Chapter Five

Terminal Facility Requirements

5.1 Passenger Terminal Facility Requirements

The following sections summarize and describe the methodology and rationale for developing the terminal building requirements and associated aircraft gate needs.

5.1.1 Methodology and Assumptions

Various methodologies and planning metrics are utilized by planners to develop terminal programs. The approach for developing SGF's terminal requirements included: industry acceptable planning standards as well as those unique to SGF, communication with Airport staff, local Transportation Security Administration (TSA) staff, airlines, and the "*2019 Passenger Insights Study*". Additionally, knowledge of industry trends and the application of industry-accepted planning guidelines were also utilized. These include ACRP Report 25, *Airport Passenger Terminal Planning and Design*; FAA AC 150/5360-13A, *Airport Terminal Planning*; the TSA Checkpoint Requirements and Planning Guide (CRPG); the TSA Planning Guidelines and Design Standards (PGDS) for Checked Baggage Inspection Systems Version 7.0; ACRP Report 226, *Planning and Design of Airport Terminal Restrooms and Ancillary Spaces*; and the International Air Transport Association (IATA) *Airport Development Reference Manual* (ADRM) 12TH Edition.

IATA's Level of Service (LoS) standards are typically utilized by airport planners to provide a LoS standard qualitatively or quantitatively at various processing functions within the terminal building. An "Optimum" LoS was utilized when validating the functional passenger spaces and is often referred to as LoS "C" and defined by IATA as providing "Good LoS; condition of stable flow; acceptable brief delays; good level of comfort". Current utilization ratios were determined using the existing terminal computer-aided design (CAD) plans provided by the Airport and the 2022 Design Day Flight Schedule (DDFS), which serves to establish a baseline condition of demand compared to current facility capacities.

Airport terminal facilities are typically programmed using demand associated with future projections of annual and peak hour passengers and operations. Although annual activity is a good indicator of overall airport size, peak hour volumes more accurately reflect demand for specific passenger processing functions within the terminal facilities. These peak hours are typically calculated from the peak month's average day (PMAD) and are commonly referred to as Design Hour passengers. A summary of the annual and peak hour activity is provided in Table 5.1-1.

Table 5.1-1: Annual and Peak Hour Activity Forecast Summary

	BASE YEAR 2022	FORECAST PLANNING YEARS			
		PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Enplanements					
Annual	545,789	601,424	745,378	814,090	840,018
Peak Month	55,450	60,000	74,361	81,216	83,803
% of Annual	10.0%	10.0%	10.0%	10.0%	10.0%
Design Day	2,184	2,257	2,797	3,055	3,152
Peak Hour Passengers					
Enplaned	257	358	435	477	419
Deplaned	346	358	435	477	517
Total	492	656	763	788	814
Peak Hour % of Daily Activity					
Enplaned	11.8%	15.9%	15.6%	15.6%	13.3%
Deplaned	15.8%	15.9%	15.6%	15.6%	16.4%
Total	22.5%	29.1%	27.3%	25.8%	25.8%

Note: The total peak hour does not reflect the sum of the enplaned/deplaned peak hour components as each occurs in different hours.
Source: CMT, October 2022

This analysis used two types of peak passenger levels based on individual airline use and common use. Individual airline passenger levels refer to the peak activity for each carrier that occurs over a 60-minute period based on that airline's flight schedule. As a result, these individual airline peaks may happen at different times of the day and therefore do not typically coincide in the same clock hour. The assumption is that this peak demand is appropriate to use when determining the facility requirements for individual airlines that are allocated certain functional space within the terminal. These areas include individual airline's ticket counters, gates/holdrooms, and in some instances, baggage claim facilities depending on the operating use agreement with the Airport. Common use peak passenger levels refer to the cumulative peak passenger volume in a given "rolling" hour for all airlines at the Airport. These common use peak demand levels are typically used for calculating non-airline specific functions such as passenger security screening, baggage screening, and public areas including general seating and meeter/greeter lobbies.

Other functional area projections are typically determined by their relationship to the number and type of aircraft or the number of gates/seats serving the terminal area. The relationship of area projections per aircraft operations, or by gates/seats is also a typical way to compare airport building component requirements. These areas of the terminal can include airline operations space, inbound/outbound baggage operations, and secure public restrooms.

The complexities involved in understanding the aircraft capacity implications of the term "gate" has led to a methodology to standardize the capacity definition of a "gate". This standardization methodology is referred to as the Narrowbody Equivalent Gate (NBEG) index. This index converts the gate requirements of diverse aircraft, from commuters to large new aircraft, so that they are equivalent to the apron capacity of a narrowbody aircraft gate. The amount of space or linear frontage each aircraft

requires is based on the maximum wingspan of the aircraft in its respective airplane design group (ADG), as shown in Table 5.1-2.

Table 5.1-2: Narrowbody Equivalent Index

Airplane Design Group		Wingspan	Typical Aircraft	NBEG Index
I	Small Regional	< 49 Feet	Cessna/Learjet	0.4
II	Medium Regional	< 79 Feet	CRJ/ERJ	0.7
III	Narrowbody/Large Regional	< 118 Feet	A220,320,321/B717,737/Q400/E175	1.0
IV	B757 Specific	< 125 Feet	B757	1.1
IV	Widebody	< 171 Feet	B767	1.4
V	Jumbo	< 214 Feet	B747,777,787/A330,340	1.8
VI	Super Jumbo	< 262 Feet	A380	2.2

Source: FAA AC 150/5300-13B, *Airport Design* and Hirsh & Associates

Another methodology used for terminal facility program comparisons, similar to that of NBEG, is the Equivalent Aircraft (EQA) Index. This methodology looks at the passenger demand associated with gate usage. With EQA each gate is converted based on the seating capacity of the aircraft that can be accommodated. The base Equivalent Aircraft is that of a Group III narrowbody aircraft with seats in the range of 145-150 with an EQA of 1.0 as the base. Smaller aircraft may use the gate, but the EQA capacity should be based on the largest aircraft/seating typically in use. One example of where this methodology is used is ramp equipment (bag carts/containers) required for aircraft arrivals and departures at the gate. Table 5.1-3 summarizes the EQA of each aircraft group.

