# 5 Airport Development Concepts

A major component of a Master Plan is the identification and evaluation of development concepts to meet future aviation activity demand. This chapter provides strategic options for satisfying the facility requirements identified in Chapter 3, *Demand/Capacity Analysis and Facility Requirements*. The goals of this analysis, as stated in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, are to:

- Identify alternative concepts to address previously identified facility requirements
- Evaluate these alternatives, individually and collectively, so there is a clear understanding of the strengths, weaknesses and implications of each
- Select reasonable alternatives

Development concepts primarily focus on demand/capacity relationships but can also increase operational safety and/or maximize Airport revenue. Additionally, it may be necessary to include development concepts for future years beyond the study period, such as protecting areas reserved for future runway development. The development concepts in this chapter serve as the basis for the future Airport Layout Plan (ALP) and present recommended development for each functional area of the Airport (i.e., airside, terminal, general aviation, and support facilities). The following summarizes the facility requirements identified in the previous chapter:

**Airfield Recommendations**

- Preserve Airport Reference Code (ARC) D-V infrastructure throughout planning period
- Re-designate Runway 13/31 numbering to 14/32
- Reduce displaced thresholds on Runway 13/31
- Add additional shoulder width to Runways 2R/20L and 2C/20C to bring widths to 25 feet according to Group IV criteria
- Add paved shoulders on Runway 13/31 from the Runway 2L/20R intersection to the Runway 13 end
- Extend Runway 20R blast pad by 50 feet and widen by 25 feet on both sides according to Group IV criteria
- Widen Runway 2L blast pad by 25 feet on both sides according to Group IV criteria

- Add paved shoulders on taxiways, taxilanes, and aprons intended to be utilized by ADG-IV aircraft (as per Advisory Circular 150/5300-13A)
- Due to hot spots for runway incursions, consider reconfiguration of:
    - Taxiway T3, which connects the Taxiway B/K intersection to the Taxiway L/T4 intersection
    - Taxiway R3 at the Taxiway A/K intersection
    - Taxiways S7 and S6 adjacent to the approach end of Runway 20C
- Extend Taxiway K northwest to the end of Runway 13 to remove the need for aircraft to cross Runway 13/31 from Taxiway K to access the Runway 13 end
- Construct additional General Aviation (GA) apron by Planning Activity Level (PAL) 2
- Consider extension of Runway 2L
- Address taxiway intersection fillets that do not meet current FAA design standards. See Figure 3-4 in Chapter 3 for a list and depiction of these areas

**Terminal Roadway Recommendations**

- Add lane capacity within terminal area
- Expand decision-making distance
- Reduce or eliminate merge/weave problems
- Reduce or eliminate congestion at intersections
- Realign Donelson Pike to improve access and roadway movements as well as allow for parking expansion

**Gate and Terminal Space Recommendations**

- Airline Space:
    - Reduce the number of required agent assisted check-in positions
    - Increase the number of baggage check positions/locations
    - Decrease the number of self-service check-in kiosks
    - Consider self-tagging baggage check-in locations
    - Consider off-airport check-in locations
    - Strategically locate self-service kiosks throughout the ticket lobby to assist in improving passenger processing times, etc.

- Airline Gate and Hold Rooms
    - Review existing hold room layouts and areas to ensure maximum efficiencies and proper sizing
    - Consider redistribution of hold room areas to accommodate the recommended gate increase at PAL 4
    - Consider future gate and hold room locations to ensure cohesiveness with existing air carrier relocation potential opportunities and introduction of new entrant air carriers throughout all concourses
- Baggage Claim:
    - Consider additional baggage claim device by PAL 4
    - Consider reconfiguration and area increase of the baggage claim lobby area to accommodate increased general circulation needs, baggage claim needs, and meeter/greeters
- Baggage Make-up:
    - Consider increasing the baggage make-up areas to accommodate the processing of forecasted volume of outbound checked baggage
    - Consider expanding the northern-most make-up room. Aircraft parking limitations should be considered
    - Consider a phased approach for relocation of the concessions storage areas and ramp offices to provide southward baggage make-up expansion
- Public Space:
    - Consider additional functional area for meeters/greeters by PAL 2
    - Consider additional circulation and restroom capacity to accommodate increased activity levels
- Pre-Secure (Landside) Concessions:
    - Evaluate passenger and meeter/greeter behavior, as well as travel and security protocols, at each PAL to determine the need for and ability to support increased concessions offerings
    - Consider placing an emphasis on the repurposing or reuse of existing space to accommodate increased concessions offerings

- Post-Secure (Airside) Concessions:
    - Consider each existing and proposed concession location to maximize passenger satisfaction and Airport revenue-generating opportunities
    - Consider anticipated concessions expansion away from the concourse to maintain current concourse circulation widths
    - Consider repurposing or reusing existing space to accommodate new or expanded concessions offerings. Emphasis should be placed on maintaining existing concourse circulation widths
- Security Checkpoint:
    - Consider expansion and growth of the checkpoint functional area in PAL 3 to accommodate the Transportation Security Administration's (TSA) optimal "2 to 1 Design" (per TSA regulations set forth in *Aviation Safety: Checkpoint Layout Design Guide/Reconfiguration Guide*) consisting of one Walk Through Metal Detector centered between two X-ray Units
    - Review screening technologies and protocols throughout the planning period, as technical advancements in these areas may reduce the sizing requirements of the checkpoint and mitigate the need for further expansion
    - Review improved screening processes, such as TSA "Pre-Check" and "Checkpoint of the Future," at each PAL to determine industry-wide acceptance and how these processes can be applied to increase the efficiency of the checkpoint
- Checked Baggage Inspection System:
    - At each PAL, consider new certified technologies and screening protocols and identify potential impacts from future technologies and protocols. Consider modification of the existing area, if necessary
- International Gates
    - Consider the construction of a larger Federal Inspection Services (FIS) facility or International Arrivals Building (IAB) sized to accommodate the functional requirements of the larger processing capacity, but finished out to the current size requirements to support the current passenger rates to allow for future facility expansion within the remaining shell space
    - Construct new IAB with "swing gates" designed to accommodate domestic passenger service when international flights are not scheduled

- Terminal Services:
    - Consider location and capacity of loading dock and delivery areas serving the terminal building
    - Plan for direct terminal-related services, such as lift and sweeper storage, loading docks and screening facilities within the terminal building
    - At each PAL, compare requirements for capacity and quantity of vertical circulation elements, such as stairs, elevators and escalators, against the existing elements to determine if action is necessary, such as increasing egress stair widths, to accommodate increased passenger loads

**Support Facility Recommendations**

- Consider additional aircraft hangar storage between baseline year (existing conditions) and PAL 1
- Maintain existing air cargo facilities
- Consider additional deicing areas potentially in GA or air cargo areas
- Consider additional Aircraft Rescue and Fire Fighting (ARFF) support if extending Runway 2L or constructing fourth parallel runway
- Continue to consolidate Metropolitan Nashville Airport Authority (MNAA) maintenance functions into one facility
- Maintain multipurpose building (Building 4323) for Ground Support Equipment (GSE) storage
- Consider reserving a site for a new Air Traffic Control Tower (ATCT)

**Surface Transportation and Parking Recommendations**

- Provide ability to expand parking
- Institute policies and procedures that facilitate future growth of on-Airport parking demand. Examples of policies and procedures include:
    - Implementing a concession fee for off-Airport parking providers
    - Improving on-Airport parking customer service
    - Adjusting parking rates to compete directly with off-Airport parking providers
- Increase on-Airport public parking by PAL 2
- Consider relocating rental car service sites

- Add 9 taxi queue spaces by PAL 1, and 41 spaces by PAL 4
- Add 10 cell phone spaces by PAL 1, and 49 spaces by PAL 4

## 5.1 Decision Memos

Effective planning must consider potential environmental impacts, fiscal implications, and unforeseen changes in the Airport's environs and operational characteristics. Therefore, in conjunction with the demand/capacity and facility requirements determined in Chapter 3, Decision Memo packages for each Airport functional area were developed to identify potential development projects. **Appendix A** contains all completed Decision Memos. The following is a list of the Decision Memos developed for each functional area:

