5 Alternative Development Concepts

To satisfy the facility requirements identified within **Chapter 4**, alternative concepts, site configurations, and development options were created and reviewed for the various components of Blue Grass Airport (LEX or Airport). The following provides a preliminary discussion of the alternative concepts generated for the:

- Runway and taxiway system
- Passenger terminal facility
- Passenger parking and landside access
- General aviation (GA) areas
- Support facilities (air traffic control tower and fuel farm)

This chapter includes many separate concepts and configurations for runways, taxiways, aprons, passenger terminal facilities, etc. and concludes with initial recommendations of a Recommended Development Plan for the Airport. The number of potential recommendations is substantial; however, it is emphasized that although projects may be desired, they may not be necessary or financially or environmentally feasible. As such, recommendations presented in this chapter may be further narrowed down during the environmental and financial planning components of the Master Plan (Study). The conclusion of this chapter will refine the final strategy into actionable projects for implementation in phases.

Source: CHA, 2024.

5.1 Concept Evaluation

Regardless of timeframe or activity level, the overarching principles guiding facility recommendations are to provide an elevated level of customer service and promote regional economic well-being while accommodating the evolving business model of the airlines and airport tenants. These development concepts were created with the intent to serve as a long-term plan for LEX that reinforces Lexington-Fayette Urban County Airport Board's (LFUCAB) vision and business model while creating the most effective and efficient accommodations for its users and tenants. For some functional areas, such as the airfield, the logical recommendations were distinctly apparent as they are driven by Federal Aviation Administration (FAA) design standards and preserving existing infrastructure to the greatest extent possible. In contrast, improvements related to the passenger terminal building and GA areas have more variability in their concepts.

During the identification of facility requirements, it became evident that different aspects of the airport grow dynamically and not always at the same rate or require the same amount of focus and expansion throughout the planning period. To implement this into the overall strategy for alternatives and the overall Recommended Development Plan, the concepts and alternatives presented consist of a series of separate improvements that are combined and assembled into the overall strategy. As such, individual components of the Airport are reviewed and evaluated separately to develop the Recommended Development Plan discussed later in this chapter.

Each of the concepts, evaluations, recommendations, and alternatives were then carried forward, reviewed and approved over several meetings, workshops, and review periods by the LEX Airport Master Plan team, LEX airport operations and maintenance staff, the LFUCAB, the Technical Advisory Committee meetings, the Community Leadership Committee meetings and through two public meetings. The following outlines each alternative workshop and concept discussion period:

- Alternatives Introduction Board Briefing – March 2, 2023
- Master Plan Technical/Community Advisory Committee Meetings – April 11, 2023
- Alternatives Board Discussion – June 21, 2023
- Master Plan Technical/Community Advisory Meetings – June 22, 2023
- Alternatives Final Workshop LEX Management Team – July 7, 2023
- Final Public Meeting – August 8, 2023
- LFUCAB Board Retreat Final Recommendations – August 20, 2023
- LFUCAB Board Briefing Airport Layout Plan – March 27, 2024

Ultimately, these meetings and workshops discussed and evaluated every alternative area in depth, resulting in many concepts being evaluated in every area. These discussions were the foundation for narrowing the focus of the concepts and ultimately determining the Recommended Development Plan for LEX.

5.2 Airfield Development Concepts

The following evaluates potential runway and taxiway improvements that will enhance the overall safety, efficiency, reliability, and capacity of the airfield at LEX. Aircraft flows between the runway system and the various operational areas (e.g., terminal, GA, aeronautical industry operations, etc.) have been considered. Runway and taxiway concepts were developed through a qualitative review of the following considerations.

- Construction and operating costs
- Operational changes and considerations
- Construction impacts, including ease of phasing and construction
- Airfield delays and other operational factors
- Capacity, safety, and reliability considerations
- Airspace considerations
- Environmental considerations
- Community benefits and acceptance

As discussed in the previous section of the Master Plan, the goal is to plan for a safe and operationally efficient airfield. This can be accomplished by meeting the following objectives:

- Adhere to FAA design standards, reduce/eliminate Modifications of Standards (MOS)
- Accommodate all existing and projected uses
- Provide sufficient airfield capacity to meet demand while minimalizing airfield delays
- Reduce runway crossings (particularly in the middle third of runways) to improve safety
- Reduce the risk of pilot confusion and runway incursions by:
  - Reducing the number of taxiway intersections at a single location
  - Eliminating/reducing acute angle intersections
  - Increasing the pilot's situational awareness by improving signage and markings
  - Increasing visibility
- Provide sufficient aircraft parking (at gates and on aprons)
- Continue to plan for next-generation technological improvements
- Determine the ultimate Airport Layout

5.3 Initial Runway and Taxiway Alternatives

LEX currently operates under a dual runway system, with both runways offering unique capabilities and constraints. Each runway was evaluated based on its operational requirements and current conditions. Although ***Chapter 4, Facility Requirements and Demands***, identified that both runways are adequate for current operations as well as operations throughout and beyond the planning period, Runway 4-22 may require reconstruction toward the end of the 20-year Master Plan planning period. To accommodate operational shifts during the reconstruction of Runway 4-22, 11 initial alternatives were developed and evaluated as proposed solutions to accommodate commercial service at LEX while Runway 4-22 is temporarily closed during runway reconstruction.

Runway 4-22 may require reconstruction toward the end of the 20-year Master Plan planning period.

The results of the previous Master Plan depicted a 1,000-foot extension to the Runway 9 end of Runway 9-27. This Study effort does not seek to replace the extension with additional pavement; rather, it depicts the full length of pavement necessary to accommodate long-term construction to Runway 4-22 for the purposes of land and airspace protection for long-term planning. As mentioned, based on the forecasted demand during the planning period, Runway 9-27 is adequate to accommodate all anticipated fleets during the forecast period. Based on capacity, an extension to Runway 9-27 would not be necessary during the planning period. Each alternative listed below that impacts Runway 9-27 would include all necessary pavement for a 1,000-foot extension; therefore, the alternative was not included in this effort.

All runway alternatives listed below require and include specific taxiway modifications and additions to fulfill their desired purpose as a future alternative. While no taxiway-specific alternatives were developed, each of the following alternatives contain taxiway configurations that coincide with the design of each runway alternative. **Table 5-1** contains a list of the 11 runway alternatives evaluated.

Table 5-1
Initial Runway Alternatives

Alt.	Description	Length	Width	ARC	Parallel Taxiway	
					CL Separation	TDG
Runway 4-22 Alternatives						
1	**Temporary Taxiway A**	**6,400′**	**100′**	**C-III**	**400′**	**3**
2	**Temporary Taxiway B**	**6,150′**	**100′**	**C-III**	**331′**	**3**
Runway 9-27 Temporary Runway Alternatives						
3	9-27 Temporary Primary Runway #1	6,400′	100′	C-III	300′	3
4	9-27 Temporary Primary Runway #2	6,400′	100′	C-III	300′	3
5	9-27 Temporary Primary Runway #3	6,600′	100′	C-III	300′	3
6	9-27 Temporary Primary Runway #4	6,600′	100′	C-III	300′	3
7	9-27 Temporary Primary Runway #5	6,600′	100′	C-III	300′	3
8	**9-27 Temporary Primary Runway #6**	**6,600′**	**100′**	**C-III**	**300′**	**3**
Runway 9-27 Primary Runway Alternatives						
9	9-27 Primary Runway #1	7,004′	150′	C-III	400′	3
10	9-27 Primary Runway #2	7,700′	150′	C-III	400′	3
11	**9-27 Primary Runway #3**	**8,000′**	**150′**	**C-III**	**400′**	**3**

Alternatives 1, 2, 8, and 11 selected for further evaluation
Source: CHA, 2024.

5.3.1 Eliminated Runway Alternatives

As mentioned, 11 runway alternatives were developed for consideration. Each was vetted through evaluation as well as multiple working sessions and discussions with the Master Plan Team and LEX staff. Based upon these working sessions and review, it was determined that the following seven alternatives listed within **Table 5-1** were **not** preferable and did not require further consideration.

- Alternative 3: 9-27 Temporary Runway #1
- Alternative 4: 9-27 Temporary Runway #2
- Alternative 5: 9-27 Temporary Runway #3
- Alternative 6: 9-27 Temporary Runway #4
- Alternative 7: 9-27 Temporary Runway #5
- Alternative 9: 9-27 Primary Runway #1
- Alternative 10: 9-27 Primary Runway #2

5.3.2 Runway 4-22

Based on the demands outlined within **Chapter 4**, the current length of the primary Runway 4-22 (7,004 feet) is adequate for most current and future commercial service aircraft that operate at LEX. However, there are some restrictions on service for longer stage length flights, typically on hotter days. For example, A320-200 aircraft departures to Harry Reid International Airport (LAS) in Las Vegas require a payload reduction to lower than 90 percent to depart LEX during days hotter than 86 degrees Fahrenheit. **Chapter 4** noted that an extension of Runway 4-22 to an operational length of 7,700 feet would be necessary for unrestricted operations.

The runway width of Runway 4-22 (150 feet) is also adequate and able to accommodate all current and future design aircraft. Additionally, the existing instrument procedures and navigational aids are sufficient through the planning period.

While its current length and capability are deemed to be adequate throughout the planning period, as mentioned, Runway 4-22 is currently non-compliant with FAA Runway Design Standards and currently is conditionally operational under two MOSs, with the recognition that the runway will need rehabilitation/reconstruction either during the planning period or shortly after to correct these nonstandard conditions. Maintaining most long-range commercial air service operations while reconstructing Runway 4-22 was considered a primary goal of the alternatives developed for the runway.

Runway 4-22 Alternatives

Alternative 1: Temporary Taxiway A

Figure 5-1 illustrates a modification to current Taxiway A as a temporary primary runway accommodating C-III aircraft during Runway 4-22 reconstruction. To accomplish this, project phasing would allow access to the airfield. Taxiways A5, B5, C or G would need to remain open during construction to allow access to Taxiway A and Runway 4-22. This alternative would also require relocation of the airport perimeter roads on either side of the current Runway 4-22, as illustrated in **Figure 5-1**. Modifications to Taxiway A include removing and reconstructing approximately 4,320 feet of the Runway 4 end of Taxiway A to align it with the opposite end. This would also require current Taxiway A connectors to either be removed or reconstructed to meet FAA design standards. This alternative also includes widening Taxiway B to 50 feet and extending to the Runway 4 threshold to allow C-III aircraft to taxi. Taxiway A would also require widening by 25 feet to provide a temporary runway width of 100 feet.

Once operational, the temporary runway would have a length of 6,400 feet, including displaced thresholds on both ends for obstruction mitigation. The temporary runway will also be able to use the current Runway 4-22 approach and lighting systems via a sidestep approach sequence. This approach would temporarily amend the current Instrument Approach Procedures (IAPs). Once the reconstruction of Runway 4-22 is complete, the temporary runway (i.e., existing Taxiway A) will revert to a full parallel taxiway, and operations on this portion of the airfield will return to their existing conditions. Between Alternative 1 and Alternative 2, discussed below, this concept was deemed favorable if the Airport wanted to convert either parallel Taxiway A or B to be temporarily used as a runway while Runway 4-22 was being reconstructed. A detailed analysis of the advantages, disadvantages and changes of this alternative is detailed below in **Table 5-2.**

Table 5-2
Runway 4-22: Alternative 1 Pros/Cons

Pros	Cons
✈ Allows airport to retain commercial service while reconstructing Runway 4-22 ✈ Corrects non-standard conditions to Taxiway A ✈ Meets minimum runway-to-taxiway centerline separation distance of 400' at all existing visibility minimums ✈ Line-of-sight requirements met for existing Air Traffic Control Tower (ATCT) and Candidate Site E ✈ Line-of-sight FAA design standards met ✈ Retains maximum existing taxiway pavement ✈ Avoids impacts on Parkers Mill Road ✈ Runway 4-22 may remain operational during construction on Taxiway B and temporary runway (except for the construction of the Taxiway B connector and removal of Taxiway B3).	✈ Concourse A gates and apron taxilane may be impacted during temporary conditions ✈ Conversion of the temporary runway back to the taxiway would incur additional costs (EMAS removal, modifications to airfield lighting, guidance signs, pavement markings) ✈ Obtaining a runway length greater than 6,000' would require an EMAS ✈ A Modification of Standards may be necessary to allow construction inside the temporary runway's Runway Object Free Area (ROFA). ✈ Electrical vault would be inside ROFA and would need to be relocated. ✈ Large corporate aircraft taxiing from WestLEX to the temporary runway would need to cross the construction area ✈ Group IV operations, though less common, are severely constrained.

Source: CHA, 2024.

The declared distances for this alternative are listed in **Table 5-3**. Impacts to existing navigational aids (NAVAIDs) during construction are shown in the following **Table 5-4**. Impacts are those occurring during the most disruptive construction phases.

Table 5-3
Alternative 1: Declared Distances

Declared Distance	Runway 4	Runway 22
TORA	6,400′	6,400′
TODA	6,400′	6,400′
ASDA	6,000′	6,400′
LDA	6,000′	6,000′

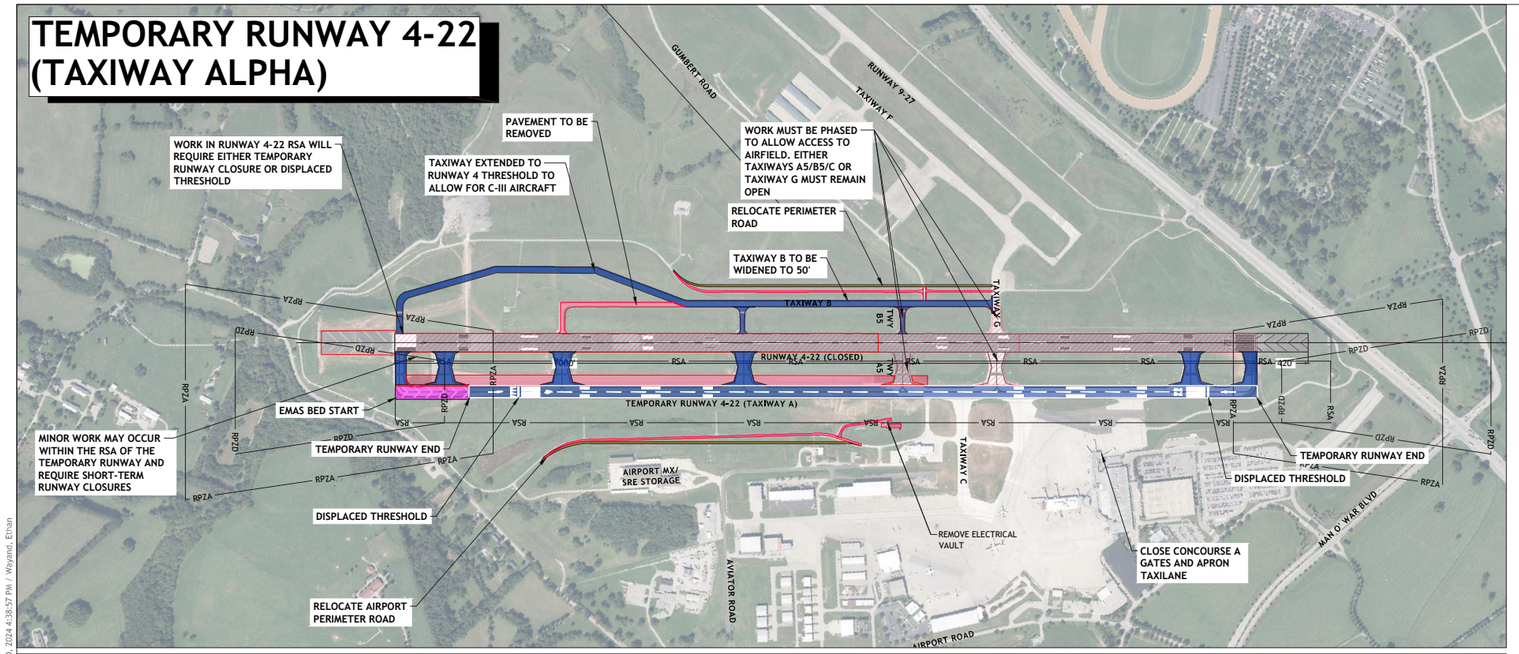
Source: CHA, 2024.

Table 5-4
Alternative 1: Impacts to NAVAIDs

Navaid	Taxiway B Lengthening	Temporary Runway Construction	Runway 4-22 Reconstruction
Rwy 4 GS	None [1]	None	Adjust
Rwy 4 PAPI	None	None	Relocate [2]
Rwy 4 RVR	None [4]	None	None
Rwy 4 LOC	None	None [1]	Inoperative
Rwy 4 MALSR	None [1]	None [1]	Inoperative
Rwy 22 GS	None	None	Inoperative
Rwy 22 PAPI	None	None	Adjust
Rwy 22 REIL	None	None	Relocate
Rwy 22 LOC	None [1]	None	Inoperative
Rwy 9 PAPI	None	None	None
Rwy 9 REIL	None	None	None
Rwy 27 PAPI	None	None	None
Rwy 27 REIL	None	None	None
DASR-11	None	TBD	TBD
Wind Cone	None	None	Relocate [3]

[1] Inoperative during construction inside critical area
[2] Airport-owned facility relocated to temporary runway
[3] Wind cone near Runway 22 PAPI
[4] RVR could be relocated closer to GS, reducing Taxiway B offset distance from the runway.
Source: CHA, 2024.

Figure 5-1
Alternative 1: Temporary Taxiway A



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PHASING LEGEND

- PERIMETER ROAD REROUTING
- TAXIWAY PAVEMENT
- RUNWAY PAVEMENT
- PAVEMENT DEMOLITION
- PAVEMENT CONSTRUCTION
- RUNWAY EMAS BED

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BLUE GRASS AIRPORT
MASTER PLAN UPDATE

PROJECT:

TITLE:
TAXIWAY A TEMPORARY RUNWAY
TAXIWAY BRAVO IMPROVEMENTS

EXHIBIT NO.
5-1

File Name: X:\Projects\IAH Yk\061458.000\09_Design\Drawings\01_Sheets\Exhibits\LEX-AIRFIELD-DEV-4_22-(TWY A)_ALT.dwg - Layout:1-17x11 | Modified / By: July 30, 2024 4:38:57 PM / Wyanto, Ethan

Alternative 2: Temporary Taxiway B

Similar to the previous Alternative 1 (Temporary Taxiway A), **Figure 5-2** illustrates modifying the current Taxiway B to serve as a temporary runway that can accommodate C-III aircraft during Runway 4-22 reconstruction. With this alternative, Taxiway B becomes a temporary runway with an operational length of 5,550 feet, including a displaced threshold and engineered material arresting system (EMAS) bed on the Runway 4 end. Achieving this would require significant modification to current Taxiway B, including widening the taxiway to a width of 100 feet, extension of approximately 660 feet on the Runway 4 end, and approximately 1,310 feet on the Runway 22 end to provide a full temporary runway length of 5,550 feet. Project phasing should ensure commercial aircraft are provided access to the temporary runway from the Terminal Apron. This alternative, compared to Alternative 1, would also have a greater number of negative impacts on the current Runway 4-22 infrastructure, including the runway's glideslope indicator, runway visual range (RVR) and the runway's standalone weather system (SAWS).

This concept was deemed to have many challenges, including inadequate length (5,550 feet) and impacts to existing infrastructure (NAVAIDs, roads, etc.). An in-depth list of pros/cons evaluated with this alternative is listed in **Table 5-5**.

Table 5-5
Runway 4-22: Alternative 2 Pros/Cons

Pros	Cons
✈ Allows airport to retain commercial service while reconstructing Runway 4-22 ✈ Corrects non-standard conditions to Taxiway B ✈ Taxiway B reverts to a near full-length parallel taxiway to Runway 4-22	✈ Would not meet minimum runway-to-taxiway centerline distance of 400' ✈ Possible impact on the remote transmitter/receiver (RTR), glideslope, and other major NAVAIDs ✈ Potential substantial issues to mitigate inside the new RPZ north of Versailles Road ✈ Buildings inside the new RPZ south of the South Elkhorn Creek ✈ Taxiway F TSA and OFA would overlap with temporary RSA and OFA ✈ Group IV operations, though less common, are severely constrained

Source: CHA, 2024.

The declared distances for this alternative are listed in **Table 5-6**. Impacts to existing NAVAIDs during construction are shown in the following **Table 5-7**. Impacts are those occurring during the most disruptive construction phase.

Table 5-6
Alternative 2: Declared Distances

Declared Distance	Runway 4	Runway 22
TORA	6,400′	6,400′
TODA	6,400′	6,400′
ASDA	6,000′	6,400′
LDA	6,000′	6,000′

Source: CHA, 2024.

Table 5-7
Alternative 2: Impacts to NAVAIDs

Navaid	Taxiway B Lengthening	Temporary Runway Construction	Runway 4-22 Reconstruction
Rwy 4 GS	None [1]	None	Adjust
Rwy 4 PAPI	None	None	Relocate [2]
Rwy 4 RVR	None [4]	None	None
Rwy 4 LOC	None	None [1]	Inoperative
Rwy 4 MALSR	None [1]	None [1]	Inoperative
Rwy 22 GS	None	None	Inoperative
Rwy 22 PAPI	None	None	Adjust
Rwy 22 REIL	None	None	Relocate
Rwy 22 LOC	None [1]	None	Inoperative
Rwy 9 PAPI	None	None	None
Rwy 9 REIL	None	None	None
Rwy 27 PAPI	None	None	None
Rwy 27 REIL	None	None	None
DASR-11	None	TBD	TBD
Wind Cone	None	None	Relocate [3]

[1] Inoperative during construction inside the critical area
[2] Airport-owned facility relocated to temporary runway
[3] Wind cone near Runway 22 PAPI
[4] RVR could be relocated closer to GS, reducing Taxiway B offset distance from the runway.
Source: CHA, 2024.

Figure 5-2
Alternative 2: Temporary Taxiway B

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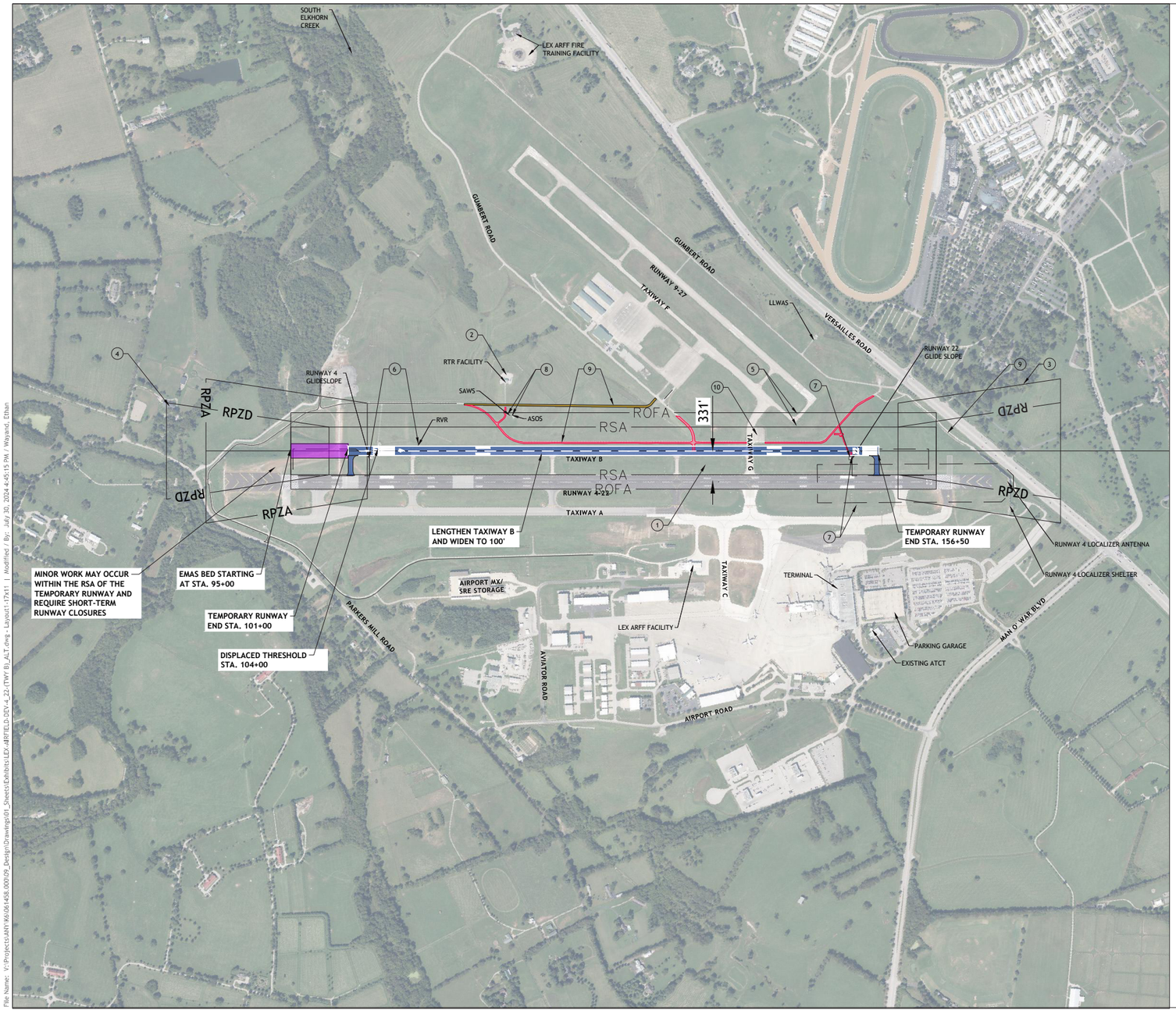

GRAPHIC SCALE (FEET)
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PHASING LEGEND

- GUMBERT/PERIMETER ROAD REROUTING
- TAXIWAY B CONVERSION TO RUNWAY (4-22)
- EXISTING RUNWAY 4-22 PROPOSED TAXIWAY
- ROADWAY DEMOLITION
- RUNWAY EMAS BED

CHALLENGE KEY NOTES:

MAXIMUM TEMPORARY RUNWAY LENGTH USING EMAS AND DECLARED DISTANCES WOULD BE 5,550'

1. WOULD NOT MEET MINIMUM RUNWAY-TO-TAXIWAY CENTERLINE DISTANCE OF 400'.
2. POSSIBLE IMPACT TO RTR
3. SUBSTANTIAL ISSUES TO MITIGATE INSIDE NEW RPZ NORTH OF VERSAILLES ROAD.
4. BUILDINGS INSIDE NEW RPZ SOUTH OF SOUTH ELKHORN CREEK
5. TAXIWAY F TSA AND OFA WOULD OVERLAP TEMPORARY RUNWAY RSA AND OFA

TEMPORARY RUNWAY CONSTRUCTION WOULD REQUIRE:

6. REMOVAL OF RUNWAY 4 GS AND RVR
7. REMOVAL OR RELOCATION OF RUNWAY 22 GS
8. RELOCATION OF SAWS AND ASOS
9. RELOCATION OF AIRPORT PERIMETER ROADS (SUBSTANTIAL FILL REQUIRED)
10. REMOVAL OF TAXIWAY G HOLDING PAD

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PROJECT:
BLUE GRASS AIRPORT
MASTER PLAN UPDATE

TITLE:
TAXIWAY BRAVO TEMPORARY
RUNWAY (4-22)

EXHIBIT NO.
5-2

File Name: V:\Projects\ANY\66\061458.000\09_Design\Drawings\01_Sheets\Exhibits\LEX-AIRFIELD-DEV_4_22-ITWY B1_ALT.dwg - Layout1-17x11 | Modified / By:: July 30, 2024 4:45:15 PM / Wayand, Ethan

5.3.3 Runway 9-27

Based on the demands outlined in **Chapter 4**, the current length of the crosswind GA Runway 9-27 (4,000 feet) is adequate for the vast majority of current and future GA aircraft that operate on this runway. As previously stated, a primary focus of this Master Plan is accommodating commercial service operations at LEX during the reconstruction of Runway 4-22. As such, the following alternatives examine various concepts to temporarily convert Runway 9-27 into the primary runway accommodating C-III aircraft operations. To accommodate the demand necessary to remain operational, Runway 9-27 would require lengthening and widening to accommodate most of the commercial operations at LEX. Additionally, parallel Taxiway F would also require widening and a temporary MOS (runway to taxiway separation is 300 feet) to serve Runway 9-27 during this time. Due to the location of Runway 9-27 and parallel Taxiway F, some extensions may not be permanent. That is, extensions on the Runway 27 end will be removed prior to reopening Runway 4-22 once reconstruction is complete. In general, the following Runway 9-27 alternatives focus on two different approaches: Runway 9-27 serving as a temporary primary runway during the reconstruction of Runway 4-22, and Runway 9-27 serving as the ultimate primary runway.

The initial approach to the Runway 9-27 alternatives (Runway 9-27 serves as a temporary primary runway) requires certain initial alterations and eventual pavement removal to revert back to Runway 4-22 as the primary runway upon completion of reconstruction. Alternative 8 is the only alternative recommended for further evaluation as a possible solution. Three alternatives were developed for the second approach to the Runway 9-27 alternatives (Runway 9-27 serves as the ultimate primary runway, even after the reconstruction of Runway 4-22), but only Alternative 11 was recommended for further evaluation. Six alternatives were developed with this strategy, five of which were removed from further consideration. Details regarding the eliminated alternatives are detailed in **Appendix L**.

Alternative 8: Temporary Primary Runway 9-27

Figure 5-3 includes six phases that begin while Runway 4-22 is fully operational and end upon completion of the Runway 4-22 reconstruction. Details for specific alternatives of each phase are listed below and illustrated in **Figure 5-4**.

Phase 1 and 2: Phase 1 of this alternative occurs while Runway 4-22 is fully operational. It includes widening Runway 9-27 by 25 feet to achieve a total width of 100 feet. An extension of 1,900 feet on the Runway 9 end would be required to accommodate most commercial service aircraft operating at LEX. This extension would include an approximate 700-foot displaced threshold for obstruction mitigation (i.e., residential area). Additionally, the Runway 9 end would include a 600-foot EMAS bed to allow for a shorter Runway Safety Area (RSA) beyond the runway end and ensure that it remains within airport property. The proposed runway extension would require relocation of Gumbert Road outside of the temporary Runway Object Free Area (ROFA) along with a 520-foot tunnel on the extended Runway 9 end, approximately 500 feet east of the runway end. The Runway 27 end would be extended by 500 feet in Phase 1. This length allows for an extension that ensures that Runway 4-22 can remain fully operational during this phase. Taxiway F would also be widened to 50 feet and would also be extended in conjunction with the runway extensions on both ends of Runway 9-27.

Phase 3: Phase 3 builds upon the previous two phases. This phase includes the same alterations but additionally extends the Runway 27 end and the parallel Taxiway F by 200 feet. These further extensions require a portion of the Runway 22 end to be closed, resulting in a Runway 4-22 operational length of 5,264 feet during this phase.

Phase 4: Phase 4 occurs upon completion of all modifications to Runway 9-27. During this phase, Taxiway A would be reconstructed to provide 400 feet of separation, and Taxiway B and C would be widened to at least 50 feet. It is important that construction is staged during this phase to allow access to Runway 9-27. Either taxiways A5, B5, C or G must remain open to allow aircraft to taxi from the terminal area to the temporary primary Runway 9-27. Runway 4-22 would be closed upon entering this phase.

Phase 5: Phase 5 occurs after the reconstruction of Runway 4-22. During this phase, the runway returns to use as the Airport's primary runway. Extensions to both Runway 9-27 and parallel Taxiway F would return to their current locations, allowing Runway 4-22 to reopen at its existing operational length. This results in a Runway 9-27 with a 5,900-foot length, not including the 600-foot EMAS bed on the Runway 9 end and a reconstructed Runway 4-22 and parallel Taxiway A.

Table 5-8
Runway 9-27: Alternative 8 Pros/Cons

Pros	Cons
✈ Allows runway to temporarily accommodate commercial operations during Runway 4-22 reconstruction ✈ Existing Runway 9-27 deficiencies are addressed ✈ Additional pavement for larger jet fleet service to WestLEX ✈ Runway 9-27 will accommodate all GA jet operations. ✈ Access to WestLEX via Versailles Road remains intact ✈ Results in an extended Runway 9-27 ✈ Results in a corrected Runway 4-22	✈ At a runway-to-taxiway separation distance of 300', Runway 9-27's ROFA would encompass Taxiway F pavement. A Modification of Standards would be necessary. ✈ Existing AOA perimeter fence on the northside would need to be relocated approximately 150' to the north to avoid the new 9-27 ROFA. ✈ Gumbert Road relocation and tunneling necessary ✈ Longer taxi time and distance for aircraft to and from the Terminal Apron when using Runway 9-27 ✈ Aircraft parking would not be allowed on the north side of the WestLEX aprons due to penetrating Part 77 primary surface. ✈ Hangar 108 would be within the transitional surface of the reconstructed Runway 9-27.

Source: CHA, 2024.

The declared distances for this alternative are listed in **Table 5-9**. Impacts to existing NAVAIDs during construction are shown in the following **Table 5-10**. Impacts are those occurring during the most disruptive construction phases.

Table 5-9
Alternative 8: Declared Distances

Declared Distance	Runway 9	Runway 27
TORA	5,900′	5,485′
TODA	5,900′	6,500′
ASDA	5,900′	5,900′
LDA	5,485′	5,900′

Source: CHA, 2024.

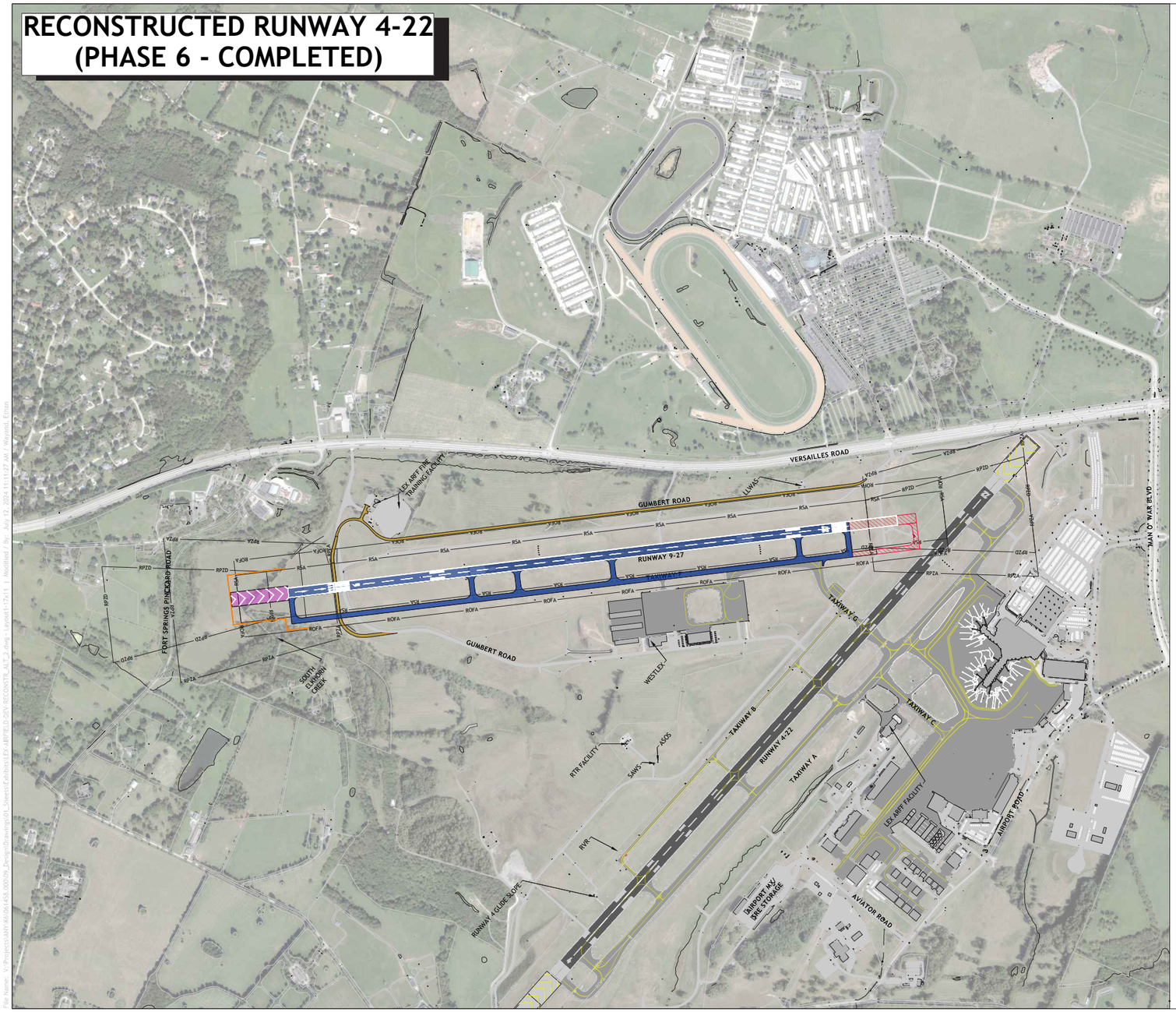
Table 5-10
Alternative 8: Impacts to NAVAIDs

Navaid	Runway 9-27 Lengthening	Runway 4-22 Reconstruction
Rwy 4 GS	None	Relocate
Rwy 4 PAPI	None	Relocate
Rwy 4 RVR	None	Inoperative
Rwy 4 LOC	None [1]	Inoperative
Rwy 4 MALSR	None [1]	Inoperative
Rwy 22 GS	None [1]	Relocate
Rwy 22 PAPI	None [1]	Adjust
Rwy 22 REIL	None [1]	Relocate
Rwy 22 LOC	None	Inoperative
Rwy 9 PAPI	Relocate	None
Rwy 9 REIL	Relocate	None
Rwy 27 PAPI	Relocate	Relocate
Rwy 27 REIL	Relocate	Relocate
DASR-11	None	TBD
Wind Cone	Relocate [3]	Relocate [2]

[1] Inoperative during construction inside the critical area
[3] Wind cone near Runway 22 PAPI
[4] Wind cone near Taxiway F6
Source: CHA, 2024.