Table 5.1-3: Equivalent Aircraft Index

Airplane Design Group		Seats	Typical Aircraft	EQA Index
I	Small Regional	25	Cessna/Learjet	0.2
II	Medium Regional	50	CRJ/ERJ	0.4
III	Large Regional	75	Q400/E175,190	0.5
III	Narrowbody	145	A220,320,321/B717,737	1.0
IV	B757 Specific	185	B757	1.3
IV	Widebody	280	B767	1.9
V	Jumbo	400	B747,777,787/A330,340	2.8
VI	Super Jumbo	525	A380	3.6

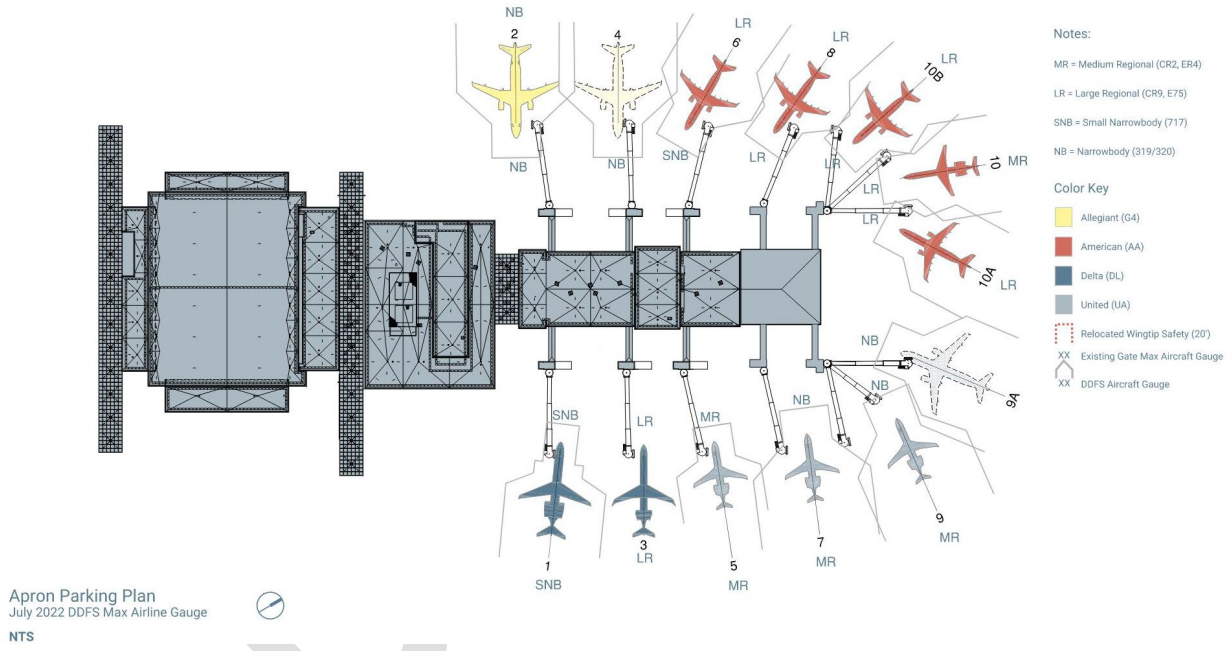
Source: Apron & Terminal Building Planning Manual for US DOT, Ralph M. Parsons Company, July 1975 and updated values based on Hirsh & Associates data.

The following sections describe the findings of the projected gate requirements along with major passenger processing areas within the terminal.

5.1.2 Projected Gate Demand

A terminal "gate" is defined as a location where an aircraft is parked at the terminal for loading and unloading of passengers. Passengers using a gate can access an aircraft directly from the apron level via a stairway integrated into the aircraft, by a portable stairway or, more typically, though a passenger boarding bridge (PBB) which is referred to as a "contact" gate. At full operational capacity, the Airport currently has 10 contact gates with a total of 13 parking positions (see Exhibit 5.1-1) operating in a Common Use environment. Gate 9 includes two parking positions 9 and 9A sharing one PBB while Gate 10 accommodates three parking positions 10, 10A, and 10B utilizing one PBB. These additional positions are primarily used for Remain Overnight (RON) aircraft (late evening arrivals with early morning departures the following day). Common Use allows the Airport to slot flights onto gates when they become available throughout the day. While the current operations group the airlines for ground handling efficiencies, it does not preclude an airline from operating at any gate. This was considered when developing future gate needs.

Exhibit 5.1-1: Existing Gate Assignments and Aircraft Gauge by Airline



Source: Alliance, October 2022

Gate demand by airplane design group (ADG) was developed from the DDFS with the following assumptions and results summarized in Table 5.1-4.

- The DDFS assumed the existing airline gate allocations in a Common Use operating environment.
- Aircraft were grouped based on the FAA's ADG categories as shown in Table 5.1-3.

- An alternate airline gate assignment scenario was analyzed by relocating Allegiant to Gates 7 and 9, Delta to Gate 2, and United to Gate 1 and 3.

As shown in Table 5.1-4, approximately 60% of the current aircraft parking positions can accommodate Narrowbody aircraft with the remaining gates accommodating regional aircraft. The gated July 2022 DDFS showed predominant need for regional aircraft gates, 30% Medium Regional, and 40% Large Regional. The future DDFS distribution of aircraft types shift from Medium Regional aircraft activity to heavier use of Large Regional and Narrowbody aircraft. Future gate requirements were based on increasing the existing departures per gate ratio. As a result, no additional gates will be required over the 20-year planning horizon. However, the terminal alternatives look beyond PAL 4 (2041) in order to preserve land envelope for future building and subsequent gate expansion opportunities.

