Chapter Seven

Terminal Alternatives & Evaluation

7.1 Terminal Alternatives

The following sections describe the alternatives investigated for providing the necessary capacity increases to the existing terminal facility and its associated airside apron needs. These alternatives depict the Airport's 20-year terminal facility demand as described in Chapter 5 – *Terminal Facility Requirements,* and beyond.

7.1.1 Introduction

The goal of the Master Plan is to provide a roadmap for the future, part of which identifies and preserves land area for potential development. This is especially important for expanding the terminal area portion of the plan, which must be flexible and responsive to operational changes as they emerge over time. Competing land uses, such as those required for the landside, terminal, and airside portions of the plan, must be identified and planned accordingly for the systems to be balanced and safeguarded for future needs. This study developed and examined a total of three alternatives with various sub-alternatives, all of which are located within the existing terminal site.

The development of each alternative utilized industry-accepted planning parameters such as those identified in FAA AC 150/5300-13B and 14D, and ACRP Report 25, *Airport Passenger Terminal Planning and Design,* relative to the taxiway and taxilane dimensional criteria, aircraft parking depth and wingtip spacing, deicing pad layout, and concourse width and gate planning. While the base forecast identified no additional gate requirements during the 20-year planning horizon, it was prudent to look at ways to optimize the current terminal layout based on the deficiencies identified in the *Terminal Facility Requirements* chapter.

The following sections present an overview of the terminal alternatives and analysis process.

7.1.2 Terminal Apron Alternatives

The Existing Terminal Apron Assessment highlighted the need for:

- Additional apron dedicated to deicing operations and associated taxilanes (up to four positions). However, during Stakeholder Engagement meetings and interaction with the Airport, it was determined that additional apron serving as more than just a dedicated de-ice area, would be ideal.

- Additional apron area related to aircraft gate and remain overnight (RON)/hardstand parking (up to three positions).

The following sections present an overview of the three terminal apron alternatives. For all initial concepts, the use of ADG IV criteria was selected as both access taxiways feeding the terminal apron – Taxiways E and F – and the apron edge taxilanes currently meet ADG IV standards.

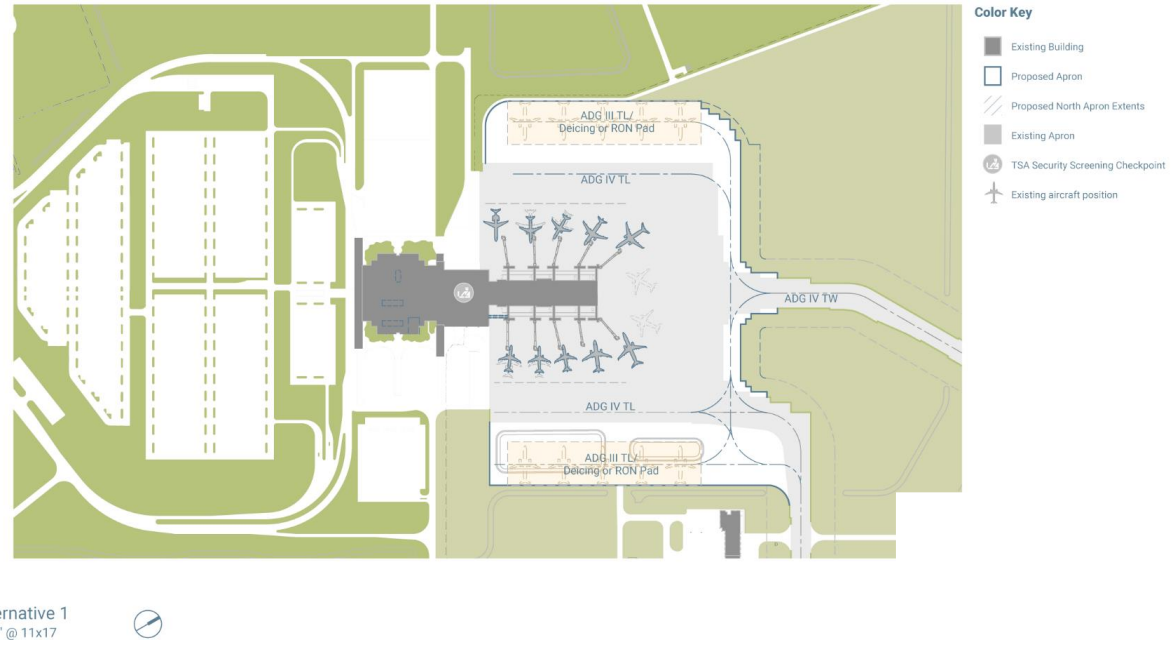
Terminal Apron Alternative 1

Terminal Apron Alternative 1 (see **Exhibit 7.1-1**) provides an additional apron for a dual Airplane Design Group (ADG) IV taxilane system into the terminal area on both sides of the existing concourse.

This pavement could also be marked for additional remain overnight (RON)/hardstand parking as well as a dedicated de-ice pad during the colder months. Currently, during cold weather operations aircraft are pushed back via tug from the gate into the taxilane area and deiced prior to departure. This may lead to situations where aircraft may have to wait on one another to complete deicing operations before taxiing from the terminal apron area. Having an area designated for deicing operations outside the taxilane object-free area (OFA) allows for an uninterrupted flow of aircraft taxi operations. Aircraft would be pushed back from the gate into the designated deice area and then taxi out under their own power. This could occur on either side of the concourse, although providing designated areas on both sides of the concourse would provide greater operational flexibility.

This alternative helps meet required aircraft parking capacity but provides limited to no aircraft gate use flexibility as the lead in lines do not get reoriented, apron/taxilane flexibility, apron/taxilane efficiency, effective utilization or apron capacity, ramp deicing opportunities, and ability to phase construction/modifications.

Exhibit 7.1-1: Terminal Apron Alternative 1



Source: Alliance (2023)

Terminal Apron Alternative 2

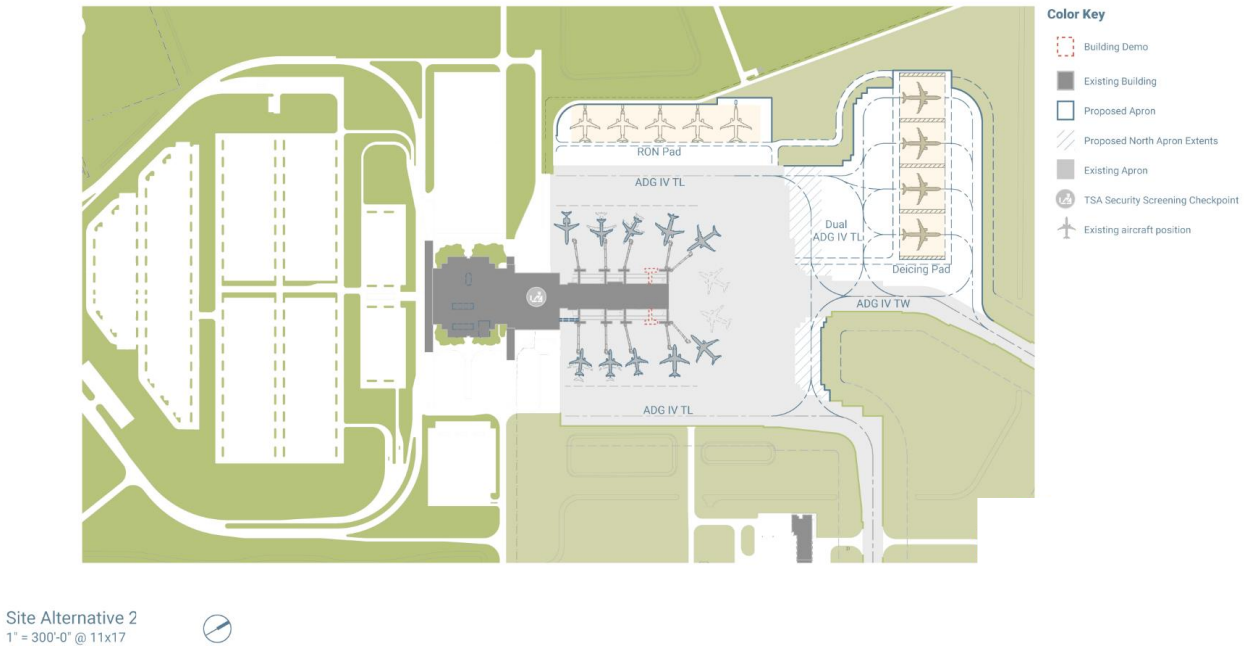
The Alternative 2 concept (see **Exhibit 7.1-2**) includes approximately 20,000 square yards of RON/hardstand apron to the west of the existing terminal apron. This space would accommodate up to five narrowbody aircraft. This RON/hardstand pad could double as a deicing area during colder months. In this scenario, tugs would push the aircraft from the gate back onto the pad. After deicing, the aircraft would power-out onto the taxilane.