- Decision Memo 1 – International Arrivals Building (IAB)
- Decision Memo 2 – Hotel Development
- Decision Memo 3 – On-Airport Development (i.e., Support Facilities, etc.)
- Decision Memo 4 – Airfield
- Decision Memo 5 – Roadways, Parking, and Rental Car
- Decision Memo 6 – Land Use
- Decision Memo 7a – Ticket Lobby
- Decision Memo 7b – Baggage Make-Up
- Decision Memo 7c – Baggage Claim
- Decision Memo 7d – Airside (Post-Security) Concessions
- Decision Memo 7e – Landside (Pre- Security) Concessions
- Decision Memo 8 – Ground Transportation Center
- Decision Memo 9 – Arrivals Curbside Congestion

In order to analyze the extent to which certain improvements or developments may affect other areas, each Decision Memo provides a brief discussion of the associated functional area, presents a list of potential concepts or development areas, and scores each concept based upon weighted criteria in accordance with the goals and specific needs of the Airport. Collaboration between the Consultant Team and the Metropolitan Nashville Airport Authority (MNAA) identified criteria for the development of an evaluation matrix for each Decision Memo. Although the evaluation criteria varied, the following is a comprehensive list of considerations contained within the Decision Memos:

- Demand/Capacity Satisfaction
- Ground Access and Circulation
- Constructability
- Expansion Flexibility
- Other Facility Impacts
- Consistency with Master Plan Objectives
- Program Phasing
- Airfield Operations
- Airfield Impacts
- Minimize Taxiing Time
- Avoid Sensitive Natural Resources
- Passenger/User Convenience
- Maximize Development Potential of Airport Properties
- Revenue/Concessions Opportunities
- Reuse of Existing Facilities
- Minimize Additional Energy Use/Promote Alternative Energy Sources
- Access to Intermodal Service Corridor

The following subsections provide a brief overview of each Decision Memo and present the preferred recommendations of each. As previously mentioned, all completed Decision Memos can be found in **Appendix A**.

### 5.1.1 Decision Memo 1 – International Arrivals Building

The existing International Arrivals Building (IAB) is approximately 19,460 square feet with one contact gate and is capable of processing 200 to 400 peak hour passengers. The MNAA has stated future goals of increasing the level of international air carrier service to BNA.

To accommodate the future processing demands for this increased service, the basis of design for all planning periods is representative of a 29,000 square foot facility capable of processing up to 600 passengers per hour, in accordance with the U.S. Department of Homeland Security's "Airport Technical Design Standards for Passenger Processing Facilities" planning guidelines.

The proposed facility will not only process up to 600 passengers per hour but will also provide three contact gates to support diverted international flights from other airports. These gates will be configured to function as "swing" gates, capable of serving domestic or international flights as need dictates. Through the use of sterile corridors in conjunction with access controlled boarding and holdroom doors, "swing" gates can be configured to receive either domestic or international flights. This provides the most efficient use of an international gate, avoiding a dedicated international gate that can only be utilized for arriving international flights.

The programmatic requirements for total gates with holdrooms required to support forecast design aircraft operations and schedules exceed the existing gate totals at Planning Activity Level (PAL) 4. To accommodate this increase in demand, the following six concepts were developed:

- Concept 1 – Development of A Concourse - Option A
- Concept 2 – Development of A Concourse - Option B
- Concept 3A – Development of D Concourse
- Concept 3B – Development of D Concourse
- Concept 4 – Development of B Concourse
- Concept 5 – Development of C Concourse

Based upon the weighted scoring criteria, Concept 2 provides the greatest benefits and meets the future demand. Concept 2 is an IAB on the south end of A Concourse near the main terminal.

The proposed building footprint is 29,000 square feet to accommodate functions related passenger processing, including Federal Inspection Services and agency space. The proposed concept also provides additional square footage for hold rooms and concessions immediately adjacent to the new International Arrivals Building, in order to meet projected demand for holdroom space at PAL 4. The IAB will only accommodate two "swing" gates at this location without redesigning the gate locations on A Concourse or on the north side of B Concourse.

The proposed concept meets the requirements for total gates and holdrooms in PAL 4 by providing a total of 47 gates and 119,000 square feet of holdroom space. The existing International Arrivals Building will be demolished and replaced with additional holdrooms and concession space as well as accommodations for three contact gates. One ramp loading space is proposed on D Concourse in order to meet demand.

The proposed concept improves ease of access by locating the IAB near the Main Terminal.

**Figure 5-1** depicts the preferred IAB development concept. A complete presentation of all IAB development concepts is provided in Decision Memo 1 located in Appendix A.

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## CONCEPT 2 FEATURES

- Additional Hold Room Space for Swing Gates A1, A2 and A3
- Use D Concourse for PAL 4 - Gate Requirements
- Single Level IAB at South End of A Concourse
- Demolish Existing IAB
- Add Hold Room and Concession Space at A Concourse North of Existing Gate A7

| | Baseline (2011) | PAL 1 (2016) | PAL 2 (2021) | PAL 3 (2026) | PAL 4 (2031) |
|---|---|---|---|---|---|
| Passenger Enplanements | 4,806,092 | 5,835,700 | 6,929,300 | 8,190,000 | 9,658,600 |
| | | | | | |
| Current Gate Count | Total Future Gates Porvided | PAL 1 Gates Needed | PAL 2 Gates Needed | PAL 3 Gates Needed | PAL 4 Gates Needed |
| 44 | 47 | 34 | 38 | 43 | 47 |
| | | | | | |
| Current Holdroom | Approximate Future Holdroom | PAL 1 Holdroom Needed | PAL 2 Holdroom Needed | PAL 3 Holdroom Needed | PAL 4 Holdroom Needed |
| 93,955 | 119,000 | 83,260 | 93,677 | 101,962 | 118,686 |

GARAGE

TERMINAL

CONCOURSE D RAMP LOADING

BRL

Nashville International Airport

RW ARMSTRONG a CHA company

## LEGEND

- Airport Property Boundary
- BRL — Building Restriction Line (35')
- I.A.B. Building (60'x480')
- 20' Sterile Corridor
- Building Demolition
- Additional Hold Room
- Tug Road Relocation
- Existing Buildings
- Runway Pavement
- Taxiway Pavement
- Apron Pavement
- Hydrology
- Group V Taxi Route

GRAPHIC SCALE (FEET)

0 150 300

**Figure 5-1**
**Preferred International Arrivals Building Concept**

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### 5.1.2 Decision Memo 2 – Hotel

As part of the Master Plan Update at BNA, potential hotel sites were identified and evaluated to determine the MNAA's most desirable location. These sites would all provide convenient access to the terminal building.

- Concept 1 – South of the terminal, 900 feet away from the terminal building
- Concept 2 – South of the terminal, 300 feet away from the terminal building
- Concept 3 – North of the terminal, 300 feet away from the terminal building
- Concept 4 – East side of the parking garage, 800 feet away from the terminal building
- Concept 5 – One-half mile north of the terminal, south of Interstate 40
- Concept 6 – In the location of D Concourse with direct connectivity to the terminal building
- Concept 7 – South of the parking garage, 500 feet away from the terminal building

Currently, airport landside development is very constrained by the boundary created by the loop road system. The MNAA must carefully evaluate other business activities in this area, such as a Ground Transportation Center, International Arrivals Building, and future parking to achieve the "highest and best use" of this limited landside development area.

A feasibility and market study should be conducted before the Airport finalizes its site selection for hotel development to fully evaluate the needs of a potential hotel developer. Construction to prepare the site and provide utilities for the planned hotel development, as well as long-term lease agreements with the developer, can be better identified and discussed after the feasibility study is complete.

A Hotel Model Program was developed after discussions with the MNAA, consisting of 300 rooms with 30 rooms per floor. The highest degree of operational efficiency to hotel operators is 20 to 40 rooms per floor. This would create an eleven story building with the efficiency of the room-to-floor ratio factor in the mid-range. The overall height of the building from ground to top of the roof stair parapets is estimated at 123 feet.

| HOTEL MODEL PROGRAM SQUARE FOOTAGE SUMMARY | SQUARE FEET |
|---|---|
| 300 Guest Rooms at 30 Rooms Per Floor = 10 Guest Room Floors | 162,500 |
| Public Area | 4,968 |
| Back of House | 9,729 |
| Function – Meeting Rooms | 6,268 |
| 150 Seat Restaurant and 75 Seat Bar | 12,043 |
| Amenities – Pools, Fitness, Business Center | 2,970 |
| TOTAL PROGRAM | 198,478 |

Based upon the weighted scoring criteria, Concept 2 provides the greatest benefit. Concept 2 locates the hotel facility on the south side of the terminal, connected to the terminal building by a 300-foot elevated walkway.