Figure 5-3
Alternative 8: Temporary Primary Runway Full Concept

RECONSTRUCTED RUNWAY 4-22 (PHASE 6 - COMPLETED)



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PHASING LEGEND

- PERIMETER ROAD REROUTING
- TAXIWAY PAVEMENT
- RUNWAY PAVEMENT
- PAVEMENT DEMOLITION
- PAVEMENT CONSTRUCTION
- RUNWAY EMAS BED

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PROJECT:
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TITLE:
RECONSTRUCTED RUNWAY 4-22
PHASE 6

EXHIBIT NO.
5-3

Figure 5-4
Alternative 8: Temporary Primary Runway Phases

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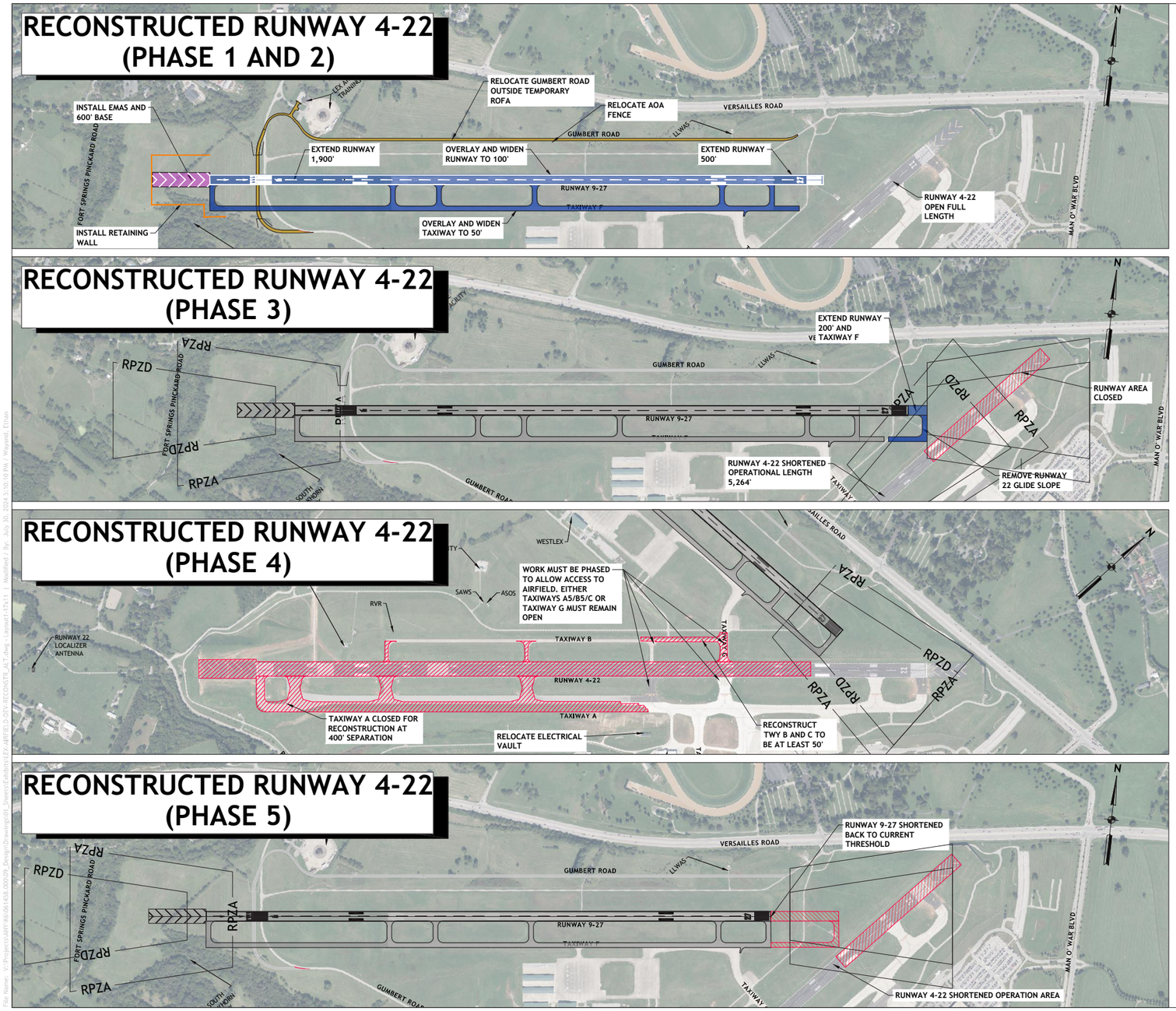

GRAPHIC SCALE (FEET)
0 500 1000 2000

PHASING LEGEND
- PERIMETER ROAD REROUTING
- TAXIWAY PAVEMENT
- RUNWAY PAVEMENT
- PAVEMENT DEMOLITION
- PAVEMENT CONSTRUCTION
- RUNWAY EMAS BED

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MASTER PLAN UPDATE

TITLE:
RECONSTRUCTED RUNWAY 4-22
PHASES 1 THROUGH 5

EXHIBIT NO.
5-4

Alternative 11: Ultimate Primary Runway 9-27

This alternative, illustrated in **Figure 5-5**, depicts the ultimate development of Runway 9-27, becoming the primary runway at LEX, accommodating aircraft design group (ADG) V aircraft. With this alternative, Runway 9-27 would be widened to a total width of 150 feet, including an extension of approximately 1,900 feet on the Runway 9 end and another 2,100 feet on the Runway 27 end. In addition, a 600-foot EMAS bed would be installed on the Runway 9 end to ensure that the RSA on this runway end remains on airport property, and a retaining wall is shown around the EMAS bed to accommodate the safety areas. Taxiway F requires an extension to have a separation distance of 400 feet and would be widened to 75 feet to accommodate ADG V aircraft. Taxiway G would be removed in its entirety, and access to the terminal area would be provided by a new connector near the north end of the Terminal Building and Concourse A. The new Runway and Taxiway F would overlap what is currently Runway 4-22 and Taxiway A. A major consideration during the development of this alternative was ensuring that parking areas and roads remain outside of the runway protection zones (RPZs) and the future Runway 27 end. This would require portions of the Cell Phone Lot, Man O' War Boulevard, the passenger parking lot, and other connecting roads to be removed/relocated. The proposed alternative relocates Man O' War Boulevard approximately 3,000 feet to the east. At the closest points, the Terminal Building and parking garage would be about 1,135 feet and 860 feet, respectively, from the runway centerline (635 feet and 360 feet from the Part 77 Primary Surface). Part 77 surface elevation would be about 91 feet and 51 feet, respectively, above the runway elevation, limiting the height of both structures. Another consideration was the jet blast on the parking garage as well as surface parking for aircraft turning from Taxiway F onto Runway 27.

Ultimately, this alternative was deemed to have too many restrictions and exorbitant, unnecessary costs associated with it. Therefore, this alternative was **not** carried forward.

Alternative 11: Design Criteria

- EMAS installed on Runway 9 end
- Runway width of 150-foot, RSA width of 500-foot, ROFA width of 800 feet
- Designed for ADG V
- Taxiway F width of 75 feet, Taxiway Safety Area (TSA) width of 214 feet, Taxiway Object Free Area (TOFA) width of 285 feet
- Full parallel taxiway
- Runway-to-centerline distance of 400 feet
- Runway 9 approach – no lower than 0.75-mile visibility
- Runway 27 approach – no lower than 0.5 mile, Category I
- MALSR on Runway 27 – 2,400 foot long

Table 5-11
Runway 9-27: Alternative 11 Pros/Cons

Pros	Cons
✈ New, longer runway that will accommodate all existing and future stage-length destinations ✈ Would attract larger than ADG III aircraft ✈ Potentially accommodate Group IV fleet (e.g., B767, B757)	✈ To avoid overlapping RSAs, Runway 4-22 would be shortened to approximately 4,875 ft. ✈ The relocated Runway 22 threshold would require Taxiway G to be relocated about 65' to the southwest. ✈ Taxiway F could not be extended to the Runway 9 threshold without acquiring property. ✈ Taxiway F safety areas would impact the floodplain and floodway of South Elkhorn Creek, creek would have to be closed or relocated ✈ Difficulty involved with tunnel crossing under the runway and parallel taxiway ✈ Potential line-of-sight issues from existing ATCT and ATCT Candidate Site E

Source: CHA, 2024.

The declared distances for this alternative are listed in **Table 5-12**. Impacts to existing NAVAIDs during construction are shown in the following **Table 5-13**. Impacts are those occurring during the most disruptive construction phases.

Table 5-12
Alternative 11: Impacts to NAVAIDs

Navaid	Runway 9-27 Lengthening	Runway 4-22 Reconstruction
Rwy 4 GS	None	Relocate
Rwy 4 PAPI	None	Relocate
Rwy 4 RVR	None	Inoperative
Rwy 4 LOC	None [1]	Inoperative
Rwy 4 MALSR	None [1]	Inoperative
Rwy 22 GS	None [1]	Relocate
Rwy 22 PAPI	None [1]	Adjust
Rwy 22 REIL	None [1]	Relocate
Rwy 22 LOC	None	Inoperative
Rwy 9 PAPI	Relocate	None
Rwy 9 REIL	Relocate	None
Rwy 27 PAPI	Relocate	Relocate
Rwy 27 REIL	Relocate	Relocate
DASR-11	None	TBD
Wind Cone	Relocate [3]	Relocate [2]

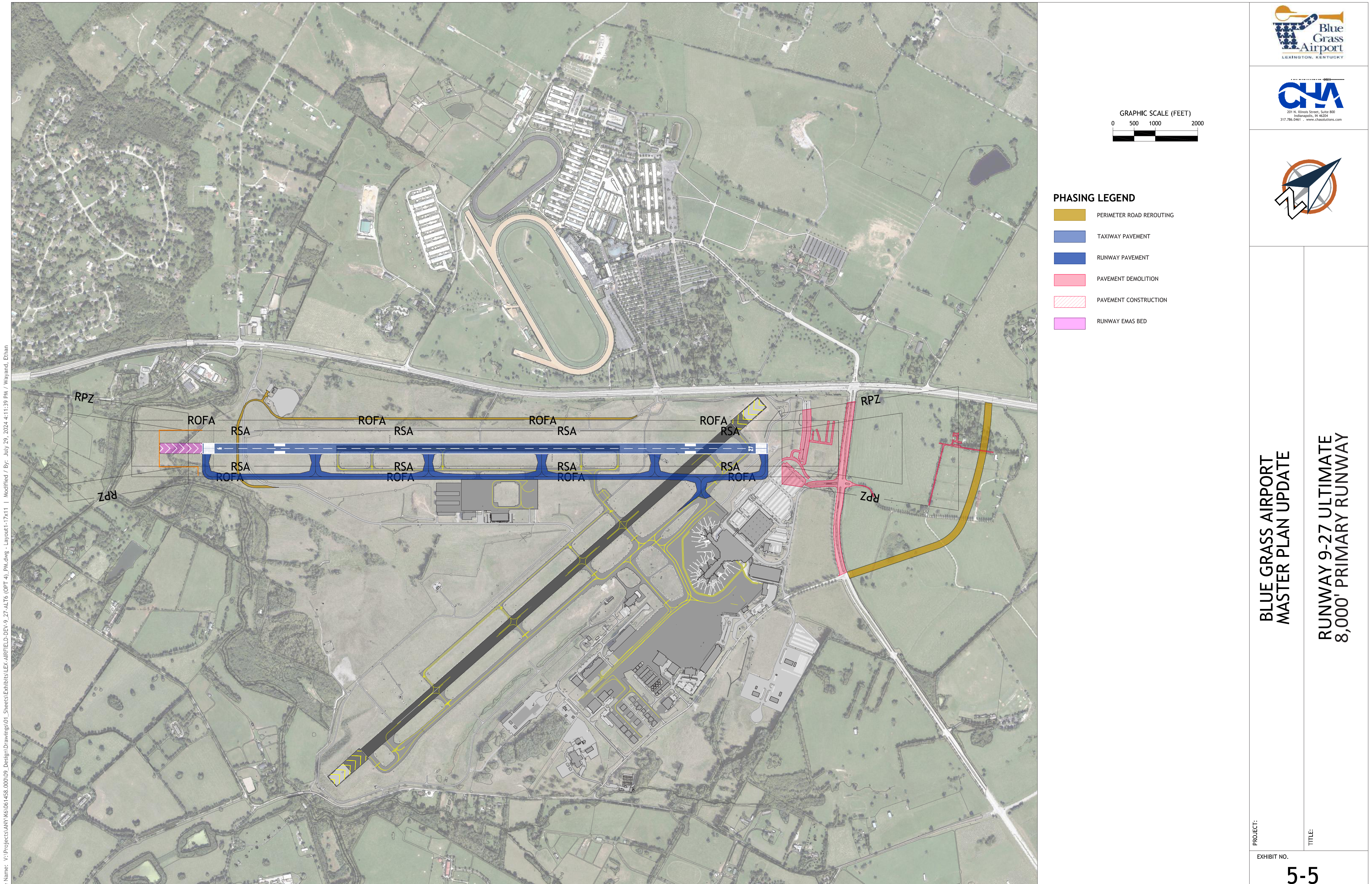
[1] Inoperative during construction inside the critical area
[2] Wind cone near Runway 22 PAPI
[3] Wind cone near Taxiway F6
Source: CHA, 2024.

Table 5-13
Alternative 11: Declared Distances

Declared Distance	Runway 9	Runway 27
TORA	8,000′	7,195′
TODA	8,000′	7,195′
ASDA	8,000′	8,000′
LDA	6,580′	8,000′

Source: CHA, 2024.

Figure 5-5
Alternative 11: Ultimate Primary Runway 9-27


RPZ
ROFA
RSA
GRAPHIC SCALE (FEET)
0
500
1000
2000
PHASING LEGEND
PERIMETER ROAD REROUTING
TAXIWAY PAVEMENT
RUNWAY PAVEMENT
PAVEMENT DEMOLITION
PAVEMENT CONSTRUCTION
RUNWAY EMAS BED
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TITLE:
RUNWAY 9-27 ULTIMATE
8,000' PRIMARY RUNWAY
EXHIBIT NO.
5-5

5.4 General Aviation and Apron Alternatives

GA activity at LEX represents approximately 60,000 total annual airport operations and includes various types of private, corporate, and business aircraft flights that occur at the Airport's East and WestLEX GA Aprons. GA services and facilities are accommodated by the airport's fixed-base operator (FBO), Signature Flight Support, currently operating on the East GA Apron, and the WestLEX General Aviation Services operation on the west side.

Chapter 4 concluded that the Airport has a high demand for GA hangar space at the Airport that exceeds the current capacity. It was estimated that the airfield would need, at a minimum, approximately 74,000 SF of additional hangar space by Planning Activity Level (PAL) 4. Another conclusion identified additional apron space for itinerant aircraft parking at the Airport. Additional demand for corporate or business aviation coming to LEX could exceed the anticipated demand levels. Recently, the Airport went under contract to construct a large 50,000 SF hangar to accommodate Gulfstream G700 and Global Express 7500/8000 platforms.

Itinerant aprons are typically utilized for transient aircraft, only visiting or remaining at the airport for a short period of time. Itinerant operations accounted for approximately 77.8 percent of total GA operations at LEX in the Base Year. Many of these operations utilize parking aprons, tiedown areas, and corporate hangar space on both the East and West GA areas. **Chapter 4** recommended the Airport provide up to an additional 40,450 SY of apron space for itinerant aircraft parking.

In addition to increased hangar and apron demand, the current East GA FBO's terminal is in a less-than-ideal corner and restricts the development of the east side with the location. As such, the east side alternatives explore relocation and building a new eastside FBO with improved aircraft operations on the ramp.

The following discusses the existing GA infrastructure and potential concepts to accommodate forecasted demand. It is important to note that these figures are based on the airfield at its current state and work independently of other alternatives. Combinations of these GA alternatives can and may be used in tandem with one another.

5.4.1 East General Aviation Apron

On the East GA Apron, three GA alternatives were developed to provide additional hangar and itinerant apron space. These alternatives focused on 'reimagining' the East GA area to accommodate turbine aircraft, shifting away from smaller recreational piston aircraft, which are consolidated on the WestLEX GA Apron near Runway 9-27 in the following alternatives. Many of the hangars on the east side are beyond their useful life. As such, these alternatives focused on keeping the East GA Apron, its hangars, and its itinerant apron space reserved for larger aerospace industry operations (e.g., FBO, Maintenance, Repair and Overhaul [MRO], and corporate business users). All the removed hangars are replaced with additional larger hangars that are more capable of storing larger GA aircraft.

Alternative 1

Illustrated in **Figure 5-6**, East GA Alternative 1 depicts an option to accommodate forecasted apron and hangar demand throughout the planning period**.** This alternative utilizes a modified "flight line" to create approximately 25,000 square yards of additional itinerant apron space on the East GA Apron. This additional apron space is achieved by removing older hangars, creating the flight line and adding apron pavement where the Aviation Museum of Kentucky's parking area is currently located. This alternative also removes approximately 145,000 square feet of hangars but adds more than 245,000 square feet of new larger hangars to accommodate larger corporate GA aircraft. **Table 5-14** depicts all of the hangars removed and added as part of this alternative. This alternative also relocates the FBO to the middle of the flight line and adds an aircraft canopy in front of the new FBO building.

Source: CHA, 2024.

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Figure 5-6
General Aviation Alternative 1

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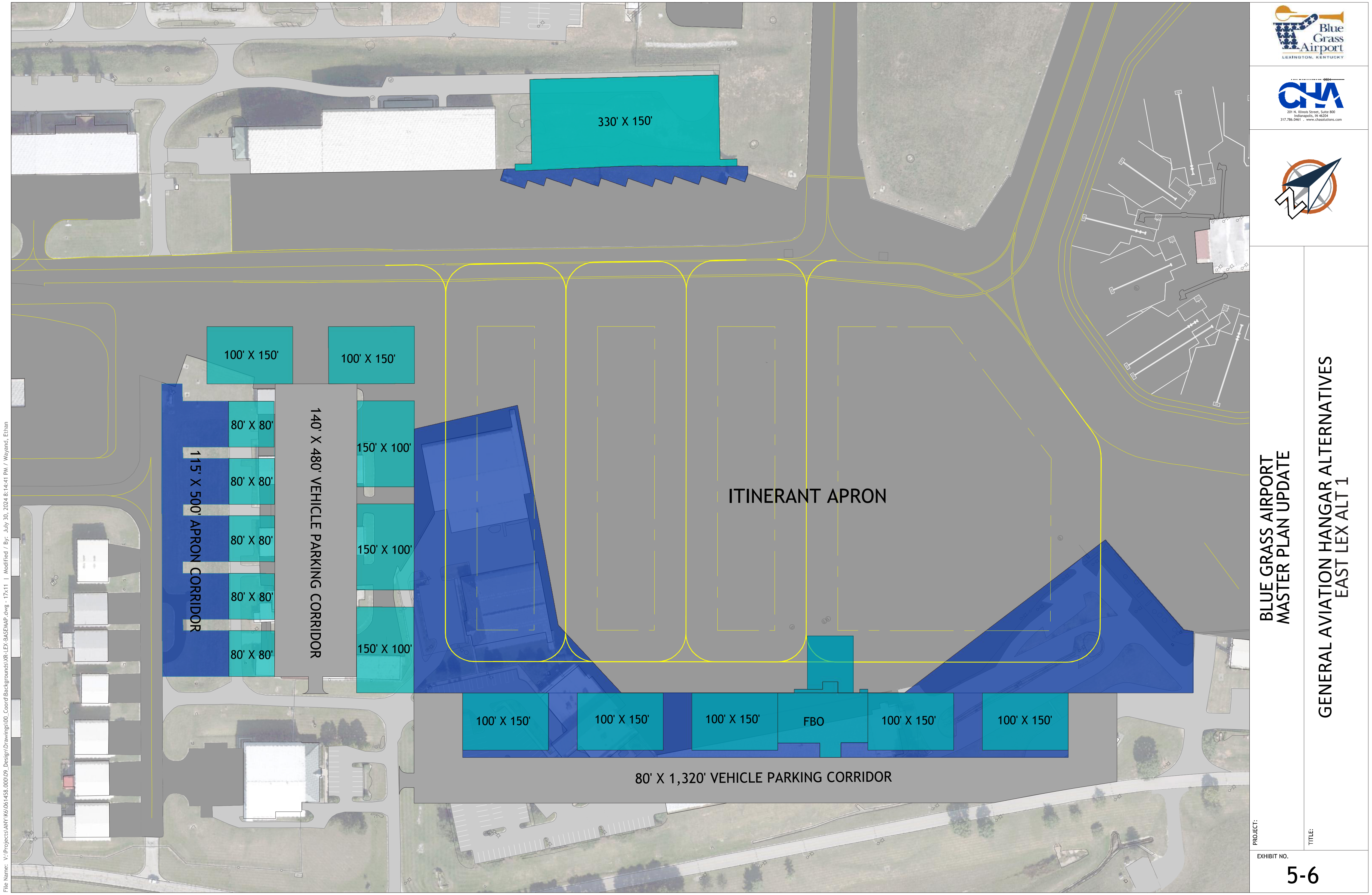
330' X 150'
100' X 150'
100' X 150'
80' X 80'
80' X 80'
80' X 80'
80' X 80'
80' X 80'
115' X 500' APRON CORRIDOR
140' X 480' VEHICLE PARKING CORRIDOR
150' X 100'
150' X 100'
150' X 100'
ITINERANT APRON
100' X 150'
100' X 150'
100' X 150'
FBO
100' X 150'
100' X 150'
80' X 1,320' VEHICLE PARKING CORRIDOR
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TITLE:
GENERAL AVIATION HANGAR ALTERNATIVES
EAST LEX ALT 1
EXHIBIT NO.
5-6

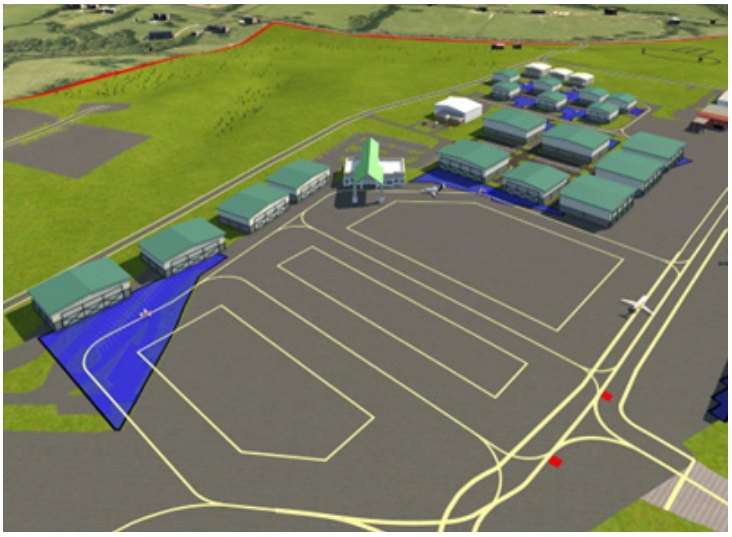
Table 5-14
East General Aviation Hangars: Alternative 1

Removed Hangars	Square Feet	Added Hangars	Square Feet
Aviation Museum	42,000	150 x 100 (10 Units)	150,000
Thoroughbred Hangar	16,000		
Signature/Thoroughbred	44,000	80 x 80 (5 units)	32,000
4345 Hangar Drive (3 Units)	6,550		
4337 Hangar Drive (8 T-hangars)	9,150	330 x 150	49,500
4325 Hangar Drive (8 T-hangars)	9,150		
4317 Hangar Drive (5 T-hangars)	9,550	130 x 120	15,600
4311 Hangar Drive (5 Units)	10,000		
Total Removed	**146,400**	**Total Added**	**247,100**

Source: CHA, 2024.

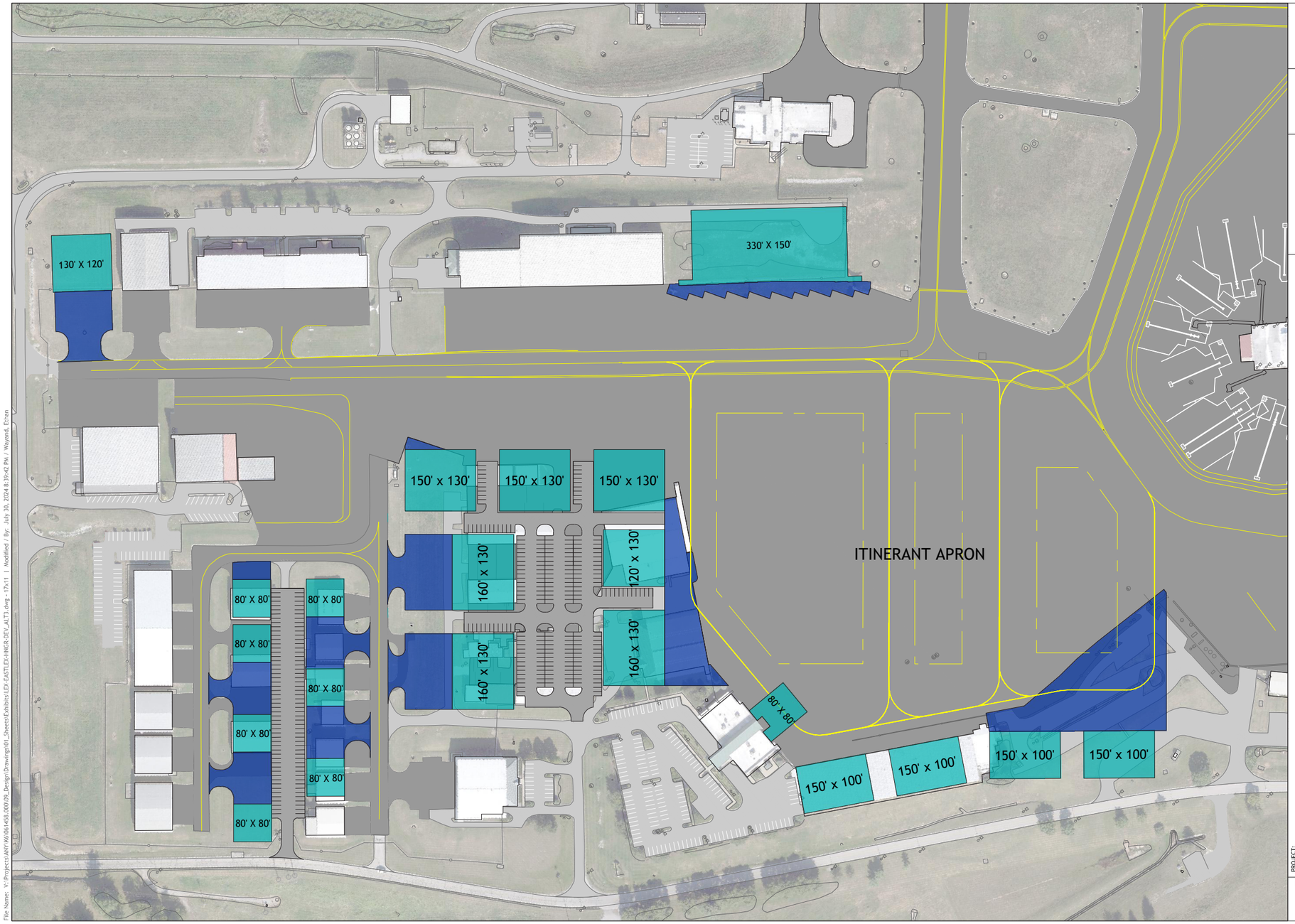
Alternative 2

Illustrated in **Figure 5-7**, East GA Alternative 2 incorporates a more conservative approach than the first alternative. That is, this alternative does not disrupt the existing flight line as much as the first alternative but includes the addition of less apron pavement. Additionally, this alternative does not relocate the FBO but accommodates the forecasted apron and hangar demand outlined in the facility requirements chapter. This alternative alters the 10 smaller hangars on the west side of the East GA Apron by removing and relocating some of the hangars, including 80-foot by 80-foot hangars with proportional apron space shared by two of the hangars. **Table 5-15** depicts all hangars removed and added as part of this alternative. This alternative removed approximately 189,000 square feet of hangars but replaced the removed hangars with over 306,000 square feet of new hangars. While the FBO is not relocated as part of this alternative, an 80-foot by 80-foot canopy is added to the current FBO building with the ability to keep aircraft out of the elements while not taking up any of the provided hangar space.



Source: CHA, 2024.

Figure 5-7
General Aviation Alternative 2



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EAST LEX ALT 2

EXHIBIT NO.
5-7

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Table 5-15
East General Aviation Hangars: Alternative 2

Removed Hangars	Square Feet	Added Hangars	Square Feet
Aviation Museum	42,000	150 x 100 (4 Units)	60,000
Thoroughbred Hangar	16,000		
Signature/Thoroughbred	44,000		
4345 Hangar Drive (3 Units)	6,550	150 x 130 (3 Units)	58,500
4337 Hangar Drive (8 T-hangars)	9,150		
4325 Hangar Drive (8 T-hangars)	9,150		
4317 Hangar Drive (5 T-hangars)	9,550	160 x 130 (3 Units)	62,400
4311 Hangar Drive (5 Units)	10,000		
4201 Airport Road	3,500		
4203 Airport Road	3,500	80 x 80 (7 Units)	44,800
4205 Airport Road	3,850		
4209 Airport Road	2,500		
4217 Airport Road	3,600	330 x 150	49,500
4225 Airport Road	4,050		
4233 Airport Road	4,300		
4245 Airport Road	5,600	130 x 120 (2 Units)	31,200
4249 Airport Road	5,600		
4253 Airport Road	5,600		
Total Removed	**188,500**	**Total Added**	**306,400**

Source: CHA, 2024.

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5.4.2. West General Aviation Apron (WestLEX)

While the previous alternatives involving the East GA Apron focused on reserving the area for corporate and GA operations by large aircraft, the WestLEX GA Apron will be reserved for recreational and other GA tenants that operate smaller aircraft at the Airport. Currently, the Airport plans to relocate the Aviation Museum of Kentucky to this side of the airfield, as well as build an 80-foot x 240-foot community hangar. These alternatives specifically focus on adding additional apron and hangar space while also introducing customer/operator parking on both sides of the current WestLEX GA Apron. A primary goal of these alternatives is to provide smaller and recreational GA tenants easy access to new hangars near Runway 9-27. Each alternative includes filling in the current apron area with pavement, including the 2.7-acre area in the middle of the WestLEX GA Apron that currently does not have pavement. Filling in this area will improve aircraft taxi throughout the apron and may provide additional itinerant apron space for aircraft to park upon. Also, none of the alternatives remove or relocate the current WestLEX hangars as the depicted are additions. Note that these alternatives involve both the east and west sides of the WestLEX GA apron and are not intended to be implemented exclusively from each other.

<u>Alternative 1</u>

Alternative 1, illustrated in **Figure 5-8**, is located on the east side of the current WestLEX GA Apron and provides the airfield with approximately 53,000 square feet of additional hangar space, approximately 35,000 square yards of apron space and 19 aircraft tie-down spots. Apart from the already planned Aviation Museum of Kentucky and large community hangar, this alternative provides two 30-foot by 80-foot buildings capable of accommodating office or classroom space with an attached 80-foot by 80-foot hangar with access to the expanded apron. The apron contains 19 aircraft tie-downs and two large 55-foot by 200-foot T-hangars with a capacity for approximately 10 smaller GA aircraft. This alternative also provides approximately 100 parking spaces to provide access for GA tenants, Aviation Museum of Kentucky visitors, the large community hangar, and additional hangars.

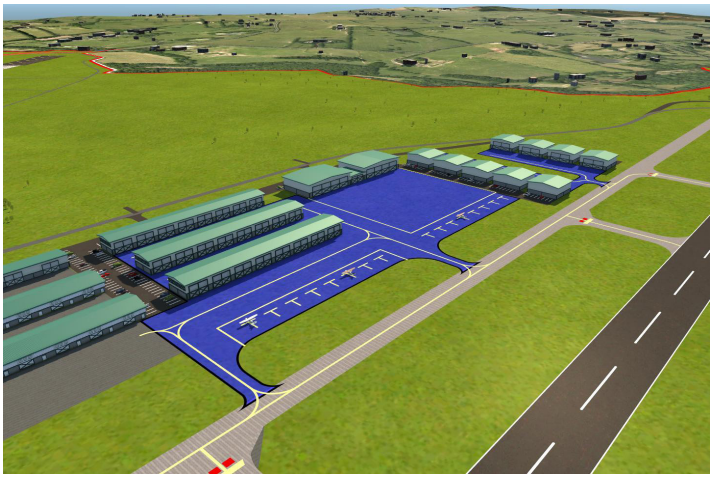
Source: CHA, 2024.

Alternative 2

While similar to Alternative 1, Alternative 2, illustrated in **Figure 5-9**, alters the expansion of the runway to the east of the WestLEX GA Apron, allowing for the construction of the apron on flatter ground and less required grading. As such, this alternative is considered a more cost-effective option than Alternative 1 due to less earthwork to achieve the expanded apron. While having a smaller expanded apron (approximately 11,700 square yards in Alternative 2 as compared to 22,400 square yards in Alternative 1), both alternatives achieve similar goals and depict the same hangar space capacity. Note that this alternative, however, does not provide dedicated aircraft tie-down positions. This alternative also provides approximately 65 vehicle parking stalls for GA tenants, Aviation Museum of Kentucky visitors, the large community hangar, and additional hangars.

Alternative 3

Unlike Alternatives 1 and 2, Alternative 3 depicts expansion within the area west of the WestLEX GA Apron. In **Figure 5-10**, this alternative provides the WestLEX area with additional apron, hangar, and tenant vehicle parking spaces compared to the previous alternatives. Expanding to the west of the current WestLEX infrastructure also provides the additional hangars and aircraft tie-downs with direct access to Taxiway F. This alternative includes approximately 48,529 square yards of apron space with 16 designated aircraft tie-downs, approximately 13,272 square yards of itinerant apron space, and specified Taxiway Design Group (TDG) 2B taxiways for aircraft. This alternative provides a total of 152,775 square feet of aircraft storage hangar space, including approximately 42,350 square feet of T-hangar space, as well as approximately 196 vehicle parking spaces.



Source: CHA, 2024.

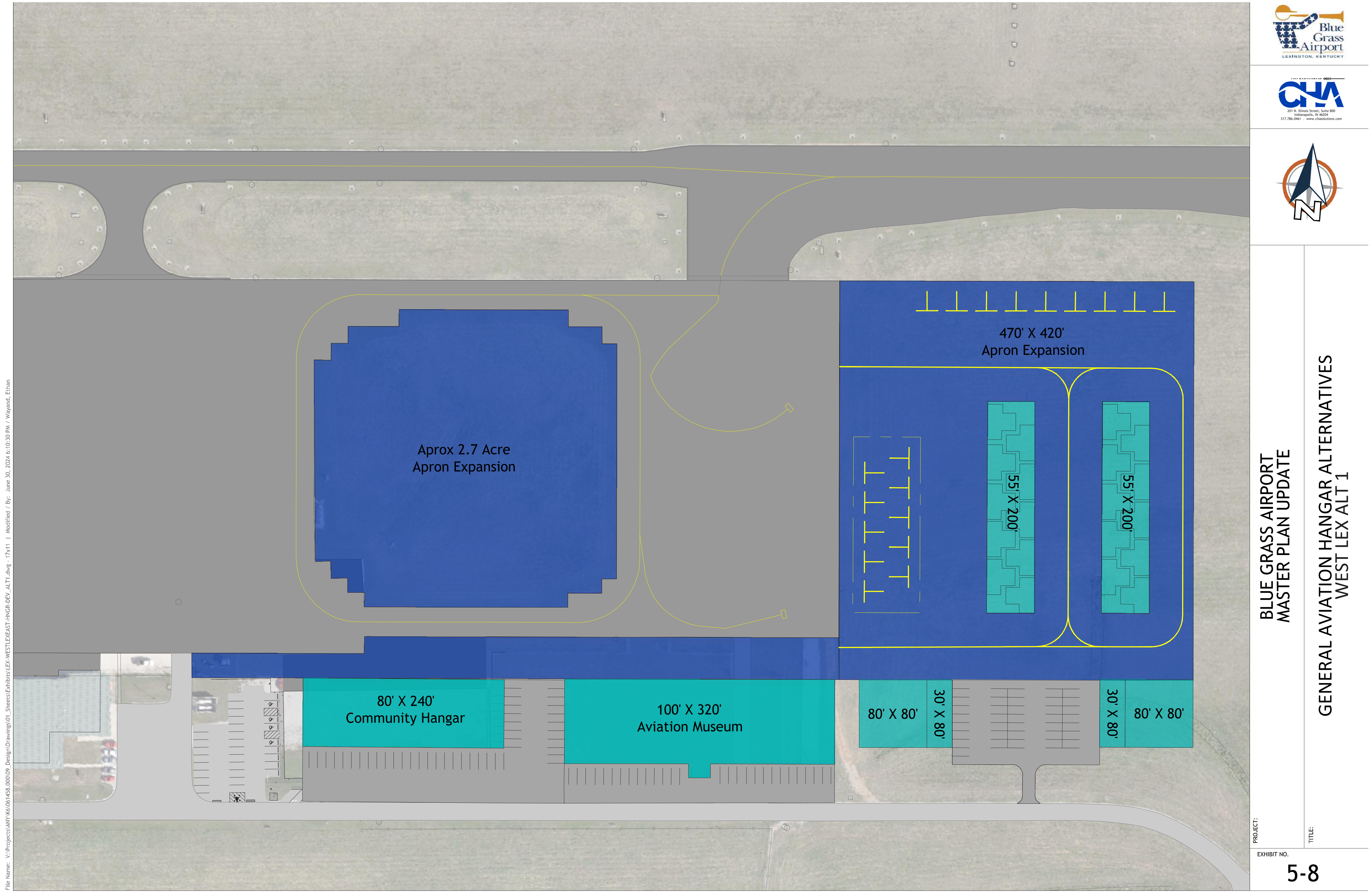
Alternative 4

While similar and within the same land area as Alternative 3, Alternative 4, illustrated in **Figure 5-11**, depicts a layout to provide the WestLEX GA area with additional hangar and tenant parking space. This alternative also provides direct extensions to the current WestLEX hangars, extending them an additional 240 feet to the west, providing T-hangar capacity for approximately 16 small aircraft. In total, Alternative 4 provides approximately 48,740 square yards of apron space, including eight designated aircraft tie-down positions. This alternative also identifies two locations for independent office/FBO buildings, approximately 4,200 square feet and 5,000 square feet, respectively. Alternative 4 provides the west side of the airfield with approximately 180,000 SF of additional aircraft storage hangar space, including approximately 64,350 square feet of T-hangar space.