Alternative 2 also contemplates construction of a dedicated pull-through deicing pad adjacent to the apron that would encompass approximately 49,000 square yards for up to four simultaneous narrowbody aircraft. Dual ADG IV taxilanes off Taxiway F provide aircraft deice queue as well as staging to the west side concourse gates. This deicing location provides greater operational efficiency as aircraft flow through the deicing operation under their own power without the need for pushback tugs as would be required for the west pad.

The Alternative 2 concept shows both deicing options for space planning considerations, although it is not likely that both options would be constructed.

This alternative helps to meet required aircraft parking capacity, demonstrates a prudent utilization of the apron for aviation needs, provides ramp deicing opportunities, and can phase construction/modifications. It does lack in aircraft gate use flexibility and apron/taxilane efficiency.

Exhibit 7.1-2: Terminal Apron Alternative 2



Source: Alliiance (2023)

Terminal Apron Alternative 3

Terminal Apron Alternative 3 (see **Exhibit 7.1-3**) extends the existing pavement further north to provide continuous dual ADG IV taxilanes north of the existing concourse expansion area down to Taxiway E.

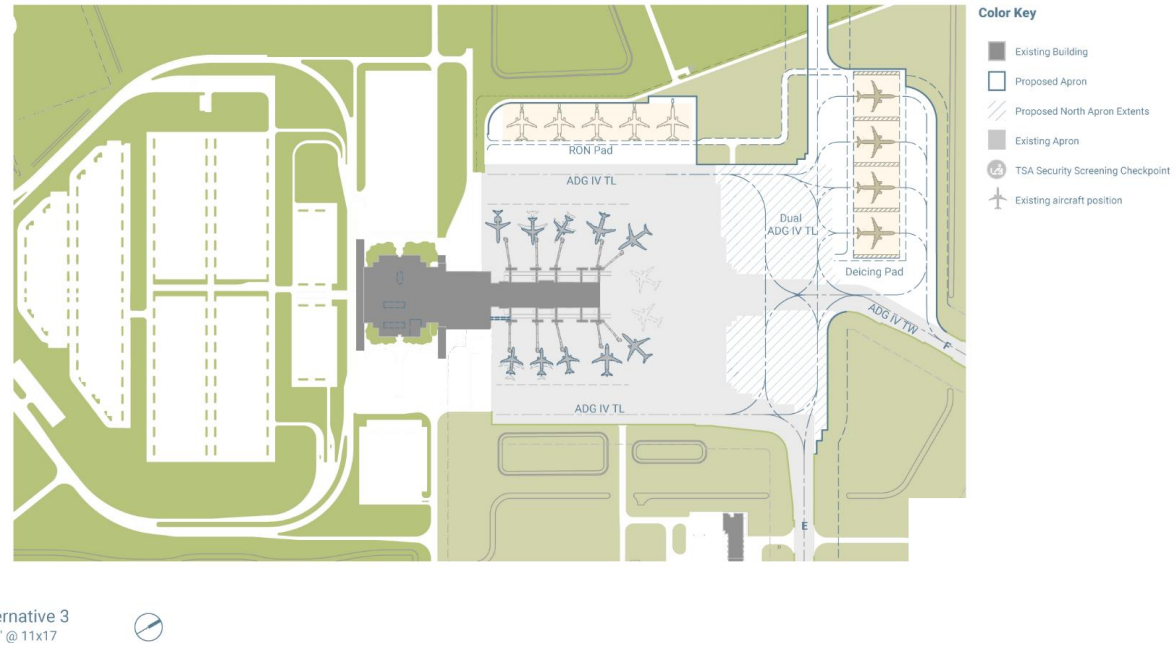
Alternative 3 carries over the RON/hardstand and deicing pad options from Alternative 2, which include approximately 20,000 square yards of RON/hardstand apron to the west of the existing terminal apron and a dedicated pull-through deicing pad adjacent to the apron that would encompass approximately 49,000 square yards.

Like Alternative 2, the Alternative 3 concept shows both options for space planning considerations, although it is not likely that both options would be constructed.

The orientation of Alternative 3 allows future terminal apron expansion in a phased manner. Initial apron expansion would be directly to the north, as indicated by the diagonal lines on **Exhibit 7.1-3**. Later phases could see expansion to the west and further to the north to include dedicated RON and/or deicing pads. Additionally, this could connect the terminal apron to the future Runway 02L/20R environment via a taxiway extension off the deice pad area.

This alternative fulfills all evaluation criteria and provides excellent apron/taxilane efficiency due to the addition of the dual taxilanes.

Exhibit 7.1-3: Terminal Apron Alternative 3



Source: Alliiance (2023)

7.1.3 Initial Terminal Site Alternatives

The terminal alternatives planning process began with identifying potential areas for future terminal expansion within and beyond the existing site envelope, which is bound by Taxiway E, the Aircraft Rescue and Firefighting (ARFF) station, and the Airport Traffic Control Tower (ATCT) to the east; and Taxiway W and, to a lesser extent, Taxiway F to the north. Westward expansion opportunities are unconstrained. The three alternatives described below provide additional gate and holdroom capacity during and beyond the 20-year forecast horizon. The various concourse alignments and configurations were influenced by the terminal site envelope and the Airport's desire for a separate deicing pad facility to increase apron efficiency. Two major site expansion strategies were studied: linear and "node." Following this section, the Terminal Alternatives are presented in **Exhibits 7.1-4** through **7.1-9**.

TERMINAL SITE ALTERNATIVE 1

Terminal Building Elements

Terminal Alternative 1 (see **Exhibit 7.1-4**) provides a total of 12 bridged aircraft parking positions consisting of five large regionals (CR9, E75), one small narrowbody (B717), and six narrowbody aircraft (A319/320, B739). The layout retains the existing aircraft parking lead-in line arrangement while extending the concourse by approximately 230 feet. This linear expansion provides a wider concourse circulation corridor, additional gate holdroom space at Gates 9 and 10, a new concessions and restrooms node, and two new end gates for narrowbody-size aircraft. The plan also identifies areas for expansion beyond the 20-year planning horizon at ticketing, bag claim, additional concourse expansion, and a proposed U.S. Customs and Border Protection (CBP) Federal Inspection Services (FIS) international arrivals hall.