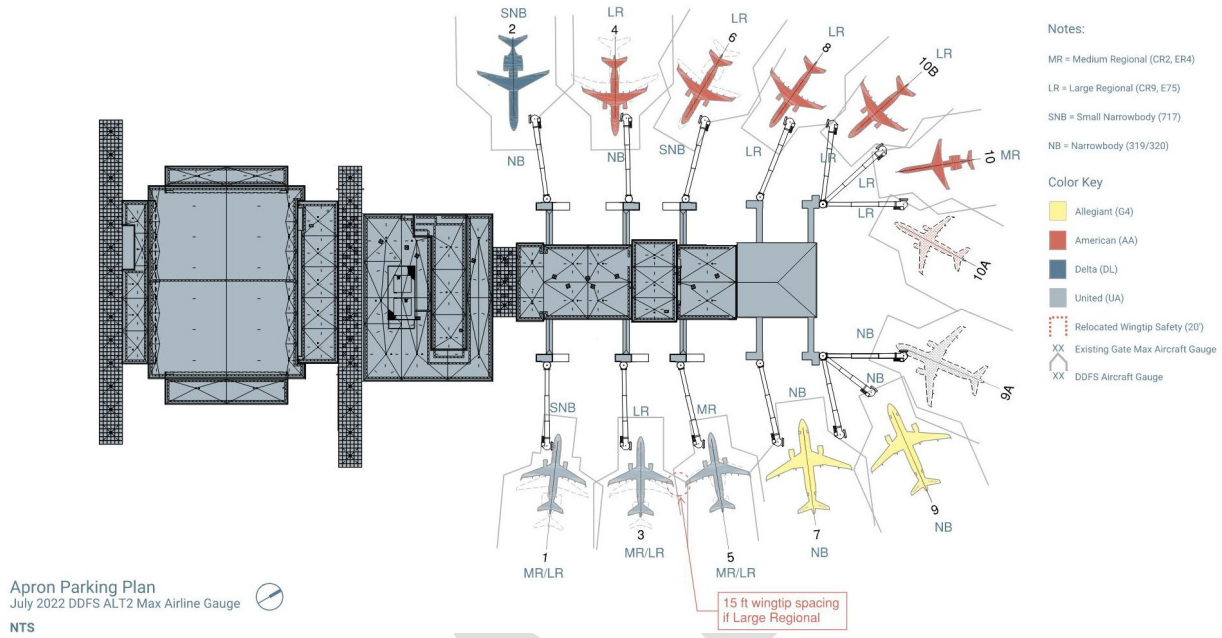
Table 5.1-4: Projected Gate Demand

		BASE YEAR 2022		FORECAST PLANNING YEARS			
				PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Annual Enplanements		545,789		601,424	745,378	814,090	840,018
PMAD Departure Ops		26		30	36	37	38
Airplane Design Group (ADG)		Max Gauge[1]	Utilized Gauge	Recommended Gates			
II	Medium Regional	1	3	2	-	-	-
III	Large Regional	3	4	5	6	6	6
	Narrowbody	6	3	3	4	4	4
Total Contact Gates		**10[2]**	**10**	**10**	**10**	**10**	**10**
Total RON		**13**	**9**	**9**	**9**	**9**	**9**
Departures per Gate		2.6		3.0	3.6	3.7	3.8
Annual Enplanements per Gate[3]		54,579		60,140	74,540	81,410	84,000

1/Represents the largest aircraft gauge in each design group, not necessarily the aircraft gauge currently being utilized at the gate
2/Existing Gate 9 includes two parking positions, Existing Gate 10 includes 3 parking positions
3/Values rounded
Source: CMT/Alliiance, October 2022

The alternate airline gate assignment scenario as shown in Exhibit 5.1-2 produced no additional gate demand but would allow Allegiant Airlines to make use of additional gate holdroom capacity at the end of the concourse. This would only be advantageous if no near simultaneous departure flights occur at the adjacent gates.

Exhibit 5.1-2: Alternate Gate Assignments by Airline



Source: Alliiance, October 2022

5.1.3 Passenger Boarding Bridges

There are ten PBBs at SGF, one for each terminal gate. Table 5.1-5 below identifies the PBBs, the year they were built, and the year they were installed at the existing terminal.

Table 5.1-5: SGF Passenger Boarding Bridges

Gate	PBB Manufacturer	PBB Model No.	Year Manufactured	Year Installed
1	ThyssenKrupp (TK)	TB 41/19.53	2008	2008
2	ThyssenKrupp (TK)	TB 41/24.5-2	2008	2008
3	Jetway	A3-58/110-125R	1998	1998
4	ThyssenKrupp (TK)	Tb 41/24.5-2	2008	2008
5	Jetway	SA2-91/125-125R	1991	2006
6	Jetway	A2-65/99-125R	1991	2006
7	Jetway	A3-48/86-125R	1991	2006
8	Jetway	AD265/99-125R	2001	2001
9	ThyssenKrupp (TK)	TB 41/19.5-3	2008	2008
10	ThyssenKrupp (TK)	TB 41/19.5-3	2008	2008

Source: SGF; CMT 2022

The PBBs marked in red on the table above are the oldest bridges at SGF, which were brought over to the new terminal building from the old terminal across the airfield in 2006. The ThyssenKrupp (TK) models were added to the existing terminal in 2008.

A PBB condition and assessment report by JBT Aerotech was produced in 2016 where it identified all jet bridges to be in "very good condition" with some general maintenance needed on each bridge. In 2018 the five Jetway bridges were upgraded with new ground power units.

The airport conducts a yearly discrepancy list which prioritizes the maintenance of each PBB. While some of the bridges are in better condition than others, some are reaching the end of their use where maintenance can be more costly than replacement. It is recommended that the annual discrepancy list is continued, and replacement of the older bridges is considered as maintenance increases to outweigh the value of the unit.

5.1.4 Terminal Building

PUBLIC SPACE

This category of the terminal space program represents a major portion of the public passenger processing functions of the terminal building. It contains all the areas typically required and leased by the tenants to support their operations. The following paragraphs describe the requirements for these areas such as ticketing check-in locations and associated queue space, TSA passenger security screening, gate holdrooms, and the baggage claim hall. Additional non-passenger processing areas in this category include restrooms and circulation.

Ticketing and Check-In

This airline function is based on the Peak Hour check-in demand, the associated early arrival passenger profiles, acceptable service times associated with the check-in process, IATA's optimum passenger wait time by processor type, and acceptable LoS square feet factors which are utilized to evaluate current and future demand.

Currently there are 28 agent check-in positions, and 8 self-service devices (SSD) for a total of 36 equivalent check-in positions. This includes a total of nine vacant agent counter positions. Future ticketing requirements were based on passenger profile data provided by the *"2019 Passenger Insights Study"* as well as the following assumptions:

- Early passenger arrival profiles applied to the DDFS to determine actual peak demand at each of the airlines check-in counters.
- A system wide load factor of 80% was utilized.
- 100% Origin & Destination (O&D) with 70% of the passengers checking bags.
- 43% Agent use, 15% SSD use (for those airlines with self-service), 44% online check-in (15% utilize bag drop counters upon arrival).
- Processing rates for the various modes of check-in include agent with bags, agent without bags, SSD with bags, and SSD without bags with assumes rates of 2.5 to 3 minutes for agents, 2 to 2.5 minutes per kiosk, and 1.8 minutes for bag drop.

- A max queue wait time of 10 minutes (IATA LoS "C") and typical queue depth of 15 feet plus 10 feet of cross-circulation in front of the agent counters. Currently both check-in islands provide a queue depth of 12 feet.

- 6 linear feet per agent position (includes one bag scale per agent)

Overall, the ticketing positions as shown in Table 5.1-6 are adequate throughout the planning horizon with additional capacity available from the current vacant counter positions. The programmed queue area exceeds existing capacity today, however additional depth could be converted from the excess cross-circulation depth between the entrance vestibules and the queue entrances. While plenty of queueing depth is available between the two existing ticketing islands, should a third island ever be implemented the resulting depth dedicated for queuing (when taking into account the required cross-circulation width) will become constrained.

Table 5.1-6: Ticketing Position Requirements

TICKETING	BASE YEAR 2022		FORECAST			
	Existing	Recommended	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
North Island (DL, UA)						
Agent	6	6	6	6	7	8
SSD	6	2	2	2	2	2
Vacant	8	-	-	-	-	-
Subtotal	*20*	*8*	*8*	*8*	*9*	*10*
South Island (AA, G4)						
Agent	11	6	7	7	8	8
SSD	2	1	1	1	1	1
Charter[1]	2	-	-	-	-	-
Vacant	1	-	-	-	-	-
Subtotal	*16*	*7*	*8*	*8*	*9*	*9*
Grand Total	**36**	**15**	**16**	**16**	**18**	**19**
Check-in Queue						
North Island (ft^2)	1,078	1,470	1,470	1,470	1,620	1,770
South Island (ft^2)	1,078	1,320	1,470	1,470	1,620	1,620
Total (sf)	**2,156**	**2,790**	**2,940**	**2,940**	**3,240**	**3,390**

1/ Charter activity was not included in the DDFS analysis

Source: Alliance, October 2022

TSA Passenger Security Screening Checkpoint (SSCP)

This category is dedicated to the TSA space for screening departing passengers. Demand calculations were based on the common use peak 30 minutes of the departing peak hour since all airlines will be utilizing a single consolidated checkpoint for passenger screening. Future planning requirements, as previously stated, are based on the TSA Checkpoint Requirements and Planning Guide (CRPG) published September 2021.