**Figure 5-2** depicts the preferred hotel development concept. A complete presentation of all hotel development concepts is provided in Decision Memo 2 located in **Appendix A**.

## OPTION 4 FEATURES

- IAB on North Side of B Concourse
- Expand A Concourse for PAL 4 Gates
- Demolish Existing IAB
- Gates B3, B5, B7, B9 and B11 are All Swing Gates
- 1 Gate and Hold Room Expansion South End of Concourse A
- 3 Gate Expansion Off North End of Concourse A

RESTRIPE TAXILANES

A10 A9 A8 A7 A6 A5 A4 A3 A2 A1

B11 B9 B7 B5 B3 B13 B12 B10 B8 B6 B4 B2 B1

GARAGE

TERMINAL

C1 C2 C3 C5 C4 C6 C8 C7 C9 C10 C11 C12 C13 C14 C15 C16 C18 C17 C19 C20 C20-25

BRL

| | Baseline (2011) | PAL 1 (2016) | PAL 2 (2021) | PAL 3 (2026) | PAL 4 (2031) |
|---|---|---|---|---|---|
| Passenger Enplanements | 4,806,092 | 5,835,700 | 6,929,300 | 8,190,000 | 9,658,600 |
| | | | | | |
| Current Gate Count | Total Future Gates Provided | PAL 1 Gates Needed | PAL 2 Gates Needed | PAL 3 Gates Needed | PAL 4 Gates Needed |
| 44 | 47 | 34 | 38 | 43 | 47 |
| | | | | | |
| Current Holdroom | Approximate Future Holdroom | PAL 1 Holdroom Needed | PAL 2 Holdroom Needed | PAL 3 Holdroom Needed | PAL 4 Holdroom Needed |
| 93,955 | 119,000 | 83,260 | 93,677 | 101,962 | 118,686 |

Nashville International Airport

ARMSTRONG a CHA company

## LEGEND

- Airport Property Boundary
- —BRL— Building Restriction Line (35')
- I.A.B. Building (60'x480')
- 20' Sterile Corridor
- Building Demolition
- Additional Hold Room
- Tug Road Relocation
- Existing Buildings
- Runway Pavement
- Taxiway Pavement
- Apron Pavement
- Hydrology
- Group V Taxi Route

N

GRAPHIC SCALE (FEET)

0 150 300

**Figure 5-2**
**Preferred Hotel Development Concept**

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### 5.1.3 Decision Memo 3 – On-Airport Development

BNA forecast activity indicates that the Airport will continue to experience overall growth throughout the 20-year planning period. In order to accommodate the increase in demand, areas capable of supporting future on-Airport development were identified within the Airport boundary. It is important to note that the following areas will require site-specific design prior to development, and would be constructed by second and third party developers. The on-Airport development areas mentioned below support Airport activities and facilities that can be compatibly developed:

- Aircraft maintenance, repair, and overhaul (MRO)
- Air cargo operations
- General aviation (GA) operations
- Air traffic control tower (ATCT)
- Aircraft Rescue and Firefighting (ARFF) facility

Development areas were designated to identify sites capable of supporting future Airport activities and facilities.

It is important to note that each development area was planned to meet future demand and, therefore, will appear on the ALP as part of the Master Plan.

A complete presentation of all on-Airport development areas is provided in Decision Memo 3 located in **Appendix A**.

### 5.1.4 Decision Memo 4 – Airfield Facilities

Airfield facility development concepts were considered to identify potential improvements needed to meet the FAA design standards for taxiways and runways. As such, this analysis was segregated into two sections which focus specifically on either taxiway or runway improvements.

It is also important to note that locations and shapes of the Airport's existing noise contours may change as a result of constructing any of the runway extension concepts. As such, an assessment of noise related environmental impacts using the FAA's Integrated Noise Model (INM) system would be required prior to the FAA's approval of a runway extension construction project.

**Runway Extension Development Concepts**

Three independent runway extension concepts were evaluated:

- Concept 1 – 3,297 foot extension to Runway 2L
- Concept 2 – 1,500 foot extension to both Runways 2R and 20L
- Concept 3 – 3,000 foot extension to Runway 20C

Based upon the weighted scoring criteria, Concept 1 is the preferred option. This concept will provide BNA with a second runway with an ultimate length of 11,000 feet. In addition to its close proximity to the Air Cargo operators on the western portion of the Airport, a proposed Runway 2L extension would limit construction to one end of the runway.

**Figure 5-3** depicts the preferred runway extension concept. A complete presentation of all runway extension concepts is provided in Decision Memo 4 located in **Appendix A**.

**Taxiway Improvement Concepts Overview**

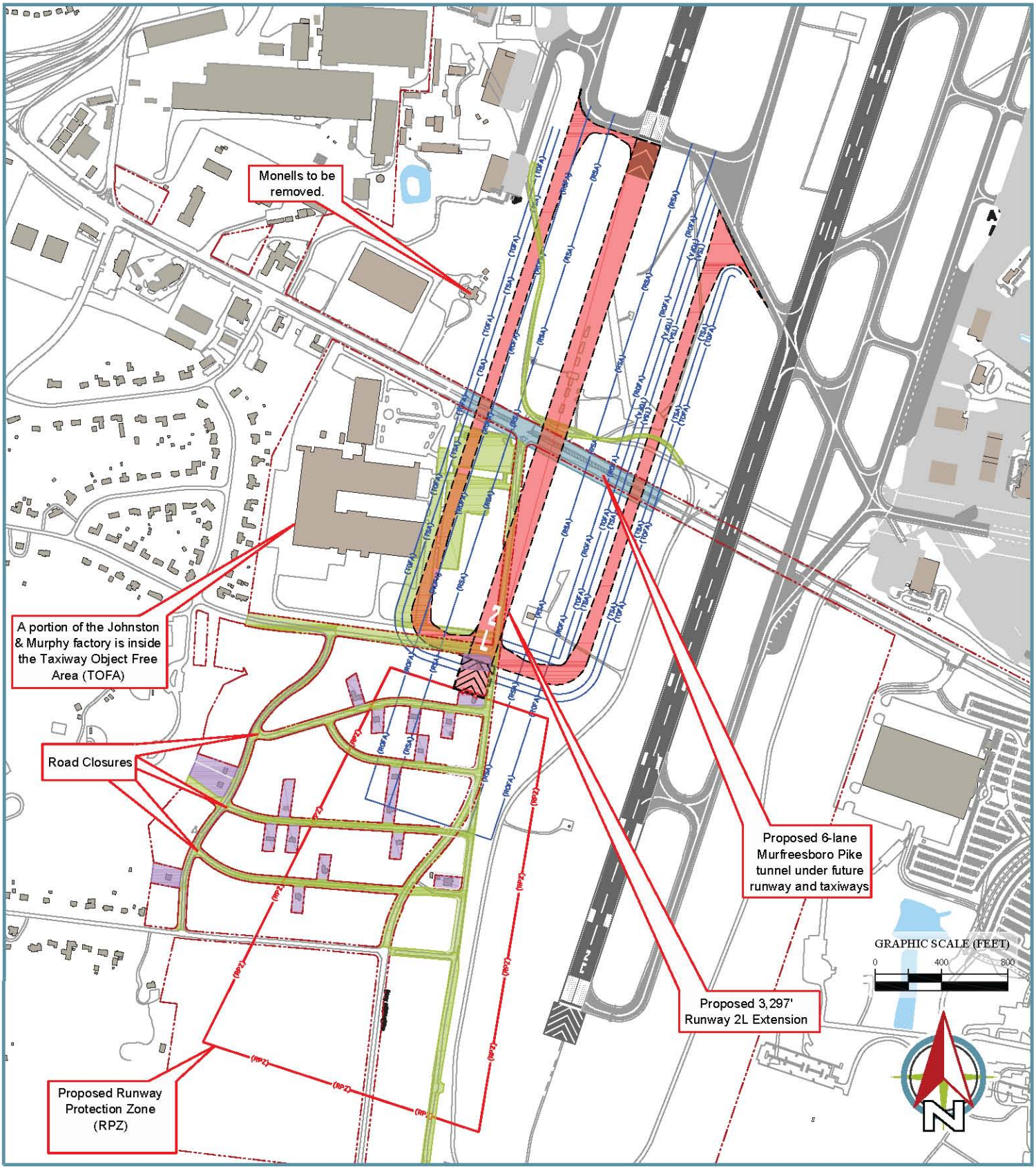
The existing BNA taxiway system meets width and spacing requirements; however, many of the fillets at taxiway/runway and taxiway/taxiway intersections do not meet FAA design standards under FAA Advisory Circular (AC) 150/5300-13 in place at the time the analysis was conducted. Under the new FAA AC 150/5300-13A, the FAA has established a less conservative approach to taxiway pavement widths at runway/taxiway and taxiway/taxiway intersections. The extent of pavement widening under the new AC should be evaluated anytime a taxiway is programmed for an upgrade or rehabilitation.