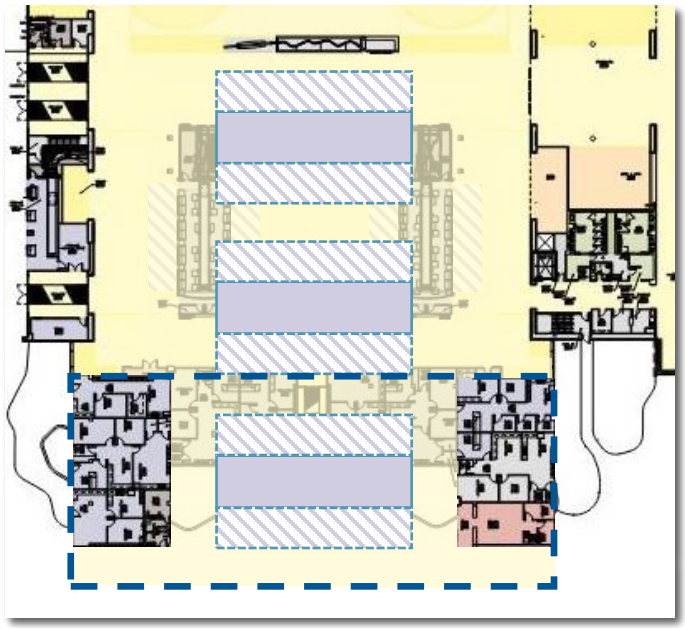


Figure 7.1-1

A 90-foot expansion of the existing ticketing hall to the east would provide ample space to rotate the two check-in islands ninety degrees and allow for a third check-in island. As **Figure 7.1-1** depicts, this would allow for increased queue and cross-circulation depth while providing passengers with enhanced line-of-sight to all counter areas as they enter the terminal. With the increased use of mobile check-in by passengers, airlines are continually assessing the efficiency of their check-in lobby space. For those airlines with self-service devices (SSD), trials have been conducted to implement self-bag tagging/bag drop, such as those by Alaska Airlines at its hub cities. Statistics provided by the airline indicate that three out of four guests arrive at the airport with a mobile boarding pass. As a result, older-style SSDs are being replaced by smaller tablet-style devices capable of printing bag tags for self-tagging. Passengers then proceed to the traditional check-in counter to drop off their baggage with an agent. By spring 2024, Alaska's

conventional check-in counters, like many international airports, will transition to self-bag drop stations at their hub and focus on city airports where passengers will use biometric verification to drop their baggage after initial self-tagging. The bags will then be automatically inducted into the baggage makeup process. This process aims to reduce dwell and queue times at the check-in touchpoint. Traditional agent counters can be converted to self-bag drop stations while the queue would be set up to provide pods of self-bag tagging SSDs. Depending on each airline's layout, philosophies, and process, this may create the need for additional queue depth. The aim is typically to provide adequate SSDs dispersed within the queue area to eliminate the traditional snake queue and have no more than one or two passengers queuing at any device. While technology is ever-evolving, and more and more passengers are taking control of their check-in process, the need for human interaction will always be present. Therefore, space for the traditional agent check-in counter will still be needed now and in the foreseeable future. Additionally, space for a third baggage claim device between the two existing is currently provided for when demand warrants.

Figure 7.1-2

If the Airport decides to pursue international service, a building expansion extending from the existing administrative area will allow for a FIS arrivals facility. The current administration area would be renovated for the FIS, and the administration area would be relocated to the new building expansion, as depicted in Figure 7.1-2. Gate 1 would provide a sterile corridor off the fixed link pier into the new FIS arrivals area. While not shown in the overall layout, the TSA Security Screening Checkpoint (SSCP) and associated queue area will need further study for future expansion capabilities. Options to repurpose part of the existing concourse exit corridor or TSA office and administrative areas could be explored.

Apron Elements

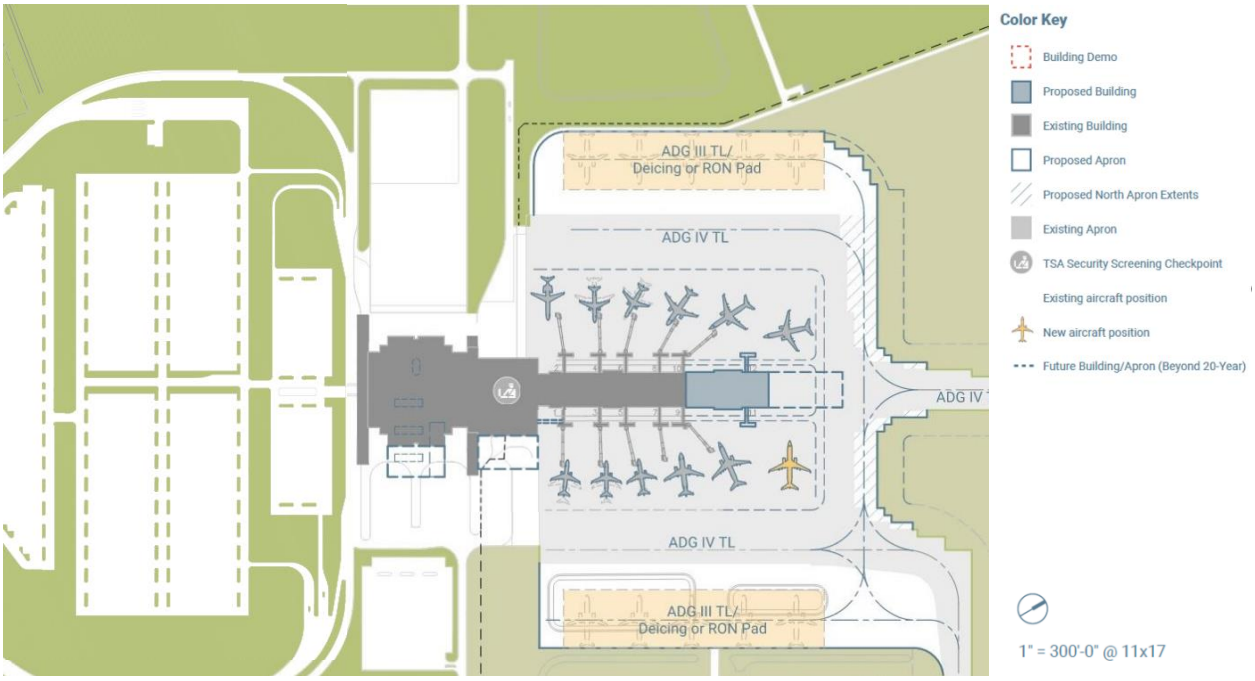
Terminal Alternative 1 incorporates Apron Alternative 1, as described below.

Apron Alternative 1 provides an additional apron for a dual Airplane Design Group (ADG) IV taxilane system into the terminal area on both sides of the existing concourse. This pavement could also be marked for additional remain overnight (RON)/hardstand parking as well as a dedicated de-ice pad during the colder months. Currently, during cold weather operations aircraft are pushed back via tug from the gate into the taxilane area and deiced prior to departure. This may lead to situations where aircraft may have to wait on one another to complete deicing operations before taxiing from the terminal apron area. Having an area designated for deicing operations outside the taxilane object-free area (OFA) allows for an uninterrupted flow of aircraft taxi operations. Aircraft would be pushed back from the gate into the designated deice area and then taxi out under their own power. This could occur on

either side of the concourse, although providing designated areas on both sides of the concourse would provide greater operational flexibility.

This apron alternative helps meet required aircraft parking capacity but provides limited to no aircraft gate use flexibility as the lead in lines do not get reoriented, apron/taxilane flexibility, apron/taxilane efficiency, effective utilization or apron capacity, ramp deicing opportunities, and ability to phase construction/modifications.