Alternative 5

Alternative 5, illustrated in **Figure 5-12**, modifies the Alternative 4 hangar layout to provide the WestLEX GA area additional T-hangar space rather than box hangars. This alternative also provides the same direct extensions to the current WestLEX hangars introduced in Alternative 4. The slightly modified apron provides this area with approximately 54,717 square yards of apron space, the most of any of the WestLEX GA alternatives, with the same eight designated aircraft tie-down positions as the previous alternatives. This alternative also identifies the same designated new office/FBO buildings introduced in Alternative 4. Alternative 5 provides the west side of the airfield with approximately 170,475 square feet of additional aircraft storage hangar space, including 99,450 square feet of T-hangar space.

Figure 5-8
General Aviation Alternative 1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Apron Expansion
470' X 420'
Apron Expansion
55' X 200'
55' X 200'
80' X 240'
Community Hangar
100' X 320'
Aviation Museum
80' X 80'
30' X 80'
30' X 80'
80' X 80'
BLUE GRASS AIRPORT
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GENERAL AVIATION HANGAR ALTERNATIVES
WEST LEX ALT 1
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TITLE:
EXHIBIT NO.
5-8

Figure 5-9
General Aviation Alternative 2

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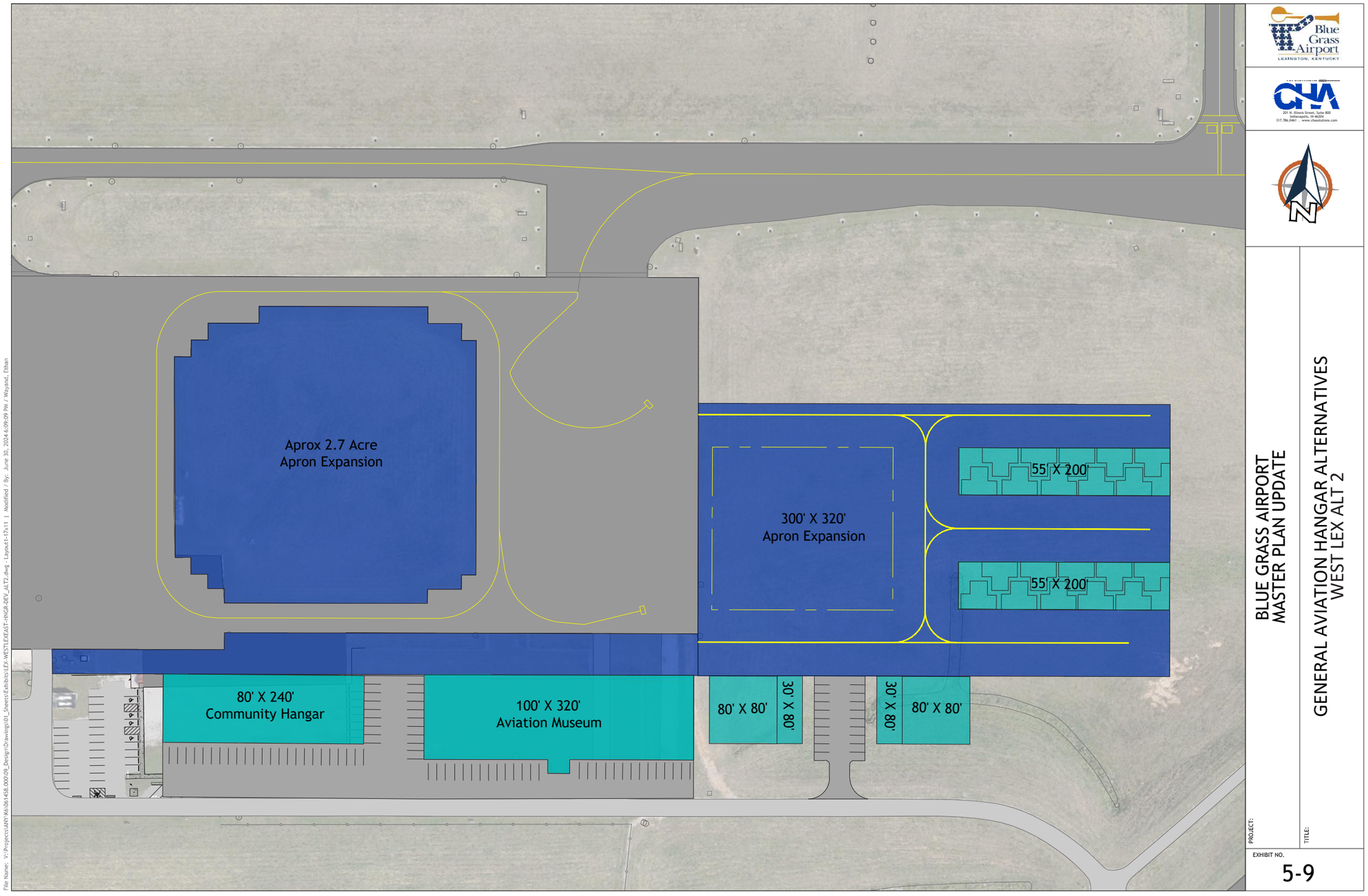
Aprox 2.7 Acre
Apron Expansion
300' X 320'
Apron Expansion
55' X 200'
55' X 200'
80' X 240'
Community Hangar
100' X 320'
Aviation Museum
80' X 80'
30' X 80'
30' X 80'
80' X 80'
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5-9

Figure 5-10
General Aviation Alternative 3

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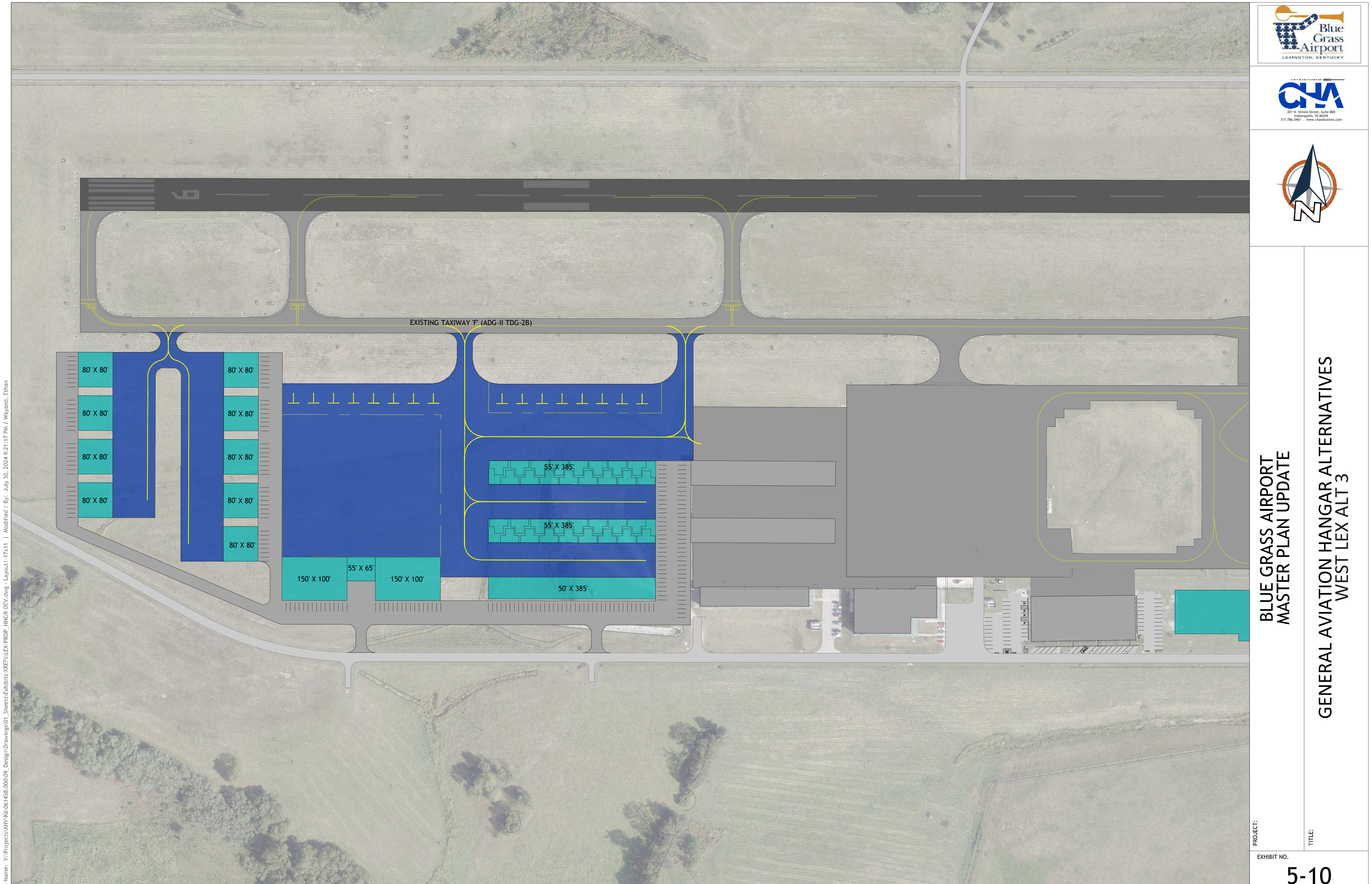
EXISTING TAXIWAY 'F' (ADG-II TDG-2B)
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55' X 385'
150' X 100'
55' X 65'
150' X 100'
50' X 385'
PROJECT:
BLUE GRASS AIRPORT
MASTER PLAN UPDATE
TITLE:
GENERAL AVIATION HANGAR ALTERNATIVES
WEST LEX ALT 3
EXHIBIT NO.
5-10

Figure 5-11
General Aviation Alternative 4

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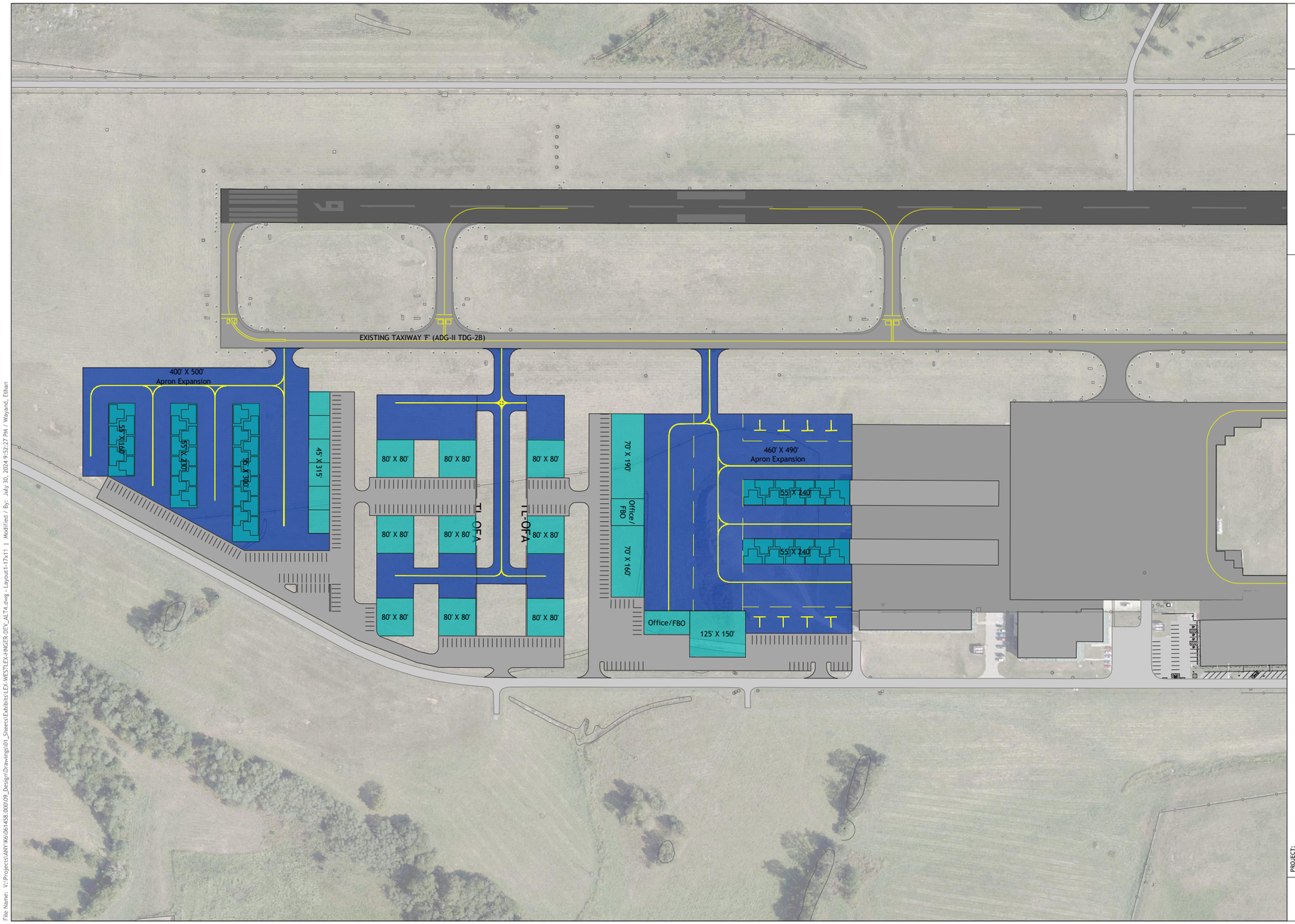

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5-11

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Figure 5-12
General Aviation Alternative 5

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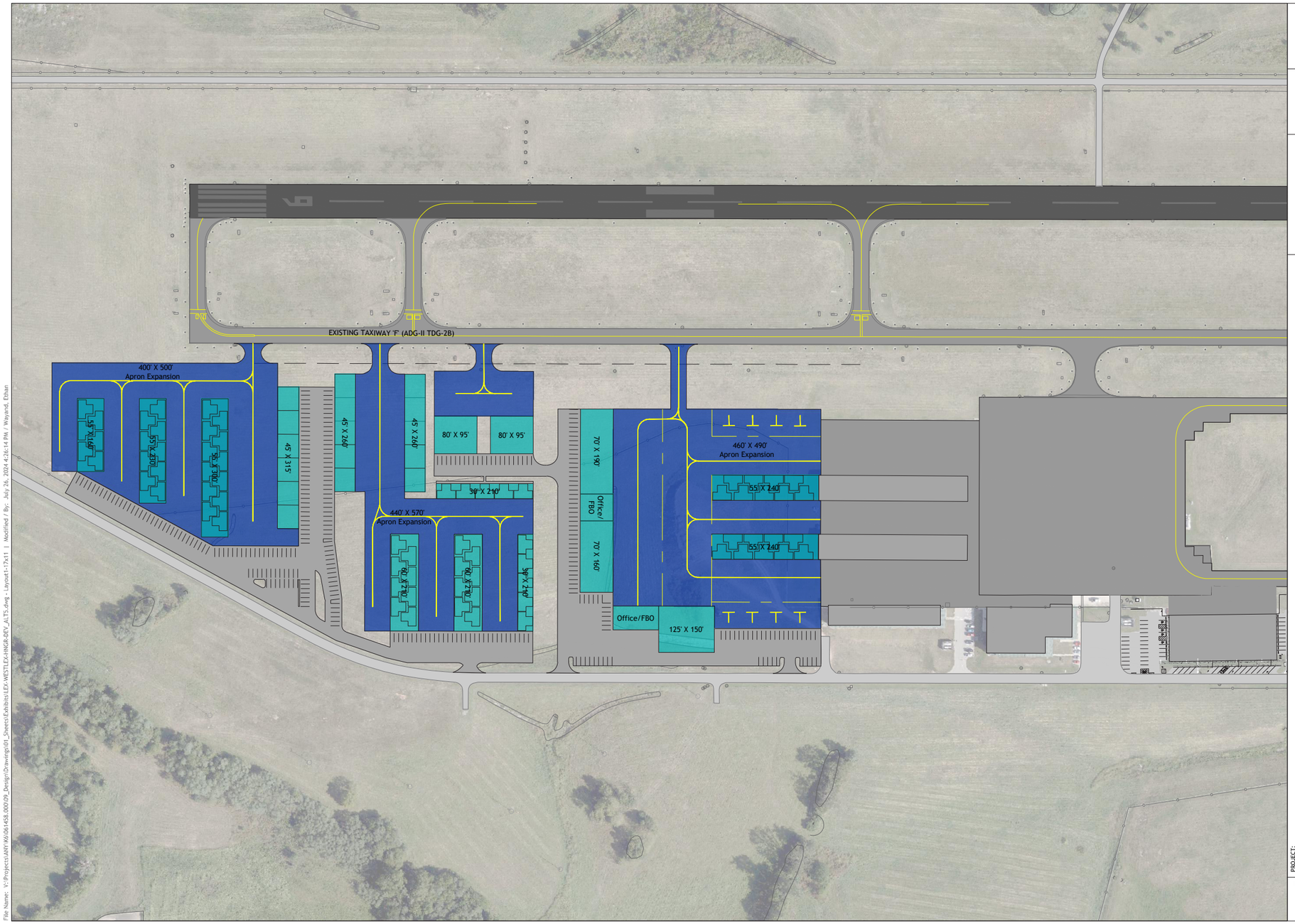

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MASTER PLAN UPDATE

GENERAL AVIATION HANGAR ALTERNATIVES
WEST LEX ALT 5

PROJECT:

TITLE:

EXHIBIT NO.
5-12

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5.5 Passenger Terminal Alternatives

At the outset of the Terminal Area Building Analysis for the Master Plan, the Airport's goals and objectives regarding terminal building development were as follows:

- Improve passenger experience by making improvements to provide recommended Level of Service (LOS) and utilizing current Industry Standards
- Plan and design for future flexibility in all terminal processors beyond PAL 4 demand if possible
- Accommodate larger fleet mix aircraft – 14 ADG III aircraft – 118' wingspan with 186 seats; essentially the A321-200
- Provide a long-term plan to promote sustainable growth at the Airport

5.5.1. Process and Strategy

The process to arrive at a preferred terminal alternative consisted of four steps or phases. Each step was additive, in that the concepts were further developed based upon feedback from airport management.

In this section, the process of selecting the preferred terminal layout and gating configuration is described. The terminal layout was developed utilizing the PAL 4 demand and associated program requirements. The process to develop the preferred concept was as follows:

- Develop high-level concepts – Develop multiple initial concepts and review them with the Airport
- Refine four high-level options – Reduce concepts to four based on Airport comments; review with the Airport and develop a pros/cons list for each
- Develop three alternatives from selected high-level option – Airport selected one option; the consulting team developed a site plan and three alternatives for the terminal landside operations
- Refine selected option into color block plans – Airport selected one alternative to complete the Airport Layout Plan (ALP) and Master Plan; once the Master Plan is completed, future terminal area planning will be conducted to investigate two-level and single-level roadway configurations and how the terminal landside operations relate

Due to the proximity to the runway, the 35-foot Building Restriction Line (BRL) restricts the expansion of the terminal building towards the west. As such, the concepts and alternatives reflect terminal growth primarily towards the east for the landside functions and to the south and east for the airside functions.

Due to the proximity to the runway, the 35-foot Building Restriction Line (BRL) restricts the expansion of the terminal building towards the west.

5.5.2. Step One: Develop High-Level Concepts

A strategy using three categories for concepts was utilized to organize and develop the multiple initial terminal concepts.

- Renovate in place – Concepts in this category kept as much of the existing infrastructure as possible on both the landside and airside.
- Two-level landside operation – Concepts in this category explored the move from a single-level landside operation to a two-level landside operation and could be applied to either of the other two categories.
- Build new – Concepts in this category focused on complete rebuilds of the land and airside areas.

In total, 90 options were considered: 54 *Renovate in Place* concepts and 36 *Build New* concepts were generated.

Renovate Terminal in Place Concepts

The concepts in this category were separated by landside and airside options. Any of the three landside options could be combined with any of the three airside options. Further, any of the three landside options could have up to six different roadway configurations, as shown in **Figure 5-13**. This resulted in 54 configurations. As the name suggests, the idea behind these concepts was to renovate the existing terminal structure and expand it to provide capacity for increased demand.

Two-Level Terminal Landside Operation Concepts

The concepts in this category focus on the landside operation of the terminal. Currently, the roadway system is single-level with two divided curbs: one inner and one outer. These concepts examine different ways the departures curbside drop-off and arrivals pick-up curbs can be configured. This, in turn, would influence the terminal building functions and where processors would occur inside the building. Each concept focuses on a stacked roadway with departure and arrival vehicular circulation separated vertically in three different configurations. In each, arrivals are on the lower level, with departures on the upper level. Alternatives include a covered pedestrian bridge from the garage to the terminal. **Figure 5-14** depicts the six different alternatives of this concept.

Build New Terminal Concepts

The concepts in this category look at a phased replacement of the entire terminal. All but one option shows dual pier concourses with a single ADG III taxilane between. Four of the six options (C-3, C-4, C-5, and C-6) look at rotating the terminal 90 degrees to allow for better aircraft circulation between all gates and the runway. These four options also provide for expansion beyond the planning period. Additionally, any of the six options could have up to six different roadway configurations, as shown in **Figure 5-15**. This resulted in 36 possible configurations.

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Figure 5-13
Renovate Terminal in Place

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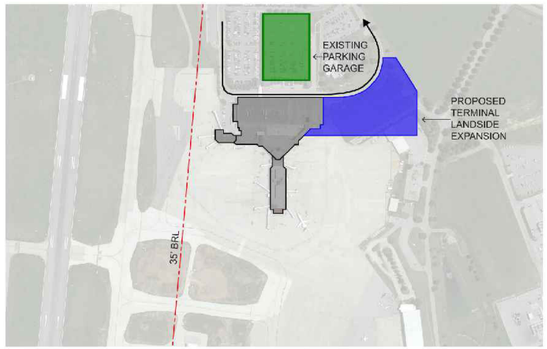
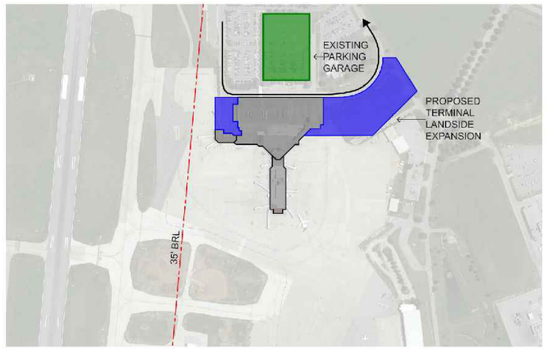
LANDSIDE

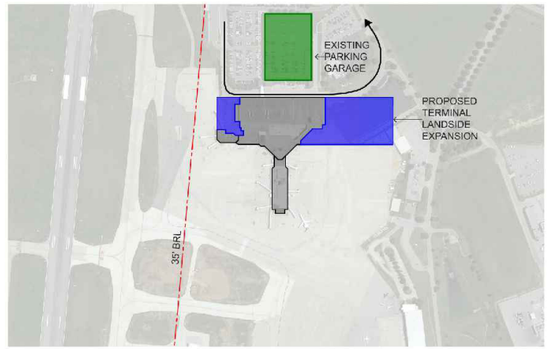
A-LS-1



A-LS-2

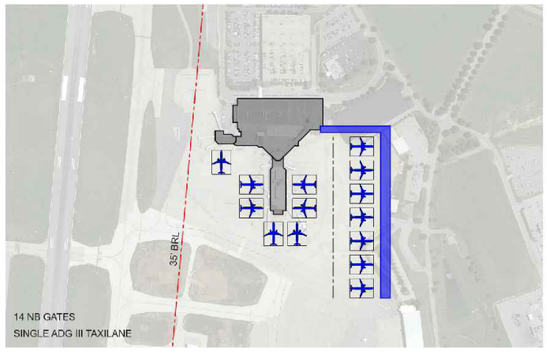


A-LS-3

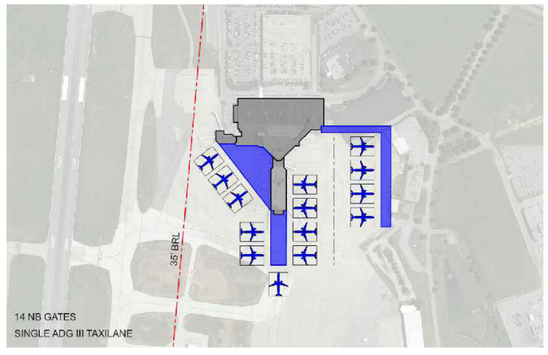


AIRSIDE

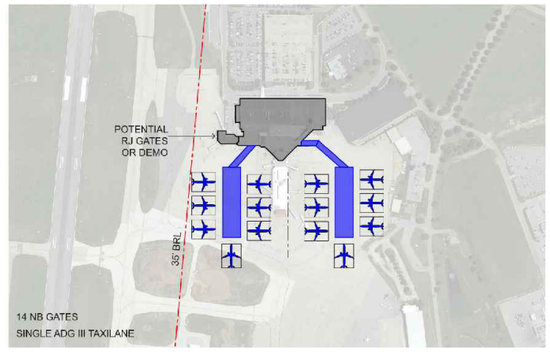
A-AS-1



A-AS-2



A-AS-3



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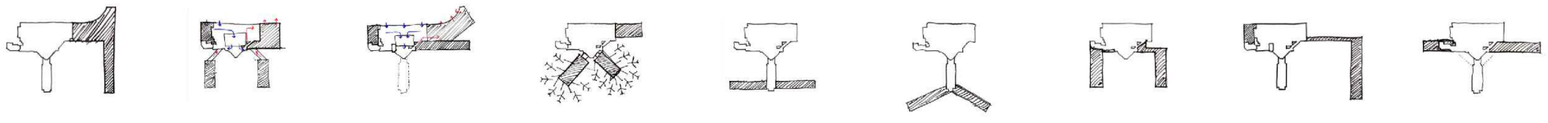

BLUE GRASS AIRPORT
MASTER PLAN UPDATE

PROJECT:

RENOVATE TERMINAL IN PLACE

TITLE:

EXHIBIT NO.
5-13

File Name: V:\Projects\AMY\K60\61458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-13 Renovate Terminal In Place.dwg - 17x11 | Modified / By: July 12, 2024 1:32:19 PM / French, Adam

Figure 5-14
Two-Level Terminal Landside Operation

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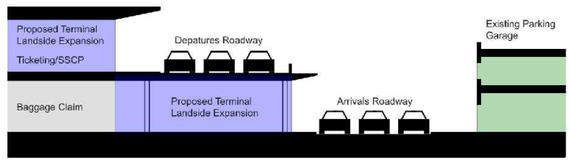
STACKED ROADWAY

B-1



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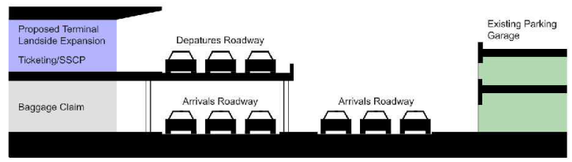
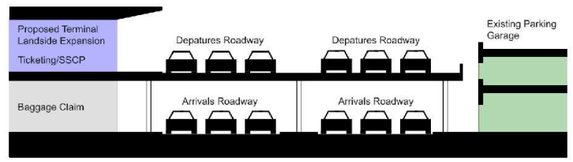
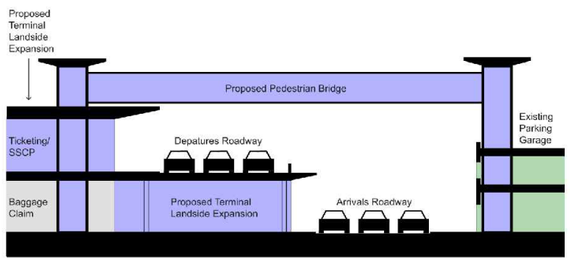


B-3

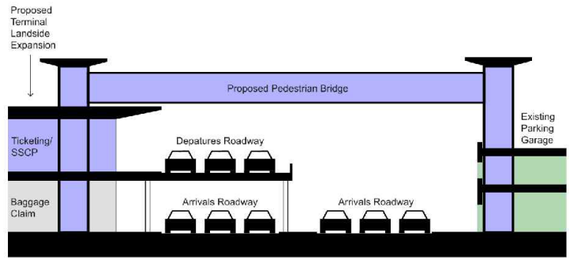


STACKED ROADWAY WITH CONNECTOR BRIDGE

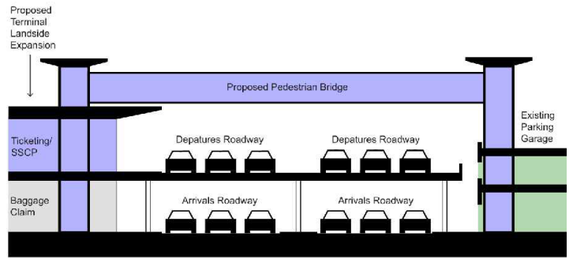
B-4



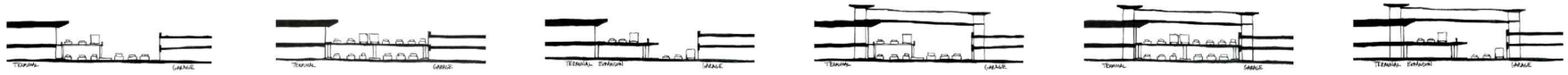
B-5



B-6



PROCESS



Blue Grass Airport
LEXINGTON, KENTUCKY

Gresham Smith

North Arrow Not Applicable

PROJECT:
BLUE GRASS AIRPORT
MASTER PLAN UPDATE

TITLE:
TWO LEVEL TERMINAL LANDSIDE OPERATION

EXHIBIT NO.
5-14

File Name: - V:\Projects\ANY\KG\061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-14 Two Level Terminal Landside Operation.dwg - 17x11 | Modified / By: - July 12, 2024 1:22:54 PM / French, Adam

Figure 5-15
Build New Terminal

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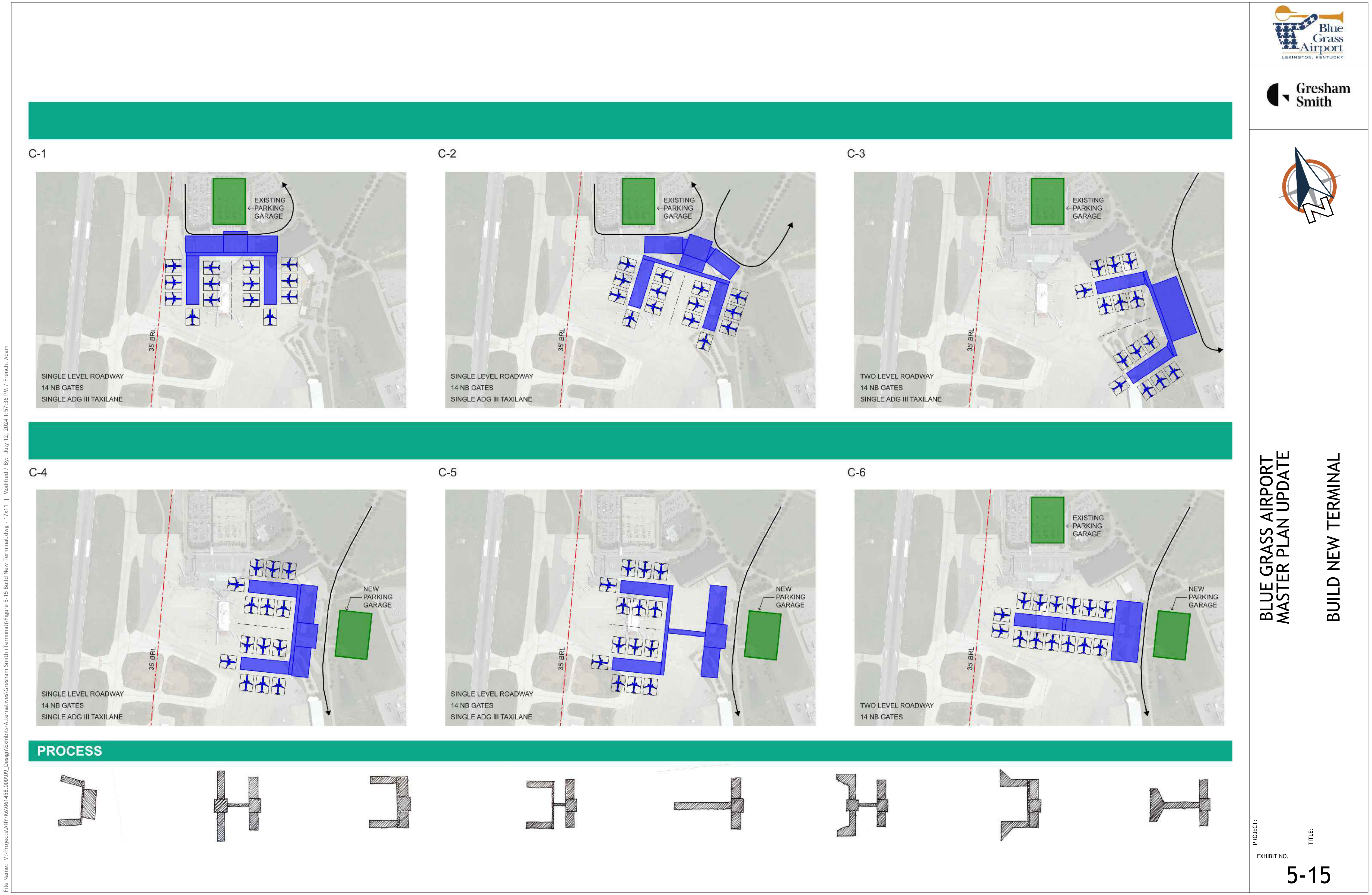

C-1
EXISTING PARKING GARAGE
35' BRL
SINGLE LEVEL ROADWAY
14 NB GATES
SINGLE ADG III TAXILANE
C-2
EXISTING PARKING GARAGE
35' BRL
SINGLE LEVEL ROADWAY
14 NB GATES
SINGLE ADG III TAXILANE
C-3
EXISTING PARKING GARAGE
35' BRL
TWO LEVEL ROADWAY
14 NB GATES
SINGLE ADG III TAXILANE
C-4
NEW PARKING GARAGE
35' BRL
SINGLE LEVEL ROADWAY
14 NB GATES
SINGLE ADG III TAXILANE
C-5
NEW PARKING GARAGE
35' BRL
SINGLE LEVEL ROADWAY
14 NB GATES
SINGLE ADG III TAXILANE
C-6
EXISTING PARKING GARAGE
NEW PARKING GARAGE
35' BRL
TWO LEVEL ROADWAY
14 NB GATES
PROCESS
Blue Grass Airport
Lexington, Kentucky
Gresham Smith
PROJECT:
BLUE GRASS AIRPORT MASTER PLAN UPDATE
TITLE:
BUILD NEW TERMINAL
EXHIBIT NO.
5-15

5.5.3 Step Two: Refine Four High-Level Options

From the possible 90 different configurations, the Airport selected four concepts to refine. To examine each alternative, a list of pros and cons was developed in addition to the original four goals. The Airport added the following goals:

- Provide for dual ADG Taxilanes between piers with single ADG Taxilanes on the outside
- Provide for international arrivals
- Keep and use as much of the existing infrastructure, where it makes sense, with regards to landside roads and the parking garage
- Keep roadways easy to navigate and maintain access points off Man O' War Boulevard
- Provide for Landside Dock that has separate road access from passengers
- Replace aging equipment and infrastructure

Terminal Option 1

Option 1 represents the *Renovate in Place* concept. With this option, the existing terminal is renovated and expanded. This option expands the landside operation primarily to the east but also includes a small expansion to the west for additional flexibility. The east expansion would provide for a new baggage claim, the potential for a Federal Inspection Services (FIS) facility, and a landside dock with a delivery screening area. The landside dock is envisioned to be at the far east, with vehicular traffic utilizing an ancillary roadway separated from passengers.