Introduction of the FAA's new AC 150/5300-13A presents the requirement that paved shoulders be provided on taxiways, taxilanes and aprons accommodating aircraft in ADG-IV and higher. Some of the Airport's taxiway, taxilanes and aprons are equipped with paved shoulders, however, most are not. As such, the addition of paved shoulders is required on the Airport's taxi routes intended to be utilized by aircraft in ADG-IV and higher. All taxiways that do not meet standards for paved shoulders will be addressed anytime that taxiway is programmed for improvements or reconstruction.

**Ultimate Fourth Parallel Runway Concept**

This concept was developed to show the potential development of an ultimate fourth parallel runway at BNA. The ultimate runway is not expected to be needed within the planning period; however, the fourth parallel runway is being included on the ALP to preserve the necessary airspace associated with the runway.

**Figure 5-4** depicts the ultimate fourth parallel runway concept. A complete presentation of all runway extension concepts in provided in Decision Memo 4 located in **Appendix A**.




LEGEND

- Proposed Pavement
- Proposed Road Closure
- Proposed Property Acquisition
- Airport Property Line
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- Proposed 6-Lane Highway Tunnel

**Figure 5-3**
**Preferred Runway Extension Concept**

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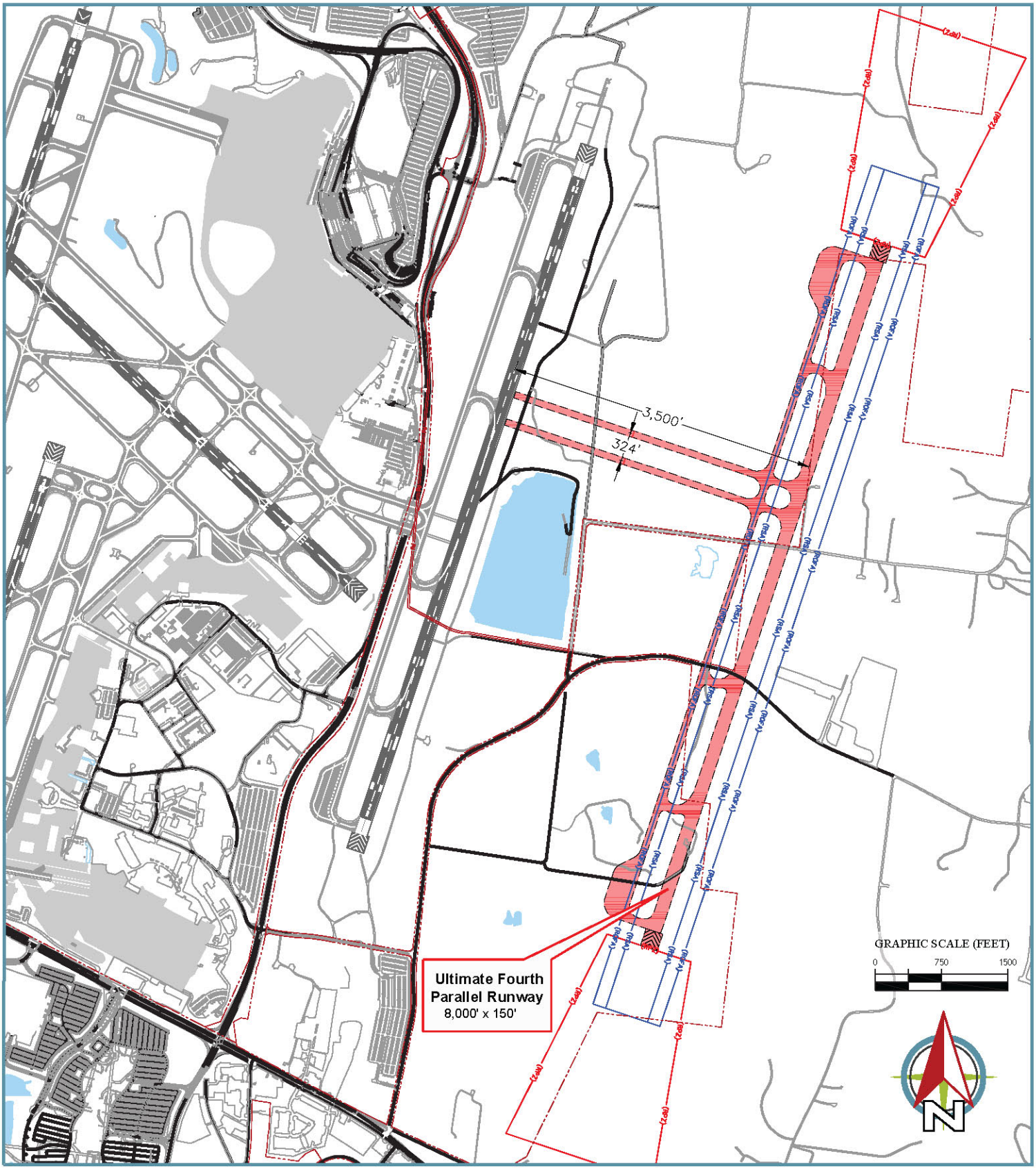


LEGEND

- Proposed Airfield Pavement
- (RPZ) Runway Protection Zone
- PL Airport Property Line
- (RSA) Runway Safety Area
- (ROFA) Runway Object Free Area

**Figure 5-4**
**Ultimate Fourth Parallel Runway Concept**

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### 5.1.5 Decision Memo 5 – Roadways, Parking, and Rental Car

This analysis identifies how future parking, rental car, and roadway development will be accommodated in terms of vehicular traffic. As the passenger demand increases, vehicular traffic associated with passengers (e.g., parking, drop off, and pick up) will increase as well.

**Roadway Improvements**

Roadway facility development improvements are not only critical to relieving terminal roadway congestion and safety issues, but also in addressing additional capacity requirements for automobile parking, rental cars, and the curbside system. The following two roadway improvement concepts were developed:

- Concept 1 – Donelson Pike remaining in its current alignment
- Concept 2 – Realign Donelson Pike to the east

Based upon the weighted scoring criteria, Concept 2 provides the greatest benefit and meets future airport demand. Concept 2 involves realigning Donelson Pike and the internal Ring Road to the east side of Long Term Lot B and parallel with Runway 2R/20L. The Donelson Pike roadway would remain as a four-lane thoroughfare with an improved interchange with I-40. This concept will relieve congestion and improve traffic flows as well as improve related safety aspects such as decision-making and line-of-sight stopping distances.

Although Concept 2 simplifies the flow of traffic in and around the terminal area, it is still a planning concept and requires further study during the design phase to ensure that proper traffic flow meets the standards for turning radii, vehicle queuing, adequate merging distances, lane capacity, traffic weaving, multi-modal transportation, and signage.

**Figure 5-5** depicts the preferred roadway improvement concept. A complete presentation of all roadway improvement concepts in presented in Decision Memo 5 located in **Appendix A**.