Exhibit 7.1-4: Terminal Alternative 1



Source: Alliiance (2023)

TERMINAL SITE ALTERNATIVE 2A

Terminal Building Elements

Terminal Alternative 2A (see Exhibit 7.1-5) provides a total of 12 bridged aircraft parking positions consisting of five large regionals (CR9, E75), one small narrowbody (717), and six narrowbody aircraft (319/320, 739). The layout retains the existing aircraft parking lead-in line arrangement up to gates 5 and 6, removes the fixed links at gates 7 and 8, and reorients the aircraft lead-in lines at gates 9 and 10. This allows for a more conventional straight-in aircraft parking arrangement and increased gate holdroom area between existing gates 5/9 and 6/10 by relocating gates 7 and 8 to the concourse expansion area. The 255-foot linear expansion provides a wider concourse circulation corridor, a new concessions and restrooms node immediately at the head of the new building expansion, and four new gates for 180+ seat large narrowbody aircraft. The plan also identifies the same areas as Alternative 1 for additional expansion beyond the 20-year planning horizon at ticketing, bag claim, additional concourse expansion, and a proposed FIS international arrivals hall. Future TSA SSCP expansion would also need additional considerations.

Apron Elements

Terminal Alternative 2A incorporates Apron Alternative 2, as described below.

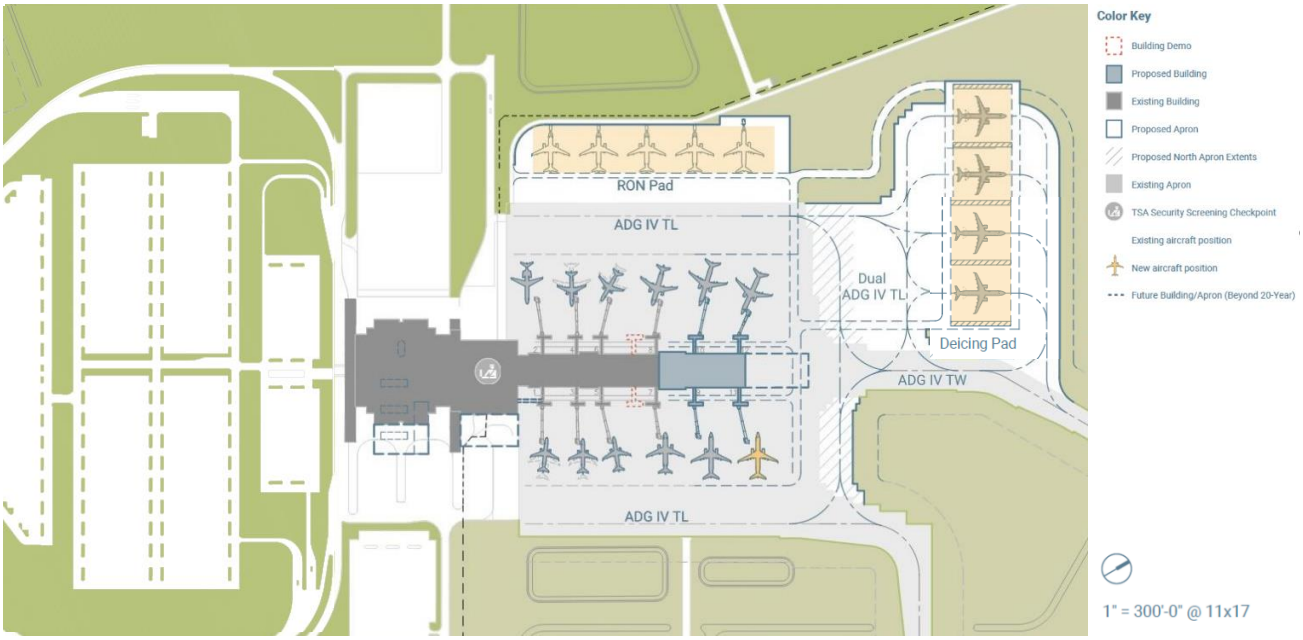
This concept includes approximately 20,000 square yards of RON/hardstand apron to the west of the existing terminal apron. This space would accommodate up to five narrowbody aircraft. This RON/hardstand pad could double as a deicing area during colder months. In this scenario, tugs would push the aircraft from the gate back onto the pad. After deicing, the aircraft would power-out onto the taxilane.

This concept also contemplates construction of a dedicated pull-through deicing pad adjacent to the apron that would encompass approximately 49,000 square yards for up to four simultaneous narrowbody aircraft. Dual ADG IV taxilanes off Taxiway F provide aircraft deice queue as well as staging to the west side concourse gates. This deicing location provides greater operational efficiency as aircraft flow through the deicing operation under their own power without the need for pushback tugs as would be required for the west pad.

The Alternative 2 concept shows both deicing options for space planning considerations, although it is not likely that both options would be constructed.

This alternative helps to meet required aircraft parking capacity, demonstrates a prudent utilization of the apron for aviation needs, provides ramp deicing opportunities, and can phase construction/modifications. It does lack in aircraft gate use flexibility and apron/taxilane efficiency.

Exhibit 7.1-5: Terminal Alternative 2A



Source: Alliiance (2023)

TERMINAL SITE ALTERNATIVE 2B

Terminal Building Elements

The terminal components in Alternative 2B (see **Exhibit 7.1-6**) are unchanged from Alternative 2A.

Apron Elements

Terminal Alternative 2B incorporates Apron Alternative 3, as described below.

Terminal Apron Alternative 3 extends the existing pavement further north to provide continuous dual ADG IV taxilanes north of the existing concourse expansion area down to Taxiway E.

Alternative 3 carries over the RON/hardstand and deicing pad options from Apron Alternative 2, which include approximately 20,000 square yards of RON/hardstand apron to the west of the existing terminal apron and a dedicated pull-through deicing pad adjacent to the apron that would encompass approximately 49,000 square yards.

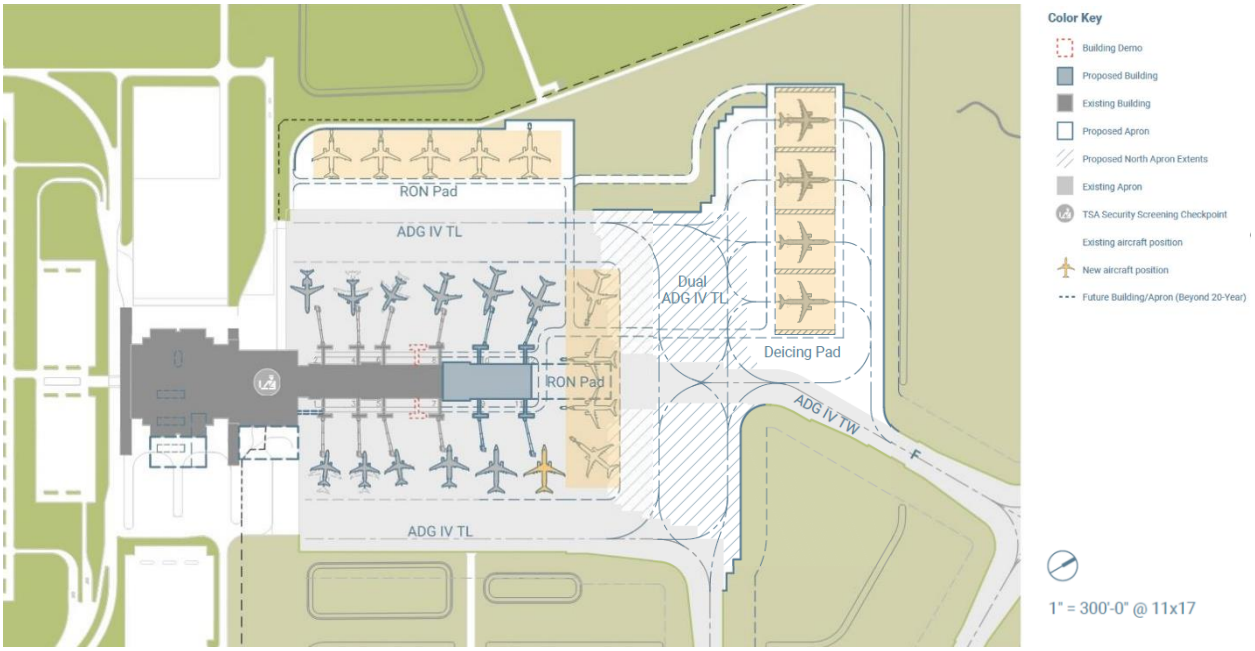
Like Alternative 2, the Alternative 3 concept shows both options for space planning considerations, although it is not likely that both options would be constructed.