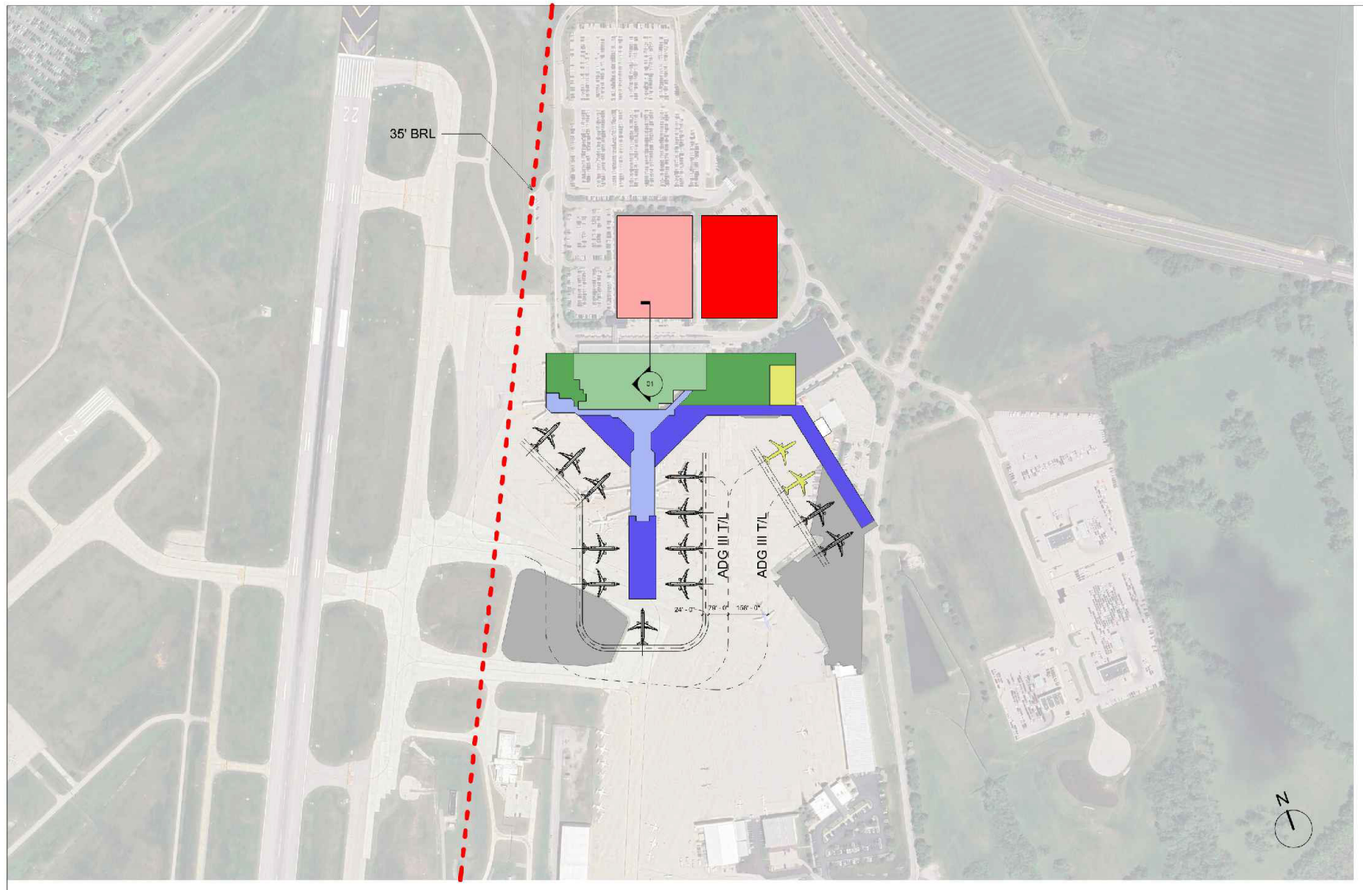
Source: CHA, 2024.

In the existing baggage claim, the Security Screening Checkpoint (SSCP) will be relocated. Concourse A would be renovated and then transformed primarily into a mix of ticket hall and outbound baggage operations and the associated support spaces.

While the roadways remain single level, the curbside is elongated to allow for additional length and to provide further separation between departures and arrivals curbside functions.

Concourse B would be expanded to add gates for a total of 10 ADG III gates and a large concessions node. A second single-loaded concourse would be added to the east of Concourse B and provide four ADG III gates. The two gates closest to the FIS would be designated as swing gates for both international and domestic arrivals. International arrivals would exit the aircraft, enter the concourse, and circulate up to a sterile corridor, then east to the FIS operation.

Figure 5-16
Terminal Option 1



Option 1: Renovate & Expand In Place

14 ADG III Gates

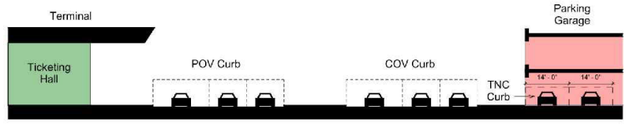
Building Area	S.F.
Level 01:	
Landside New	102,000
Landside Existing	105,000
Level 02:	
Landside Existing	25,000
Total Landside	**232,000**
Level 01:	
Airside New	130,000
Airside Existing	65,000
Level 02:	
Airside New	130,000
Airside Existing	65,000
Level 03:	
Airside Existing	4,000
Total Airside	**394,000**
Total Terminal	**626,000**
*Total Existing Terminal	264,000

Legend:

- Existing Landside
- New Landside
- Existing Airside
- New Airside
- Existing Garage
- New Garage
- FIS
- Loading Dock
- New Apron
- Domestic Gate
- Swing Gate
- BRL

Acronym Legend:

FIS = Federal Inspection Services
BRL = Building Restriction Line
COV = Commercially Operated Vehicles
POV = Privately Operated Vehicles
TNC = Transportation Network Companies (Uber/Lyft)
ADG = Airplane Design Group
T/L = Taxi Lane
SF = Square Footage



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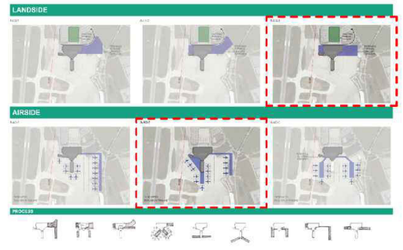

Blue Grass Airport
LEXINGTON, KENTUCKY

Gresham Smith

PROJECT: BLUE GRASS AIRPORT MASTER PLAN UPDATE

TITLE: TERMINAL OPTION 1

EXHIBIT NO. 5-16

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Table 5-16
Terminal Option 1: Pros/Cons

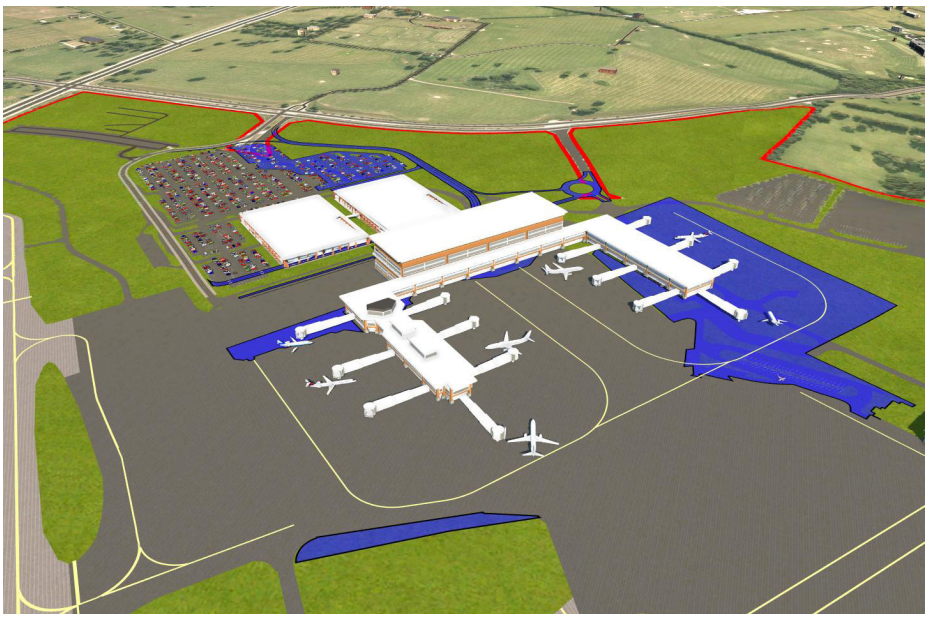
Terminal 1 Option			
Pros		**Cons**	
Airport's Comments			
1	Reuses Concourse A and Concourse B	1	New concourse single-loaded
2	Less ramp pavement expansion than other options	2	Highest terminal cost (without civil costs)
3	Does not require a second-level roadway	3	Lose two-way traffic gained through Taxiway C construction
4	Feasible construction phasing	4	Concourse B extension impacts current FBO ramp
5	Reuses existing parking garage	5	Concessions in new concourse may be difficult to locate/size properly
6	Reuses existing surface parking	6	Difficult to extend concourses in the future
Consulting Team's Comments			
1	Minimal impacts on current passenger parking	1	Will require relocation to portions of Airport Road
2	Least amount of additional apron ramp space	2	Impacts current glycol basin
3	Reuses more of the existing terminal infrastructure as practical	3	Reduces the amount of RON parking in the current area
4	Minimal impacts on GA alternative options	4	Current terminal activities are highly impacted while construction is occurring
5	By far the largest terminal of the five options	5	Requires relocation of current freight facility
6	Good use of available landside space	6	Requires relocation of current horse transport facility
7	Increases curb-front length and capacity	7	Impacts areas of the Eastside GA alternatives
8	Centralized concessions in the atrium	8	Limits hangar expansion
9	Easy implementation and phasing of eastern expansion	9	Impacts/limits itinerant apron space
10	Flexible implementation and phasing	10	Highest utility/upkeep costs for terminal considering largest terminal footprint
11	Focuses on utilizing most of the existing superstructure	11	Passenger flow issues between arrivals and departures
12	New single-loaded concourse has no gates on the east side, so no "less desirable" gates due to distance and access from the runway.	12	More complicated circulation to separate FIS passengers from international passengers
13	Could expand east concourse by building other half of single-loaded concourse	13	Limited amenities at the new four-gate concourse

Terminal 1 Option			
14	Maintains open air and sunshine feel on the roadway	14	Impacts operations of Terminal Apron
15	Concourse B can remain operational during construction	15	Requires temporary relocation of rental car ready return lot
		16	Temporary impacts on commercial service operations
		17	New concourse is single-loaded and less efficient from an operational perspective
		18	New landside dock is remote to most functions of the terminal
		19	ATCT must move to build a new garage
		20	Reuses existing superstructure with low floor-to-ceiling clearances
		21	Micro-phasing during construction due to existing facility operations
		22	Future concourse expansion impacts the south ramp area
		23	Greater ramp pavement extents

Source: CHA, Gresham Smith, 2024.

Terminal Option 2

Option 2 represents a mixture of *Renovate in Place* and *Build New* concepts. In this option, only Concourse B is renovated and expanded. The remaining areas are completely replaced and demolished. This option replaces the landside operation to the east. The landside operation would become a two-level facility with a new ticket hall and SSCP on Level 2 and a new baggage claim on Level 1. Additionally, there is the potential for a FIS facility and a landside dock with a delivery screening area. The landside dock is envisioned to be at the far east, with vehicular traffic utilizing an ancillary roadway separated from passengers.



Source: CHA, 2024.

The roadways become two levels, with the arrivals curbside at Level 1 and departures at Level 2. The existing curbsides would be expanded in this option.

Concourse B would be renovated and expanded to add gates for a total of seven ADG III gates. A second double-loaded concourse would be added to the east of Concourse B and provide seven ADG III gates. Between the two double-loaded concourses, a central concessions node with additional passenger amenities is possible. The two gates closest to the FIS would be designated as swing gates for both international and domestic arrivals. Access to the FIS by international arrivals could be completed through two different options. After deboarding the aircraft, the first access method would include entering the concourse, circulating up to a sterile corridor, and then to the FIS operation. The second access option includes entering the concourse, circulating down to a sterile corridor, and then west to the FIS operation. The second option would effectively separate the two concourses at Level 1 but reduce the amount of level changes required by passengers.

Table 5-17
Terminal Option 2: Pros/Cons

Terminal 2 Option			
Pros		**Cons**	
Airport's Comments			
1	Reuses Concourse B	1	Possibly encroaches into RAC service
2	Lowest terminal cost (without civil costs)	2	Second-story roadway required
3	Feasible construction phasing	3	Difficult to add future gates to the new concourse
4	Reuses existing garage and surface parking		
Consulting Team's Comments			
1	New concourses can be extended outward in the future to provide more gates	1	Requires relocation of Air Freight Drive
2	Doesn't impact the current parking infrastructure	2	Requires relocation of Airport Road
3	Provides ramp space to the current RON parking area west of the terminal	3	Requires relocation of current freight facility
4	Dual-level terminal allows for a smaller terminal footprint	4	Requires relocation of current horse transport facility
5	Easy to phase while keeping the current terminal operational	5	Impacts areas of the Eastside GA alternatives
6	Reuses Concourse B	6	Will require alterations to the current terminal loop
7	Limits impacts on commercial operations during construction	7	Will require alternations to the existing curb front
8	Has the least impact on the current terminal infrastructure	8	Impacts on current Glycol Basin
9	Double-loaded concourses provide the most efficient operations	9	Impacts distance from current passenger parking facilities

Terminal 2 Option			
10	New landside dock is closer to central terminal functions	10	Potentially changes current parking facility designations/locations
11	Flexible implementation and phasing	11	Potentially impacts land use development near Man O' War Blvd
12	Can keep Concourse B operational during construction	12	May require a new exit onto Man O' War Blvd
13	Central node for concessions, etc.	13	Baggage claim and arrivals roadway will be darker with upper-level roadway—no sunlight or blue sky—lower passenger experience from a qualitative standpoint
14	Equal walking distances to gates from the landside facility	14	Greater number of elevators and escalators to maintain—higher maintenance costs compared to single-level terminal
15	Comparatively reduced addition of ramp paving extents	15	Gates on the east side are less desirable due to distance and access from the runway
16	Mostly brand-new facilities	16	Extents of elevated roadway will impact parking and traffic flow
		17	ATCT must move to build a new garage
		18	Existing Concourse B will be undersized for narrowbody gates
		19	New terminal will be further distance from the existing garage until the new garage can be built
		20	The new facility transition to existing B volumetrically will require transition and will be less than optimal aesthetically.
		21	Overall aesthetics between concourses will not match

Source: CHA, Gresham Smith, 2024.

Figure 5-17
Terminal Option 2

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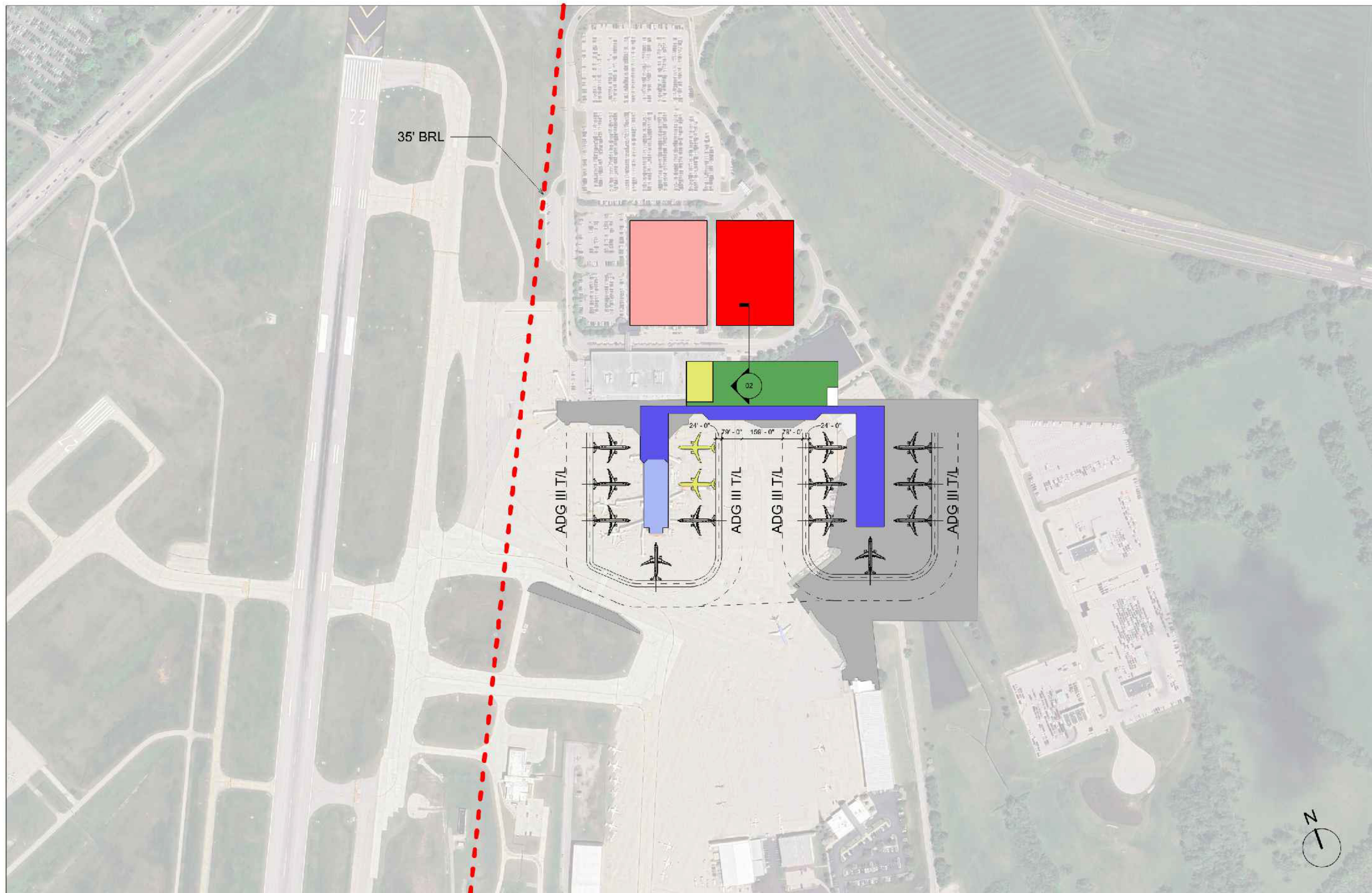


Option 2: Two-Level New Construction

14 ADG III Gates

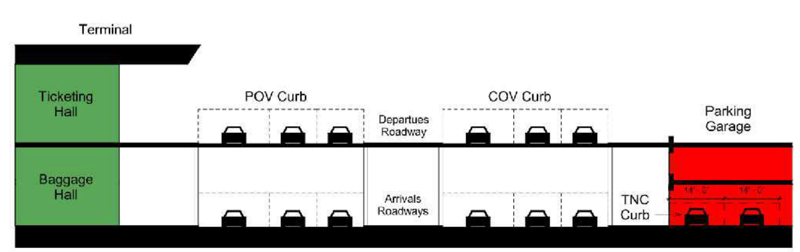
Building Area	S.F.
Level 01:	
Landside New	103,500
Level 02:	
Landside New	103,500
Total Landside	**207,000**
Level 01:	
Airside New	109,000
Airside Existing	27,000
Level 02:	
Airside New	109,000
Airside Existing	27,000
Total Airside	**272,000**
Total Terminal	**479,000**
*Total Existing Terminal	264,000

Legend:

- Existing Landside
- New Landside
- Existing Airside
- New Airside
- Existing Garage
- New Garage
- FIS
- Loading Dock
- New Apron
- Domestic Gate
- Swing Gate
- BRL

Acronym Legend:

FIS = Federal Inspection Services
BRL = Building Restriction Line
COV = Commercially Operated Vehicles
POV = Privately Operated Vehicles
TNC = Transportation Network Companies (Uber/Lyft)
ADG = Airplane Design Group
T/L = Taxi Lane
SF = Square Footage



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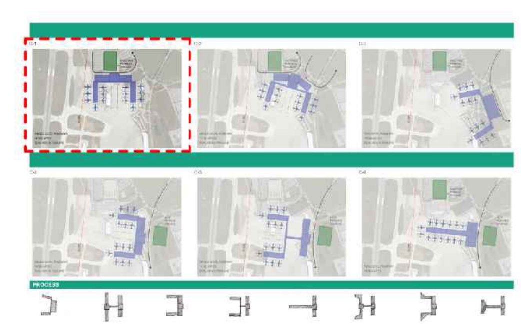

Gresham Smith

PROJECT: BLUE GRASS AIRPORT MASTER PLAN UPDATE

TITLE: TERMINAL OPTION 2

EXHIBIT NO. 5-17

Terminal Option 3

Option 3 represents the *Build New* concept with a slight rotation of the terminal to better separate departures and arrivals vehicular circulation, provide additional future adjacent parking areas, and a slightly better access to the airfield than Option 1 or 2.

Source: CHA, 2024.

In this option, the entire terminal building and concourses are demolished and replaced. The landside operation would remain as a single-level facility with a new ticket hall, SSCP, and a new baggage claim on Level 1. Additionally, there is the potential for an FIS facility and a landside dock with a delivery screening area. The landside dock is envisioned to be at the far east, with vehicular traffic utilizing an ancillary roadway separated from passengers.

While the roadways remain single level, the existing curbside is elongated and turns slightly to allow for additional length and to provide further separation between departures and arrivals curbside functions. The arrivals and departures roads could either be the same road with an early exit for departures, or they could be two distinct roads, thereby separating arrival vehicular traffic from departures.

There are two double-loaded concourses with seven ADG III gates on each. Between the two double-loaded concourses, a central concessions node with additional passenger amenities is possible. The two gates closest to the FIS would be designated as swing gates for both international and domestic arrivals. As with Terminal Option 2, access to the FIS by international arrivals could be completed in two different options. After deplaning the aircraft, the first access method would include entering the concourse, circulating up to a sterile corridor, and then to the FIS operation. The second access option includes entering the concourse, circulating down to a sterile corridor, and then west to the FIS operation. The second option would effectively separate the two concourses at Level 1 but reduce the amount of level changes required by passengers.

Table 5-18
Terminal Option 3: Pros/Cons

Terminal 3 Option			
Pros		**Cons**	
Airport's Comments			
1	Does not require second-story roadway	1	Arrivals curb front is far from the existing/proposed car parking
2	Lower terminal costs (without civil costs)	2	Difficult to phase concourse construction
3	Feasible construction phasing	3	Lose two-way traffic gained through Taxiway C construction
4	Reuses existing garage	4	Encroaches into the FBO ramp
5	Reuses existing surface parking	5	Difficult to add future gates to the new concourse
Consulting Team's Comments			
1	Limits impact on existing airfield operations	1	New concourses encroach the most current terminal ramp space
2	Does not limit RON Space	2	Impacts areas of the Eastside GA alternative options
3	Flexibility in concourse extensions	3	Difficult to phase construction while operating the current terminal
4	Double-loaded concourses provide the most efficient operations	4	Impacts current itinerant apron space
5	New landside dock is closer to central terminal functions	5	Impacts current Glycol Basin
6	Single-level roadway maintains open air and sunshine feel on curbsides and roads	6	Largest terminal footprint out of the five options
7	Utilizes existing garage and majority of roadways	7	Current passenger parking is a long distance from the proposed terminal
8	Impacts existing roads less than Option 2	8	Will require significant alternations to the current "terminal loop"
9	Brand new facilities	9	Western Concourse will be difficult to expand
10	Separate arrivals and departures curbsides	10	Eastern Concourse will encroach further into the current ramp space if expanded
11	Depth of the landside facility allows for program flexibility	11	Lots of earthwork is required for ramp expansion
		12	Will require a new exit onto Man O' War Blvd
		13	Removes land that may be used for potential non-aeronautical development
		14	Arrivals curb is far from the current parking
		15	Cannot keep Concourse. B operational during construction of second new concourse; alternative gating solution needed
		16	Has about the same amount of apron paving added as Option 2
		17	ATCT must move to build a new garage

Source: CHA, Gresham Smith, 2024.

Figure 5-18
Terminal Option 3

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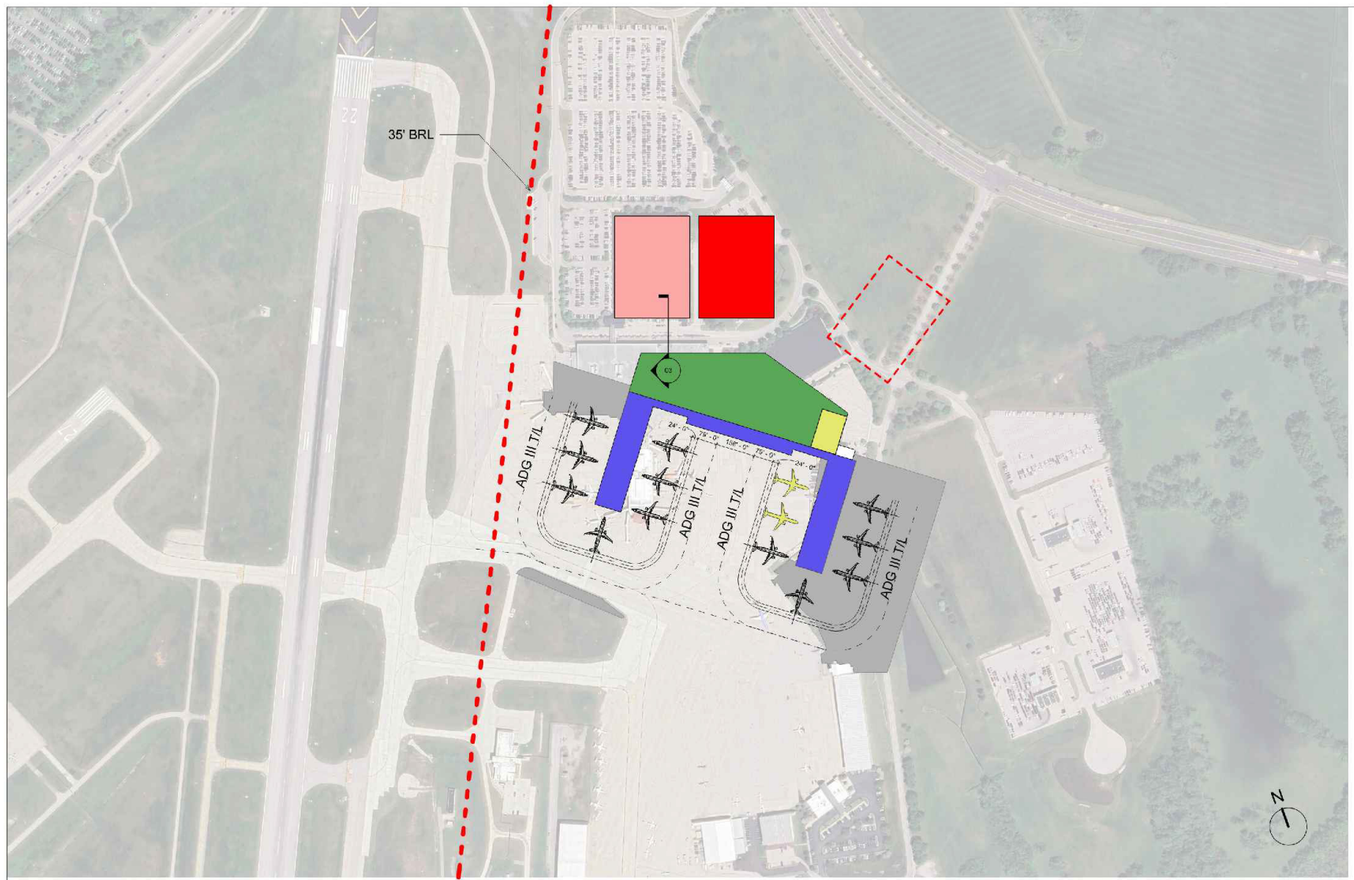


Option 3: Single-Level New Construction

14 ADG III Gates

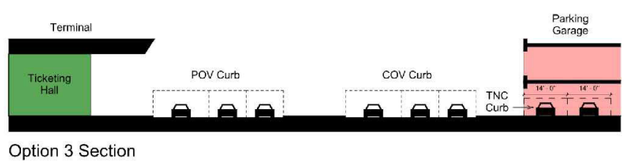
Building Area	S.F.
Level 01:	
Landside New	207,000
Total Landside	**207,000**
Level 01:	
Airside New	138,000
Level 02:	
Airside New	138,000
Total Airside	**276,000**
Total Terminal	**483,000**
*Total Existing Terminal	264,000

Legend:

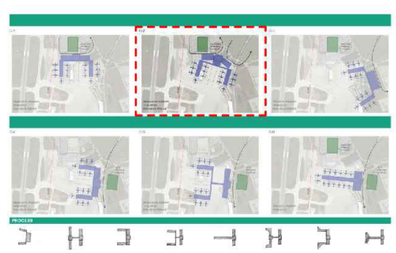
- Existing Landside
- New Landside
- Existing Airside
- New Airside
- Existing Garage
- New Garage
- FIS
- Loading Dock
- New Apron
- Domestic Gate
- Swing Gate
- BRL
- Alternate Garage

Acronym Legend:

FIS = Federal Inspection Services
BRL = Building Restriction Line
COV = Commercially Operated Vehicles
POV = Privately Operated Vehicles
TNC = Transportation Network Companies (Uber/Lyft)
ADG = Airplane Design Group
T/L = Taxi Lane
SF = Square Footage



Option 3 Section



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TITLE: TERMINAL OPTION 3

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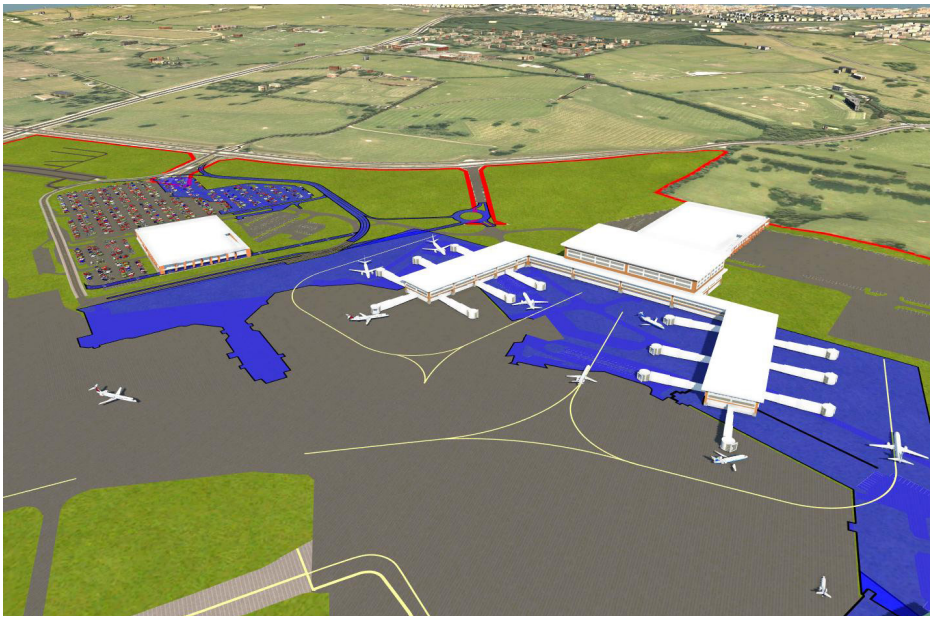
File Name: V:\Projects\LAN\K0061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-18 Terminal Option 3.dwg - 17x11 | Modified / By: July 12, 2024 2:10:58 PM / French, Adam

Terminal Option 4

Option 4 represents the *Build New* concept with a full rotation of the terminal to maximize aircraft access from the runway to the terminal gates. This option expands the ramp pavement more than any other option and provides the most flexibility for future expansion.



Source: CHA, 2024.

In this option, the entire terminal and concourses are demolished and replaced. The landside operation would become a two-level facility with a new ticket hall and SSCP on Level 2 and a new baggage claim on Level 1. Additionally, there is the potential for a FIS facility and a landside dock with a delivery screening area. The landside dock is envisioned to be at the far east, with vehicular traffic utilizing an ancillary roadway separated from passengers.

The roadways in this option will be two levels, with the arrivals curbside at Level 1 and departures at Level 2. These would be all new roads for the curbside functions.

There are two double-loaded concourses with seven ADG III gates on each. Between the two double-loaded concourses, a central concessions node with additional passenger amenities is possible. The concourses are splayed to allow additional space between the concourses. The two gates closest to the FIS would be designated as swing gates for both international and domestic arrivals. As with Terminal Options 2 and 3, access to the FIS by international arrivals could be completed in two different options. After deplaning the aircraft, the first access method would include entering the concourse, circulating up to a sterile corridor, and then to the FIS operation. The second access option includes entering the concourse, circulating down to a sterile corridor, and then west to the FIS operation. The second option would effectively separate the two concourses at Level 1 but reduce the amount of level changes required by passengers.

Table 5-19
Terminal Option 4: Pros/Cons

Terminal 4 Option			
Pros		**Cons**	
Airport's Comments			
1	Easiest construction without impacting current terminal operations	1	Second-story roadway required
2	Lower terminal cost (without civic costs)	2	Requires the FBO to be relocated
3	Feasible construction phasing	3	Parking and garage costs are likely to be much higher than other alternatives.
		4	New garage will be required to be larger.
		5	New garage will impact RAC service facilities.
		6	Terminal roadways may require land acquisition.
		7	Difficult to add future gates to both new concourses
Consulting Team's Comments			
1	Construction will have the least impact on current terminal	1	Requires the most amount of additional ramp space
2	Provides the largest amount of ramp space	2	Requires a lot of earthwork
3	New concourses will be easy to expand	3	Current parking garage will become unutilized for passengers
4	New terminal has a small footprint due to level 2	4	Requires the most change and cost to surface parking
5	Potential surplus land for non-aeronautical development	5	Hangar alternatives will be impacted dramatically
6	Maximum flexibility of future terminal expansion	6	Limited hangar expansion space
7	Existing parking garage potential CONRAC	7	FBO and FBO ramp will be impacted heavily
8	Double-loaded concourses provide the most efficient operations.	8	Land acquisition will be necessary.
9	Best access to gates from the runway	9	Large alternations to roadways (Airport Rd, Air Feight Dr)
10	New landside dock is closer to central terminal functions	10	All infrastructure on Air Freight Drive will need to be removed/relocated.
11	Can be constructed without major impacts to existing operations	11	Completely changes the infrastructure/operation and layout of the airport
12	New garage not dependent on ATCT	12	Requires complete overhaul of airport exit/entrance system
13	Creates a completely new front door to the airport	13	Baggage claim and arrivals roadway will be darker with upper-level roadway - no sunlight or blue sky - lower pax experience from a qualitative standpoint.
14	Fewer impacts to the southern ramp for gate expansion	14	Greatest amount of roadway improvements required
15	More feasible and ease of future landside expansion(s)		
16	Brand new facilities		

Source: CHA, Gresham Smith, 2024.