Currently there are three lanes providing screening for both PreCheck and standard passengers. Future requirements are based on the following planning guidelines and communication with local TSA:

- Passenger early arrival profile data provided by the *"2019 Passenger Insights Study"*
- A peak 30-minute demand of approximately 40% of the peak hour was calculated from each of the design day schedules when applying the passenger early arrival profiles
- Local TSA provided a passenger split of approximately 45% PreCheck versus 55% standard passengers.
- Average throughput of 150 and 100 passengers per lane per hour for PreCheck and standard passengers respectively.
- An additional 10% of the daily enplanement activity was added for employee and crew screening through the PreCheck lanes.
- To calculate lane requirements an industry acceptable maximum waiting time of 5 minutes and 10 minutes in the queue was assumed for PreCheck and Standard lanes respectively.
- A TSA guideline of 600 SF per lane was utilized for instances when lanes are not fully operational throughout the peak hour which equates to an IATA average LoS C of 12 SF per passenger.
- Two Ticket Document Checkers (TDC) per lane to provide stable passenger flow to the screening lanes.
- Screening area includes one required Private Screening Room (PSR) at 120 SF
- An exit corridor width of 15 feet.

Table 5.1-7 indicates that, when utilizing the assumptions outlined, the existing checkpoint number of lanes and associated screening area and queue is adequate until PAL 2 (2031) when an additional lane, associated screening area and queue space is required. The area assumptions utilized for sizing the screening area accounts for future TSA screening equipment such as their Checkpoint Property Screening System (CPSS) which includes Computed Tomography (CT) x-ray devices, proper divesting length, and a separate recomposure zone of approximately 20 feet in length.

The existing queue area provides two TDC for the current three-lane checkpoint which is four less than current TSA guidelines requiring two TDC per lane. Queue flow would benefit from additional TDC positions and consideration should be given for proper spacing of these podiums to facilitate passenger flow to the screening lanes.

Given the oversized exit lane width which ranges from 17 feet near the SSCP recomposure exit area to approximately 34 feet at its widest point, additional screening space for the fourth lane could be provided by expanding into the existing exit corridor. For the purposes of this analysis a more typical 15-foot width has been used.

Table 5.1-7: TSA Passenger Security Screening Requirements

SSCP[1]	BASE YEAR 2022		FORECAST			
	Existing	Recommended	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Checkpoint Lanes						
PreCheck	1	1	1	2	2	2
Standard	2	1	2	2	2	2
Total Lanes	**3**	**2**	**3**	**4**	**4**	**4**
Checkpoint Area						
Screening Area[2]	5,471	3,320	4,920	6,520	6,520	6,520
Exit Corridor	5,211	2,060	2,060	2,060	2,060	2,060
Total (ft²)	**10,682**	**5,380**	**6,980**	**8,580**	**8,580**	**8,580**
Checkpoint Queue						
PreCheck	-	600	600	1,200	1,200	1,200
Standard	-	600	1,200	1,200	1,200	1,200
Total (ft²)	**2,088**	**1,200**	**1,800**	**2,400**	**2,400**	**2,400**

1/Indicated areas exclude TSA office space
2/Area includes 1-120 SF PSR
Source: Alliance, October 2022

Passenger Gate Holdrooms

Holdrooms are based on the required mix of aircraft gates and the average seating capacity of each aircraft design group. These areas generally consist of the passenger seating area, the airlines podium and associated queue space, the loading bridge egress corridor, circulation and standing areas, and any additional square footage allowances for areas such as soft-seating or charging stations. The gate holdrooms are based on the mix of aircraft found in Table 5.1-4. Additional factors and assumptions include the following:

- An 80% load factor.
- An IATA "Optimum" (LoS "C") with 70% of the passengers seated at 21.6 square feet per passenger and the other 30% standing at 14.5 square feet was also utilized.
- A gate holdroom depth of 35 feet allows for the area to provide soft seating zones and a deeper queue area at the gate podiums.
- Whenever possible gate holdrooms are suggested to be configured in "shared" or "paired" layouts in order to take advantage of the adjacent gate holdrooms seating area. However, this is only achievable when no near simultaneous departures occur at the adjacent holdroom which is very dependent on airline scheduling patterns. For this analysis a 10% reduction factor for gates in a "paired" layout was utilized.

Based on the aircraft mix identified in the base schedule and the anticipated upgauging identified in the aviation forecast the existing gate holdroom area, as noted in Table 5.1-8, will reach capacity by PAL 1 (2026). Given the existing overall depth of approximately 37 feet, as compared to the 35 feet utilized for the analysis, and the existing gate holdroom seating areas which appear to be able to handle

additional seating capacity, the overall future seating requirements may be able to be satisfied with additional seats. An additional study will be required.

Table 5.1-8: Passenger Gate Holdrooms

GATE HOLDROOMS	BASE YEAR 2022		FORECAST			
	Existing	Recommended	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
ADG						
Medium Regional (CR2, ER4)	-	3,250	2,170	-	-	-
Large Regional (CR9, E75)	-	6,490	8,120	9,740	9,740	9,740
Narrowbody (319/320)	-	9,240	9,240	12,320	12,320	12,320
Total Lanes	**19,708**	**18,980**	**19,530**	**22,060**	**22,060**	**22,060**

Source: Alliance, October 2022

Baggage Claim Hall

This category represents the area occupied by the baggage claim devices and the retrieval area for active claiming. Baggage claim requirements are primarily based on the percentage of deplaned terminating passengers in a peak 20-minute period within the peak hour, the percentage of those passengers checking bags, and to a lesser extent the number of bags checked. Typically, there are two methods to calculate claim capacity, by passenger or baggage accumulation. Since most domestic passengers arrive at the claim device before their baggage, they will typically claim their bag on the first revolution of the device. This results in providing adequate linear claim frontage to accommodate the concentration of these peak passengers and their potential visitors. A typical industry planning standard is to assume all passengers will be no more than one person deep to be able to reach in/around to the claim device when the passenger's baggage is presented. This results in a LoS "C" planning ratio of 1.5 linear feet per claiming passenger. Additional factors and assumptions included:

- Assumed common use peak hour
- Load factors of 80%, 100% terminating passengers, with 70% of those claiming bags.
- A peak 20-minute average factor of 63%.
- Travel party size of 1.8 (2019 Passenger Insights Study)
- 35 square feet per linear foot of slope plate claim (includes device, retrieval area, and circulation within the positive claim area).