The orientation of Alternative 3 allows future terminal apron expansion in a phased manner. Initial apron expansion would be directly to the north, as indicated by the diagonal lines on **Exhibit 7.1-5**. Later phases could see expansion to the west and further to the north to include dedicated RON and/or deicing pads. Additionally, this could connect the terminal apron to the future Runway 02L/20R environment via a taxiway extension off the deice pad area.

This alternative fulfills all evaluation criteria and provides excellent apron/taxilane efficiency due to the addition of the dual taxilanes.

This alignment establishes the site for the future build depicted in Alternative 2 Future.

Exhibit 7.1-6: Terminal Alternative 2B

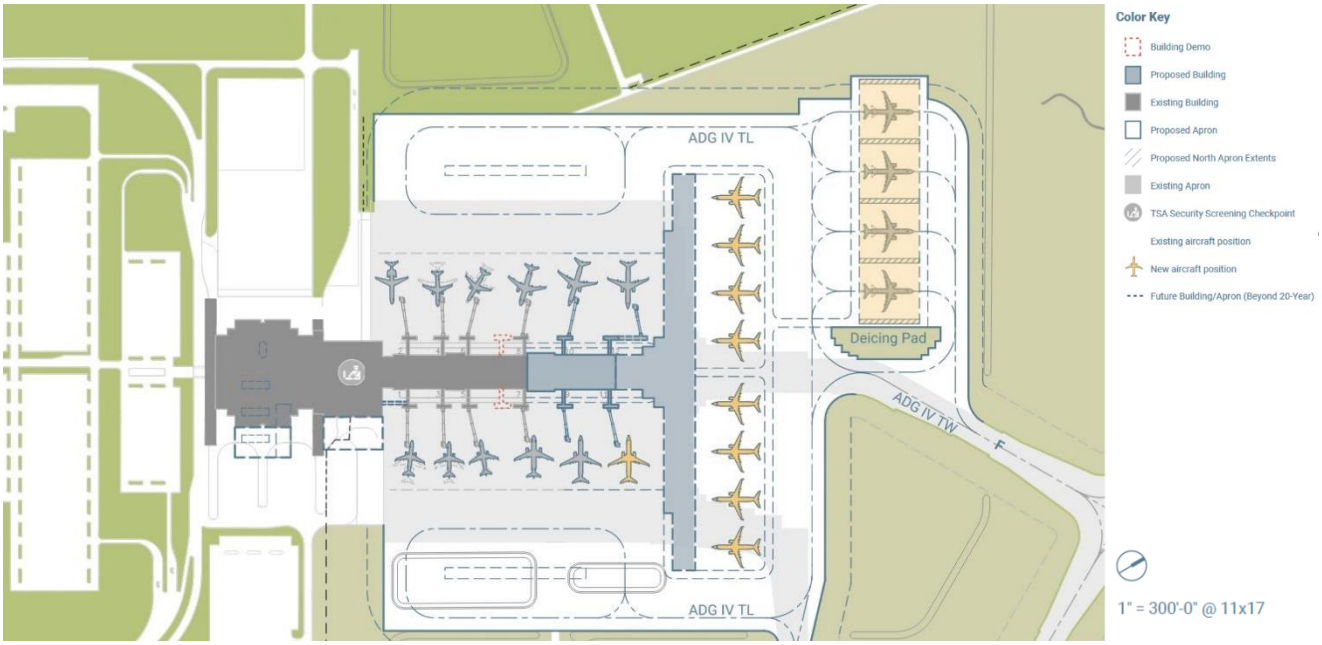


Source: Alliiance (2023)

TERMINAL SITE ALTERNATIVE 2 FUTURE

Beyond the 20-year planning horizon, Alternative 2 Future (see Exhibit 7.1-7) provides a new central node at the end of the previous building, providing a larger amenity space for restrooms, Service Animal Relief Area (SARA), nursing mother's suite, retail, and food and beverage offerings. A new single-loaded concourse expands east and west approximately 565 feet from the central node, providing an additional eight large narrowbody gates for a total of 20 gated aircraft positions. Dual ADG IV taxilanes, both east and west of the existing concourse, provide increased aircraft maneuverability into and out of the existing concourse gate area.

Exhibit 7.1-7: Terminal Alternative 2 Future (Beyond 20 Years)



Source: Alliiance (2023)

TERMINAL SITE ALTERNATIVE 3

Terminal Building Elements

Terminal Alternative 3 (see **Exhibit 7.1-8**) provides a total of 14 bridged aircraft parking positions consisting of five large regionals (CR9, E75), one small narrowbody (B717), and eight narrowbody aircraft (A319/320, B739). The layout retains the existing aircraft parking lead-in line arrangement up to gates 5 and 6, removes the fixed links at gates 7 and 8, and reorients the aircraft lead-in lines at gates 9 and 10. This allows for a more conventional straight-in aircraft parking alignment while also creating an increased gate holdroom area between existing gates 5/9 and 6/10 by relocating existing gates 7 and 8 to the concourse expansion area. The 230-foot-node expansion provides a wider concourse circulation corridor, a new restroom node at the neck of the new concourse expansion, a central food and beverage area with views to all gates, and a bar with a potential outdoor patio area at the end of the node. Three relocated gates and three new 180+-seat large narrowbody aircraft gates radiate around the central node. The plan also identifies the same areas as Alternative 1 for additional expansion beyond the 20-year planning horizon at ticketing, bag claim, additional concourse expansion, and a proposed FIS international arrivals hall. Future TSA SSCP expansion would also need additional considerations.

Apron Elements

Terminal Alternative 3 incorporates Apron Alternative 3, as described below.

Terminal Apron Alternative 3 extends the existing pavement further north to provide continuous dual ADG IV taxilanes north of the existing concourse expansion area down to Taxiway E.

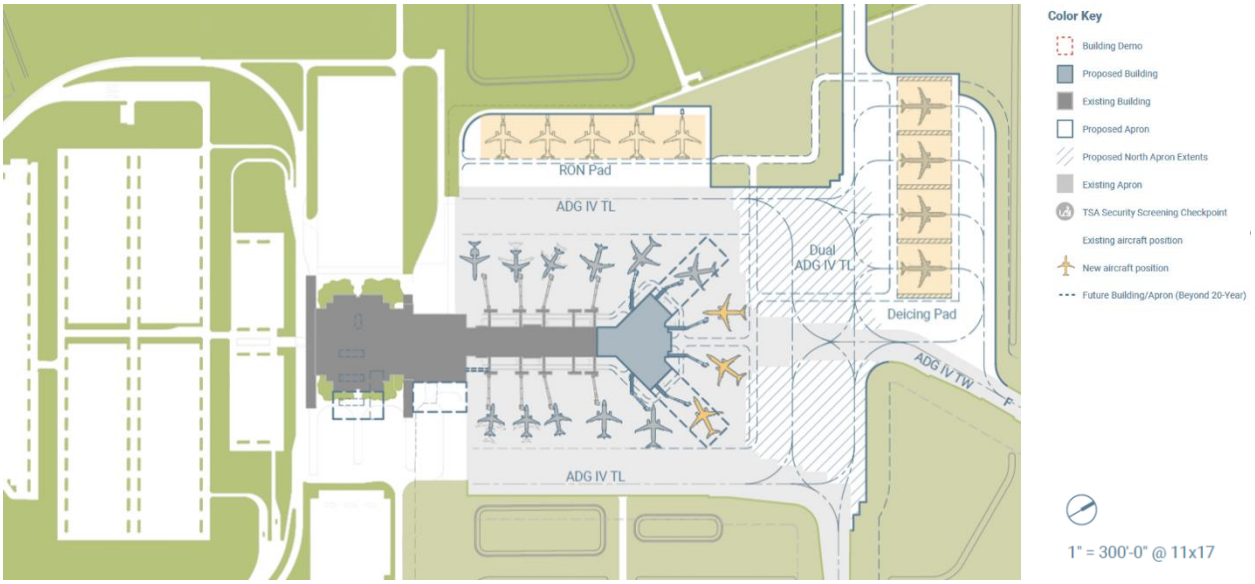
Alternative 3 carries over the RON/hardstand and deicing pad options from Apron Alternative 2, which include approximately 20,000 square yards of RON/hardstand apron to the west of the existing terminal apron and a dedicated pull-through deicing pad adjacent to the apron that would encompass approximately 49,000 square yards.