Figure 5-19
Terminal Option 4

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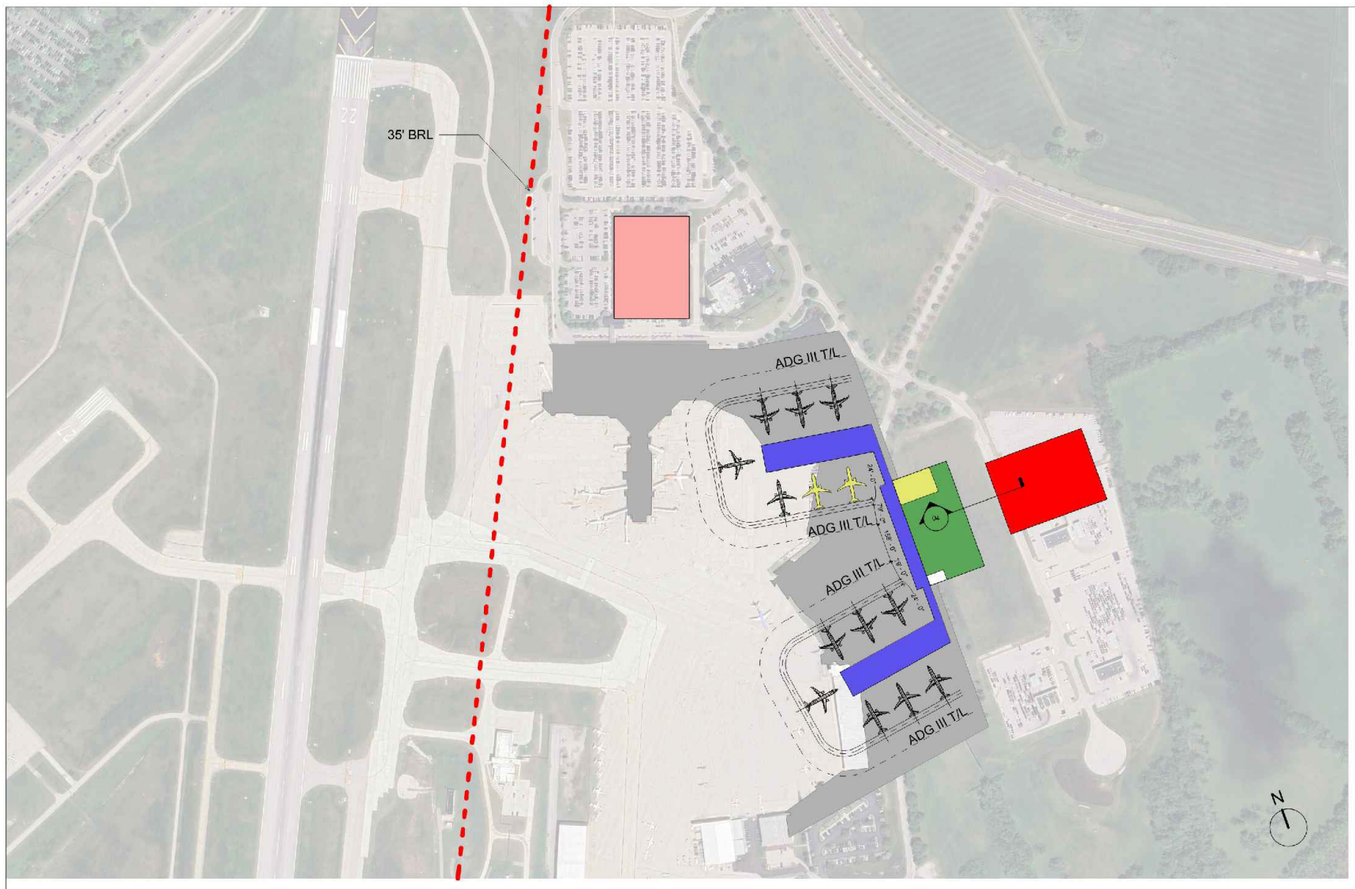


Option 4: Two-Level New Site

14 ADG III Gates

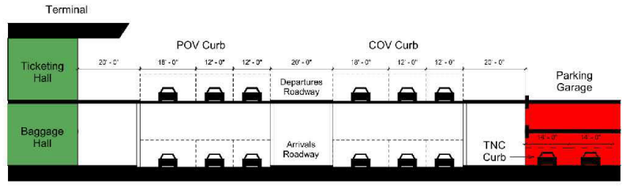
Building Area	S.F.
Level 01:	
Landside New	103,500
Level 02:	
Landside New	103,500
Total Landside	**207,000**
Level 01:	
Airside New	134,000
Level 02:	
Airside New	134,000
Total Airside	**268,000**
Total Terminal	**475,000**
*Total Existing Terminal	264,000

Legend:

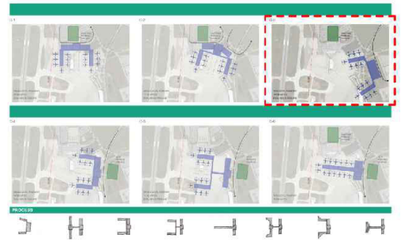
- Existing Landside
- New Landside
- Existing Airside
- New Airside
- Existing Garage
- New Garage
- FIS
- Loading Dock
- New Apron
- Domestic Gate
- Swing Gate
- BRL

Acronym Legend:

FIS = Federal Inspection Services
BRL = Building Restriction Line
COV = Commercially Operated Vehicles
POV = Privately Operated Vehicles
TNC = Transportation Network Companies (Uber/Lyft)
ADG = Airplane Design Group
T/L = Taxi Lane
SF = Square Footage



Option 4 Section



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TITLE: TERMINAL OPTION 4

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File Name: V:\Projects\ANY\66\061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-19 Terminal Option 4.dwg - 17x11 | Modified / By: - July 12, 2024 2:13:40 PM / French, Adam

5.5.4. Step Three: Develop Three Alternatives from One High-Level Concept

Option 2 was selected as the preferred Terminal Area Building concept. Over time and with further evaluation, minor revisions were subsequently incorporated. As a result, three alternatives for the landside portion of the terminal were developed into floor plans for additional review. Interior alternatives were developed based on the use of single-level or two-level roadway concepts.

Terminal Option 5

Option 5 represents the *Build New* concept. The primary difference between Option 2 and Option 5 is the demolition and replacement of Concourse B rather than renovating and expanding in place. This allows the west concourse to be further east, thus reducing the amount of ramp pavement required.

Table 5-20
Terminal Option 5: Pros/Cons

Terminal 5 Option			
Pros		**Cons**	
Airport's Comments			
1	Similar to option 2, though it does not reuse Concourse B	1	Second-story roadway required
2	Less new ramp compared to Option 2	2	Difficult to add future gates to the new concourse
3	Average terminal cost compared to other alternatives		
4	Feasible construction phasing		
5	Reuses existing garage		
6	Reuses existing surface parking		
Consulting Team's Comments			
1	Small terminal footprint due to being dual level	1	Will require relocation to portions of Airport Road
2	Utilizes existing passenger parking area	2	Requires relocation of current freight facility
3	Utilizes existing parking garage	3	Requires relocation of current horse transport facility
4	Smaller apron footprint than Option 2 (less pavement to east)	4	Current terminal activities are highly impacted while construction occurring
5	Does not encroach on current RON parking area	5	Impacts current Glycol Basin
6	FIS facility is on the airside portion of the terminal	6	Will impact GA hangar alternatives
7	Limited impacts to the current FBO ramp	7	Future concourse expansion will require more ramp space
8	More available land to the east	8	Will require alterations to the existing curb front
9	Provides walkable access to parking	9	Will be difficult to remain operational during construction
10	Double loaded concourses	10	Difficult phasing with two-level roadway
11	New landside dock is closer to central terminal functions	11	Does not reuse Concourse B

Terminal 5 Option			
12	Can keep half of Concourse B operational during construction of west concourse	12	Single ADG III in cul-de-sac until Concourse B is demolished
13	Aesthetics consistent across all facilities	13	Baggage claim and arrivals roadway will be darker with upper-level roadway—no sunlight—lower pax experience from a qualitative standpoint
14	Most condensed ramp pavement option	14	Additional elevators and escalators to maintain—higher maintenance costs compared to single-level terminal
15	Flexible implementation and phasing	15	Gates on the east side are less desirable due to distance and access from the runway
16	Placement of landside facility allows additional roadway capacity width	16	Extents of elevated roadway will impact parking and traffic flow
17	Mostly brand-new facilities	17	ATCT must move to build a new garage
		18	Demolition of all existing terminal assets

Source: CHA, Gresham Smith, 2024.

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Figure 5-20
Terminal Option 5

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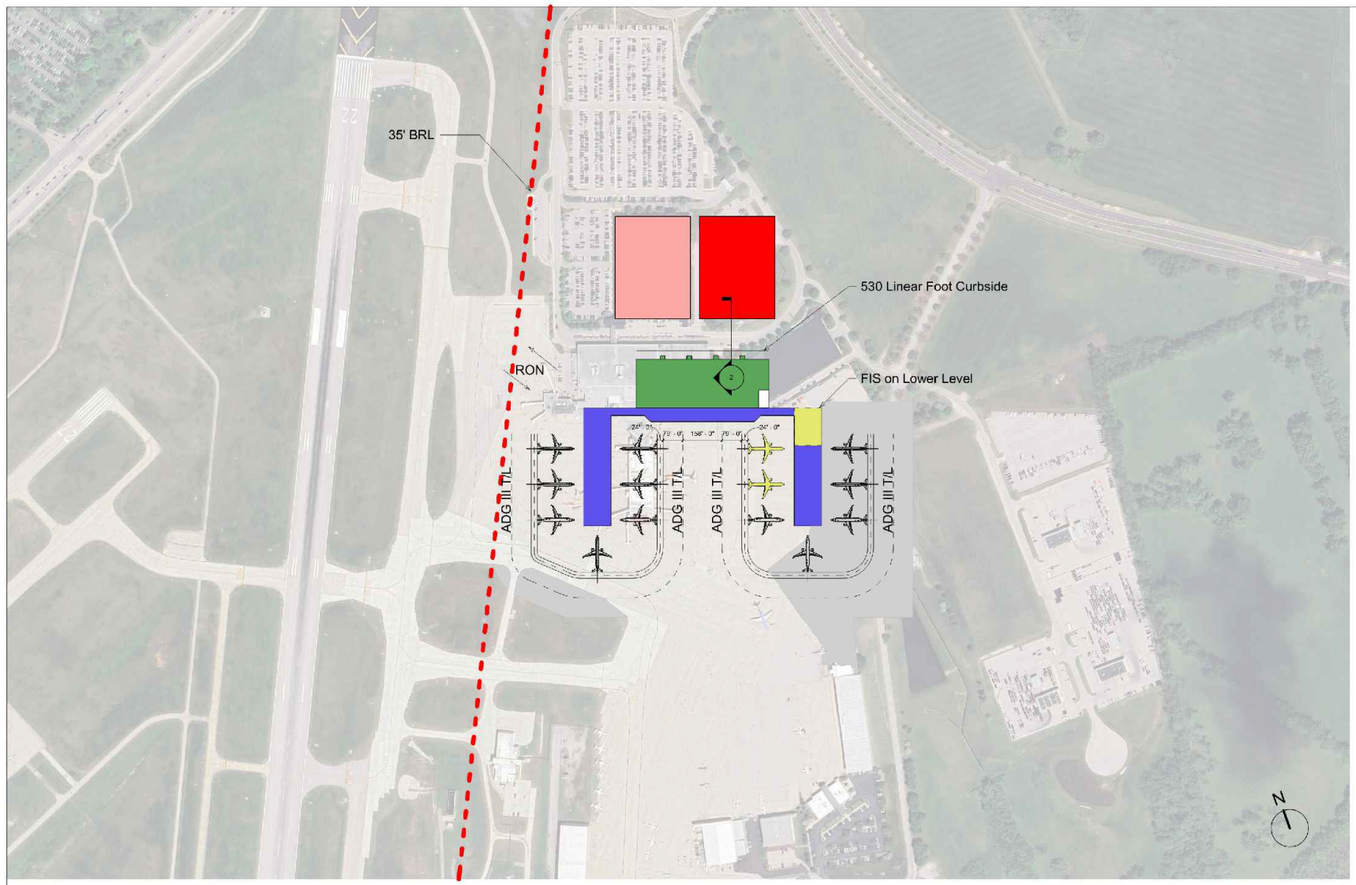


Option 2.2: **Two-Level New Construction**

14 ADG III Gates

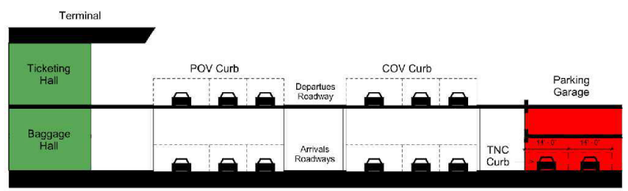
Building Area	S.F.
Level 01:	
Landside New	105,000
Level 02:	
Landside New	105,000
Total Landside	**210,000**
Level 01:	
Airside New	138,000
Level 02:	
Airside New	138,000
Total Airside	**276,000**
Total Terminal	**486,000**

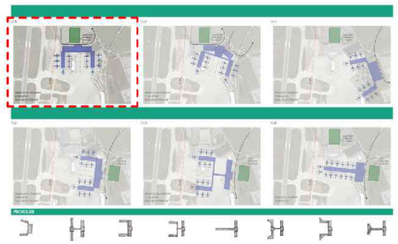
Legend:

- Existing Landside
- New Landside
- Existing Airside
- New Airside
- Existing Garage
- New Garage
- FIS
- Loading Dock
- New Apron
- Domestic Gate
- Swing Gate
- BRL

Acronym Legend:

FIS = Federal Inspection Services
BRL = Building Restriction Line
COV = Commercially Operated Vehicles
POV = Privately Operated Vehicles
TNC = Transportation Network Companies (Uber/Lyft)
ADG = Airplane Design Group
T/L = Taxi Lane
SF = Square Footage





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PROJECT:

TERMINAL OPTION 5

TITLE:

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5-20

File Name: V:\Projects\ANY\KK\061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-20 Terminal Option 5.dwg - 17x11 | Modified / By: - July 12, 2024 2:22:16 PM / French, Adam

Terminal Option 5A

This landside alternative utilizes a two-level roadway system with the arrivals curbside at Level 1 and departures at Level 2. This alternative is a direct interpretation of Option 5. The interior of the terminal relates to the road with a two-level facility:

- Baggage Claim on Level 1
- Ticket Hall and SSCP on Level 2

Additionally, there is the potential for a FIS facility and a landside dock with a delivery screening area. The landside dock is envisioned at the far east, with vehicular traffic utilizing an ancillary roadway separated from passengers. Four additional ADG III gates with associated concourse are shown as dashed outlines. This is the smallest footprint for the terminal.

Terminal Option 5B

This landside alternative utilizes a single-level roadway system. The existing curbside is elongated to allow for additional length and further separation between departures and arrivals curbside functions. The following corresponds to the interior of the terminal to the road:

- Ticket Hall is to the furthest west
- SSCP is in the middle, separating the departures curb on the west from the arrivals curb on the east
- Baggage Claim is to the furthest east

Additionally, there is the potential for a FIS facility and a landside dock with a delivery screening area. The landside dock is envisioned at the far east, with vehicular traffic utilizing an ancillary roadway separated from passengers. Four additional ADG III gates with associated concourse are shown as dashed outlines. This is the largest footprint for the terminal.

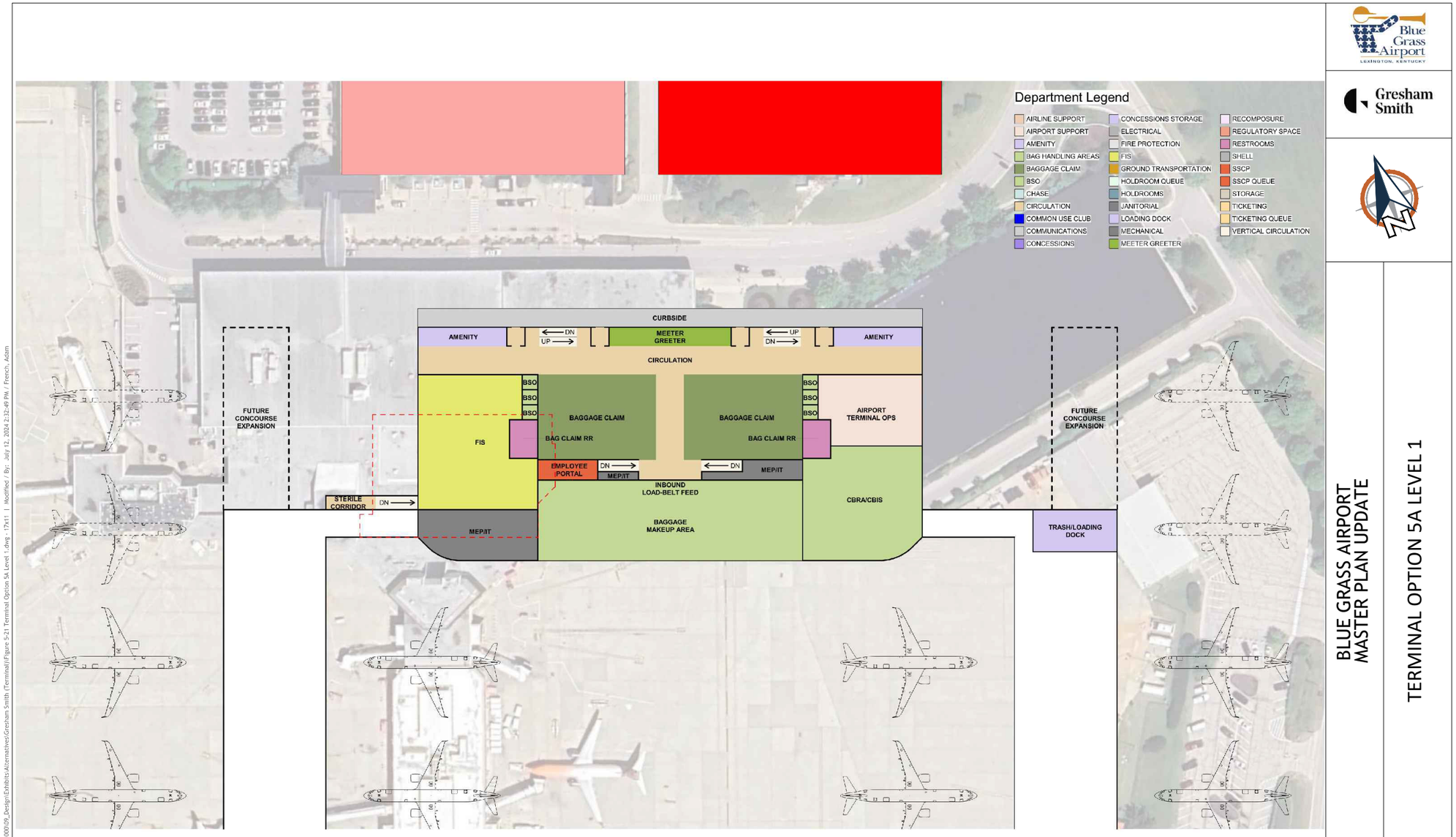
Terminal Option 5C

This landside alternative utilizes a single-level roadway system. The existing curbside is elongated to allow for additional length and to provide further separation between departures and arrivals curbside functions. The following corresponds to the interior of the terminal to the road:

- Ticket Hall is to the furthest west
- Baggage Claim is to the furthest east
- SSCP is moved to Level 2 directly above the ticketing function

Additionally, there is the potential for a FIS facility and a landside dock with a delivery screening area. The landside dock is envisioned at the far east, with vehicular traffic utilizing an ancillary roadway separated from passengers. Four additional ADG III gates with associated concourse are shown as dashed outlines. The terminal footprint in this alternative is smaller than 5B but larger than 5A.

Figure 5-21
Terminal Option 5A Level 1



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5-21

Figure 5-22
Terminal Option 5A Level 2

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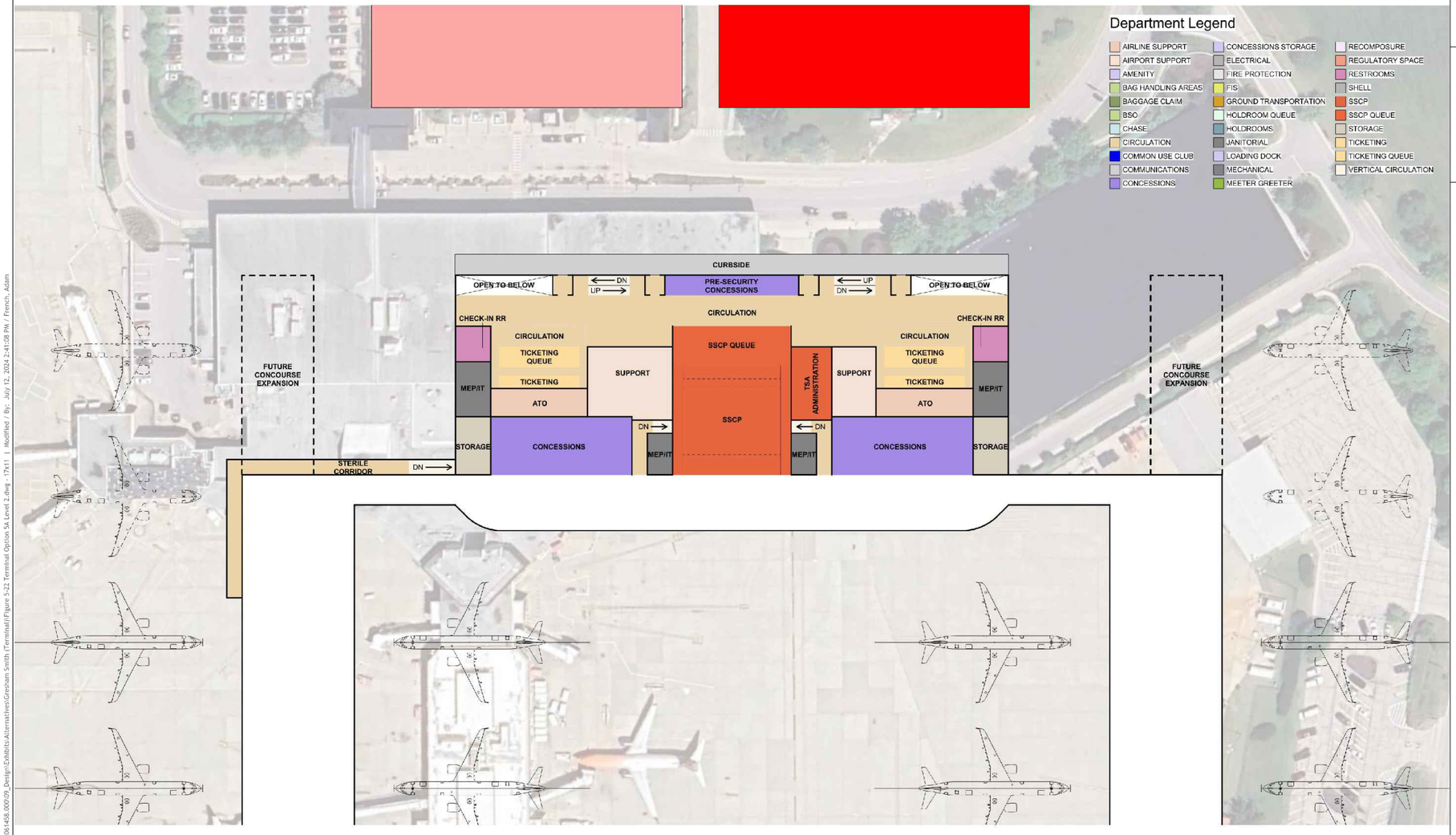

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TERMINAL OPTION 5A LEVEL 2

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5-22

File Name: V:\Projects\AMY\K60\61458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-22 Terminal Option 5A Level 2.dwg - 17x11 | Modified / By: July 12, 2024 2:41:08 PM / French, Adam

Figure 5-23
Terminal Option 5B Level 1

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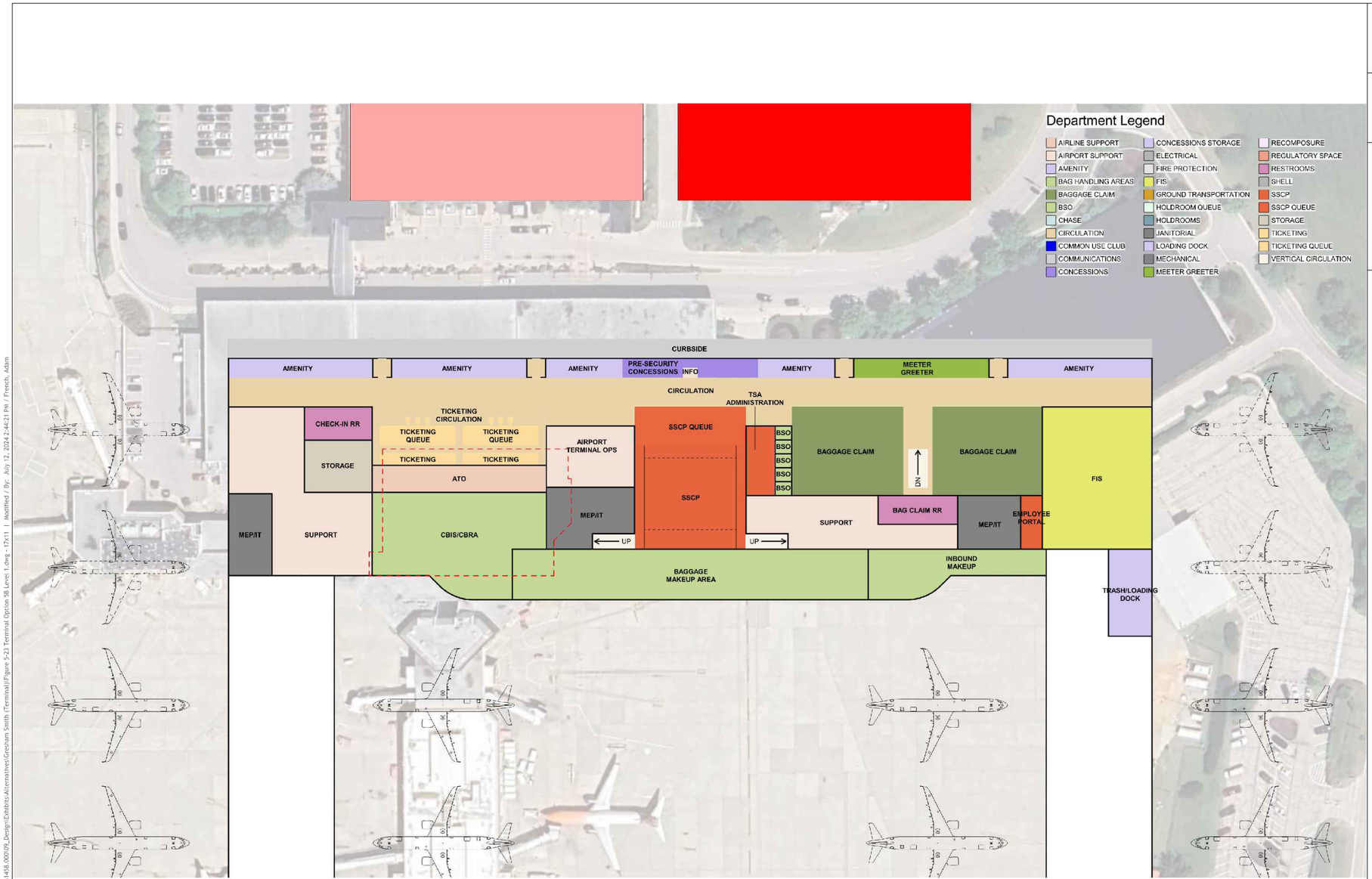

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PROJECT:

TERMINAL OPTION 5B LEVEL 1

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5-23

File Name: V:\Projects\ANY\KK\061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-23 Terminal Option 5B Level 1.dwg - 17x11 | Modified / By: July 12, 2024 2:44:21 PM / French, Adam

Figure 5-24
Terminal Option 5B Level 2

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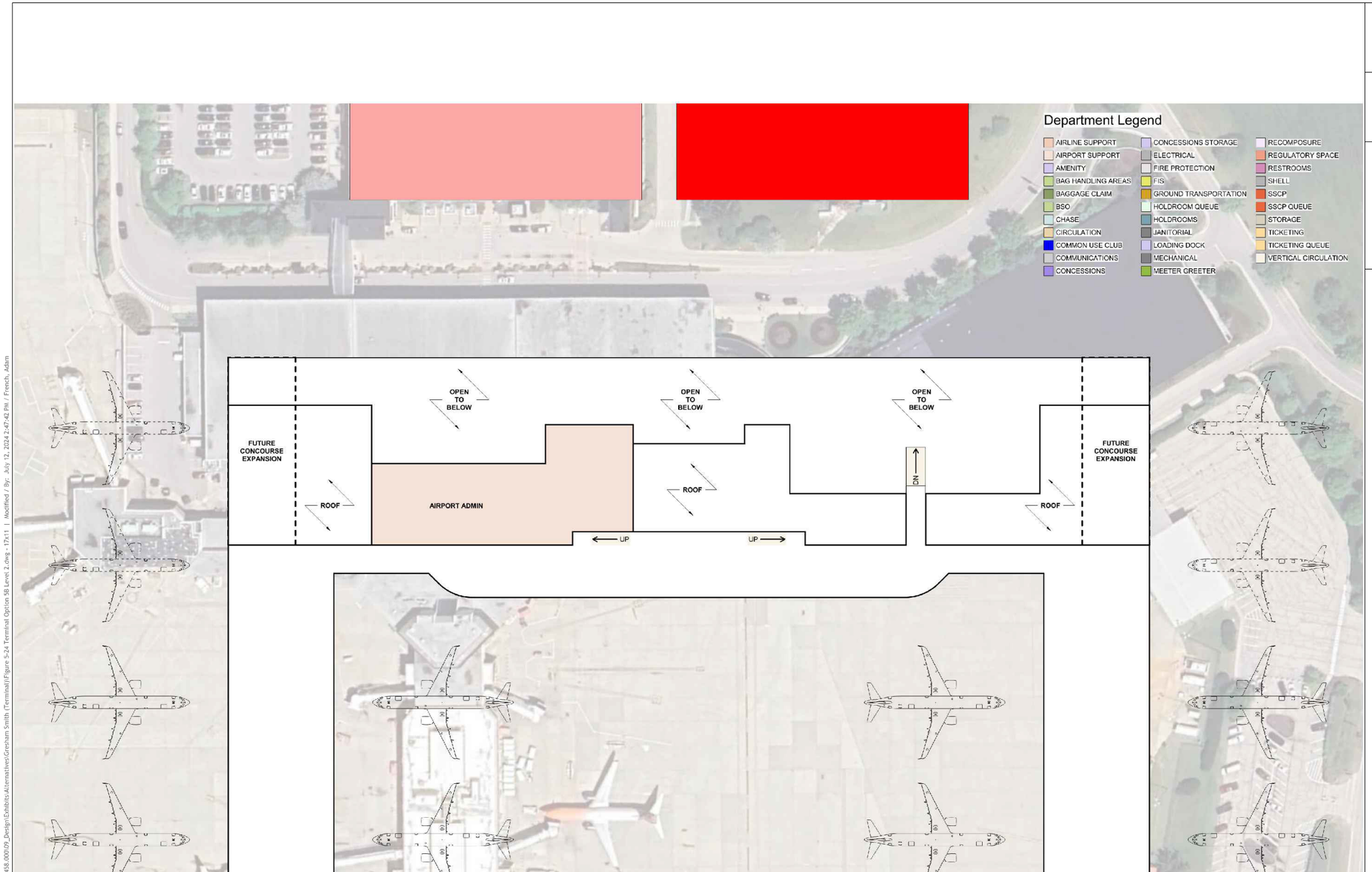

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PROJECT:

TERMINAL OPTION 5B LEVEL 2

TITLE:

EXHIBIT NO.

5-24

File Name: V:\Projects\AMY\K6\961458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-24 Terminal Option 5B Level 2.dwg - 17x11 | Modified / By: July 12, 2024 2:47:42 PM / French, Adam

Figure 5-25
Terminal Option 5C Level 1

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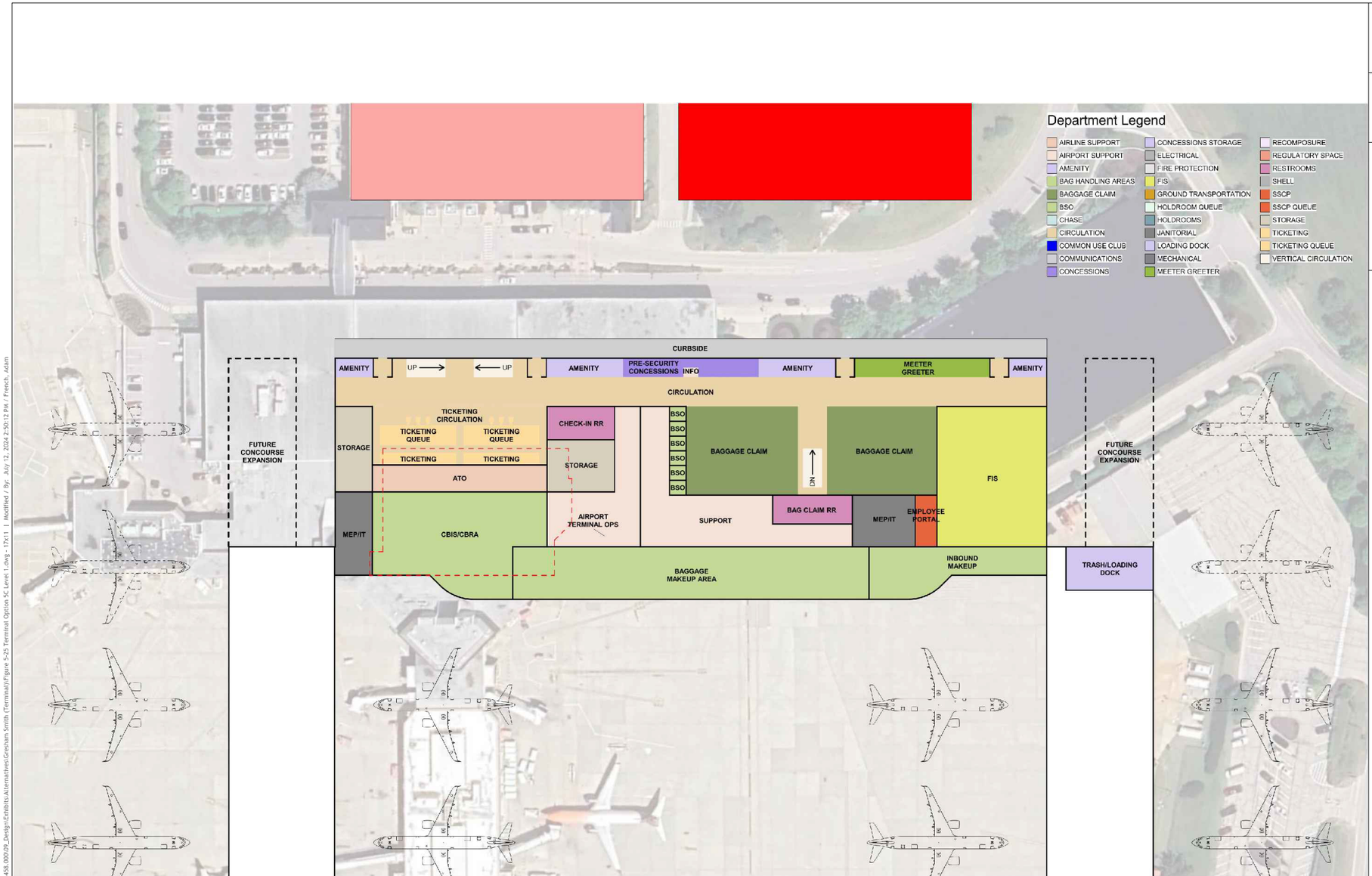

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TERMINAL OPTION 5C LEVEL 1

EXHIBIT NO.
5-25

File Name: V:\Projects\ANY-MK\061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-25 Terminal Option 5C Level 1.dwg - 17x11 | Modified / By: July 12, 2024 2:50:12 PM / French, Adam

Figure 5-26
Terminal Option 5C Level 2

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Alternative Debelop-
ment Concepts

Blue Grass Airport
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PROJECT:

TERMINAL OPTION 5C LEVEL 2

TITLE:

EXHIBIT NO.
5-26

File Name: V:\Projects\ANY\KY061458.000.09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-26 Terminal Option 5C Level 2.dwg - 17x11 | Modified / By: August 5, 2024 5:33:15 PM / Wayand, Ethan

5.5.5. Step Four: Refine One Alternative

Upon Airport review of the three terminal landside alternatives, it was suggested that Alternative 5B be used within the ALP as it had the largest footprint. Although this alternative is carried forward, additional investigation will occur after the completion of the Master Plan to examine the interior of the building, a single-level roadway, and a two-level roadway.

For the purposes of the Master Plan, full-color block floor plans of Alternative 5B were developed. These will be used at a later date to conduct future investigations.

Terminal Plan Description with Passenger Flows

As previously described, this alternative utilizes a single-level roadway system. The existing curbside closest to the terminal is moved south approximately 16 feet to allow for additional depth and new roadway alignments. Additionally, the curbside was extended to allow for additional length and to provide further separation between departure and arrival curbside functions. It is envisioned that the inner road will be designated for privately owned vehicles (POVs), and the outer road will be designated for commercially owned vehicles (COVs). Within the parking garages, a ground transportation center is planned for Level 1. This will accommodate transportation network companies' (TNC) pick-up and drop-off, as well as rental car vehicular traffic. The following corresponds to the interior of the terminal to the road:

- Ticket Hall is to the furthest west.
- SSCP is in the middle, separating the departures curb on the west from the arrivals curb on the east.
- Baggage Claim is to the furthest east.

On the exterior front façade of the terminal, there is 20 feet of depth at the curb for passengers to exit/enter vehicles, regroup before entering the building, circulate along the curb, or sit against the façade between the vestibules.

Along the front face of the terminal are four entry vestibules. The vestibules are arranged to provide intuitive wayfinding. On the interior of the building, zones are created between each vestibule that can have a variety of functions:

- Seating
- Information desks/kiosks
- Pre-security concessions
- Meeters and greeters
- Well wishers
- Advertising
- Art

The main circulation zone occurs next and serves two important purposes. First, it provides a 30-foot barrier between the vestibules and other functions. This will allow the doors to stay fully closed while passengers are within the adjacent functions: ticketing, security screening, and baggage claim. Second, it provides ample circulation between the three main functions, allowing passengers to reorient themselves as they traverse the landside functions.

The three main functions on the landside are flanked by support spaces. Support spaces consist of the following:

- Public restrooms
- Airline support spaces – ATO, BSO
- Airport support spaces – storage, terminal operations
- TSA support spaces, employee portal
- Baggage handling system – checked baggage inspection system (CBIS)/checked baggage reconciliation area (CBRA), make-up, inbound dump
- Mechanical, electrical, and plumbing (MEP)/IT Comm

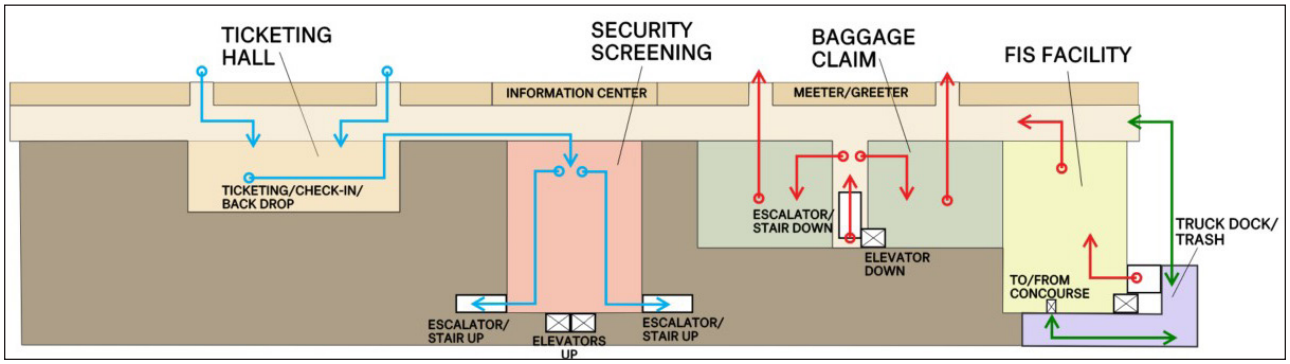
There are two public restrooms on Level 1 that are accessible to passengers. These restrooms are located adjacent to the ticket hall and baggage claim hall.

