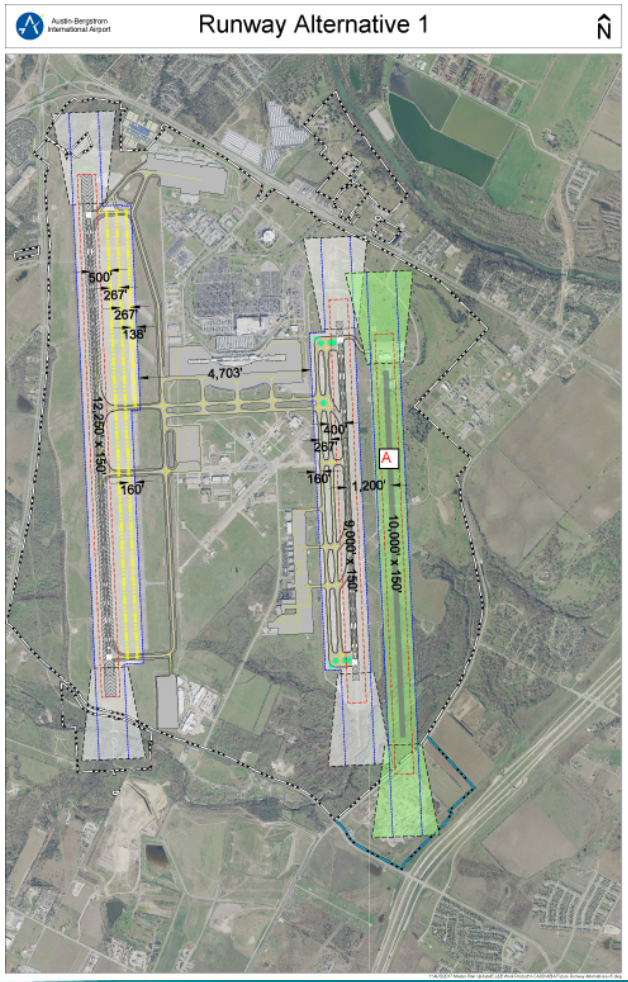
Runway Alternative 1 Summary (Score = 7)

- Alternative 1 provides additional runway capacity (same as Alt. 2)
- Close-in east runway requires land acquisition (minimum 155 acres)
- Requires environmental mitigation of land-fill area
- Impact future Central Warehouse & Cross Dock facility
- Tunnel FM 973



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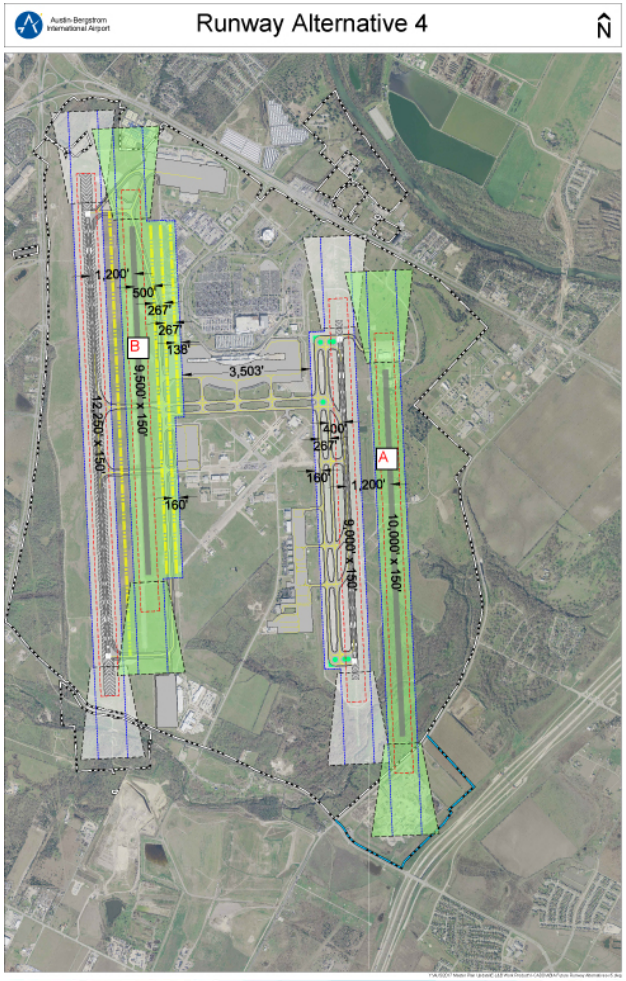
Runway Alternative 4 Summary (Score = 5)