Like Alternative 2, the Alternative 3 concept shows both options for space planning considerations, although it is not likely that both options would be constructed.

The orientation of Alternative 3 allows future terminal apron expansion in a phased manner. Initial apron expansion would be directly to the north, as indicated by the diagonal lines on **Exhibit 7.1-7**. Later phases could see expansion to the west and further to the north to include dedicated RON and/or deicing pads. Additionally, this could connect the terminal apron to the future Runway 02L/20R environment via a taxiway extension off the deice pad area.

This alignment establishes the site for the future build depicted in Alternative 2 Future.

Exhibit 7.1-8: Terminal Alternative 3

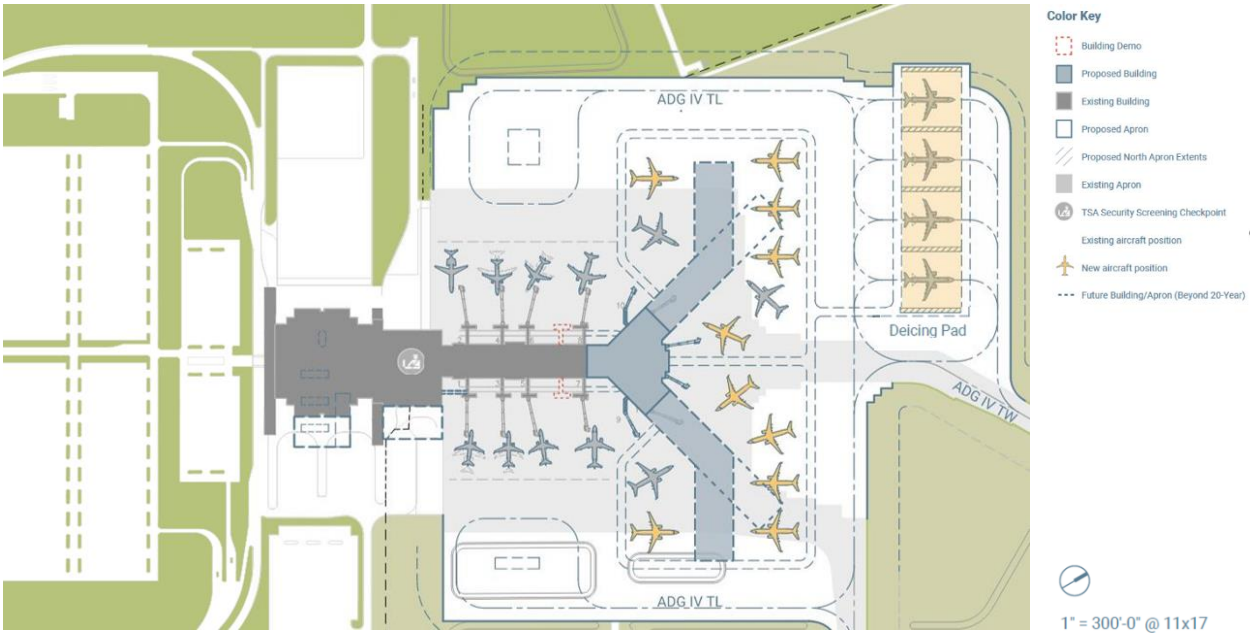


Source: Alliiance (2023)

TERMINAL SITE ALTERNATIVE 3 FUTURE

Beyond the 20-year planning horizon, the future of Alternative 3 could expand in a variety of directions. The node could expand further into a "Y" configuration, become a "T" configuration like Alternative 2, or create a "gullwing" as depicted in Exhibit 7.1-9. Extending both east and west from the central node, two new 500-foot double-loaded concourses provide an additional seven large narrowbody gates for a total of 21 gated aircraft positions. Dual ADG IV taxilanes, both east and west of the existing concourse, provide increased aircraft maneuverability into and out of the existing gate area.

Exhibit 7.1-9: Terminal Alternative 3 Future (Beyond 20 Years)



Source: Alliance (2023)

Larger versions of the initial Terminal Site Alternative exhibits are provided in **Appendix 14**.

7.1.4 Passenger Terminal Alternatives Attributes and Constraints

Table 7.1-1 provides an overall summary of the attributes and constraints of each terminal alternative developed for the Master Plan.

Table 7.1-1: Terminal Alternatives Attributes and Constraints

Alternative	Attributes	Constraints
Alternative 1	• Provides two additional large narrowbody bridged gates. • Maintains existing aircraft parking alignments. • Ability to expand concourse without loss of gates. • Maintains existing modularity of concourse. • Provides new restroom and concessions node. • Dual ADG IV taxilanes on both sides of the concourse • Dual RON pads on either side of the concourse, which could double as a dedicated de-ice pad during cold weather months. • Ability to expand existing terminal check-in lobby (beyond 20 years) without loss of capacity during construction. • Ability to add additional claim devices within the existing claim lobby. • Potential landside FIS for international arrivals • Expand existing end gate holdroom capacity. • Minimal additional apron expansion needed for concourse expansion	• Existing aircraft parking arrangement near end gates creates inefficient use of future apron aircraft parking layout. • Maintains use of PBB fixed links in the new expansion, reducing future gate and aircraft parking relocation flexibility • Maintaining the use of two separate de-ice pads. • De-icing requires aircraft pushback operations from the gate onto the pad. • Extensive grade fill on the east side of the concourse
Alternative 2 (2a & 2b)	• Relocate gates 7 & 9 and realign gates 9 & 10 for aircraft parking to create a more efficient apron parking layout. • Increases existing internal gate capacity with existing gate relocations. • Provides new gate holdroom space for two relocated and two new large narrowbody gates. • Provides new restroom and concessions node. • Ability to expand concourse without loss of gates. • Maintains existing modularity of concourse. • Provides RON pad west of the concourse. • Provides dedicated flow through the deice pad north of the concourse. • Provides dual ADG IV taxilanes north of the concourse, increasing aircraft maneuverability. • Ability to expand existing terminal check-in lobby (beyond 20 years) without loss of capacity during construction. • Ability to add additional claim devices within the existing claim lobby. • Potential landside FIS for international arrivals	• Requires removal and relocation of Gates 7 & 8 fixed links. • Maintains single ADG IV taxilanes on either side of the concourse. • Requires newer pavement for concourse expansion than Alternative 1 • Maintains use of PBB fixed links in the new expansion, reducing future gate and aircraft parking relocation flexibility • Longest walking distance to end gates of three alternatives. • Single-loaded concourse with future (beyond 20-year) expansion • Beyond 20-year expansion would create a single ADG IV taxilane north of the concourse without relocation of the de-ice pad
Alternative 3	• Relocate gates 7 & 9 and realign gates 9 & 10 for aircraft parking to create a more efficient apron parking layout. • Increases existing internal gate capacity with existing gate relocations.	• Requires removal and relocation of Gates 7 & 8 fixed links. • Maintains single ADG IV taxilanes on either side of the concourse.