Additionally, there is the potential for a FIS facility and a landside dock with a delivery screening area. The FIS facility would be accessed from the closest gate. Passengers would circulate down a sterile corridor on the perimeter of the holdroom and then circulate down via a vertical core. The FIS facility is approximately 16,000 square feet but could be reduced if space is shared with the baggage claim hall.

An employee portal for anyone working for or within the airport screening area has been provided. It would be accessed through the baggage claim hall adjacent to where the FIS is located.

The landside dock is envisioned to be at the far east of the terminal, with vehicular traffic utilizing an ancillary roadway separated from passengers. Trash would flow out to dumpsters and/or compactors adjacent to the dock. There is a potential to provide a trash chute from Level 2 to Level 1 adjacent to the landside dock. All deliveries that need to go airside would go through a dedicated screening area in the terminal and adjacent to the landside dock, then circulate up to Level 2 via a dedicated and secure elevator. Concession storage is provided at Level 2 on the airside adjacent to this elevator.

Figure 5-27
Landside Terminal Function Passenger Flows Level 1



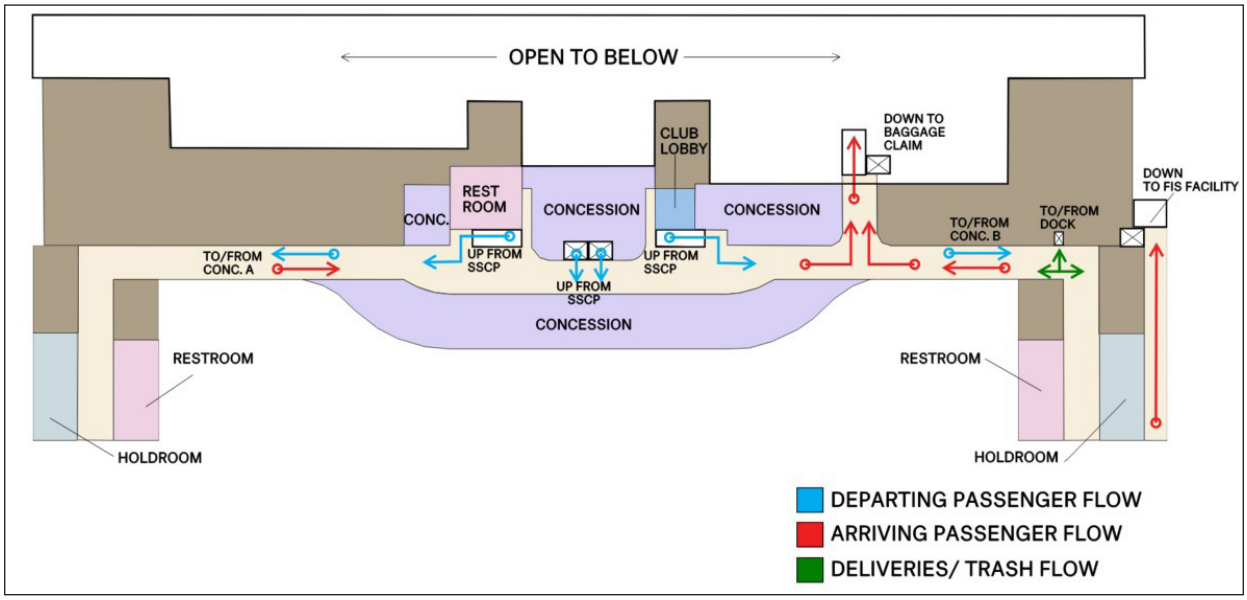
Source: Gresham Smith, 2024.

After processing in the security screening area and circulating up to Level 2, passengers arrive at the main centrally located concession node. There, passengers have the option to go to the airport club, visit concessions, or go to their gate. There is an additional provision for concessions near the end of each concourse. The access to baggage claim from both concourses is adjacent to the central concession node. Arriving passengers will pass through an exit lane breach control (ELBC) device before continuing to the vertical core down to baggage claim.

There are three public restrooms accessible to passengers once they arrive airside. Restroom spacing is based on building code walking distances. One is located centrally near the main concessions, and the others are located one per concourse.

The airport club is on Level 3 and is accessible via a vertical core. An additional restroom is located at Level 3 within the airport club to avoid the need to travel downstairs. This restroom stacks directly over the restroom on Level 2, providing increased building efficiency. If the Airport desires to have a ramp control tower, there is an opportunity to place one off to either side of the airport club. Restrooms and vertical cores could be shared to create further efficiencies.

Figure 5-28
Landside Terminal Function Passenger Flows Level 2



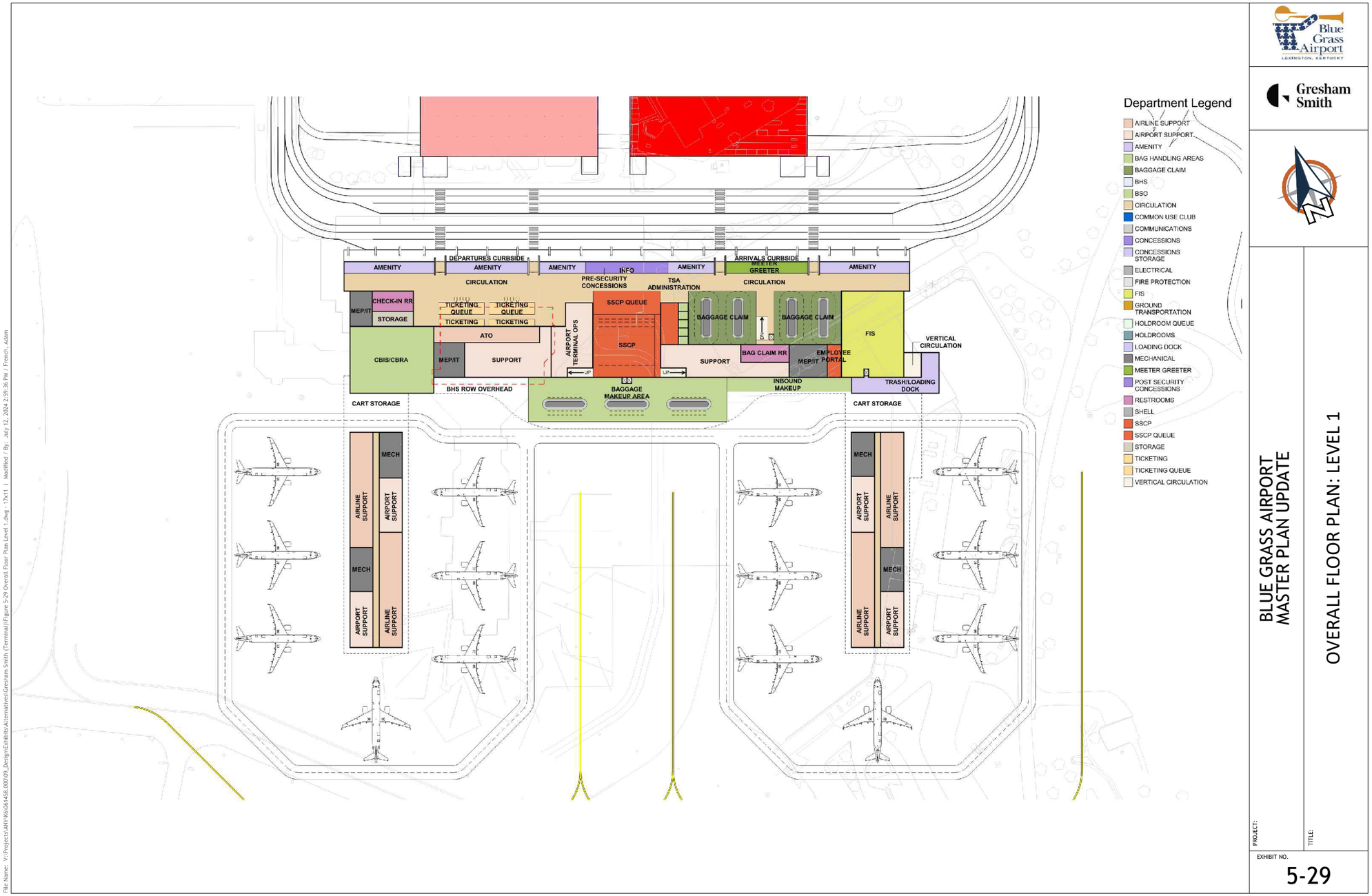
Source: Gresham Smith, 2024

There are two concourses, each having seven gates for a total of 14 gates. Four additional ADG III gates are shown as dashed outlines. This would bring the total gate count to 18 ADG III. The associated concourse needed to accommodate these four additional gates is shown as storage space. It is recommended that this space be built early before the four additional gates are needed as it stacks over needed areas on Level 1. This will limit disruptions to operations in the future when demand warrants additional gates. The Airport can build this out as shell space if preferred.

Overall Floor Plans and Renderings

Below are the overall floor plans for each level for Alternative 5B. There are three floor levels. Renderings were created for Alternative 5B and followed the floor plans. Eleven renderings were prepared. The Airport requested that single-level roads and double-level roads be shown as options.

Figure 5-29
Overall Floor Plan: Level 1



File Name: V:\Projects\ANY\K0\06\1458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-29 Overall Floor Plan Level 1.dwg - 17x11 | Modified / By: July 12, 2024 2:59:36 PM / French, Adam

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OVERALL FLOOR PLAN: LEVEL 1

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5-29

Figure 5-30
Overall Floor Plan: Level 2

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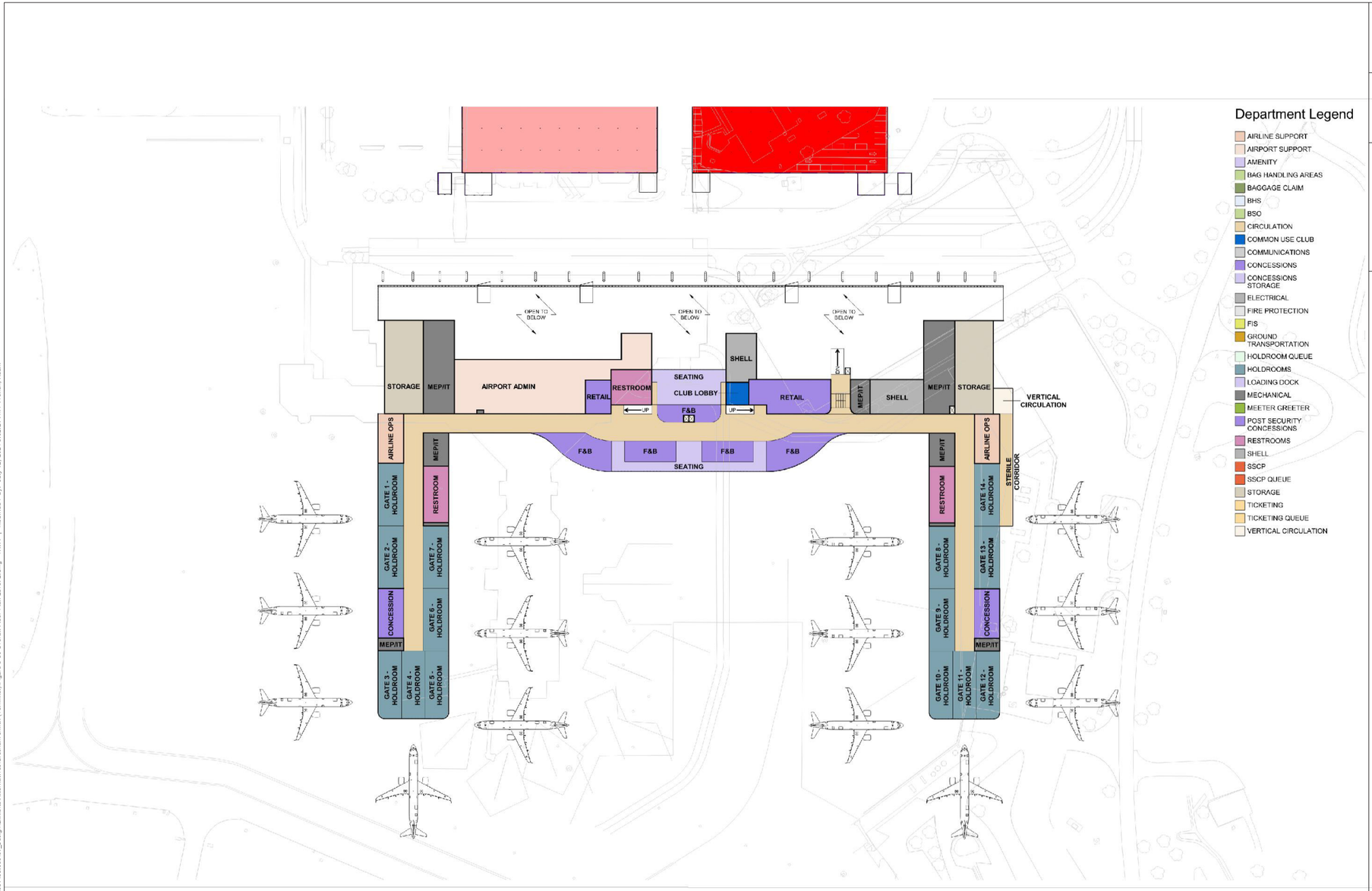

Department Legend

- AIRLINE SUPPORT
- AIRPORT SUPPORT
- AMENITY
- BAG HANDLING AREAS
- BAGGAGE CLAIM
- BHS
- BSO
- CIRCULATION
- COMMON USE CLUB
- COMMUNICATIONS
- CONCESSIONS
- CONCESSIONS STORAGE
- ELECTRICAL
- FIRE PROTECTION
- FIS
- GROUND TRANSPORTATION
- HOLDROOM QUEUE
- HOLDROOMS
- LOADING DOCK
- MECHANICAL
- MEETER GREETER
- POST SECURITY CONCESSIONS
- RESTROOMS
- SHELL
- SSCP
- SSCP QUEUE
- STORAGE
- TICKETING
- TICKETING QUEUE
- VERTICAL CIRCULATION

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File Name: V:\Projects\ANY\K\061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-30 Overall Floor Plan Level 2.dwg - 17x11 | Modified / By: July 12, 2024 3:02:21 PM / French, Adam

Figure 5-31
Overall Floor Plan: Level 3

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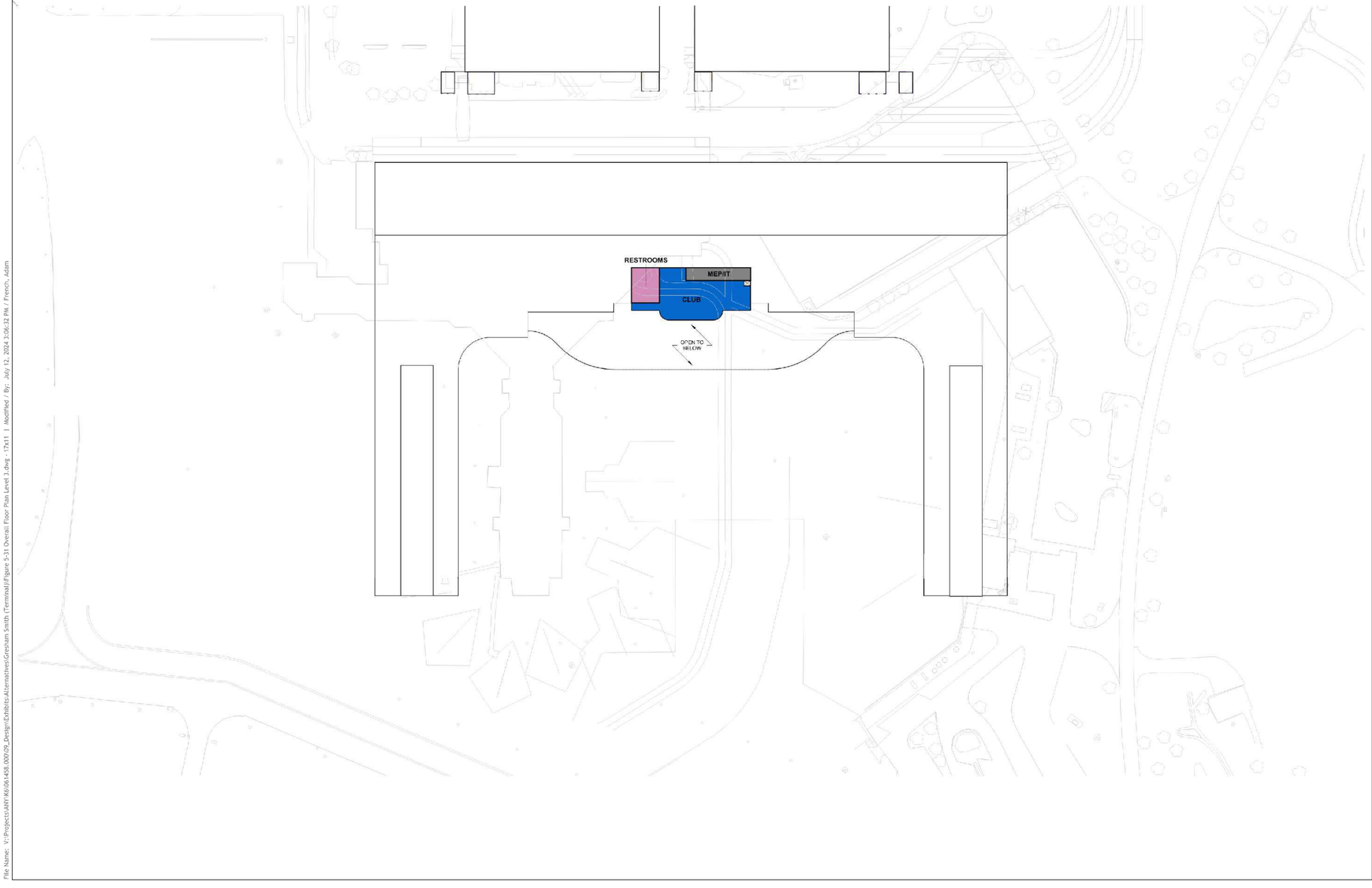

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TITLE:
OVERALL FLOOR PLAN: LEVEL 3

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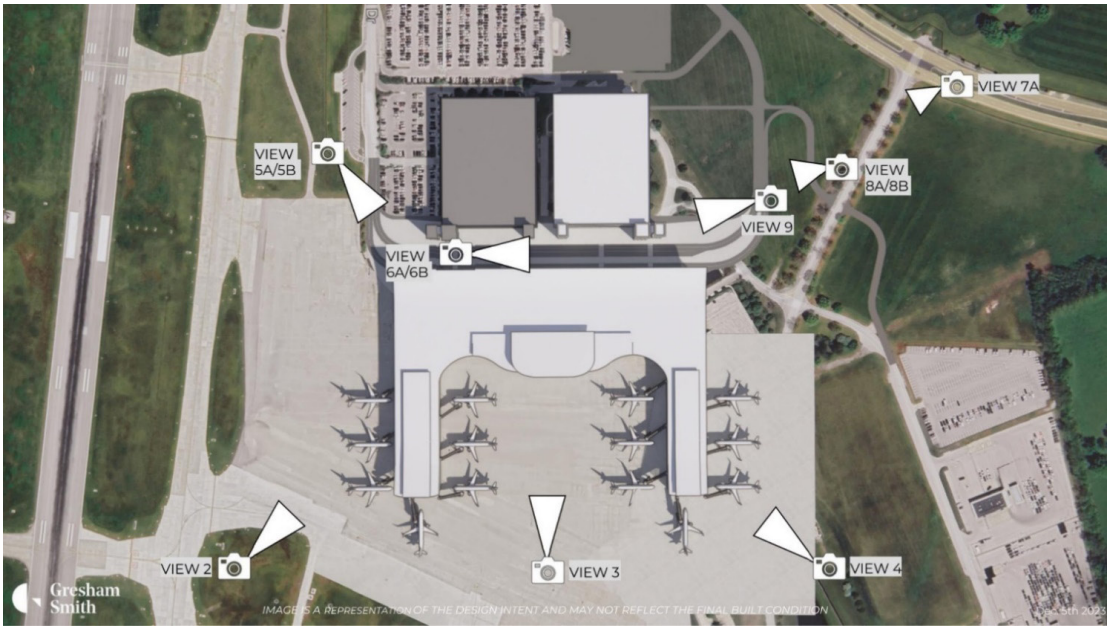
5-31

File Name: V:\Projects\ANY\K6\061458.000\09_Design\Exhibits\Alternatives\Gresham Smith (Terminal)\Figure 5-31 Overall Floor Plan Level 3.dwg - 17x11 | Modified / By: July 12, 2024 3:06:32 PM / French, Adam

Figure 5-32
Rendered Site Plan

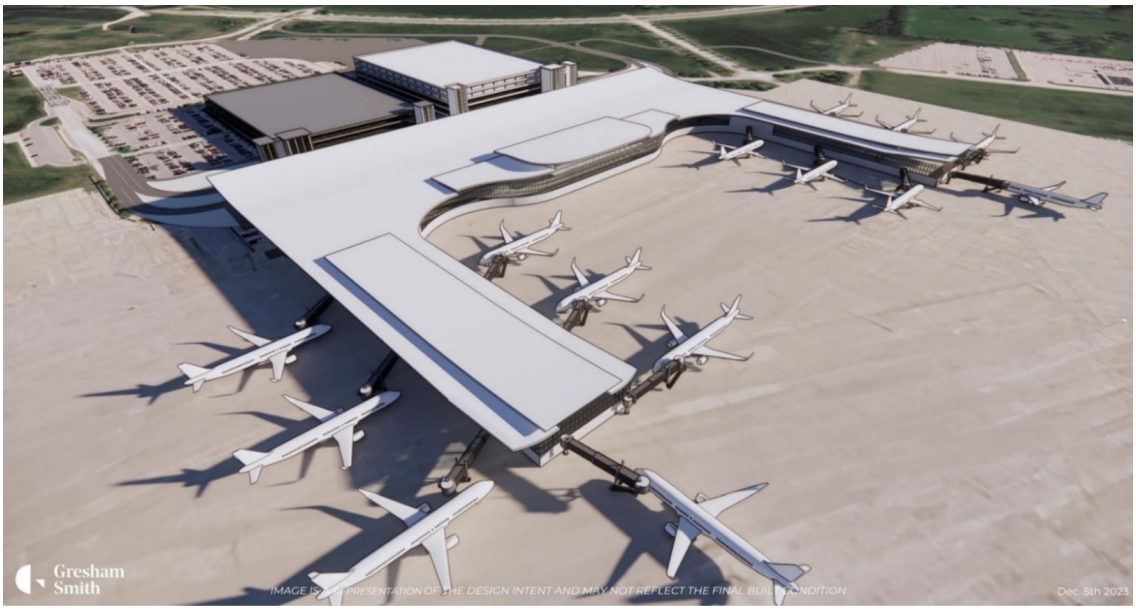
Source: Gresham Smith, 2024.

Figure 5-33
Key Plan of Rendered Views



Source: Gresham Smith, 2024.

Figure 5-34
Rendered View 2

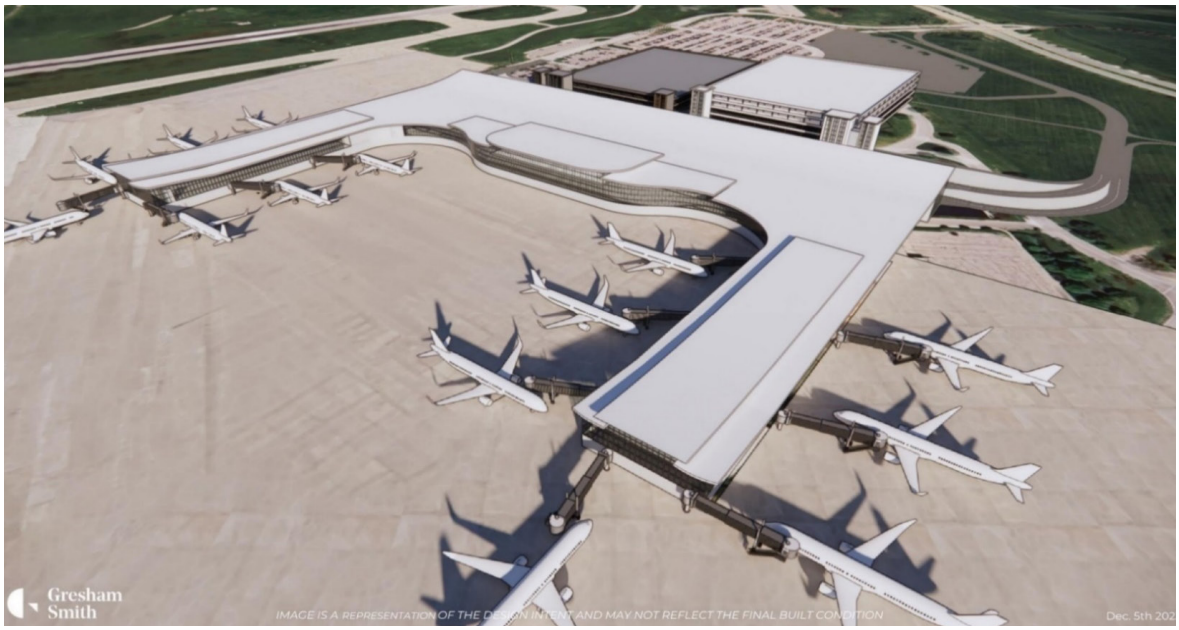


Source: Gresham Smith, 2024.

Figure 5-35
Rendered View 3

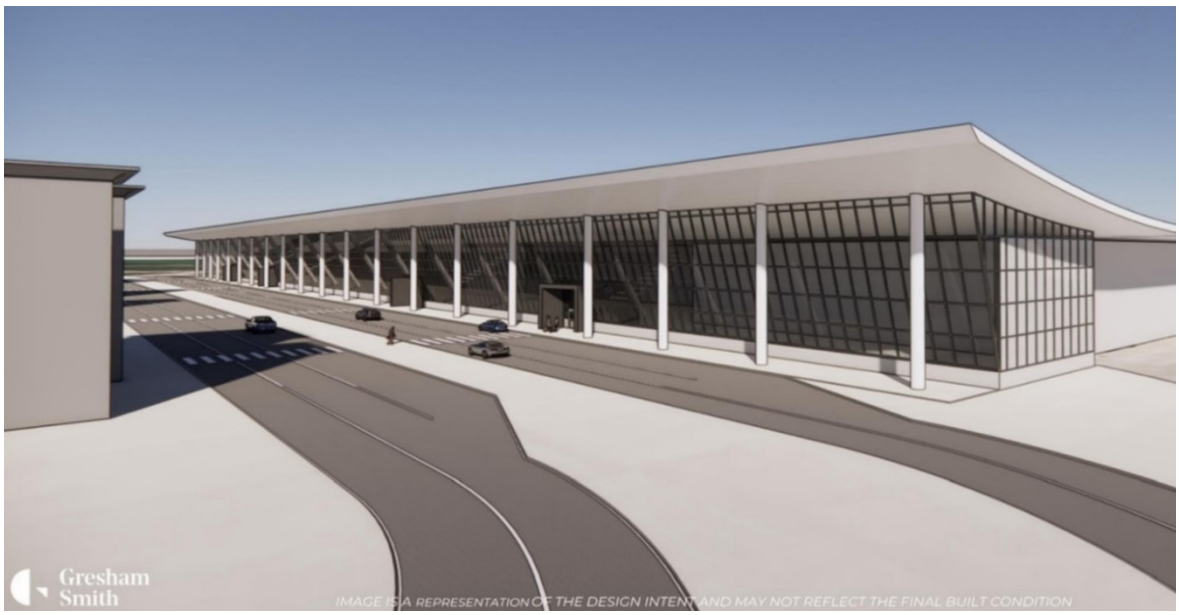
Source: Gresham Smith, 2024.

Figure 5-36
Rendered View 4



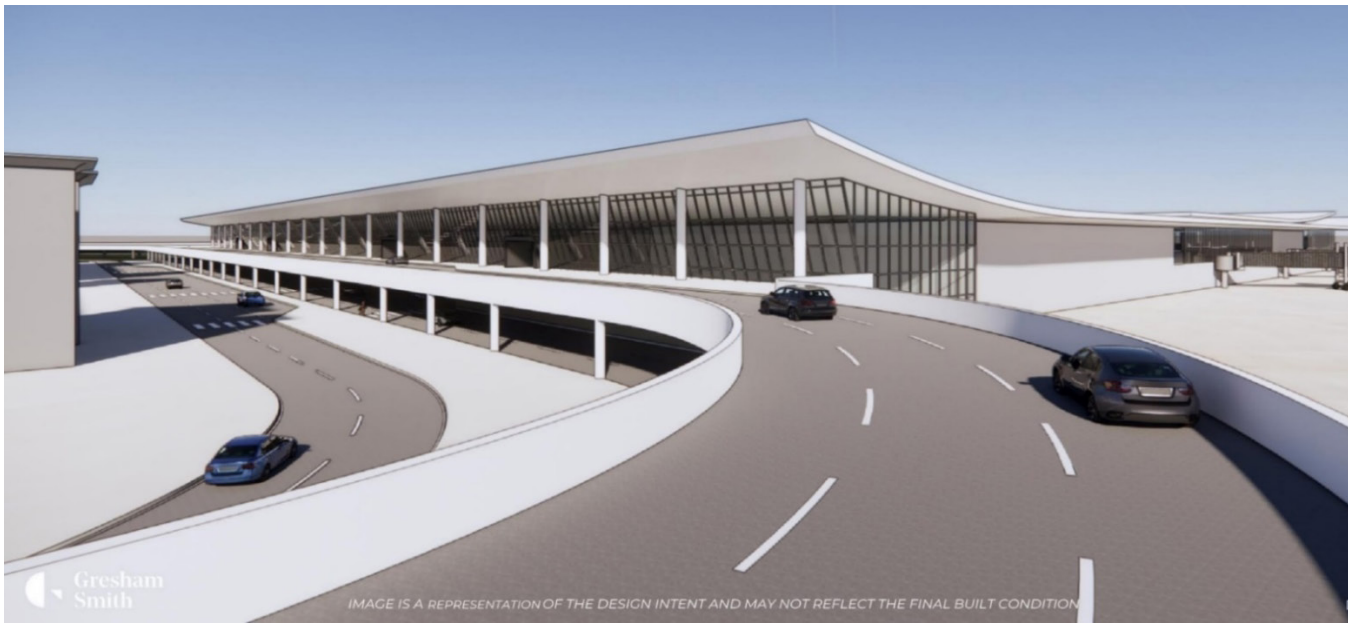
Source: Gresham Smith, 2024.

Figure 5-37
Rendered View 5A Single-Level Roadway



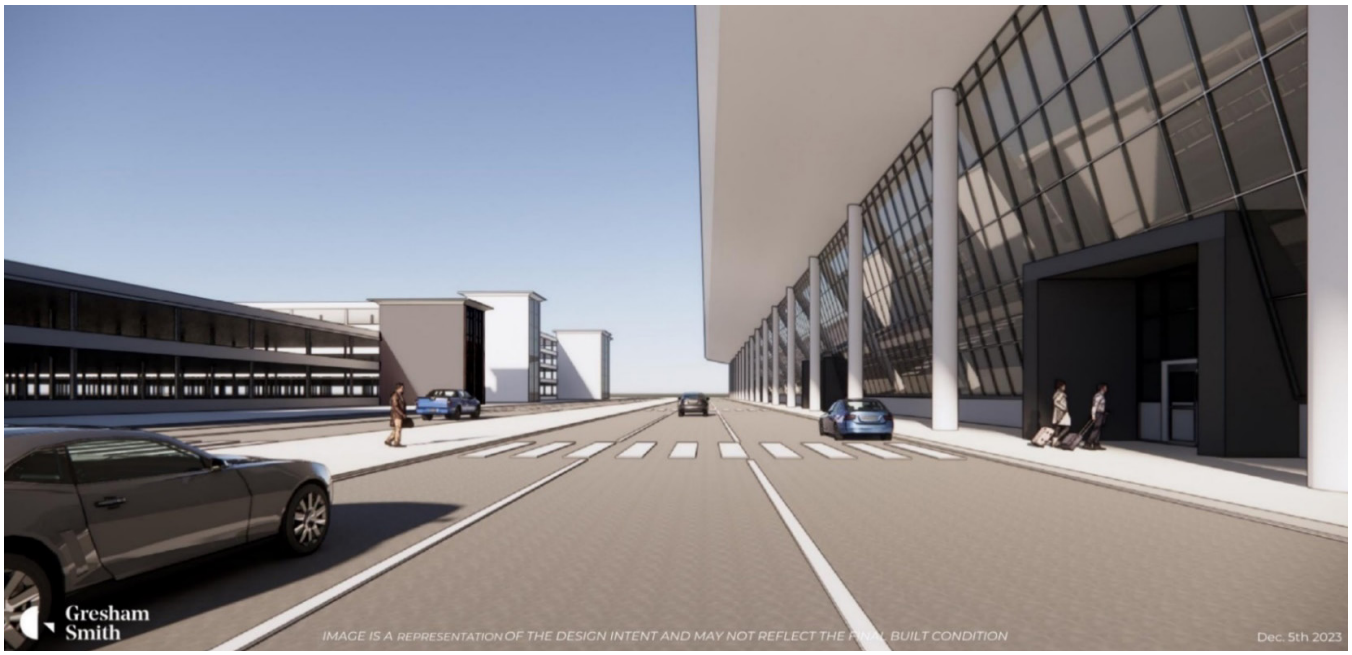
Source: Gresham Smith, 2024.

Figure 5-38
Rendered View 5B Double-Level Roadway



Source: Gresham Smith, 2024.

Figure 5-39
Rendered View 6A Single-Level Roadway

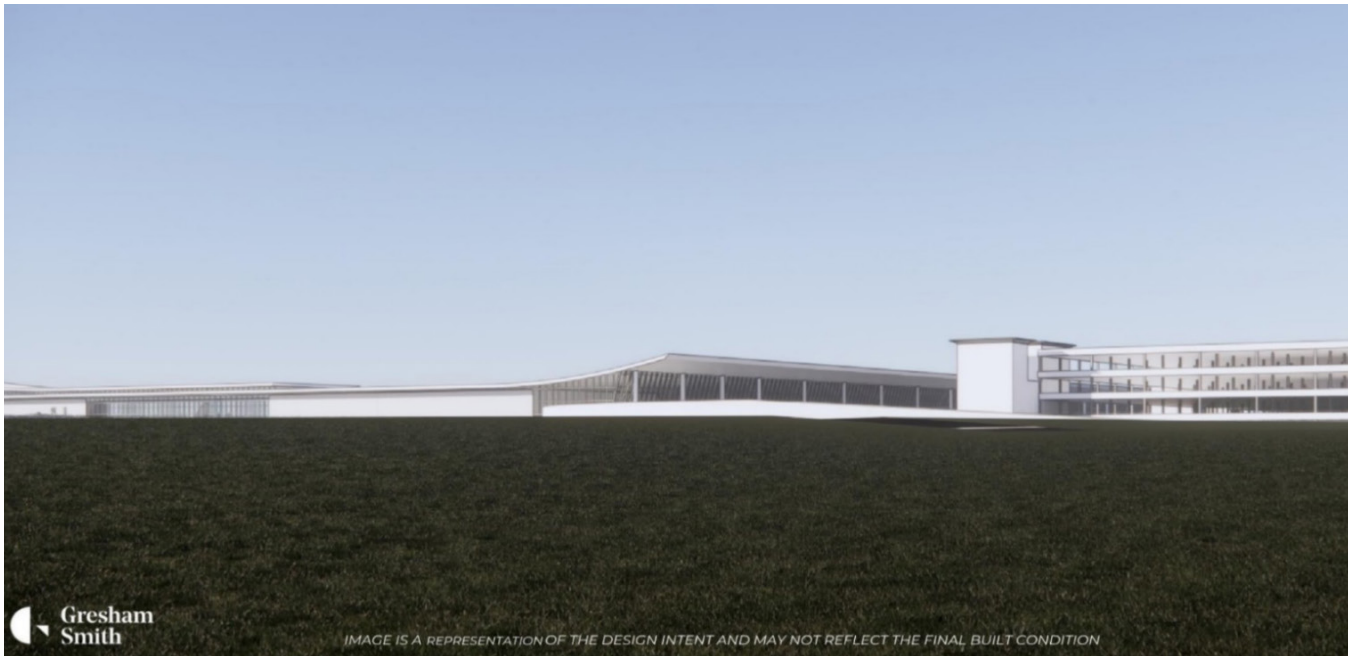


Source: Gresham Smith, 2024.

Figure 5-40
Rendered View 6B Double-Level Roadway

Source: Gresham Smith, 2024.

Figure 5-41
Rendered View 7A Double-Level Roadway



Source: Gresham Smith, 2024.