- Alternative 4 provides additional runway capacity
- Relocate west support facilities and cargo complex
- Limits expansion of the existing terminal and concourse gates
- Next gate expansion might be costly & remote
- Close-in east runway requires land acquisition (minimum 155 acres)
- Requires environmental mitigation of land-fill area
- Impact future Central Warehouse & Cross Dock facility
- Tunnel FM 973



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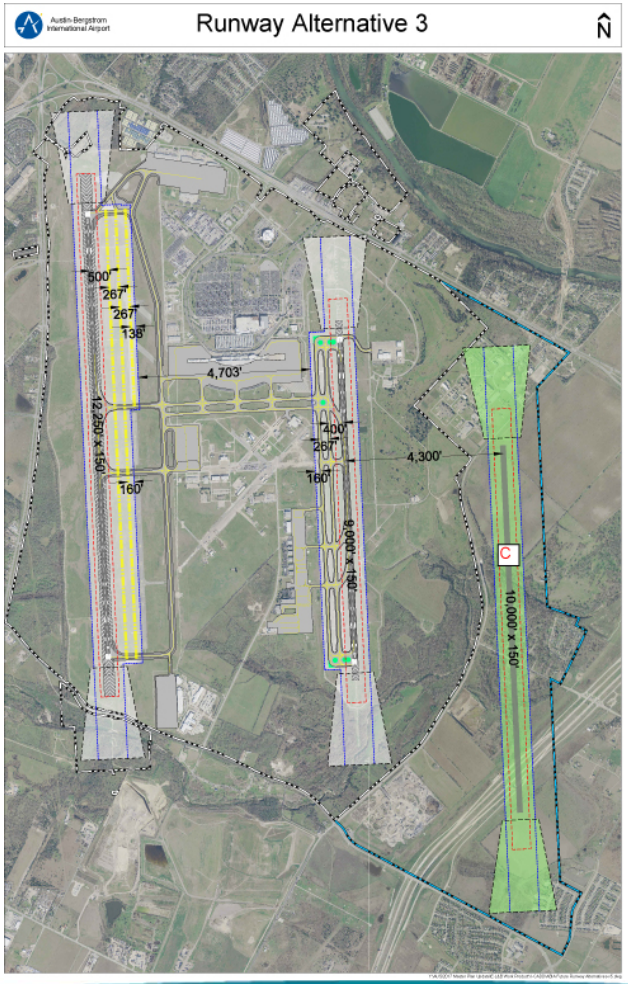
Runway Alternative 3 Summary (Score = 4)

- Alternative 3 provides a larger increase in runway capacity
- Far east runway provides the largest increase in capacity for a single new runway
- Far east runway requires land acquisition (minimum 1,185 acres)
- Impact existing prison complex
- Tunnel Texas 130 Tollway
- Additional land acquisition for far east runway could be used for commercial development until runway is needed



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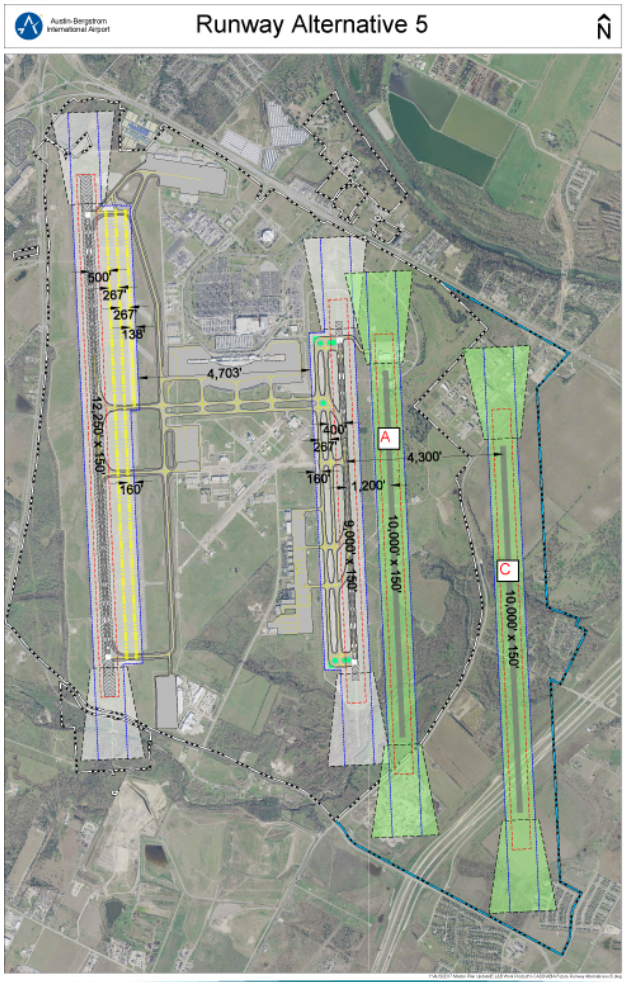
Runway Alternative 5 Summary (Score = 4)