The existing baggage claim hall includes two sloped plate carousel claim devices with claim frontage of approximately 116 linear feet each for a total of 232 linear feet. This size, when using the assumptions outlined, is capable of supporting a typical Narrowbody aircraft with multiple flights by smaller regional type aircraft. The two existing devices and associated claim area, as presented in Table 5.1-9, will more or less be sufficient until PAL 4 (2041) when an additional device is required to support the future

peak arrival requirements. Expansion area is available between the two existing devices today accommodating an additional sloped plate device of equal length. When including this third device today, the existing resulting 36 square feet per linear foot of claim ratio is adequate to support the recommended claim area sizing now and throughout the planning horizon.

Table 5.1-9: Baggage Claim Requirements

BAGGAGE CLAIM	BASE YEAR 2022		FORECAST			
	Existing	Recommended	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Claim Hall						
Claim Devices (Slope plate)	2	2	2	2	2	3
Claim Length Required (linear feet)	-	221	250	175	224	278
Claim Length Programmed (linear feet)	232	240	240	240	240	360
Claim Area[1] (ft²)	**12,620[2]**	**8,400**	**8,400**	**8,400**	**8,400**	**12,600**

1/Includes devices, queue/retrieval area, and circulation within the positive claim area
2/Total area includes future expansion area for an additional claim device which is currently being utilized for an art gallery space
Source: Alliance, October 2022

Restrooms

This category represents the area of public space allocated to passenger restroom facilities. The program has been divided between the landside pre-security and airside post-security portions of the terminal and related gated portions of the concourses.

The rationale for calculating the number of restroom locations, fixtures, and associated area by landside and airside followed that found in the ACRP Report 226, *"Planning and Design of Airport Terminal Restrooms and Ancillary Spaces"* It is recommended that restroom locations should provide at a minimum as many fixtures for women as are provided for men. For the landside portion of the existing terminal, the ticketing and baggage claim restroom areas provide an equal split of fixtures between women and men as do the two locations within the airside concourse area. Existing landside square foot per fixture ratios averaged 98 square feet while the gated concourse locations averaged slightly over 81 square feet. Modern square-feet/fixture ratios are higher to account for increased circulation space within the restroom areas, grooming space, ledges for personal items, larger stalls for carry-on baggage, and wider chase space for easier accessibility. For the purpose of this analysis the following assumptions and guidelines were utilized for the landside (pre-security) portions of the terminal:

- A 40%/60% male/female ratio (2019 Passenger Insights Study)
- Total O&D peak hour volume and their visitors
- Approximately 118 average square feet/fixture plus 100 square feet for each family restroom.

For the airside (post-security) concourse locations, the following assumptions were utilized:

- 50% average peak 20-minute percent of peak hour
- 60% restroom utilization
- 40%/60% male/female ratio (2019 Passenger Insights Study)
- Approximately 118 average square feet/fixture plus 100 square feet for each family restroom, 128 square feet for Nursing Mother's Room, and 140 square feet for a Service Animal Relief Ara (SARA)

Based on the above factors and the calculation methods from ACRP Report 226 both the existing landside and airside number of total fixtures is adequate throughout the planning horizon. The airside however would benefit from one additional women's fixture by PAL 2 (2031). Existing square feet/fixture is below the recommended guidelines which consider the modern restroom design aspects as stated above. Although the existing terminal provides both an outdoor SARA and a pre-security *Mamava* lactation pod, the program provides additional space post-security within the concourse for both functions in order to enhance the passenger experience.

Ticket Lobby, Baggage Claim, and General Public Circulation

Terminal ticket lobby and baggage claim circulation areas represent the unobstructed clear paths from any seating area and vestibule leading up to the ticket counter queue lease lines and the positive claim area within the baggage claim hall. The existing ticket area provides a clear cross-circulation width of approximately 23 feet running the majority length of the ticket lobby. For this planning analysis a 20-foot corridor width has been utilized which is adequate for a facility of this size. The existing baggage claim general circulation area is approximately 32 feet in width. A more typical 15 feet was utilized for this analysis.

General circulation accounts for all other areas of the terminal that make up the public functions of the terminals and include areas such as vertical circulation elements, corridors, and any other architectural spaces that tie the functional public elements of the terminal together. Typical planning ratios range from 15% to 30% of the public serving spaces. The existing ratio of approximately 16% was used for this analysis.

Secure Concourse Circulation

This category represents the area beyond the security screening checkpoint areas and consists primarily of the central corridor of the concourse and adjacent egress stairs on the gate holdroom level including the fixed ramp links to the PBB. For future planning a 30-foot corridor width has been assumed (versus the existing 22 feet) which is a typical planning standard for a double loaded concourse (i.e., gate holdrooms on both side of the concourse) without moving walks. The future calculated area is based on the NBEG ratio or an area per equivalent concourse length determined by total gates. However, the actual amount of secure circulation will depend on the specific proposed concourse configuration(s) and whether they consist of gates on one or both sides of the corridor and whether gates wrap the ends of the concourse. As a result of the recommended 30-foot corridor width, a calculated square feet per NBEG ratio of approximately 2,226 square feet was utilized (versus the existing approximately 1,700 square feet/NBEG).

AIRLINE SPACE

This category of the terminal space program represents a major portion of the baggage handling functions of the terminal. It contains all the areas typically required and leased by the tenants to support their operations. The following paragraphs describe the requirements for these areas such as checked baggage screening, outbound baggage make-up, and inbound baggage handling.

TSA Checked Baggage Screening

Currently all checked baggage is being screened in the Explosive Detection System (EDS) Room located on the Apron Level. The room provides space for two semi-integrated CT-80 EDS machines capable of screening 200 bags per hour per machine with one capable of fully automated oversized baggage screening capabilities. At full operating capacity the existing screening area yields approximately 1,570 square feet per EDS unit. This factor includes the infeed and outfeed conveyors, manually roller tables, ETD screening tables and associated equipment, EDS units, circulation, and any office and storage rooms that support the baggage screening function. Additional factors and assumptions included:

- The existing baseline DDFS was analyzed for the "distributed" (when applying passenger early arrival profiles) common use peak hour in order to develop a peak 10-mintue baggage flow which is typically used to calculate capacity.
- Checked bag per passenger ratio of 0.7.
- Calculations are based on the TSA's formula for projecting peak 10-minute demand and subsequent number of EDS machines.
- A future ratio of 1,900 SF per EDS unit would allow for a more efficient orientation of the CT-80XL EDS machine rotated perpendicular and between the infeed and outfeed conveyors.

Current capacity as summarized in Table 5.1-10 is adequate to handle future demand throughout the planning horizon.

Table 5.1-10: TSA Checked Baggage Screening Requirements

TSA CHECKED BAGGAGE SCREENING	BASE YEAR 2022		FORECAST			
	Existing[1]	Recommended	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
EDS Screening						
Assumed Number of Airlines	4	4	4	4	4	4
Number of EDS Units	2	1	2	2	2	2
Total Area (ft^2)	**3,319**	**1,900**	**3,800**	**3,800**	**3,800**	**3,800**

1/Total area includes a small storage room across the corridor from the baggage screening room.