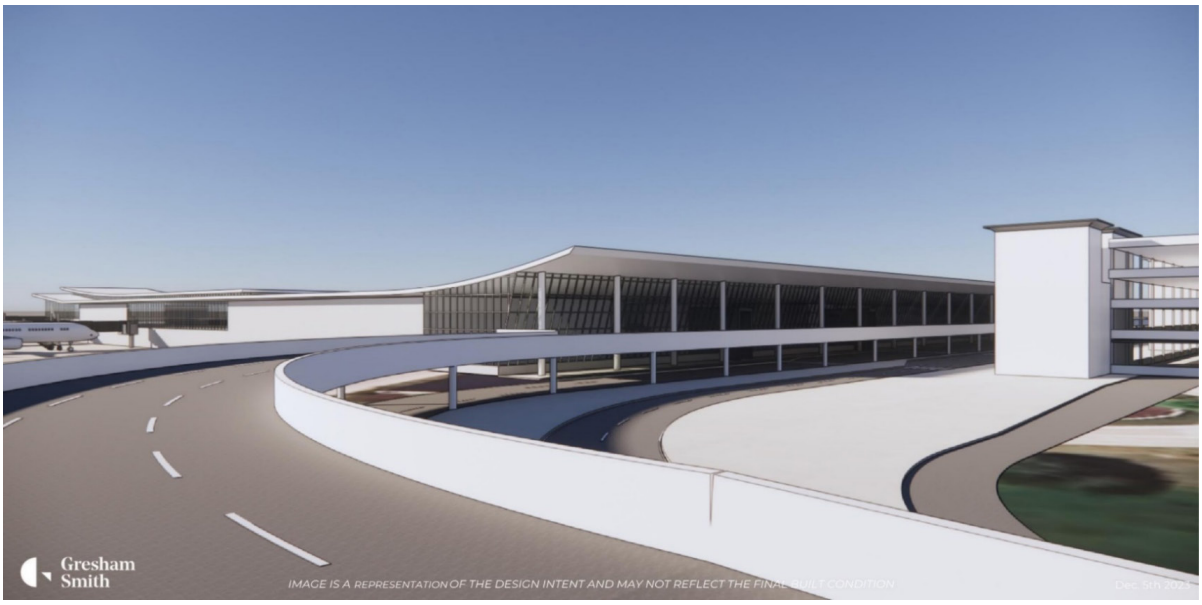
Figure 5-42
Rendered View 8A Single-Level Roadway

Source: Gresham Smith, 2024.

Figure 5-43
Rendered View 8B Double-Level Roadway

Source: Gresham Smith, 2024.

Figure 5-44
Rendered View 9 Double-Level Roadway



Source: Gresham Smith, 2024.

Area Tables

The following three tables depict the floor plan areas as shown in the color block plans. The first table shows the areas by function. The second table shows the area by the floor level. The third table shows the area based on location of airside versus landside.

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Table 5-21
Terminal Option 5B Areas by Function

Function	Square Feet
Airline Support	56,000
Airport Support	61,000
Amenity	27,000
Baggage Handling Areas	53,000
Baggage Claim Hall	21,000
Circulation	98,000
Common Use Club	13,000
Concessions	33,000
Federal Inspection Station	19,000
Holdrooms	54,000
Loading Dock	5,000
MEP/IT	44,000
Public Restrooms	15,000
Shell Space	8,000
Security Screening Checkpoint	20,000
Storage	19,000
Ticketing Hall	11,000
Vertical Circulation	7,000
Total Area	564,000

Table 5-22
Terminal Option 5B Areas by Floor

Floor	Square Feet
Level 1	310,000
Level 2	240,000
Level 3	14,000
Total Area	564,000

Table 5-23
Terminal Option 5B Areas by Location

Location	Square Feet
Landside	391,000
Airside	173,000
Total Area	564,000

5.6 Passenger Parking and Access Alternatives

The Airport will need approximately 1,800 additional vehicle parking spaces throughout the planning period to meet demand.

As the Airport and its operations grow throughout the planning period, the ability for passengers to access the terminal efficiently is a priority for the airport. Currently, the Airport provides approximately 2,559 vehicle parking spaces between the short-term parking lot, the parking garage, the long-term parking lot, and the overflow lot. As mentioned in the previous chapter, the Parking Occupancy, Demand and Adequacy Analysis established a 3.25 percent year-over-year growth of parking demand that will exceed the supply of available spaces at the Airport. It is estimated that the Airport will need approximately 1,800 additional vehicle parking spaces throughout the planning period to meet demand. Due to upcoming changes in the terminal area, the four landside and access alternatives provided are most likely to include some extent of change when they are eventually implemented. The amount of change necessary for these landside alternatives will mostly depend on the recommended and eventually chosen alternative to accommodate future growth at the terminal. As of now, two of the alternatives are developed with the terminal in its current location, and the final alternative was developed to support the previously discussed Terminal Alternative 4.

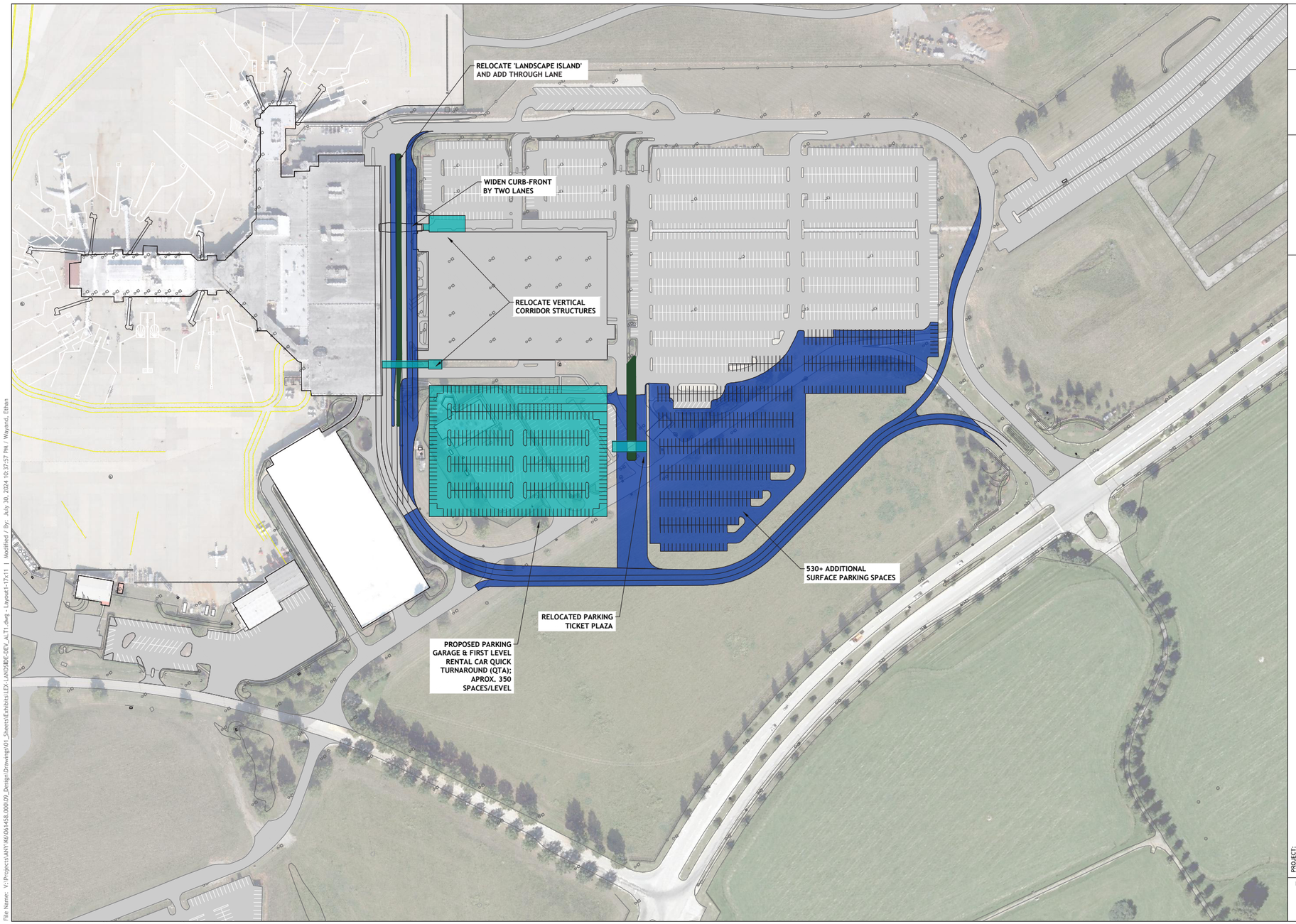
Alternative 1

Alternative 1, illustrated in **Figure 5-45**, modifies the existing terminal loop, widening it to provide space for additional curb front lanes, an additional parking garage, and approximately 530+ surface parking spaces that will all be within the new terminal loop road, Terminal Drive. The new proposed garage will be similar in size and parallel to the existing parking garage. The first floor of the new garage may be reserved for rental car quick turnaround (QTA) operations. Passenger parking levels of the garage will be able to accommodate approximately 350 parking positions per level. The expanded surface parking will extend to the south and cross over what is currently Terminal Drive. This alternative also relocates the current parking ticket plaza to a location that better fits this alternative, between the new parking garage and the expanded surface parking lot, allowing vehicles exiting the parking area quick and easy access to the ticketing plaza when leaving the airport, regardless of where they originally parked their vehicle. The two additional curb front lanes will provide the Airport with better separation between arriving and departing passengers, and two relocated vertical corridor structures can provide easy access from the garages to the terminal.

Alternative 2

Alternative 2, illustrated in **Figure 5-46**, takes a similar approach to Alternative 1. Both alternatives propose an additional 530+ surface parking spaces, the same new additional parking garage, and a relocated parking ticket plaza. Changes between Alternative 1 and Alternative 2 primarily relate to an additional roundabout exit connecting the same modified Terminal Drive to Airport Road. This provides passenger vehicles easy access when exiting the terminal road. This new roadway concept requires the current rental car ready/return facility to be demolished and relocated to the first floor of the proposed parking garage. Additionally, two through lanes traversing through both the current and proposed parking garage are proposed, connecting to the modified Terminal Drive, and providing quick access and a quick exit for TNC and taxi vehicles picking up and dropping off passengers.

Figure 5-45
Passenger Parking and Access: Alternative 1



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PASSENGER PARKING AND ACCESS: ALT 1

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5-45

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Figure 5-46
Passenger Parking and Access: Alternative 2

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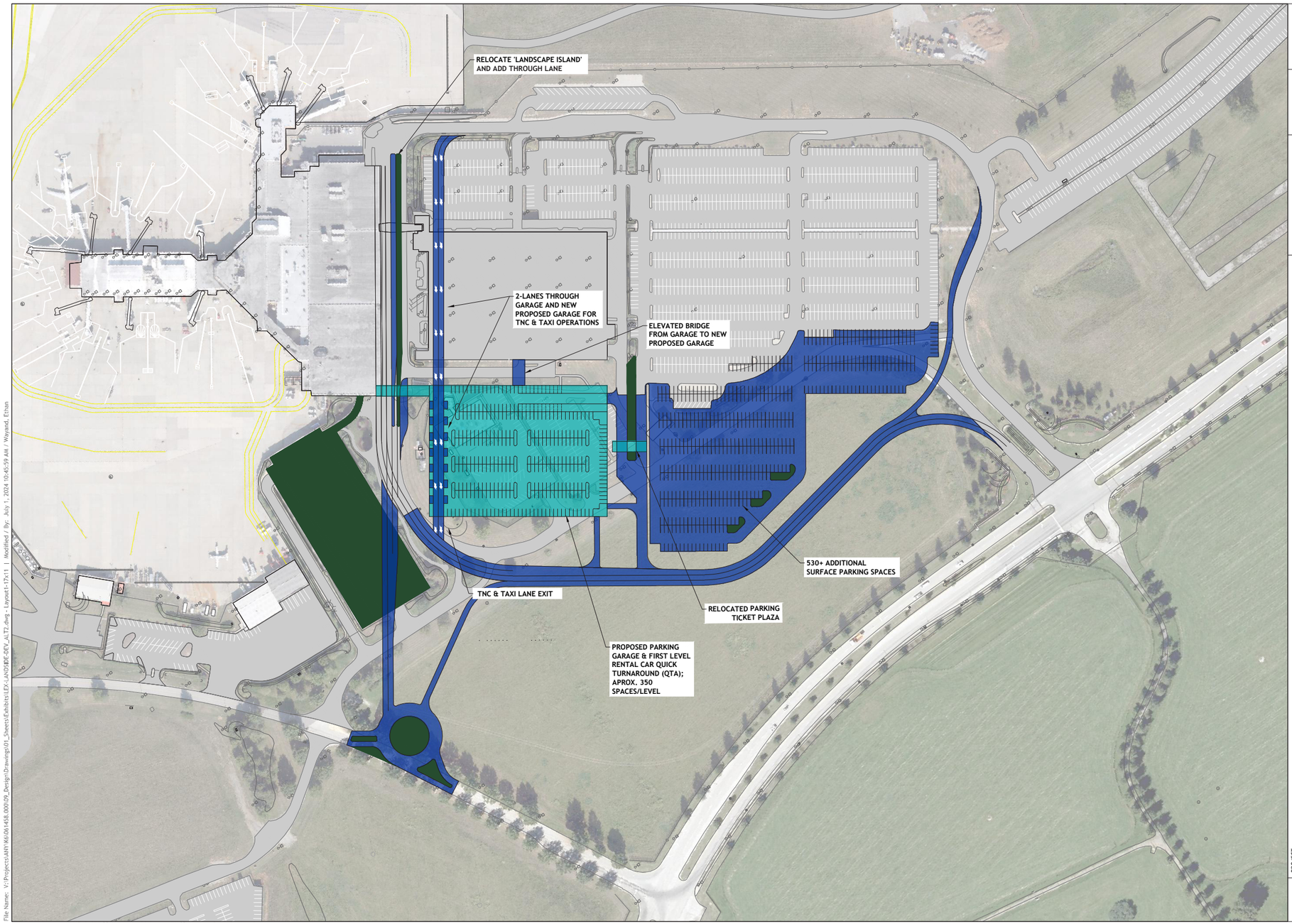

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Alternative 3

Alternative 3, illustrated in **Figure 5-47**, depicts a passenger parking and access alternative in a different location and orientation than the current LEX terminal building. Terminal Option 3 relocates the terminal building southeast of the existing terminal on the east side of the current Terminal Apron. To provide passenger access and circulation to this new terminal, a heavily modified Airport Road would serve as the terminal loop road, allowing passengers to enter and exit the loop via Man O' War Boulevard. Due to the new proposed terminal being a dual-level structure separated by arrivals and departures, the curb front area of the proposed terminal loop road would be two levels as well, separated by arrivals and departures. Within the terminal loop road, the current rental car processing areas would be re-purposed to provide long-term parking—approximately 1,500 surface parking spaces in the area would be reserved for long-term. Additionally, a short-term lot is proposed with approximately 500 spaces of surface parking adjacent to the new proposed parking garage. Due to the location of the original and current parking garage from this new terminal site, it would not be used for passenger parking in this alternative. Instead, a new larger parking garage is proposed in place of the current parking garage and second parking garage proposed in the other alternatives. This new garage would have two elevated bridges connecting to the new terminal. It would have approximately 830 surface parking spots per level and will also be the proposed home to the relocated Rental Car QTA location on its first floor.

Alternative 4

Alternative 4, illustrated in **Figure 5-48**, also depicts an option providing passenger parking and access. Like the previous alternative, this option's terminal design is a dual-level terminal and includes a proposed dual-level curb front separated by arrivals and departures within its modified terminal loop. This modified terminal loop is larger than Alternative 1 and 2, in part to provide space for solar covered flex parking. Like Alternative 1 and 2, this alternative proposes a new additional parking garage but with a bridge connecting the new garage to the existing garage. Like Alternative 2, there are two lanes running through both garages for passenger pick-up and drop-off services. Like previous alternatives, this alternative includes a relocated parking ticketing plaza with separated lanes also based upon arrivals and departures, approximately 530 extra additional surface parking spaces connecting to the current long-term lot and Rental Car QTA services being moved onto the first floor of the proposed garage.

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Figure 5-47
Passenger Parking and Access: Alternative 3

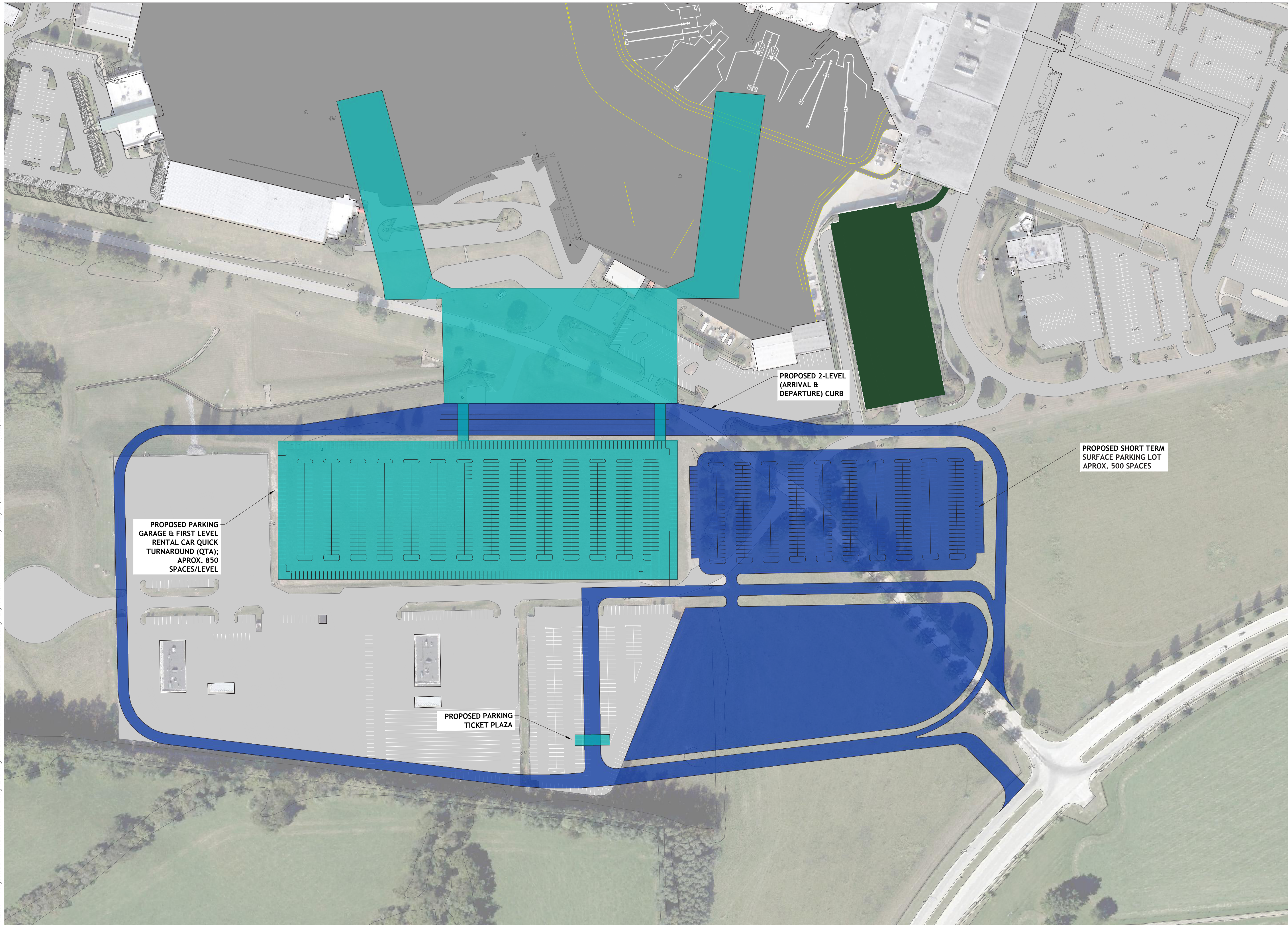

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EXHIBIT NO. 5-47

Figure 5-48
Passenger Parking and Access: Alternative 4

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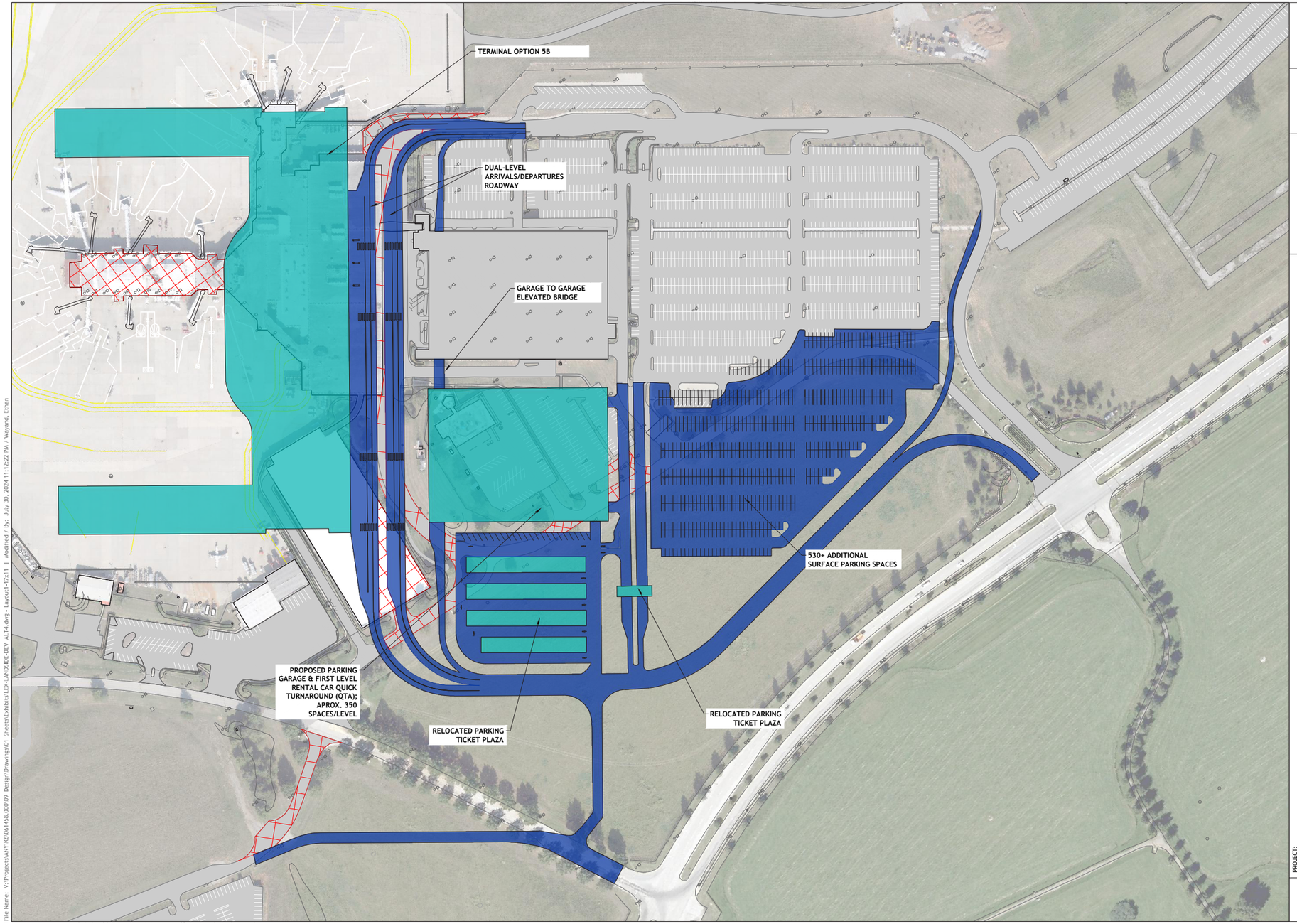

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5.7 Airfield Support Alternatives

Airfield support facilities provide vital functions related to the overall operation of the Airport and include facilities related to aviation operations, cargo operations, the Air Traffic Control Tower (ATCT), aircraft fueling, Aircraft Rescue and Firefighting (ARFF), airport maintenance, equipment storage and FIS facilities. Two major areas of focus that require updating or expansion throughout the planning period and beyond include the ATCT and the fueling facilities. Alternatives were developed for both facilities.

5.7.1 Airport Traffic Control Tower Alternatives

As noted in Working Paper 3, per FAA Order 5100.38D, Change 1, *Airport Improvement Program Handbook,* buildings generally have a useful life of 40 years. The ATCT, located east of the terminal building, was constructed in 1969 and thus surpasses its expected useful life. The tower height and location have restricted multiple facility improvements in recent decades, including terminal gate expansion, GA hangars and support facility relocations. Moreover, controller operational standards are no longer being met due to the distance from the furthest runway ends. It was recommended that the Airport consider programming for the design and construction of a new ATCT. Six potential sites were initially evaluated as part of the new ATCT siting study. These sites were eventually narrowed down to three preferred sites detailed below. These sites were then evaluated using the factors listed below. The size and location of each preferred ATCT site are listed in **Table 5-24**.

- Visual performance
- TERPS (Terminal Instrument Procedures)
- Part 77 obstructions
- Communications, navigations and surveillance
- Panoramic screenshots of computer simulation
- Rotating beacon and weather sensor
- Airfield lighting and landing aids monitoring

Table 5-24
Proposed Air Traffic Control Towers

Air Traffic Control Tower	Eye Height	Location (Lat/Long)
Existing	72' AGL	38° 2' 15.22" N 84° 35' 49.07" W
Site A	1,057' MSL	38° 2' 28.00" N 84° 36' 44.00" W
Site B	1,090' MSL	38° 2' 3.48" N 84° 36' 13.04" W
Site E	1,049' MSL	38° 2' 10.00" N 84° 36' 58.00" W

Source: CHA.

Alternative 1: Site A

Site A was evaluated at an ATCT eye height of 1,057 feet mean sea level (MSL) (82 feet above ground level [AGL]). The site is at the top of a hill that is approximately 15 feet below the airfield elevation. This site is suitable with no obstructed views of all existing and future runways, taxiways, WestLEX area and the existing terminal area apron.

Site A is in an undeveloped forested area on the northwest side of the Airport and is located 200 feet west of the adjacent Airport Perimeter Road, 2,460 feet northwest of the terminal building, and 500 feet offset to the Runway 9-27 centerline. Since Site A is outside the Airport Operational Area (AOA) in a relatively public area, a tall six-foot-high chain link fence with a motorized gate and access control is required around the site building and parking lot for FAA security requirements.

This site has clear views of the airfield, with the furthest point being approximately 5,000 feet to the end of Runway 4. Views of the airfield will be mostly to the southeast. Site A is also 2,400 feet east of Blue Grass Airport Regional ARFF Training Center, which produces occasional light smoke but is not anticipated to result in line-of-sight (LOS) issues for air traffic controllers. Site A is also adjacent to US-60 and in direct line of sight of the Keeneland Race Course grandstand. Mitigation of visual impacts should be applied.

There are no known adverse impacts to TERPS, Federal Aviation Regulations (FAR) Part 77, communications, navigation, or surveillance facilities to be caused by Site A.

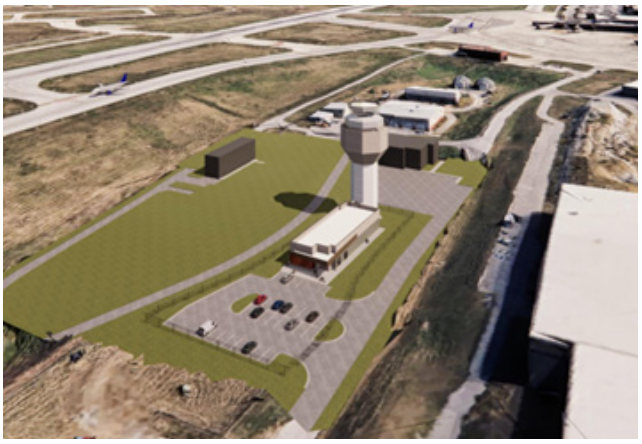
Table 5-25
Site A: Pros/Cons

Pros	Cons
✈ Good access	✈ Impact to Keeneland
✈ Shortest tower/lowest cost	✈ US Route 60 is a "Scenic Corridor"
✈ Views of primary operations areas are good	✈ Sunrise glare (can be mitigated)
✈ Available land for TRACON and parking, etc. is good.	✈ Distance to the end of Runway 4 is approximately 5,000'

Figure 5-49
Air Traffic Control Tower Site A

Alternative 2: Site B

Site B was evaluated at an ATCT eye height of 1,090 feet MSL (155 feet AGL). This site is considered to be suitable with no obstructed views of all existing and future runways, taxiways, a future north-side aircraft apron, and the existing terminal area apron. An optional eye height of 175 feet AGL was also considered for enhanced line-of-sight within the WestLEX hangar area. This situation is noted if, upon further risk management evaluation by an FAA siting team, it is determined to require a better view of small aircraft. Site B allows for the proper scan of the runway with concurrent helicopter operations.



Site B is located on the east side of the airport, 2,250 feet northwest of the existing ATCT and inside of the AOA. Therefore, Site B will not require any perimeter fencing or gate. This site is located at the south end of the existing Blue Grass Airport ARFF station. Site B is 740 feet from the Runway 4-22 centerline and 325 feet outside of the ROFA.

At the proposed eye height of 155 feet AGL, this site has clear views of the airfield, with the furthest point being 5,472 feet to the future end of Runway 9. Views of the airfield will be mostly to the northwest. Like the existing ATCT, Site B is on the east side of the airport, so controllers will use the same situational awareness that is currently in practice.

There are no known adverse impacts to TERPS, FAR Part 77, communications, navigation, or surveillance facilities to be caused by Site B. However, cumulative effects to either of the Runway 4-22 Localizers from a proposed Site B ATCT plus existing error levels (if/when known) must be evaluated.

Table 5-26
Site B: Pros/Cons

Pros	Cons
✈ Centrally located ✈ Best views looking northwest to primary operations ✈ Good access to utilities ✈ Located inside the Airport AOA ✈ Best view of the terminal ramp areas (there is no ramp control)	✈ Close to the Aircraft Rescue Fire Fighting (ARFF) parking lot ✈ Tallest tower/highest cost ✈ Visual impact to existing tower during construction ✈ L-NAV for Runway 27 approach may increase by 20' ✈ Distance to end of Runway 9 is in excess of 5,000' ✈ Has some impacts on localizer performance but lower than tolerable limits

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Figure 5-50
Air Traffic Control Tower Site B

Alternative 3: Site E

Site E was evaluated at an ATCT eye height of 1,049 feet MSL (129 feet AGL). The site is at the bottom of a hill that is approximately 30 feet below the airfield elevation. This site is considered to be suitable with no obstructed views of all existing and future runways, taxiways, WestLEX area, and the existing terminal area apron.

Site E is centrally located between Runway 9-27 and Runway 4-22. It is located on undeveloped land near the WestLEX area of the Airport, approximately 75 feet from adjacent Gumbert Road, 4,250 feet east of the existing ATCT, and 1,140 feet offset from the Runway 9-27 centerline. Site E is set 2,250 feet offset to the Runway 4-22 centerline and outside the Air Operations Area (AOA) in a relatively public area. A six-foot-high chain link fence with a motorized gate and access control is required around the site building and parking lot for FAA security requirements.

This site has clear views of the airfield, with the furthest point being 5,384 feet to the end of Runway 22. Views of the airfield will be mostly to the northeast. Runway 4 is a left approach, and Runway 22 is a right approach. Runway 27 is a right approach, and Runway 9 is a left approach.

Since Site E sits in between both runways, controllers will have to turn left, right, and behind throughout the day in order to locate aircraft arriving and departing from the south and west. This can cause what is called a "swivel head" for air traffic controllers, but the LEX air traffic manager said it should not be a significant issue. There are no known adverse impacts to TERPS, FAR Part 77, communications, navigation, or surveillance facilities to be caused by Site E.

Table 5-27
Site E: Pros/Cons

Pros	Cons
✈ Good access to utilities ✈ Close to both runways ✈ Good view of all movement areas	✈ Distance to the end of Runway 22 is in excess of 5,000' ✈ Impact of "swivel head" on controller workload ✈ Lowest ground elevation, which adds to the required height of the structure

Figure 5-51
Air Traffic Control Tower Site E

5.7.2 Fuel Farm Facility Alternatives

The current commercial aviation fueling facilities consist of a fuel farm owned by LFUCAB and operated by Signature Flight Support, located on Aviator Road, southwest of the Terminal Building. Signature Flight Support performs all commercial fueling operations at the Airport and provides Avgas to two self-serve tanks owned by the airport in separate GA areas. It has a current Jet-A storage capacity of 90,000 gallons throughout its five Jet-A tanks, with about three to five deliveries of Jet-A gas arriving every day. The functionality of the existing facility was evaluated in **Chapter 1**.

While the fueling infrastructure and capacity were deemed adequate for current conditions at the Airport, due to the age and condition of the fueling system, it is near the end of its useful life. Therefore, in an effort to consolidate and grow the fueling system, **Figure 5-52** illustrates two potential locations for a consolidated and larger fuel farm at the Airport.

Alternative 1: North Fuel Farm Facility

This alternative, illustrated in **Figure 5-53**, shows a new fuel farm facility north of the airfield off Gumbert Road, adjacent to WestLEX and potential ATCT Site E. This alternative would primarily consolidate Avgas self-serve operations near Runway 9-27 and provide fuel trucks a specific area to load and unload Jet-A fuel. Different features of this fuel alternative are listed below.

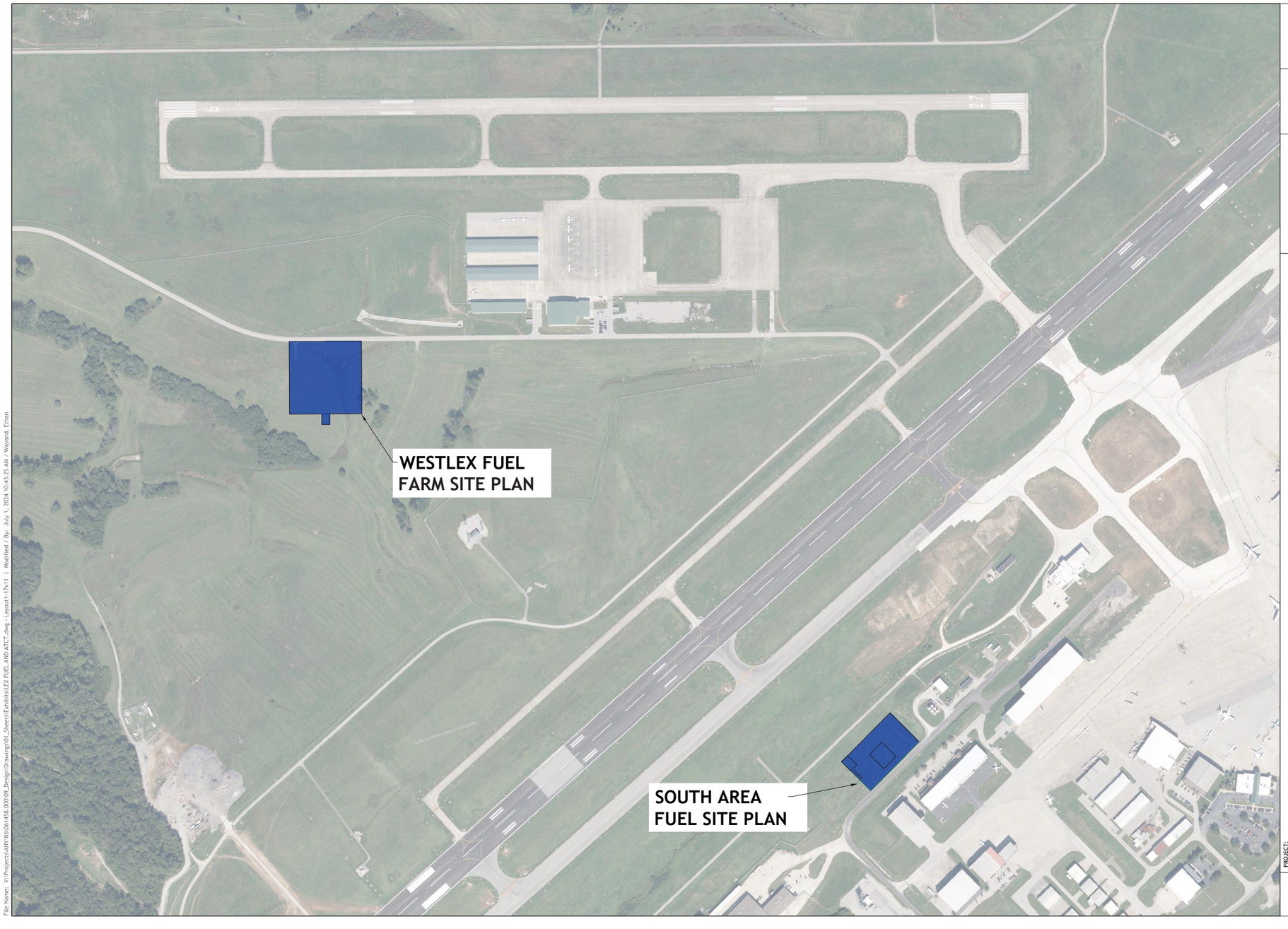
- A new fuel truck drive path off Gumbert Road
- Two new 20,000-gallon Avgas self-contained above-ground tanks
- A new Avgas truck loading/offloading and filtering equipment shelter
- A new Jet-A truck loading/offloading and filtering equipment shelter

Alternative 2: South Fuel Farm Expansion

This alternative, illustrated in **Figure 5-54**, shows a new fuel farm expansion area adjacent to the existing fuel farm. This alternative would work in tandem with the current fuel farm and serve as an expansion with updated and more renovated infrastructure. The preferred solution to the fuel issue at LEX includes this alternative expansion of the current fueling infrastructure. Different features of this alternative are listed below.