	• Provides new gate holdroom space for two relocated and four new large narrowbody gates. • New "node" expansion creates central concessions/bar and retail zone. • Ability to see all gate holdroom areas from the central concessions zone. • Ability to expand into double-loaded concourse in multiple directions with increased retail potential at the node. • Shortest walking distances to end gates. • Provides RON pad west of the concourse. • Provides dedicated flow through the deice pad north of the concourse. • Provides dual ADG IV taxilanes north of the concourse, increasing aircraft maneuverability. • Ability to expand existing terminal check-in lobby (beyond 20 years) without loss of capacity during construction. • Ability to add additional claim devices within the existing claim lobby. • Potential landside FIS for international arrivals	• Requires newer pavement for concourse expansion than Alternative 1 • Loss of end gates during future expansion • Beyond 20-year expansion would create a single ADG IV taxilane north of the concourse without relocation of the de-ice pad

Source: Alliiance (2023)

7.1.5 Evaluation of Terminal Apron Alternatives

Discussions with the Airport and Stakeholder group helped inform the basis for developing and defining the evaluation criteria to score the terminal apron alternatives. The six criteria and their associated definitions are presented below in Table 7.1-2.

Table 7.1-2: Terminal Apron Alternatives Evaluation Criteria and Definitions

Criteria	Definition
1. Meets required aircraft parking capacity	Provides required net gain in aircraft parking, gates, , and fleet mix size
2. Aircraft Gate Use Flexibility	Ability of the concept to provide flexibility of use in aircraft gates, apron, and supporting taxilane system for potential fleet mix changes & airline operations
3. Apron/Taxilane Efficiency	Improves taxiway/taxilane flows and minimizes pushback and potential jetblast conflicts
4. Effective Utilization of Apron Capacity	The concept demonstrates prudent utilization of the airport's apron for aviation needs such as GSE parking/storage, etc.
5. Ramp Deicing Opportunities	Provides a contiguous land envelope adjacent to the gates for remote deicing opportunities
6. Ability to Phase Construction/Modifications	Provides a feasible approach to construction phasing while maintaining existing operational capability (no loss of gates, services or utilities)

Source: Alliiance (2023)

The evaluation for each alternative based on each criteria category is shown in Table 7.1-3.

Table 7.1-3: Initial Terminal Apron Alternatives Evaluation Matrix

Criteria Categories	Criteria Definition	SGF Alternatives Evaluation Matrix		
		Alternative 1 	Alternative 2 	Alternative 3 
		SCORE	SCORE	SCORE
1 Meets Required Aircraft Parking Capacity	Provides required net gain in aircraft parking, gates and fleet mix size	1	1	1
2 Aircraft Gate Use Flexibility	Ability of the concept to provide flexibility of use in aircraft gates, apron and supporting taxilane system for potential fleet mix changes & airline operations	-1	0	1
3 Apron/Taxilane Efficiency	Improves taxiway/taxilane flows and minimizes pushback and potential jetblast conflicts	0	0	1
4 Effective Utilization of Apron Capacity	The concept demonstrates a prudent utilization of the airport's apron for aviation needs such as GSE parking/storage, etc.	-1	1	1
5 Ramp Deicing Opportunities	Provides a contiguous land envelope adjacent to the gates for remote deicing opportunities	0	1	1
6 Ability to Phase Construction/Modifications	Provides a feasible approach to construction phasing while maintaining existing operational capability (no loss of gates, services or utilities)	-1	1	1
TOTAL ALTERNATIVE		-2	4	6

Scoring Scale:
Highest Score = 1
Lowest Score = -1

Color Scoring Scale:
1 = Positive
0 = Neutral
-1 = Negative

Source: Alliiance (2023)

Alternative 3 fulfills all criteria categories and is the preferred Terminal Apron Alternative.

7.1.6 Evaluation of Initial Terminal Alternatives

Discussions with the Airport and Stakeholder group helped inform the basis for developing and defining the evaluation criteria to aid in the selection of the short-listed alternatives. The six criteria and their associated definitions are presented below in Table 7.1-4, followed by the initial scoring matrix results in Table 7.1-5.

Table 7.1-4: Terminal Alternatives Evaluation Criteria and Definitions

Criteria	Definition
1. Apron/Gate use flexibility and minimizes pushback/jet blast conflicts	Provides flexibility of use in aircraft gates and aprons for potential fleet mix changes, airline operations, & aircraft deicing opportunities. Improves taxiway/taxilane flows and minimizes pushback and potential jet blast conflicts.
2. Program efficiency and Passenger Level of Service (LoS)	Effective utilization of the terminal/concourse footprint provides the needs identified by the Airport and improves spatial LoS while maximizing airside gate holdroom capacity and minimizing impacts to walking distances.
3. Ability to increase near-term gate capacity	Provides the ability to increase near-term gate capacity while safeguarding long-term future expansion flexibility.
4. Construction phasing effectiveness with the ability for future expansion	Provides a feasible approach to construction phasing while maintaining existing operational capability (no loss of gates, services, or utilities). The alternative provides an ultimate expansion path well beyond the Master Plan forecast horizon that is achievable with minimal impacts.
5. Site utilization	The alternative demonstrates prudent utilization of the airport's land for an efficient terminal and apron footprint.

Source: Alliance (2023)

Table 7.1-5: Initial Alternatives Evaluation Matrix

Criteria Categories		SGF Alternatives - Evaluation Matrix		
		Alternative 1 	Alternative 2 	Alternative 3 
		SCORE	SCORE	SCORE
1	Apron/Gate use flexibility & minimizes pushback/jetblast conflicts	-1	1	1
2	Program efficiency & Passenger Level of Service	0	0	1
3	Ability to increase near-term gate capacity	0	0	1
4	Construction phasing effectiveness with ability for future expansion	0	0	-1
5	Site utilization	1	1	1
	TOTAL ALTERNATIVE	0.0	2.0	3.0

Color Scoring Scale:

- 1 = Positive
- 0 = Neutral
- -1 = Negative

Source: Alliiance (2023)

7.1.7 Short-list Consolidated Terminal/Apron Alternatives

Based on initial feedback from the Airport regarding various constraints around Alternative 1 and the scoring results from the evaluation matrix, it was concluded both Terminal Alternatives 2 and 3 that incorporate the preferred apron concept would be retained for further development. This included providing initial high-level conceptual floor plan diagrams and three-dimensional massing of the proposed plans.