Source: Alliiance, October 2022

Outbound Baggage Make-up

This category represents the area used for the accumulation, storage, and make-up of outbound baggage from the ticket counter and curbside check-in areas. This space typically consists of the make-up units, baggage train circulation and maneuvering lanes, and the tug/cart staging areas. Depending on the operational needs additional space may be added which includes lanes for two-way traffic, curb areas and walkways for ground handlers, and additional circulation which ties other areas of the make-up area together.

Requirements are calculated based on the number of total carts required to be staged adjacent to the makeup devices during the peak departure period and the area associated with those carts, the device(s), staging areas, and maneuvering area expressed as a square foot per cart ratio. The planned single make-up slope plate carousel is designed to accommodate eight concurrent flights during the makeup period each requiring on average two baggage carts. Additional factors and assumptions included:

- Baggage cart requirements are based on a 90-minute staging period prior to a flight's scheduled departure time.
- 50 seats per cart.
- Resulting planning ratios of 565 square feet per cart.

As indicated in Table 5.1-11 below, the existing make-up room provides sufficient area throughout the planning horizon.

Inbound Bag Laydown

The inbound bag category represents the area that is used to deliver bags to the baggage claim devices. This area includes pier conveyors where the bags are off-loaded, work aisles, and bypass lanes. A planning ratio of 1,480 square feet per off-load area for the laydown area was used in the analysis. This does not take into account additional circulation space around the ends of the conveyor piers or any additional space resulting from the angled alignment of the existing piers.

Table 5.1-10 indicates the existing area is more than adequate throughout the planning horizon. Should larger Narrowbody aircraft and increased checked baggage occur in the future requiring additional carts, the existing area appears to allow for the extension of the conveyor piers to handle additional off-load capability.

Table 5.1-11: Outbound Baggage Makeup & Inbound Baggage Laydown Requirements

BAG MAKE-UP/ INBOUND LAYDOWN	BASE YEAR 2022		FORECAST			
	Existing	Recommended	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Baggage Make-up						
Assumed Number of Airlines	4	4	4	4	4	4
Number of Carts	20[1]	5	8	12	15	17
Total Area (ft^2)	**9,989**	**2,760**	**4,200**	**7,020**	**8,190**	**9,360**
Baggage Laydown						
Number of Laydown Piers	3	2	2	2	2	3
Inbound Laydown Area (ft^2)	**8,576[2]**	**2,960**	**2,960**	**2,960**	**2,960**	**4,440**

1/Based on existing CAD plans
2/Area includes expansion space for a future laydown pier
Source: Alliance, October 2022

CONCESSION SPACE

This category of the terminal space program represents all the areas devoted to commercial concessions that generate revenue for the Airport. In general, these include food/beverage, news/gift/sundry (business centers, shoeshine, specialty stores, etc.), rental car, and other revenue generating functions. These amenities provide the passenger with necessary services during the processing function and provide vital revenue to the airport.

There are two general planning rules to approximate overall concessions areas; one suggesting approximately eight to 12% of the public serving space be allocated to concessions, the other utilizing a ratio of square feet of concessions space per 1,000 annual enplanements. These areas typically include any space which the public has unrestricted access to. Of this area it is recommended that 80-90% of the total concessions area be allocated to the post security or airside portion the terminal. The remaining 10-20% is allocated to the non-secure or landside portion of the terminal. Due to the financial importance of the concession program, it is suggested that the Airport seek a concession planning specialist prior to determining a final airside/landside split.

The Airport has approximately 7% of the public area allocated to concessions revenue generating space, which is slightly below the typical 8-12% planning standard. The revenue generating area in the secure area of the terminal accounts for 71% of the total public concessions space with 29% located on the pre-security landside portion of the terminal. Utilizing a ratio of 13 square feet per 1,000 annual enplanements resulted in an average of approximately 9% concession space to public areas over the forecast horizon while also utilizing the existing split of landside to airside concessions space. The airport has concessions support to revenue area ratio of approximately 24%. This accounts for back-of-house (BOH) space such as food/prep/kitchen areas, storage, and other offices to support the public facing concessions space. The existing ratio is near the low end of the planning range of 25-35%. For this analysis a ratio of 25% has been used. Existing rental car space was assumed to remain constant throughout the planning horizon.

Assuming the same existing landside to airside concessions split, Table 5.1-12 indicates the airside would benefit from additional storage space today and exceeding capacity by PAL 2 (2031).

As stated previously, while the rental car facilities will remain constant, Table 5.1-12 indicates both landside and airside concessions will gradually increase in area over the planning horizon due to the assumptions previously stated. Excluding the rental car area, the landside concessions will exceed capacity by PAL 2 (2031). See Appendix X for concessions space breakdown.

NON-PUBLIC SPACE

This category includes the BOH area that is not accessible to the public and generally consists of areas such as airport administration, airport police, and any other airport related offices and support space, restrooms, and circulation. Other areas include the building support spaces such as loading docks, maintenance, janitorial, storage and shops, mechanical/electrical/plumbing (MEP), IT/communications, and structural non-net portions of the building. These areas along with the functional areas of the terminal and related concourses combine to create the gross building footprint.

Airport Operations (Maintenance, Janitorial, Storage, Shops)

This category accounts for the building maintenance facilities and consists of shops, storage, office space, circulation, and janitorial space. Typical planning standards require 1-2% of the total functional areas. The existing ratio of 8.5% is due to the large maintenance room adjacent to the EDS baggage screening space. As such a more typical 2% was used.

Mechanical, Electrical, Plumbing, Communications

This category of the program includes all the utility support areas for the terminal and is generally a percentage of the enclosed functional areas of the terminal which typically ranges between 8-15%. The top end ratio of 15% was utilized and assumes the existing MEP areas have some additional capacity built in. Any future building expansion will need to evaluate whether additional MEP capacity will be required.

Building Structure (Structural/Non-Net/Void)

This portion of the program ties together all the previous functional elements of the program to provide a better estimate of the total gross building area. Unusable space or special structures often make up this category of the program and depending on how the gross areas are determined a factor of 2-5% is typically added for this category. The existing terminal gross area was taken from the airport terminal CAD drawings. All functional elements were then added together and subtracted from the overall gross area footprint to calculate the non-net area with a resulting ratio of approximately 4%. For the purpose of this analysis the existing ratio has been used.

PASSENGER TERMINAL FACILITY REQUIREMENTS SUMMARY

Table 5.1-12 summarizes the space program by year. The programmatic approach to sizing facility areas as previously described is commonly used as the first step during the planning and preliminary design of any expansion project. As a project proceeds through the design process functions such as ticketing, baggage areas, gate holdrooms, circulation areas, concessions, and other space-based requirements will often change as a result of the physical configuration of the design and cost

considerations. The demand requirements contained in Table 5.1-12 are considered a minimum generic facilities requirement program that is recommended to support the design aircraft and their associated peak hour passenger activity levels. While projected demand is not expected to exceed current facility capacity throughout the planning horizon, individual spaces should be reviewed to determine the time at which their capacity shortfalls will occur. Industry best practice is to start planning for additional space which serves the public and baggage processing functions when demand reaches approximately 85% of existing capacity within the various areas of the terminal and related concourse areas. Crossing this capacity threshold triggers the need to begin planning, design, and the construction process to replace facilities in time to meet the growing passenger demand levels. Table 5.1-13 indicates the point at which these trigger points will be met. A more detailed program breakdown is provided in Appendix X.