**Parking Development**

The following five parking development concepts, each depicting growth in passenger parking, were developed:

- Concept 1 – Assumes realignment of Donelson Pike and all new parking will be developed in the expanded Long Term Lot A
- Concept 2 – Assumes realignment of Donelson Pike and all new parking will be developed in the expanded Long Term Lot A and abandonment of economy/valet lots

- Concept 3 – Assumes no realignment of Donelson Pike and conversion of the CONRAC facility to parking
- Concept 4 – Assumes no realignment of Donelson Pike with the CONRAC facility left in place
- Concept 5 – Phased parking expansion (before and after Donelson Pike realignment)

Based upon the weighted scoring criteria, Concept 5 provides the greatest strengths and will meet future parking demand at the Airport throughout the planning period. This concept phases the parking expansion. Phase 1 would expand the parking system before Donelson Pike is realigned. The Phase 1 parking supply will satisfy the demand until PAL 2 with a new three-level parking structure developed on Long Term Lot A. Phase 2 will occur during or after the Donelson Pike realignment with expanded surface parking in Long Term Lot A (contiguous and inclusive of Long Term Lot B). This will provide a surplus of 1,200 spaces required for the demand in PAL 4. Two potential new cell phone lot locations have also been identified. Concept 5 includes:

- A total net gain for Phase 1 = 2,200 spaces, Phase 2 = 9,200 spaces
- An expansion of the existing parking structure to the east (three levels, 3,700 spaces)
- Increased surface parking in Long Term Lot A by 7,000 spaces

**Figure 5-6** depicts the preferred parking development concept. A complete presentation of all parking development concepts is provided in Decision Memo 5 located in **Appendix A**.

**Rental Car Facilities Development**

The following two rental car development concepts were formulated to identify options for development of new or expanded rental car facilities:

- Concept 1 – Expansion in Existing Location.
- Concept 2 – Expansion in Ultimate Location.

Based upon the weighted scoring criteria, Concept 2 provides the greatest strengths and meets future airport demand. The preferred recommendation assumes that the rental car service centers would be relocated to a designated location east of Donelson Pike. This development will be planned in a manner that could ultimately be developed as a remote consolidated rental car facility.

**Figure 5-7** depicts the preferred rental car facility development concept. A complete presentation of all rental car facility development concepts is provided in Decision Memo 5 located in **Appendix A**.

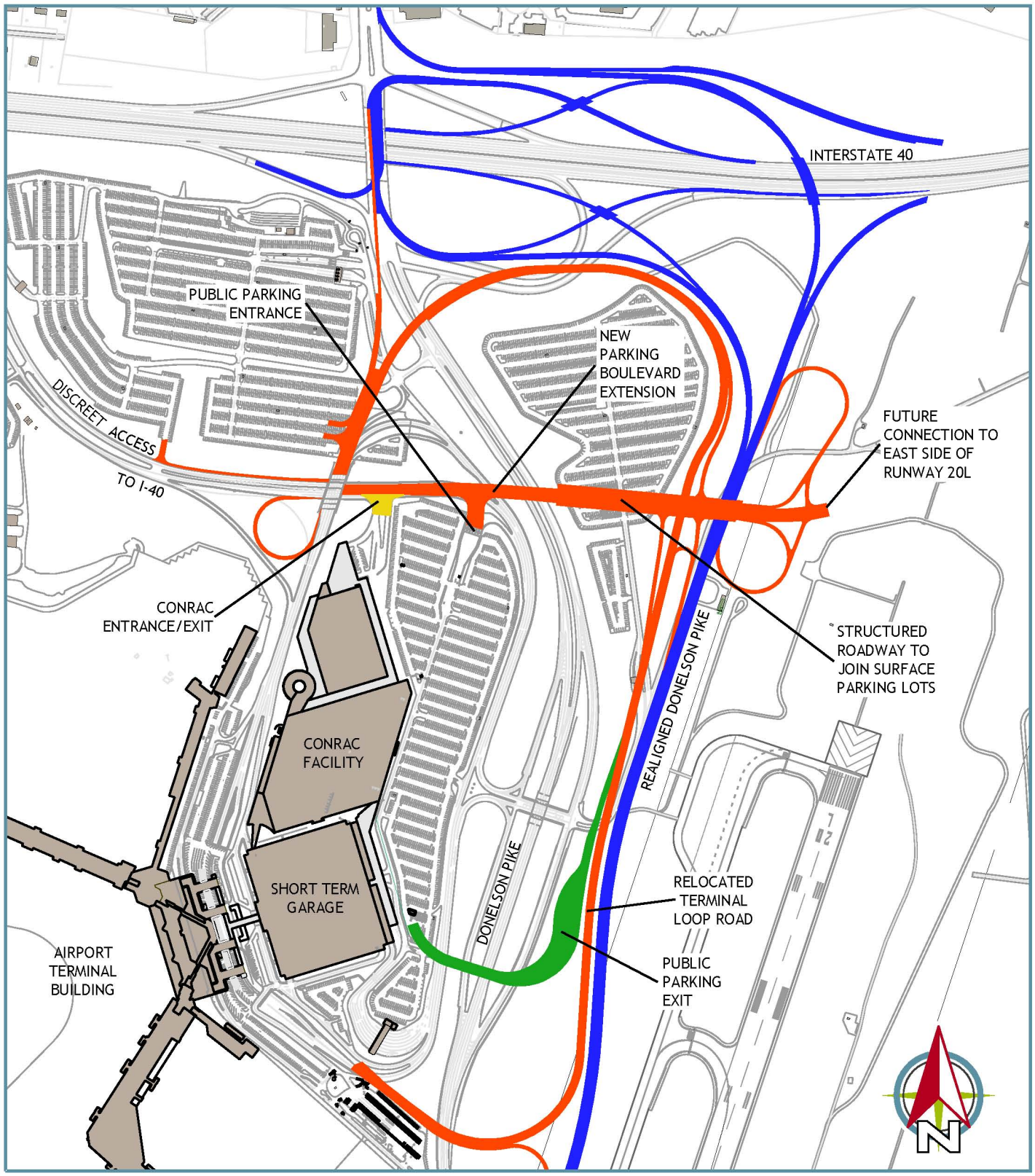


**Figure 5-5**
**Preferred Roadway Improvement Concept**

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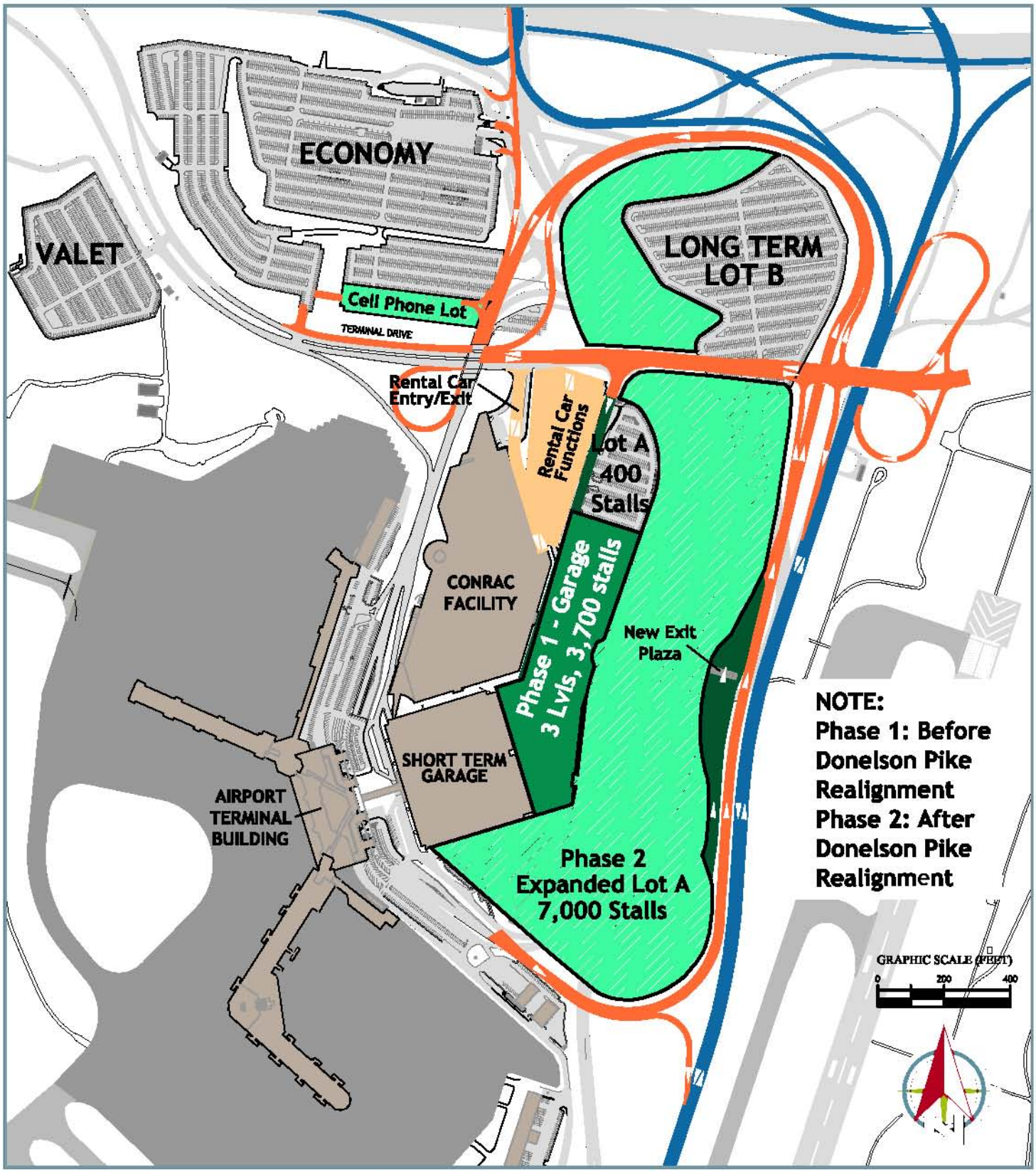