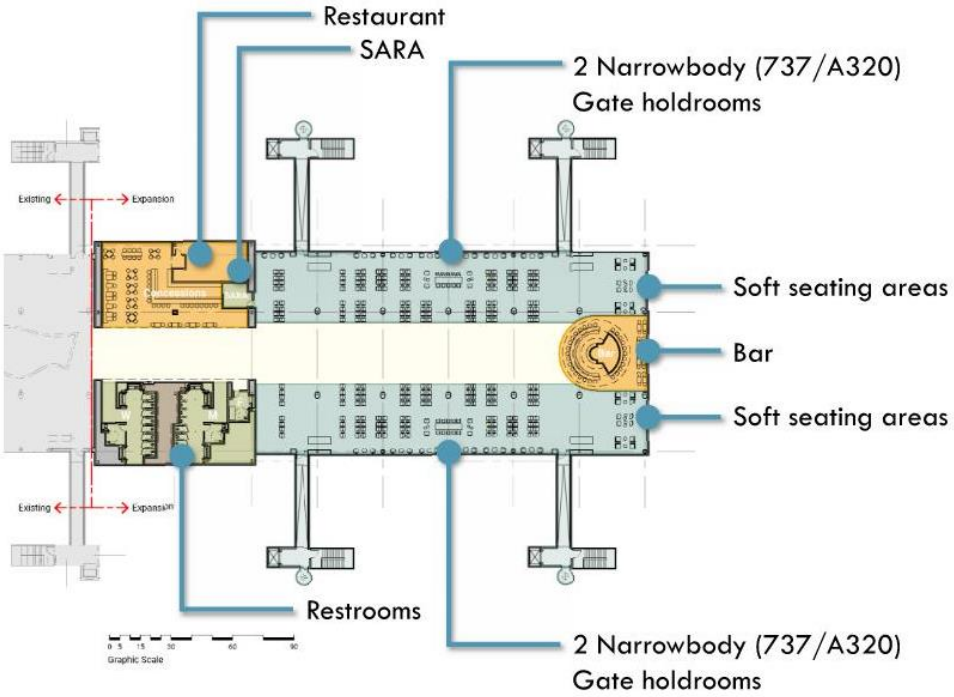
ALTERNATIVE 2

A high-level conceptual plan, as shown in Exhibit 7.1-10 and Exhibit 7.1-11, depicts an overall layout of the expanded "linear" concourse. At 270 feet in length, the 27,900 square foot plan provides an area for a new amenity node consisting of a food and beverage concessionaire, an additional restroom block including a nursing mother's suite and SARA, and four large narrowbody aircraft gates. Two contiguous gate holdroom areas on either side of the 30-foot wide concourse circulation corridor provide approximately 3,200 square feet per gate. With space for over 90 seats per gate area, the plan provides a layout for both traditional beam-style seating as well as areas for "soft" seating and high-top recharge bars. The end of the concourse provides an area for an additional open bar and seating zone for passengers as they await their flights. Four additional fixed sloped links with baggage elevators and egress stairs provide access to new passenger boarding bridges. Concourse flooring materials, as depicted in Exhibit 7.1-12, would include carpeted gate areas along with hard surfaces in high-passenger traffic areas.

Exhibit 7.1-10: Alternative 2 Aerial

Source: Alliance (2023)

Exhibit 7.1-11: Alternative 2 Floor Plan



Source: Alliiance (2023)

Exhibit 7.1-12: Alternative 2 Interior 3D View

Source: Alliiance (2023)

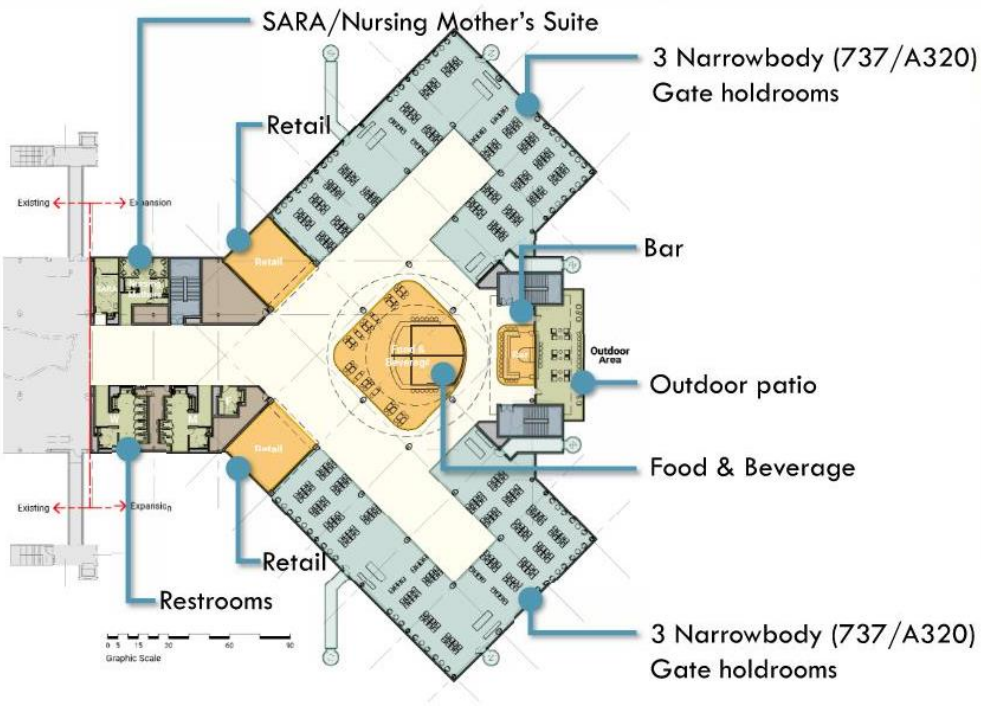
ALTERNATIVE 3

As shown in **Exhibit 7.1-13** and **Exhibit 7.1-14**, the plans depict an overall layout of the expanded concourse "node". The 250-foot length, 45,370-square-foot plan provides an area for a new restroom node at the "neck" of the expansion, providing space for an additional restroom block, including a nursing mother's suite and SARA. Additional retail space is provided adjacent to the restroom block on either side of the 30-foot concourse circulation corridor. At the center of the expansion is an open restaurant seating concept along with a bar and outdoor patio area at the end of the concourse. Three contiguous gate holdroom areas sized for large narrowbody aircraft, each with approximately 3,070 square feet of area, are located on either side of this main node, providing a total of six new gates. The layout provides space for over 90 seats at each gate area for both traditional beam-style seating as well as areas for "soft" seating and high-top recharge bars. For future expansion and aircraft parking realignment flexibility, the plan provides knockout panels along the building façade for connection to a passenger boarding bridge (PBB). Concourse flooring materials, as depicted in **Exhibit 7.1-15**, include carpeted gate areas along with hard surfaces in high-passenger traffic areas.

Exhibit 7.1-13: Alternative 3 Aerial

Source: Alliance (2023)

Exhibit 7.1-14: Alternative 3 Floor Plan



Source: Alliiance (2023)

Exhibit 7.1-15: Alternative 3 Interior 3D View

Source: Alliiance (2023)

The shortlisted terminal alternatives were presented to both the Airport and Stakeholder group during the final stakeholder engagement meeting in late April 2023. Based on feedback from the group, it became apparent that the Alternative 3 "node" layout provided greater flexibility for near-term and future building and ramp expansion.

With the desire for a flow-through style deice pad, any near-term pavement expansion at the end of the existing terminal could be used for additional close in RON/hardstand parking or deicing activities prior to a future gate expansion. The slightly shorter Alternative 3 concept provides a central "node" for increased concessions, restrooms, and retail visibility while also enhancing passenger sight lines to their gates when seated in the central food & beverage area. The layout also allows for greater near-term gate capacity over Alternative 2. Additionally, the "node" concept is non-committal to any future expansion direction. Multiple incremental concourse expansion layouts beyond the 20-year planning horizon can be achieved, such as those depicted in **Exhibit 7.1-6.**

SGF is a beneficiary of a Congressionally Directed Spending (CDS) grant to expand the terminal apron to prepare for a future terminal expansion and minimize impact to service during that time. The nature of this grant is to expand the limits of the ramp commensurate with the preferred apron expansion alternative (Apron Alternative 3). However, the CDS grant will not cover the full pavement expansion to include the dedicated RON/handstand and/or deicing facilities as depicted.

Based on further dialogue with the Airport and FAA, the Apron Alternative 3 concept was refined to use smaller ADG III criteria for the independent dual taxilanes while maintaining ADG IV capability by providing a dependent ADG IV taxilane in the center. This allows for an overall reduction in the initial apron expansion phase footprint from approximately 38,300 SY to 27,500 SY (excluding future RON/handstand and/or deicing pad extensions) while still providing the desired operational flexibility and capacity. Further details about the Apron Alternative 3 refinement are presented in **Appendix 15**.