Table 5.1-12: Summary of Terminal Facility Requirements

PROGRAM AREA	2022		FORECAST			
	Existing	Recommended	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Public Space						
Circulation[1]	55,750	37,260	39,020	41,840	42,370	44,030
Ticket Lobby Queue	2,155	2,790	2,940	2,940	3,240	3,390
TSA Passenger Security Screening[2]	15,221	9,030	11,230	13,430	13,430	13,430
Passenger Gate Holdrooms	19,708	18,000	19,530	22,060	22,060	22,060
Baggage Claim[3]	14,397	9,270	9,300	9,490	9,600	13,660
Restrooms (pre/post security)[4]	4,988	4,790	5,510	5,870	5,780	5,870
Other/Misc. Tenants[5]	1,687	1,680	1,680	1,680	1,680	1,680
Subtotal (ft^2)	113,906	82,660	89,270	97,310	98,250	104,120
Airline Space						
Ticketing (counter, ATO)	7,086	3,850	4,060	4,060	4,480	4,690
TSA Checked Baggage Screening	3,139	1,900	3,800	3,800	3,800	3,800
Outbound Baggage Make-Up	9,989	2,760	4,200	7,020	8,190	9,360
Airside Operations/Storage	3,160	3,010	3,060	3,400	3,400	3,400
Inbound Baggage Claim Laydown	8,576	2,960	2,960	2,960	2,960	4,440
Inbound/Outbound Baggage Circ.[6]	33,851	10,610	12,850	17,210	19,020	24,000
Baggage Service Offices (BSO)	268	270	270	270	270	270
Other Offices/Support (DGS)	2,778	2,800	2,840	3,160	3,160	3,160
Subtotal (ft^2)	*68,847*	*28,160*	*34,040*	*41,880*	*45,280*	*53,120*
Concessions						
Landside/Storage[7]	9,568	7,820	8,090	8,760	9,090	9,210

Airside/Storage[8]	6,487	6,300	6,940	8,600	9,390	9,690
Subtotal (ft²)	16,055	14,120	15,030	17,360	18,480	18,900
Non-Public Space						
Non-Airline Tenant Space[9]	1,979	1,980	1,980	1,980	1,980	1,980
Airport Administration	12,768	12,770	12,770	12,770	12,770	12,770
Restrooms/Circulation	7,119	4,130	4,580	5,200	5,450	6,030
Airport Operations[10]	18,485	2,880	3,150	3,530	3,640	3,940
Building Operations/Systems[11]	53,249	30,290	33,200	37,450	38,820	41,810
Subtotal (ft²)	93,600	52,050	55,680	60,930	62,660	66,530
Total Gross Area (ft²)	292,408	176,990	193,960	217,480	224,670	242,670

1/Includes ticket lobby, concourse, baggage claim, general public circ., and public seating
2/Includes queuing, exit corridor, and TSA offices
3/Includes devices, retrieval areas, circulation, and meter & greeter area
4/Includes Family Room, Nursing Mother's Room, and SARA
5/Includes Global Entry Enrollment Center, US Mail Drop, and Meditation suite, info and displays
6/Includes cart storage and other GSE equipment parking
7/Includes rental car counters, queues, and associated offices, and concessions support spaces
8/Includes associated offices, and support spaces
9/Includes Airport Police, mail, and evidence process rooms
10/Includes maintenance, janitorial, storage, and shops
11/Includes loading dock, MEP, IT/Comms., and building structure (non-net/chase/void space)
Source: Alliiance, October 2022

Table 5.1-13: Terminal Program Trigger Point Summary

PROGRAM AREA	2022		FORECAST			
	Existing	Capacity Threshold	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
General						
Annual Enplanements	545,789		601,424	745,378	814,090	840,018
Aircraft Gates/PBB	10	10	10	10	10	10
Aircraft Positions	13	12	12	12	12	12
Public Space						
Circulation	55,750	✓	✓	✓	✓	✓
Ticket Lobby Queue	2,155	✗	✗	✗	✗	✗
TSA Passenger Security Screening	15,221	✓	✓	⚠	⚠	⚠
# of Screening Lanes	3	✓	⚠	✗	✗	✗
Screening Area	5,471	✓	⚠	✗	✗	✗
Passenger Gate Holdrooms	19,708	⚠	⚠	✗	✗	✗
Baggage Claim	14,397	✓	✓	✓	✓	⚠
# of Devices	2	✓	✓	✓	✓	⚠
Restrooms (pre/post security)	4,988	⚠	✗	✗	✗	✗
Other/Misc. Tenants	1,687	⚠	⚠	⚠	⚠	⚠
Subtotal (ft²)	*113,906*	✓	✓	⚠	⚠	⚠
Airline Space						
Ticketing (counter, ATO)	7,086	✓	✓	✓	✓	✓

TSA Checked Baggage Screening	3,139	✓	✗	✗	✗	✗
Outbound Baggage Make-Up	9,989	✓	✓	✓	✓	⚠
Airside Operations/Storage	3,160	⚠	⚠	✗	✗	✗
Inbound Baggage Claim Laydown	8,576	✓	✓	✓	✓	✓
Inbound/Outbound Baggage Circ.	33,851	✓	✓	✓	✓	✓
Baggage Service Offices (BSO)	268	⚠	⚠	⚠	⚠	⚠
Other Offices/Support (DGS)	2,778	⚠	⚠	⚠	⚠	⚠
Subtotal (ft²)	*68,847*	✓	✓	✓	✓	✓
Concessions						
Landside/Storage	9,568	✓	✓	⚠	⚠	⚠
Airside/Storage	6,487	⚠	✗	✗	✗	✗
Subtotal (ft²)	*16,055*	⚠	⚠	✗	✗	✗
Non-Public Space						
Non-Airline Tenant Space	1,979	⚠	⚠	⚠	⚠	⚠
Airport Administration	12,768	⚠	⚠	⚠	⚠	⚠
Restrooms/Circulation	7,119	✓	✓	✓	✓	✓
Airport Operations	18,485	✓	✓	✓	✓	✓
Building Operations/Systems	53,249	✓	✓	✓	✓	✓
Subtotal (ft²)	93,600	✓	✓	✓	✓	✓
Total Gross Area (ft²)	292,408	✓	✓	✓	✓	✓

Source: Alliance, October 2022

Legend

✓ Programmed area is less than existing

⚠ Programmed area is at or over 85% of capacity

✗ Programmed area is greater than existing

5.1.5 Alternative Forecast Sensitivity Analysis

To gauge the effects of the Master Plan's alternate "High Scenario" forecast, outlined in Chapter 3 – *Forecast of Aviation Demand*, on future terminal gate and building area requirements an additional program and associated aircraft gate needs was developed. This "High" forecast scenario shown in Table 5.1-14 includes increased enplanement and operations activity both annually and during the peak hour. The design day flight schedules developed for this scenario include the addition of a new airline, additional aircraft equipment up gauging, and increased RON activity due to a low-cost carrier base.