LEGEND

- NEW TERMINAL DRIVE
- DONELSON PIKE REALIGNMENT
- STRUCTURED PARKING & ACCESS
- RENTAL CAR FUNCTIONS

**Figure 5-6**
**Preferred Parking Development Concept**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY, RW ARMSTRONG, 2011

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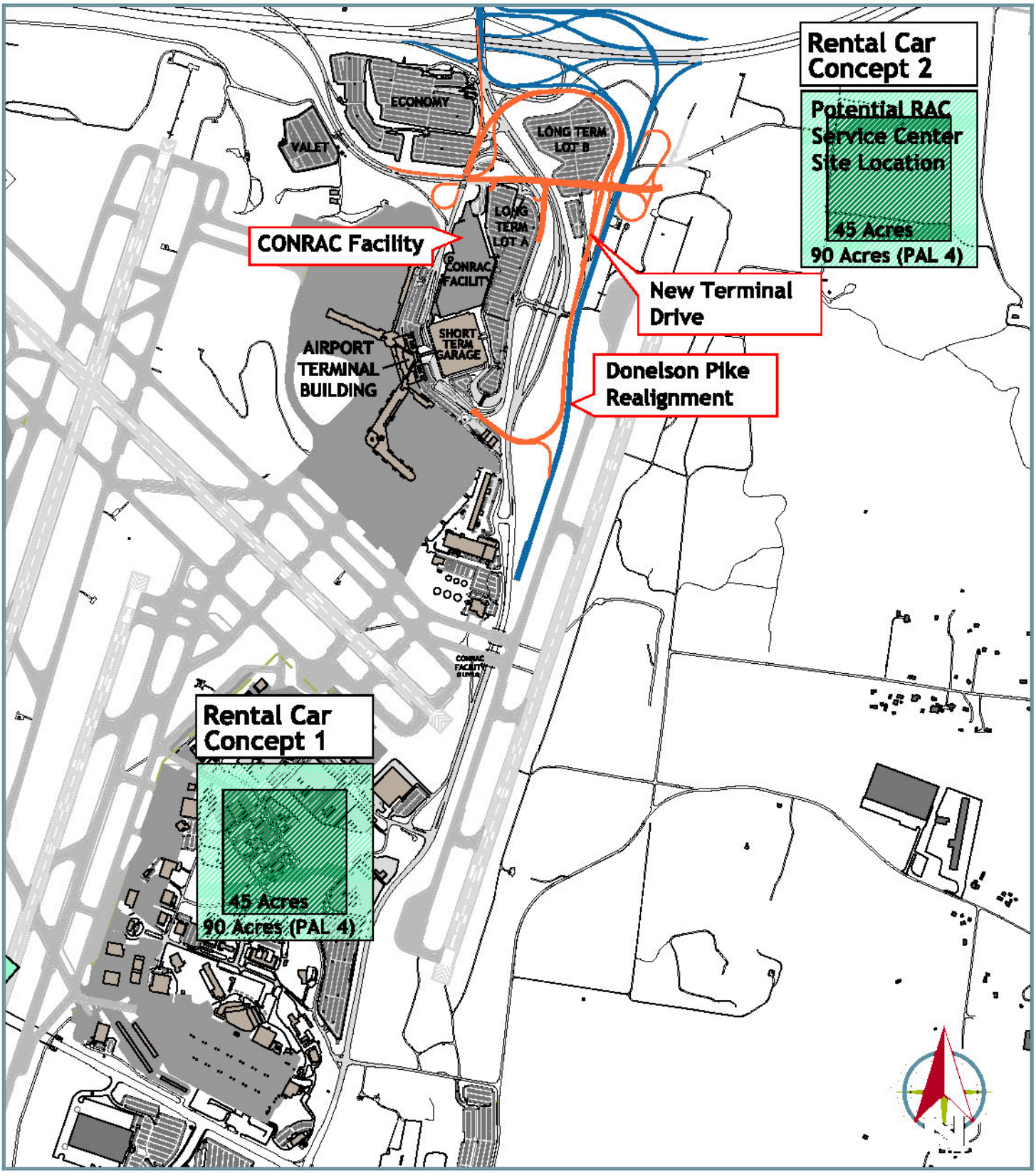


**Figure 5-7**
**Preferred Rental Car Facility Development Concept**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY, RW ARMSTRONG, 2011

RW ARMSTRONG

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### 5.1.6 Decision Memo 6 – Land Use Options

An on-Airport land use plan was developed to identify recommended land uses within the BNA property. The MNAA, its tenants, and the Metropolitan Government of Nashville and Davidson County (METRO) have completed numerous detailed studies that outlined suggested and recommended land uses for the property both within and surrounding BNA. These studies include:

- 2004 Airport Master Plan Update (MNAA)
- 2007 MNAA Land Use and Development Options Plan (MNAA)
- 2009 General Aviation Land Use Plan (MNAA)
- 2010 Military Installation Development Plan (Tennessee Air National Guard)
- 2011 Signature Flight Support Corporation Master Plan Update (Signature)
- 2012 Noise Exposure Map (NEM) Update (MNAA)
- 2012 Antioch-Priest Lake Community Update (Metro Nashville Government)

Except where indicated otherwise by the MNAA, the ideas and recommendations contained within these studies have been incorporated into the land use map. Additionally, several discussions with the MNAA have been conducted to ensure each area depicted on the map reflects current and proposed land uses.

**Figure 5-8** depicts of the on-Airport land use map. A complete presentation of the on-Airport land use plan is provided in Working Paper 4, “Land Use Development Plan.”

Nashville International Airport

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LEGEND

- Airport Property Boundary
- Airfield
- Terminal Area
- General Aviation
- Air Cargo/Aircraft Maintenance
- Military
- Airport Support
- Airport Parking
- Aviation Related (Does Not Include Public Roadways)
- Potential Airfield (Planned) Development
- Navaid
- Commercial Development
- Office/Business Development
- Rental Car
- Open Space
- Planned Roadway Improvements
- Planned Runway & Taxiway Improvements
- Water Bodies
- Acquisition for Aviation Development
- Future Terminal/ CONRAC Area

GRAPHIC SCALE (FEET)

0 1000 2000

NOTE: PLAN ASSUMES LUDOP AREAS WILL REQUIRE ADDTIONAL LAND ACQUISITION

**Figure 5-8**
**On-Airport Land Use Map**

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### 5.1.7 Decision Memo 7a – Ticket Lobby

The Terminal Ticket Lobby study was completed under separate MNAA contract by developed by Gobell Hays Partners, LLC. It is not included in the document.