- Alternative 5 provides the best peak hour capacities (combination of Alts. 1 & 3)
- Far east runway provides the largest increase in capacity for a single new runway
- Far east runway requires land acquisition (minimum 1,185 acres)
- Impact future Central Warehouse & Cross Dock facility and existing prison
- Requires environmental mitigation of land-fill area
- Tunnel Texas 130 Tollway



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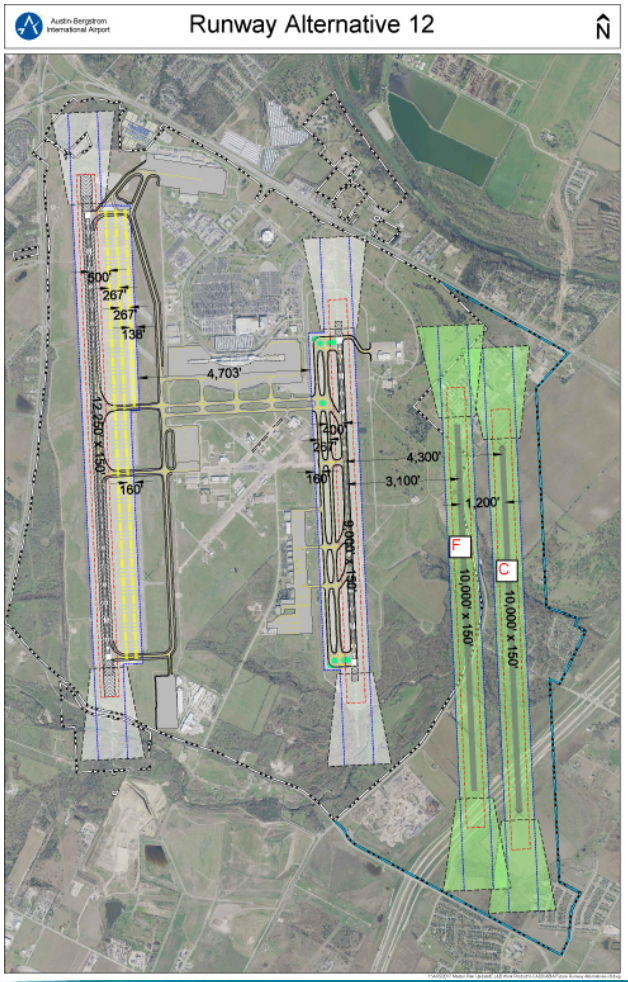
Runway Alternative 12 Summary (Score = 4)

- Alternative 12 provides similar peak hour capacities as Alternative 5
- Far east runway provides the largest increase in capacity for a single new runway
- Far east runway requires land acquisition (minimum 1,185 acres)
- Tunnel Texas 130 Tollway
- 4th runway will impact future Airport Maintenance & Warehouse facility and existing prison



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Key Issues

1. Timing for need of a 3rd parallel runway
2. Land acquisition for the Far East runway
3. Need to determine commercial development viability of east land area to maintain Cost per Enplanement (CPE) at competitive levels and offset the land purchase
4. Determine the best runway alternative to meet long-term airport goals

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Next Steps

- Update Aviation Forecasts per airline & FAA comments
- Begin to develop future airport facility requirements
- Update Inventory Chapter per ABIA comments
- Update Airfield Capacity Model input and results per FAA & ABIA comments
- Runway alternatives short-list refinement & evaluation
- Determine optimum new runway length
- Development of terminal and landside alternatives

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Supporting
Information
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2000 Cleveland Hopkins – New Runway 6L-24R

2017 Cleveland Hopkins – Runway 6L-24R