Table 5.1-14: High Scenario Annual and Peak Hour Activity Forecast Summary

	BASE YEAR 2022	FORECAST PLANNING YEARS			
		PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Enplanements					
Annual	545,789	716,401	890,830	972,845	999,130
Peak Hour Passengers					
Enplaned	257	526	547	569	632
Deplaned	346	526	568	614	666
Total	492	837	987	1,048	1,112
Peak Hour % of Daily Activity					
Enplaned	11.8%	23.3%	19.5%	18.6%	20.1%
Deplaned	15.8%	23.3%	20.3%	20.0%	21.2%
Total	22.5%	37.1%	35.2%	34.2%	35.3%

Note: The total peak hour does not reflect the sum of the enplaned/deplaned peak hour components as each occurs in different hours.
Source: CMT, October 2022

Analysis of the schedules, while maintaining Common Use gating, indicates all gates are being utilized for active day flights by PAL 2 (2031) with 11 RON positions. As shown in Table 5.1-15 both PAL 3 (2036) and PAL 4 (2041) require an additional Narrowbody gate totaling 12 gates and 12 RON.

Table 5.1-15: High Scenario Projected Gate Demand

		BASE YEAR 2022		FORECAST PLANNING YEARS			
				PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
Annual Enplanements		545,789		716,401	890,830	972,845	999,130
PMAD Departure Ops		26		30	37	37	38
Airplane Design Group (ADG)		Max Gauge[1]	Utilized Gauge	Recommended Gates			
II	Medium Regional	1	3	2	1	-	-
III	Large Regional	3	4	5	4	5	5
	Narrowbody	6	3	3	5	6	7
Total Contact Gates		**10[2]**	**10**	**10**	**10**	**11**	**12**
Total RON		**13**	**9**	**11**	**11**	**11**	**12**
Departures per Gate		2.6		3.0	3.7	3.4	3.2
Annual Enplanements per Gate[3]		54,579		71,640	89,083	88,440	83,261

1/Represents the largest aircraft gauge in each design group, not necessarily the aircraft gauge currently being utilized at the gate
2/Existing Gate 9 includes two parking positions, Existing Gate 10 includes 3 parking positions
3/Values rounded
Source: CMT/Alliance, October 2022

The calculated overall building area requirements are still projected to be below current capacity. However, due to the increase in activity, certain areas of the terminal will reach capacity earlier in the planning horizon as summarized in Table 5.1-16. A more detailed space breakdown is provided in Appendix X.

Table 5.1-16: High Scenario Terminal Program Trigger Point Summary

PROGRAM AREA	2022		FORECAST			
	Existing	Capacity Threshold	PAL 1 2026	PAL 2 2031	PAL 3 2036	PAL 4 2041
General						
Annual Enplanements	545,789		716,401	890,830	972,845	999,130
Aircraft Gates/PBB	10	10	10	10	11	12
Aircraft Positions	13	12	11	11	11	12
Public Space						
Circulation	55,750	✓	✓	✓	⚠	⚠
Ticket Lobby Queue	2,155	✗	✗	✗	✗	✗
TSA Passenger Security Screening	15,221	✓	⚠	⚠	⚠	⚠
# of Screening Lanes	3	✓	✗	✗	✗	✗
Screening Area	5,471	✓	✗	✗	✗	✗
Passenger Gate Holdrooms	19,708	⚠	⚠	✗	✗	✗
Baggage Claim	14,397	✓	✓	⚠	⚠	⚠
# of Devices	2	✓	✓	⚠	⚠	⚠

Restrooms (pre/post security)	4,988	⚠	✗	✗	✗	✗
Other/Misc. Tenants	1,687	⚠	⚠	⚠	⚠	⚠
Subtotal (sf)	*113,906*	✓	✓	⚠	⚠	✗
Airline Space						
Ticketing (counter, ATO)	7,086	✓	✓	✓	✓	✓
TSA Checked Baggage Screening	3,139	✓	✗	✗	✗	✗
Outbound Baggage Make-Up	9,989	✓	✓	⚠	✗	✗
Airside Operations/Storage	3,160	⚠	⚠	✗	✗	✗
Inbound Baggage Claim Laydown	8,576	✓	✓	✓	✓	✓
Inbound/Outbound Baggage Circ.	33,851	✓	✓	✓	✓	⚠
Baggage Service Offices (BSO)	268	⚠	⚠	⚠	⚠	⚠
Other Offices/Support (DGS)	2,778	⚠	⚠	⚠	⚠	⚠
Subtotal (sf)	*68,847*	✓	✓	✓	⚠	⚠
Concessions						
Landside/Storage	9,568	✓	⚠	⚠	✗	✗
Airside/Storage	6,487	⚠	✗	✗	✗	✗
Subtotal (sf)	*16,055*	⚠	✗	✗	✗	✗
Non-Public Space						
Non-Airline Tenant Space	1,979	⚠	⚠	⚠	⚠	⚠
Airport Administration	12,768	⚠	⚠	⚠	⚠	⚠
Restrooms/Circulation	7,119	✓	✓	⚠	⚠	⚠
Airport Operations	18,485	✓	✓	✓	✓	✓
Building Operations/Systems	53,249	✓	✓	✓	⚠	⚠
Subtotal (sf)	93,600	✓	✓	✓	✓	✓
Total Gross Area (sf)	292,408	✓	✓	✓	⚠	⚠

Source: Alliiance, October 2022

Legend

✓ Programmed area is less than existing

⚠ Programmed area is at or over 85% of capacity

✗ Programmed area is greater than existing

5.1.6 Existing Terminal Apron Assessment

The existing apron accommodates both the concourse aircraft parking and associated taxilane/taxiway system extending from Taxiway F and Taxiway E. The total square acres of this apron area is approximately 19.8 square acres (862,579 square feet). As mentioned previously the apron area accommodates 13 aircraft parking positions served by 10 PBBs. To prevent contaminating the aircraft parking positions during deicing operations, aircraft must be pushed back into the apron taxilanes on both sides of the concourse. This effectively blocks the flow of aircraft to and from the gates until deicing has concluded. With heavy morning RON departure activity this can negatively impact aircraft maneuverability in and out of the terminal area.

Additional apron dedicated for deicing operations will improve overall aircraft maneuverability and safety. At a minimum a dedicated deicing pad which could accommodate four large narrowbody aircraft (B738/A321) or five large regional aircraft (E75) would yield approximately 48,920 square yards. This area includes taxilanes on both sides of the deicing pad for easy aircraft maneuverability into and out of the pad. An option for a joint RON/Deice pad which could be located on either side of the existing concourse would yield approximately 21,210 square yards. During deicing operations, tugs would push the aircraft back onto the pad. Once deicing has concluded aircraft would powerout onto the existing taxilane.

Justification for additional apron area related to aircraft gate and RON parking will also be a function of the terminal expansion alternatives and future gate layouts discussed in the Terminal Alternatives chapter.