The second level Baggage Claim Expansion could result in an approximate 4,000-square-foot addition to the Ticketing Level. Keeping in mind that the future use and amenities within airport ticketing halls is subject to great speculation as related labor-saving technologies come to the marketplace, this potential expansion may provide the flexibility for future Ticketing Lobby configurations.

### 5.1.8 Decision Memo 7b – Baggage Make-Up

Throughout the planning period, forecast passenger activity levels indicate a consistent increase. Evolving industry trends and technologies will influence how the passenger check-in process occurs, such as the increased use of self-service kiosks and the anticipated introduction of self-bag tagging. These trends will tend to "push" the check-in process outside of the terminal ticket lobby into such locations as rental car counters and off-site hotels.

Due to the forecast increase in enplanements, the quantity of checked baggage will increase as well, regardless of where the check-in process occurs.

There are two existing baggage make-up areas, one beneath the Main Terminal and one beneath C Concourse. The 2011 Checked Baggage Inspection System (CBIS) project provided two separate Explosive Detection System (EDS) screening matrices, each one located adjacent to the respective make-up area. The C Concourse make-up area includes two sloped plate make-up carousels, one for Southwest Airlines and one for American Airlines. These two devices provide sufficient capacity to address forecast checked baggage loads throughout the planning period, negating the need to increase the size of the make-up area. The Main Terminal make-up rooms for the remaining air carriers are primarily served by air carrier-specific, individual run-out conveyors. Delta Air Lines is the only air carrier in the Main Terminal that utilizes a sloped plate make-up carousel. Increases in baggage make-up facilities are proposed in the Main Terminal, with opportunities for new baggage make-up areas beneath portions nearest the Main Terminal in A, B, and C Concourses.

- Main Terminal 1 - Re-use of Existing Main Terminal Bag Make-Up Rooms: the two existing vacant make-up rooms should be utilized first to address initial increases in baggage make-up space requirements
- Main Terminal 2 - Shared Make-Up Room and Equipment: as demand for baggage make-up increases, consideration should be given to consolidating the two vacant baggage

make-up rooms mentioned above with the baggage make-up room (presently United Airlines) between them. This step would provide increased capacity through a more efficient use of the unified space by using a single, sloped-plate device and one way flow through tug road

- A Concourse (PAL 1) and B Concourse (PAL 2): use of existing available covered space under A concourse, B concourse, and partially under the Main Terminal
- C Concourse (PAL 3): The second level floor area created by the proposed building expansion near the existing Gate C-1 will result in additional covered ramp area, which presents an opportunity for future baggage make-up to satisfy demands through the planning period

Each area has been identified as potential space for accommodating future airport demand.

**Figures 5-9** through **5-11** provide a depiction of the baggage make-up development areas. A complete presentation of the baggage make-up analysis is presented in Decision Memo 7b located in **Appendix A**.

Nashville International Airport

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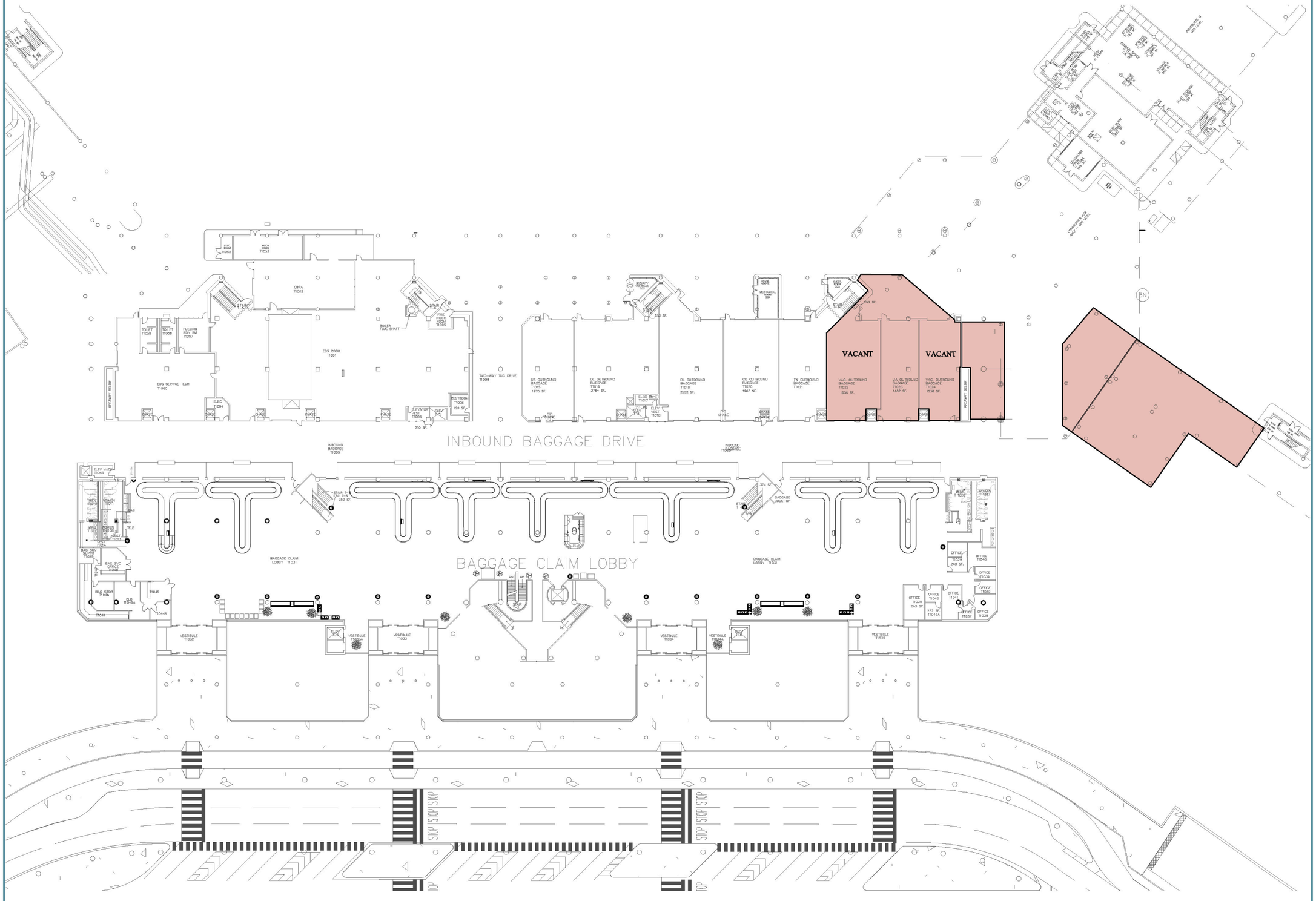
## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation




SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

**Figure 5-9**
**Baggage Make-Up Development Concept Main Terminal (PAL 1)**

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Nashville International Airport

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation

INBOUND BAGGAGE DRIVE

BAGGAGE CLAIM LOBBY

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

**Figure 5-10**
**Baggage Make-Up Development Concept Main Terminal (PAL 2)**

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation

INBOUND BAGGAGE DRIVE

BAGGAGE CLAIM LOBBY

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

**Figure 5-11**
**Baggage Make-Up Development Concept Main Terminal (PAL 3)**

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### 5.1.9 Decision Memo 7c – Baggage Claim

The existing bag claim area was recently modified to accommodate a larger bag claim by reducing the total quantity of bag claim devices from nine carousels to eight carousels. These claim devices and linear bag capacities are sufficient to process the forecast passenger activity levels and associated checked baggage loads through PAL 3. PAL 4 activity levels indicate the need to add one new inbound baggage claim device. To accommodate the additional bag claim device, it will be necessary to construct a 4,000-square-foot expansion on the south end of the Main Terminal.

Existing 1,200 square feet of restroom facilities and 2,000 square feet of airline offices will be displaced by the new baggage claim device and adjacent lobby. The proposed expansion includes 2,000 square feet of replacement restroom facilities and 2,000 square feet of replacement airline offices.