- A new facility entrance and exit off the existing Aviator Road
- Two new truck loading positions with truck loading hose, strainer, control valve, meter, and meter proving connections
- New site fencing
- A new underground 12,000-gallon oil/water separator
- A new truck drive path
- A truck loading/unloading containment area
- Three new 40,000-gallon Jet-A tanks
- A new 40,000-gallon sustainable aviation fuel tank
- A new 1,000-gallon diesel tank
- New truck-loading pumps and filter separators
- A new facility maintenance building

Figure 5-52
Fuel Farm Alternative Sites



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PROJECT:
BLUE GRASS AIRPORT
MASTER PLAN UPDATE

TITLE:
FUEL FARM ALTERNATIVES:
BOTH SITES

EXHIBIT NO.
5-52

File Name: V:\Projects\ANY\KG\61458.000\09_Design\Drawings\01_Sheets\Exhibits\EX FUEL AND ATCT.dwg - Layout=17x11 | Modified / By: July 1, 2024 10:43:25 AM / Wayand, Ethan

Figure 5-53
North Fuel Farm Facility

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A1 NEW NORTH FUEL FARM FACILITY
SCALE: 1" = 10'

NOTES:

1. DRAWINGS SHOWN ARE APPROXIMATE IN NATURE AND FOR CONCEPT LEVEL DESIGN ONLY.
2. NEW 20,000 GALLON JET-A AND AVGAS TANKS TO BE UL 2085 FIREGUARD TANKS EQUIPPED WITH LEVEL GAUGE, AUTOMATIC TANK GAUGE, TANK OVERFILL PROTECTION, MANWAY, PRIMARY AND SECONDARY VENTS, WATER DRAWOFF CONNECTIONS, INTERSTICE MONITORING, AND STAIRS AND PLATFORMS TO ACCESS TANK APPURTENANCES. TANKS SHALL BE EQUIPPED WITH SKID MOUNTED TANK LOADING AND OFFLOADING PUMPS AND FILTERS ON THE FRONT OF THE TANKS.

CONCEPT DRAWINGS

BLUE GRASS AIRPORT FUEL SITE REPLACEMENT
4000 TERMINAL DR,
LEXINGTON, KY 40510

NORTH AREA SITE PLAN

SHEET IDENTIFICATION
M-402

Figure 5-54
South Fuel Farm Expansion

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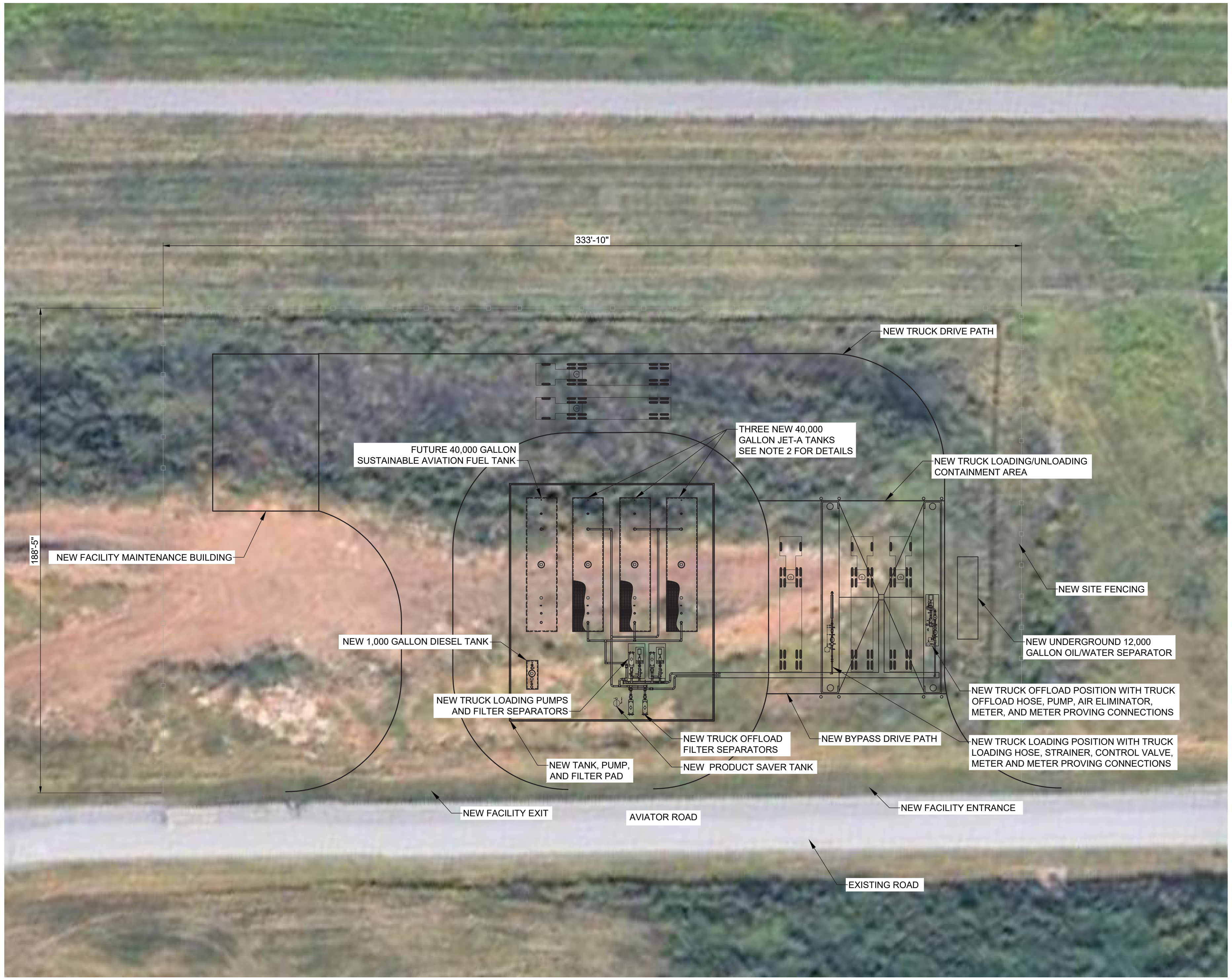


A1 NEW SOUTH FUEL FARM FACILITY
SCALE: 1" = 20'

NOTES:
1. DRAWINGS SHOWN ARE APPROXIMATE IN NATURE AND FOR CONCEPT LEVEL DESIGN ONLY.
2. NEW 40,000 GALLON JET-A TANKS AND 1,000 GALLON DIESEL TANK TO BE UL 2085 FIREGUARD TANKS EQUIPPED WITH LEVEL GAUGE, AUTOMATIC TANK GAUGE, TANK OVERFILL PROTECTION, MANWAY, PRIMARY AND SECONDARY VENTS, WATER DRAWOFF CONNECTIONS, INTERSTICE MONITORING, AND STAIRS AND PLATFORMS TO ACCESS TANK APPURTENANCES.

CONCEPT DRAWINGS

BLUE GRASS AIRPORT FUEL SITE REPLACEMENT
4000 TERMINAL DR.
LEXINGTON, KY 40510
SOUTH AREA SITE PLAN

SHEET IDENTIFICATION
M-401

5.8 Recommended Development Plan Summary

Based on the review of the Airport's goals and objectives, as well as the needs and constraints identified in this chapter and previous chapters, specific alternatives were identified as the most reasonable to form the recommended development plan for LEX. This plan improves the safety, operational efficiency, and functionality of the airfield while incorporating all necessary facilities. This section provides a summary of the major concepts in support of the Airport's long-term operation.

As mentioned previously, a substantial number of areas at the airport were evaluated, and concepts for improvement were recommended. It should be emphasized that this is a long-term plan and that some desired improvements may not be financially or environmentally feasible. Prior to the implementation of some of the proposed development projects, an Environmental Assessment (EA) or Environmental Impact Statement (EIS) would be required in accordance with regulations covered under the National Environmental Policy Act (NEPA).

It should be emphasized that this is a long-term plan and that some desired improvements may not be financially or environmentally feasible.

A summary of the advantages and disadvantages of each recommended alternative or concept is presented in **Table 5-28**, while the recommended plan for LEX is illustrated in **Figure 5-64**.

5.8.1 Airfield Development

Runway and Taxiway Development

The primary determinant for the development of the runway concepts was the need to ensure continued operation of commercial and other large aircraft at the Airport during the proposed reconstruction of Runway 4-22. During this discussion, as the runway reconstruction is likely near the end or beyond the Study period, flexibility is the key to the improvement project. As such, for the purposes of land and airspace protection, it will be shown on the ALP for improvements to both Taxiway A and Runway 9/27. In the scenario where Taxiway A becomes the temporary runway, the conversion (discussed in the 4/22 Reconstruction Memo) back to a Taxiway will require improvements to Taxiway A and Taxiway B. Therefore, in lieu of a separate improvement project, all projects are shown/discussed as part of the recommended development plan.

<u>Runway 9-27 Temporary Primary Runway</u>

Prior to the reconstruction of Runway 4-22, it is recommended that previously discussed Runway Alternative 8, "Temporary Primary Runway 9-27," is constructed to allow Runway 9-27 to assume some primary runway operations until the reconstruction of Runway 4-22 is complete. This would include widening both Runway 9-27 to 100 feet and Taxiway F to 50 feet. It would also involve extending both ends of Runway 9-27, including the parallel taxiway. The extensions at the Runway 9-27 end—both the runway and taxiway—would need to be removed before Runway 4-22 can be reopened. Taxiways F5 and F6 are recommended to be removed, as they would be in the middle third of the new extended Runway 9-27, and fillet corrections would be made to Taxiway F connectors to have them standard

Figure 5-55
Runway 9-27 Temporary Primary Runway

with accommodating ADG-III aircraft. This alternative also requires a lot of work to be done on Gumbert Road, relocating it to be out of the future Runway 9-27 RSA and tunneling it on either side under the Runway 9 threshold.

Taxiway A Improvements

It is recommended that Taxiway A be modified during reconstruction to provide a standard runway-taxiway centerline distance of 400 feet. This would require approximately half of the taxiway on the Runway 4 end to be modified in line with the Runway 22 end. It is also recommended that Taxiways A3, A4, and A5 be removed and replaced with two new taxiway connectors that avoid the middle third of the runway. Additionally, it is recommended that fillets be corrected on all taxiway connectors to conform to ADG-V design criteria.

Taxiway B Improvements

It is recommended that Taxiway B also receive modifications during the Runway 4-22 reconstruction, including the widening of Taxiway B to a width of 50 feet. Widening Taxiway B will require the nearby airport support road to be modified to remain clear of the Taxiway B TSA. Additionally, it is recommended that Taxiway B is extended to the full length of Runway 4. Taxiways B3, B4, and B5 are recommended to be removed and replaced with new taxiway connectors to both provide Taxiway B a connector to the Runway 4 threshold and to avoid taxiway connection within the middle third of the runway. Fillet corrections are only recommended for Taxiway G, which connects Taxiway B to Runway 4-22 on its most northern end.

Figure 5-56
Taxiway A and B Improvements

5.8.2 Airfield Support Development

General Aviation Development

East GA Apron: Alternative 1

This recommended alternative depicts the growth of GA development on the East Apron near the terminal while also providing additional apron space within the area. By relocating the Aviation Museum of Kentucky, the FBO, and almost 150,000 square feet of hangars and T-hangars, this alternative adds approximately 250,000 square feet of new and larger hangars while also creating approximately 190,000 square yards of additional itinerant apron space on the East GA Apron.

Figure 5-57
East General Aviation Apron: Alternative 1

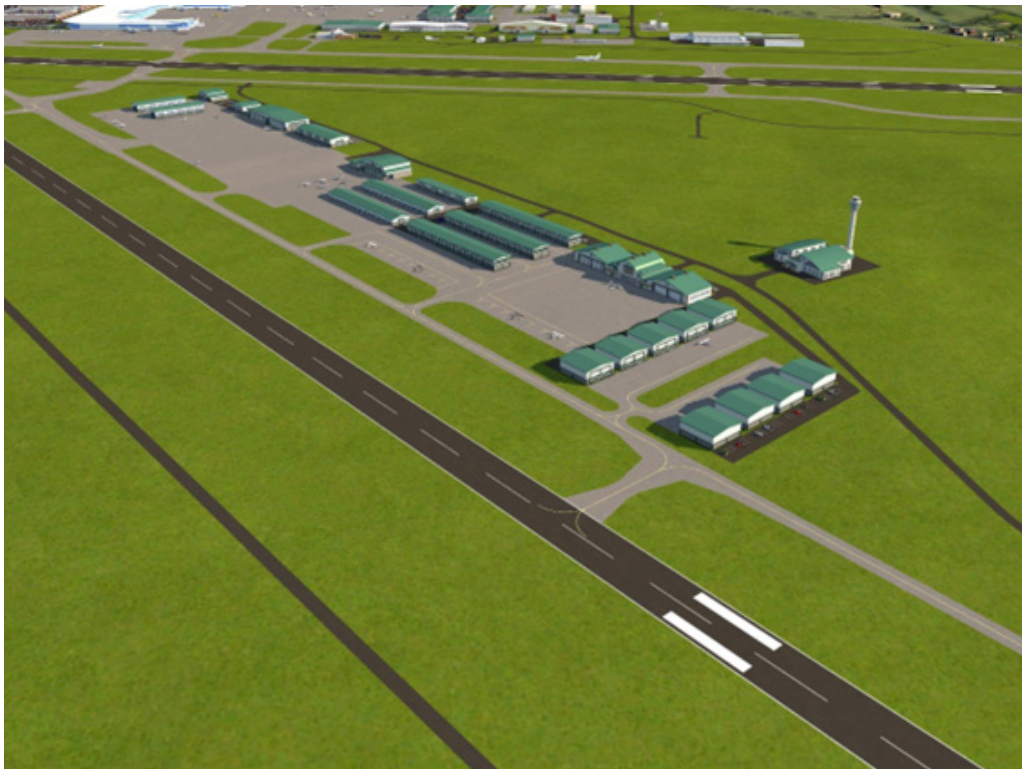
WestLEX (East Side): Alternative 1

The recommended alternative for the eastern portion of the WestLEX apron is Alternative 1. This area is recommended to be the new home for the Aviation Museum of Kentucky and add approximately 35,000 square yards of apron space with 19 aircraft tie-downs on the new apron pavement. In addition to the museum, two 80-foot x 80-foot hangars will be added with attached 30-foot x 80-foot buildings capable of serving as classroom or office space. Two large 55-foot x 200-foot T-hangars are also proposed on the extended apron capable of holding ten small aircraft. This alternative also provides approximately 100 vehicle parking spaces to provide access for GA tenants and Aviation Museum of Kentucky visitors.

WestLEX (West Side): Alternative 3

This recommended alternative is located on the western portion of the WestLEX apron. This alternative includes approximately 48,529 square yards of apron space, which includes 16 aircraft tie-downs on the new apron pavement. This alternative provides approximately 150,000 square feet of aircraft storage hangar space with approximately 40,000 square feet of that being T-hangar space between its seven 80-foot x 80-foot box hangars, three T-hangars and two large community hangars, as well as approximately 200 vehicle parking spaces for GA tenants and visitors.

Figure 5-58
WestLEX General Aviation Alternatives 1 and 3



Other Airfield Support Alternatives

Air Traffic Control Tower: Site E

Site E is the recommended alternative out of the three different studied ATCT sites. This site is centrally located between both Runway 9-27 and Runway 4-22. It is located on undeveloped land near the WestLEX area, approximately 75 feet off Gumbert Road. While some additional security measures may be required in this location, this alternative is recommended as the best option for a new ATCT for both the existing airfield configuration and future development. See **Figure 5-59** on the following page.

Figure 5-59
ATCT Site: E

Fuel Farm: Alternative 2

Alternative 2 was recommended for both its location, access to current utilities and its availability to upgrade and add to current fueling infrastructure. This alternative offers over 120,000 additional gallons of Jet-A fuel storage, an underground oil/water separator, a new 40,000-gallon tank reserved for sustainable aviation fuel, as well as the improved space reserved for delivery truck access, which will be able to satisfy the airfield's need for fuel currently and as it grows throughout the planning period.

Figure 5-60
Fuel Farm: Alternative 2

5.8.3 Landside Development

Terminal Option 5B

As previously discussed, Terminal Option 5B is the recommended terminal option. This option is a new dual-level terminal separated by arrivals and departures. Overall renderings and floor plans are shown in **Figure 5-29**, **Figure 5-30**, and **Figure 5-31**. As the proposed Terminal Building is located within the existing area, several of the current terminal support infrastructure facilities, including the passenger parking and access areas, Terminal Apron, etc., would only require slight modification to support this new terminal plan.

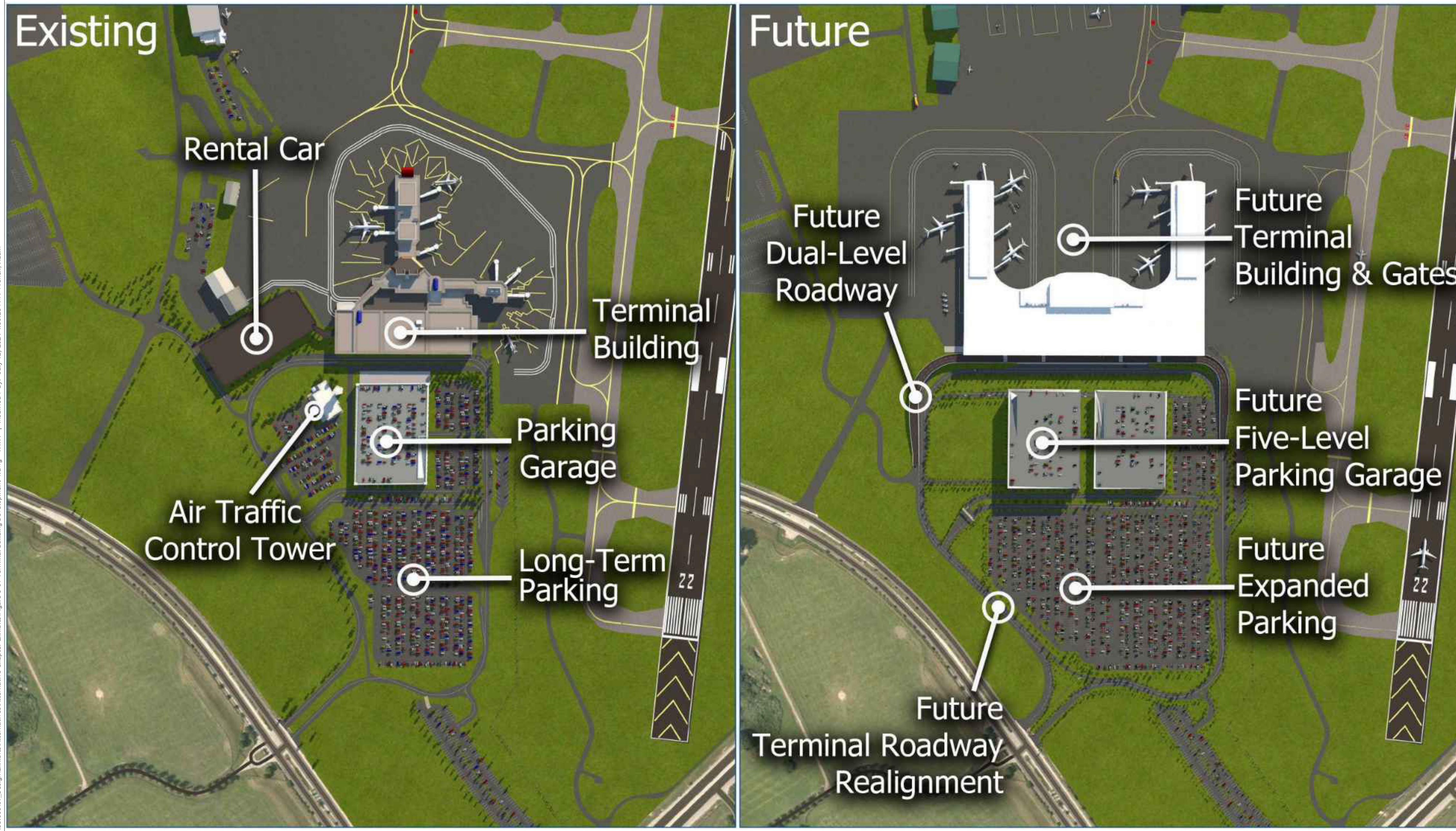
Figure 5-61
Final Terminal Recommendation

Passenger Parking and Access: Alternative 4

This alternative is recommended to support the new terminal alternative recommended above. This alternative includes a new parking garage parallel to and adjacent to the current parking garage, an elevated bridge connecting the two garages, and two lanes traversing through the first floor, providing quick and separate access for TNC pick-up and drop-off. In addition to the new parking garage, this alternative recommends surface parking expansion and a new solar-covered flex parking area with close access to the terminal, all within the new modified terminal loop road. To allow easy access to passengers arriving and departing the airport, the terminal curb front is elevated by two levels, allowing passengers curb front access to both floors of the updated terminal. Rental Car QTA operations have been moved from their current location to the first floor of the new garage. The removal of this current building will allow the addition of an area for future landside terminal development that the Airport can use in the future for something that they see fit.

Figure 5-62
Passenger Parking and Access

Figure 5-63
Terminal Area Development



PROJECT: BLUE GRASS AIRPORT MASTER PLAN UPDATE

TITLE: FUTURE TERMINAL AREA DEVELOPMENT

EXHIBIT NO. 5-63

Table 5-28
Recommended Development Plan

Recommended Alternative/Concept	Opportunities	Constraints
Airfield Development		
Temporary Primary Runway 9-27 (Alternative 8)	✈ Allows runway to temporarily accommodate commercial operations during Runway 4-22 reconstruction ✈ Existing Runway 9-27 deficiencies are addressed ✈ Results in an extended Runway 9-27 ✈ Results in a corrected Runway 4-22 and parallel Taxiway A	✈ At a runway-to-taxiway separation distance of 300', Runway 9-27's ROFA would encompass Taxiway F pavement. A Modification of Standards would be necessary. ✈ Existing AOA perimeter fence on the northside would need relocating approx. 150' to the north to avoid new 9-27 ROFA ✈ Gumbert Road relocation and tunneling necessary ✈ Longer taxi time and distance for aircraft to and from Terminal Apron when using Runway 9-27 ✈ Aircraft parking would not be allowed on the north side of WestLEX aprons due to penetrating Part 77 primary surface.
Taxiway A Improvements (Alternative 1)	✈ Can be done simultaneously to Runway 4-22 reconstruction ✈ Corrects Taxiway A to be full parallel to Reconstructed 4-22 ✈ Corrects Taxiway A connectors to Runway 4-22 so they are not in the middle third of the runway	✈ Significant work removing existing Taxiway A ✈ Must be phased to allow access to Runway 9-27 during Runway 4-22 reconstruction ✈ Requires airport support road near the fuel farm to be relocated
Taxiway B Improvements (Alternative 1)	✈ Can be done simultaneously to Runway 4-22 reconstruction ✈ Corrects Taxiway B connectors to Runway 4-22 to not be in the middle third of the runway ✈ Widens Taxiway B to support TDG 3 aircraft ✈ Extends Taxiway B to go all the way down the Runway 4 threshold	✈ Must be phased to allow access to Runway 9-27 during Runway 4-22 reconstruction ✈ Requires airport support road in between Taxiway B and WestLEX to be relocated

Recommended Alternative/Concept	Opportunities	Constraints
Airfield Support Development		
East General Aviation Apron (Alternative 1)	✈ Modifies flight line to create approximately 25,000 SY of itinerant apron space on the East GA Apron ✈ Additional 245,000 SF of new hangar space ✈ Relocates FBO ✈ Relocates Aviation Museum	✈ While most are at the end of the useful life cycle, it removes 145,000 SF of current hangar space.
West General Aviation Apron (Alternative 1)	✈ Additional 35,000 SY of new hangar space ✈ Additional 53,000 SF of additional hangar space ✈ 19 new aircraft tie-downs ✈ Adds office/classroom space to some new hangars ✈ 100 additional parking spaces in WestLEX area ✈ Additional Apron Expansion in the current "hole" in WestLEX apron ✈ Compatible with currently planned community hangar and Aviation Museum	✈ Will require additional apron expansion to meet goals of getting most small GA aircraft based on Runway 9-27
West General Aviation Apron (Alternative 3)	✈ More expansion than alternatives on the other side of the current WestLEX apron ✈ Approximately 50,000 SY of additional apron space ✈ Additional 150,000 additional SF of apron space (T-hangar/box hangar) ✈ Approximately 200 vehicle parking spots ✈ Can work in conjunction with West GA Alternative 1 on the other side of the WestLEX apron	✈ Potential adjustments may be required to coexist with other alternatives that may be recommended

Recommended Alternative/Concept	Opportunities	Constraints
Air Traffic Control Tower (Site E)	✈ Good access to current utilities ✈ Close proximity to both runways. ✈ Good view of all current movement areas	✈ Distance to the end of Runway 22 is in excess of 5,000' ✈ Impact of "swivel head" on ATCT controller workload ✈ Lowest ground elevation requires a higher height of tower structure
Fuel Farm (Alternative 2)	✈ Works in tandem with aspects of the current fuel farm ✈ Requires fewer deliveries with higher quality storage and other fuel farm infrastructure and equipment	✈ Other recommended alternatives would impact entrances and exits proposed ✈ Requires new site fencing
Landside Development		
New Passenger Terminal Building (Option 5B)	✈ Small terminal footprint due to being two levels ✈ Utilizes existing and recommended parking expansions ✈ Does not encroach on the current RON parking area ✈ Limited impacts on the current FBO ramp ✈ Double-loaded concourses ✈ New landside dock is closer to central terminal functions ✈ Flexible implementation and phasing	✈ Will require relocations to portions of Airport Road ✈ Requires relocation of current freight facility ✈ Requires the relocation of the current horse transport facility. ✈ Current terminal activities are highly impacted while reconstruction is occurring ✈ Future concourse expansion will require more ramp space ✈ Difficulty phasing two-level roadway while operating terminal ✈ Does not reuse Concourse B ✈ Gates on the east side are less desirable due to distance and access from the Runway ✈ Current ATCT must be moved to build a new garage

Recommended Alternative/Concept	Opportunities	Constraints
Passenger Parking and Access (Alternative 4)	✈ Dual-level roadway provides better traffic separation and efficiency for passengers ✈ Additional 530 surface parking spaces ✈ New parking garage ✈ New parking garage connected to the current parking garage and two surface-level lanes going through both lanes for taxis and rideshare operations ✈ New terminal loop exits	✈ Difficulty phasing new additions while keeping current operations ongoing ✈ Most expensive out of all four parking and access alternatives ✈ Would require modified terminal loop roadway to fit new additions

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Figure 5-64
Recommended Development Plan

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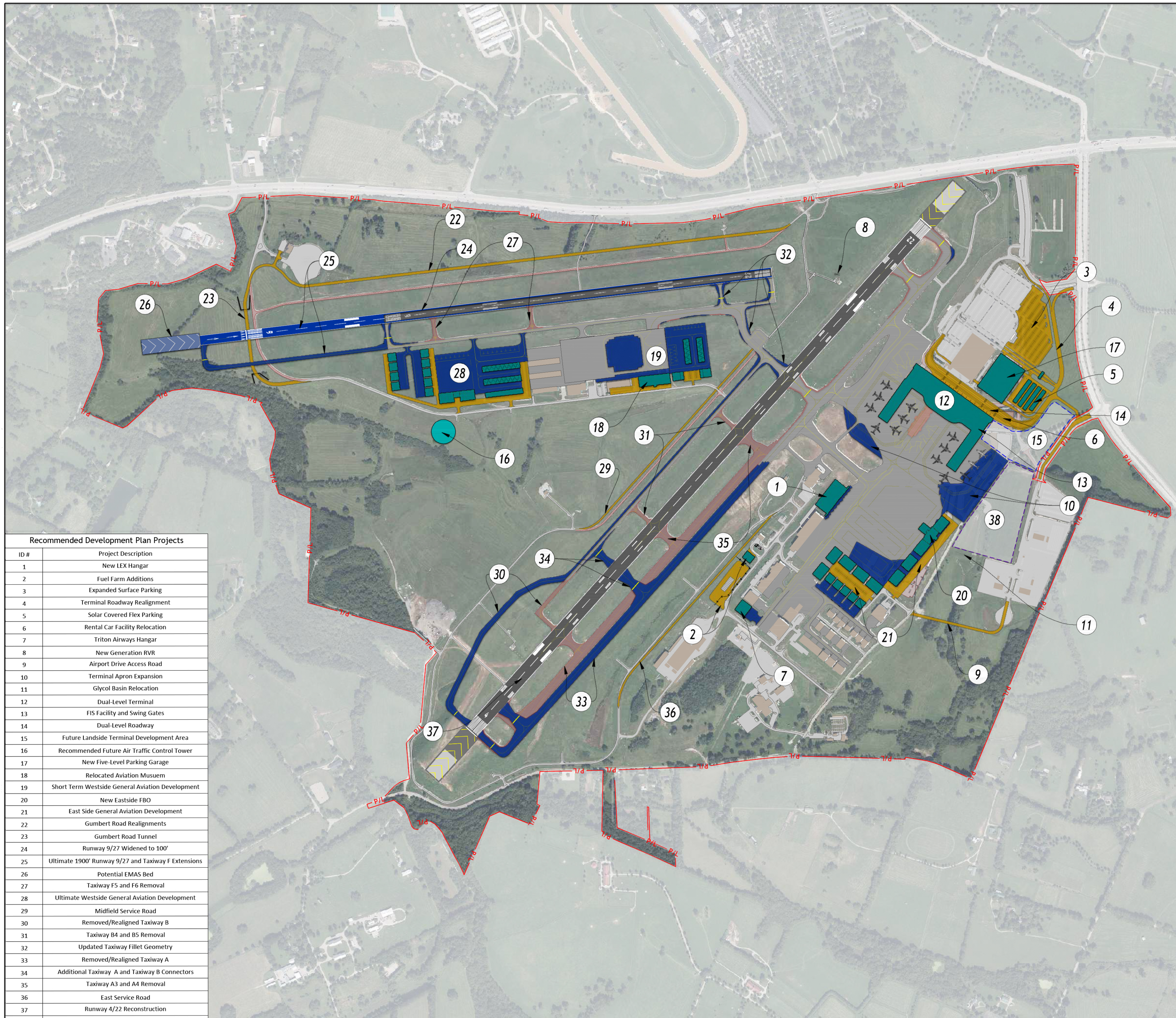

Recommended Development Plan Projects	
ID #	Project Description
1	New LEX Hangar
2	Fuel Farm Additions
3	Expanded Surface Parking
4	Terminal Roadway Realignment
5	Solar Covered Flex Parking
6	Rental Car Facility Relocation
7	Triton Airways Hangar
8	New Generation RVR
9	Airport Drive Access Road
10	Terminal Apron Expansion
11	Glycol Basin Relocation
12	Dual-Level Terminal
13	FIS Facility and Swing Gates
14	Dual-Level Roadway
15	Future Landside Terminal Development Area
16	Recommended Future Air Traffic Control Tower
17	New Five-Level Parking Garage
18	Relocated Aviation Musuem
19	Short Term Westside General Aviation Development
20	New Eastside FBO
21	East Side General Aviation Development
22	Gumbert Road Realignments
23	Gumbert Road Tunnel
24	Runway 9/27 Widened to 100'
25	Ultimate 1900' Runway 9/27 and Taxiway F Extensions
26	Potential EMAS Bed
27	Taxiway F5 and F6 Removal
28	Ultimate Westside General Aviation Development
29	Midfield Service Road
30	Removed/Realigned Taxiway B
31	Taxiway B4 and B5 Removal
32	Updated Taxiway Fillet Geometry
33	Removed/Realigned Taxiway A
34	Additional Taxiway A and Taxiway B Connectors
35	Taxiway A3 and A4 Removal
36	East Service Road
37	Runway 4/22 Reconstruction
38	Future Flex Development

GRAPHIC SCALE (FEET)
0 500 1000 2000

LEGEND

- FUTURE AIRSIDE PAVEMENT
- FUTURE LANDSIDE PAVEMENT
- FUTURE BUILDING
- AIRFIELD PAVEMENT REMOVAL
- LANDSIDE PAVEMENT REMOVAL
- AIRPORT PROPERTY LINE

Blue Grass Airport
LEXINGTON, KENTUCKY

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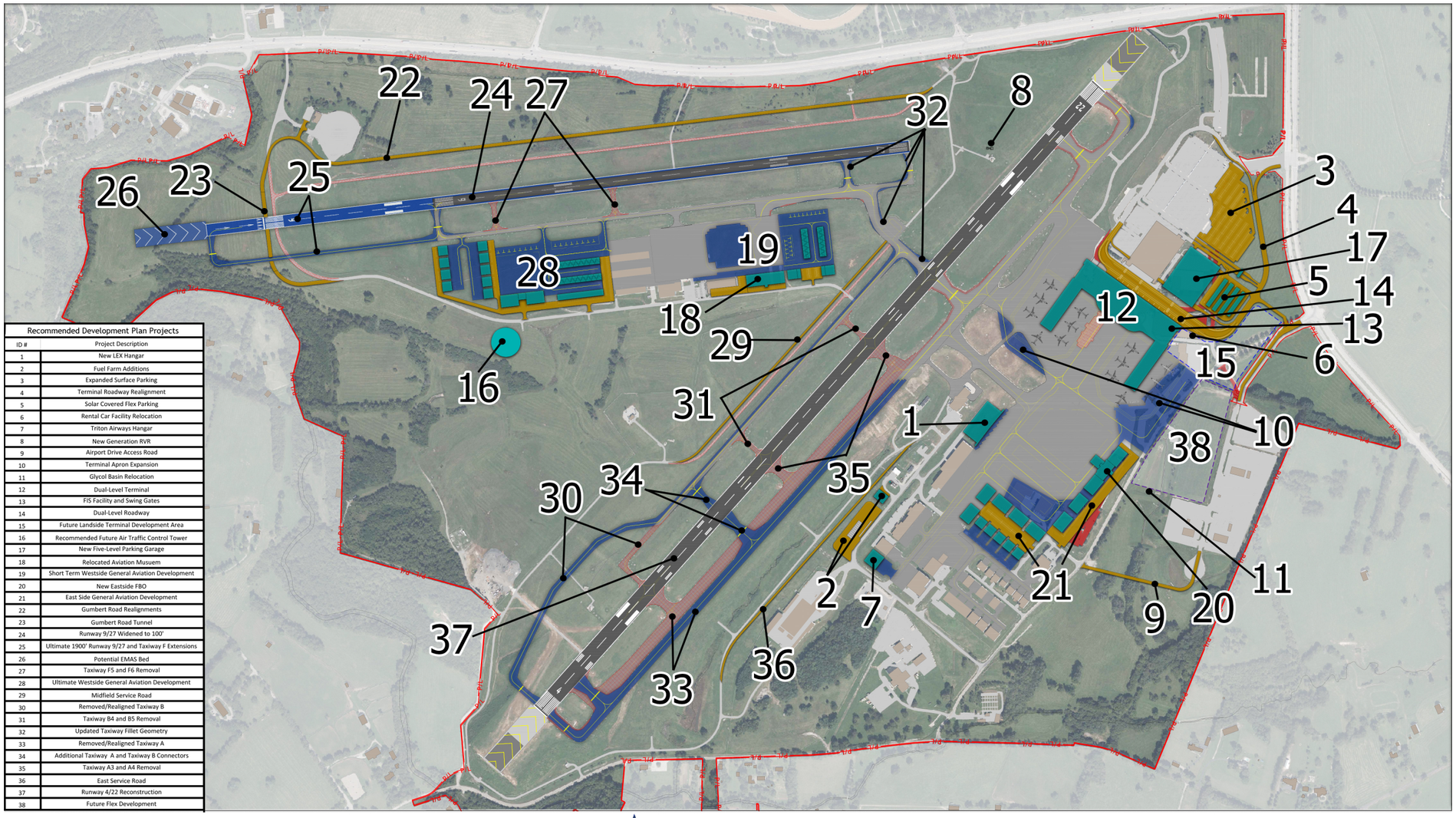
PROJECT: BLUE GRASS AIRPORT MASTER PLAN UPDATE

TITLE: RECOMMENDED DEVELOPMENT PLAN

EXHIBIT NO.
5-64



Recommended Development Plan Projects	
ID #	Project Description
1	New LEX Hangar
2	Fuel Farm Additions
3	Expanded Surface Parking
4	Terminal Roadway Realignment
5	Solar Covered Flex Parking
6	Rental Car Facility Relocation
7	Triton Airways Hangar
8	New Generation RVR
9	Airport Drive Access Road
10	Terminal Apron Expansion
11	Glycol Basin Relocation
12	Dual-Level Terminal
13	FIS Facility and Swing Gates
14	Dual-Level Roadway
15	Future Landside Terminal Development Area
16	Recommended Future Air Traffic Control Tower
17	New Five-Level Parking Garage
18	Relocated Aviation Musuem
19	Short Term Westside General Aviation Development
20	New Eastside FBO
21	East Side General Aviation Development
22	Gumbert Road Realignments
23	Gumbert Road Tunnel
24	Runway 9/27 Widened to 100'
25	Ultimate 1900' Runway 9/27 and Taxiway F Extensions
26	Potential EMAS Bed
27	Taxiway F5 and F6 Removal
28	Ultimate Westside General Aviation Development
29	Midfield Service Road
30	Removed/Realigned Taxiway B
31	Taxiway B4 and B5 Removal
32	Updated Taxiway Fillet Geometry
33	Removed/Realigned Taxiway A
34	Additional Taxiway A and Taxiway B Connectors
35	Taxiway A3 and A4 Removal
36	East Service Road
37	Runway 4/22 Reconstruction
38	Future Flex Development

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GRAPHIC SCALE (FEET)
0 400 800 1600

LEGEND:
- Future Airside Pavement
- Future Landside Pavement
- Future Building
- Airfield Pavement Removal
- Landside Pavement Removal

Figure 5-64
Recommended Development Plan