During peak hours of operation, public circulation can become constrained between the ends of the existing bag claim devices and the open central vertical circulation core. During the proposed facility expansion, additional circulation space is gained adjacent to the new bag claim device.

This concept includes:

- Additional Baggage Claim Belt and 4,000 square feet of Baggage Claim Lobby at PAL 4
- Relocation of existing restroom facility
- Relocation of existing airline offices
- Additional public circulation space

The proposed facility expansion will satisfy the space and capacity requirements projected for the planning period.

**Figure 5-12** provides a depiction of the baggage claim development area. A complete presentation of the baggage claim analysis is presented in Decision Memo 7c located in **Appendix A**.

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation

INBOUND BAGGAGE DRIVE

BAGGAGE CLAIM LOBBY

TICKET LOBBY

RESTROOMS

AIRLINE OFFICE

STOP STOP STOP STOP

**Figure 5-12**
**Baggage Claim Development (PAL 4)**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

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### 5.1.10 Decision Memo 7d – Post-Security (Airside) Concessions

Post-security (Airside) concession trends for airports nationwide are showing a steady, progressive growth to support the expectations and needs of today's traveler, but also with consideration to proposed future trends and their facility impacts. Current passenger security screening processes require passengers to arrive at the airport well in advance of their scheduled departing time. As a result, passengers are spending more time on the post-security side of the terminal facility, which presents an opportunity to capture additional revenue through new and expanded concessions offerings that support these increased passenger dwell times.

Utilizing concessions programming criteria provided by SI Partners, Inc., who is currently providing terminal-wide concessions programming and planning services for BNA, a square foot utilization factor (UF) of 18 square feet per 1,000 enplaned passengers has been applied to determine the concessions program square foot area recommended to support the forecast passenger growth.

Based on increased dwell times of passengers on the post-security side of the terminal facility, national trends in overall concession distribution are weighted heavily towards the post-security side of the facility. The concession program at BNA should be no different, with 91 percent of the total concessions requirements being dedicated to the post-security side of the terminal facility. Of the 91 percent concession offerings on the post-security side of the facility, 68 percent is dedicated to Food and Beverage, 31 percent is dedicated to News/Gifts/Specialty and the remaining one percent is dedicated to Terminal Services.

Throughout the planning period, consistent growth has been identified in all three concession categories through PAL 4 for the post-security facilities.

Through the process of filing for bankruptcy, American Airlines is returning portions of leased terminal space to MNAA. Through this process, the areas under consideration for return to MNAA are not only gates and hold rooms, but also large areas of airline ramp offices and support facilities. Once final arrangements and lease agreements have been finalized, specific areas and square footages of available area can be determined for re-leasing and re-use.

In a phased concept approach, each PAL necessitates an incremental increase to concession storage areas to support the expanded concessions program. These concepts include:

- A Concourse – Additional concessions offerings within existing terminal space
- B Concourse – Additional concessions offerings and facility expansion
- C Concourse – Additional concessions offerings and facility expansion

- Main Terminal – Additional concessions offerings and facility expansion adjacent to Gate C-2 passenger boarding bridge and exit of passenger security screening checkpoint will also provide space for concessions in the Main Terminal.

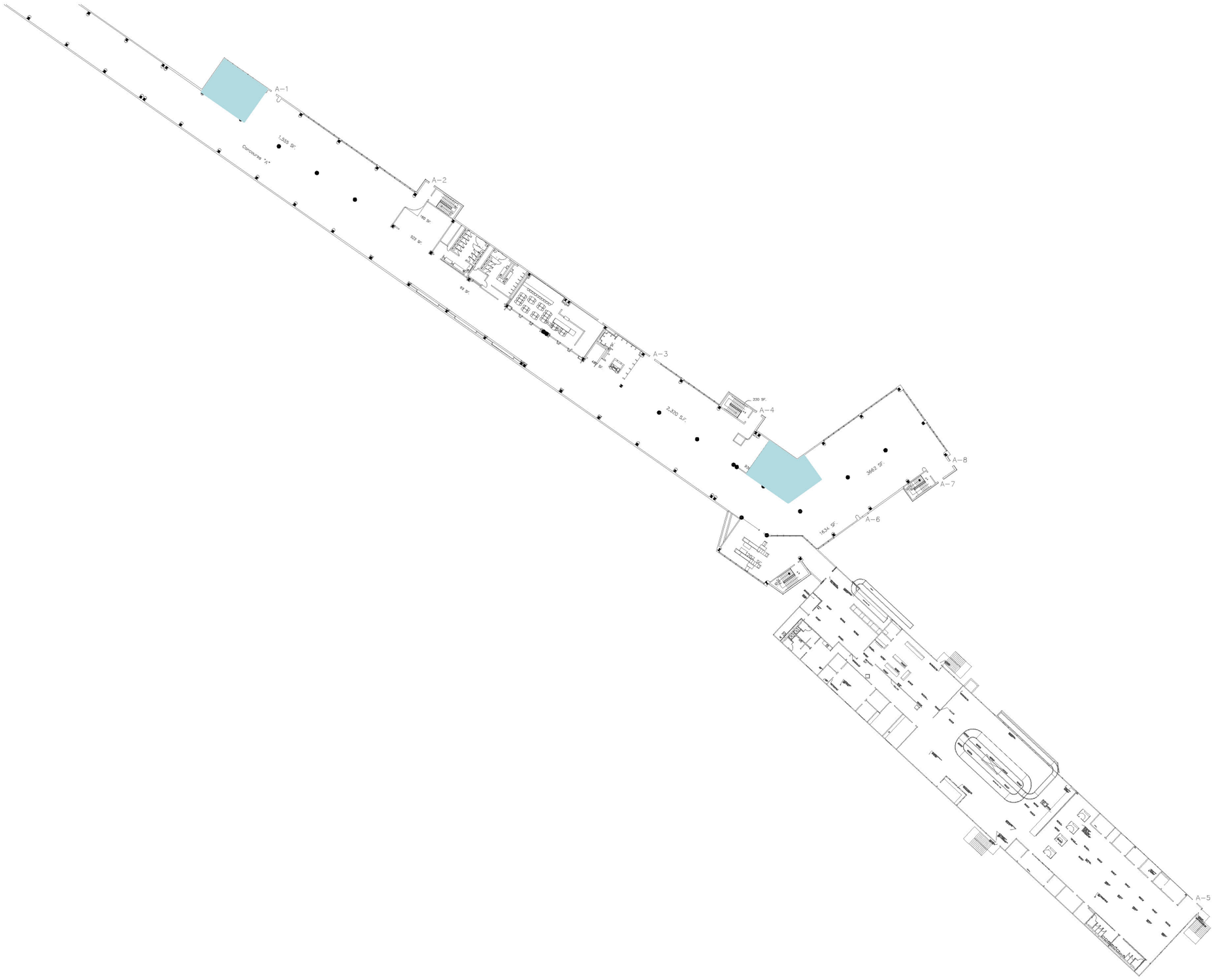
It is important to note that information pertaining to PAL 1 was developed by SI Partners, Inc., while information pertaining to PAL 2 through PAL 4 was developed by Gresham, Smith and Partners, utilizing SI Partners, Inc. concessions sizing factors and criteria.

The following exhibits represent proposed locations throughout each of the three concourses, as well as a proposed concessions expansion at the Main Terminal facility adjacent to Gate C-2 and the passenger security screening checkpoint. The proposed concessions locations and area, in total, reflect a deficit in the program requirements throughout the planning period by approximately 16,192 square feet, as follows:

| | |
|---|---|
| **Existing Post-Security Concessions:** | 57,240 square feet |
| **Total Required Post-Security Concessions:** | 121,893 square feet |
| **Additional Space Requirements Throughout Planning Period:** | 64,653 square feet |
| **Additional Proposed Post-Security Concessions:** | |
| Concourse A Proposed Post-Security Concessions: | 1,884 square feet |
| Concourse B Proposed Post-Security Concessions: | 3,246 square feet |
| Concourse C Proposed Post-Security Concessions: | 10,637 square feet |
| Main Terminal Proposed Post-Security Concessions: | 32,694 square feet |
| **Total Additional Proposed Post-Security Concessions:** | 48,461 square feet |
| **Total Post-Security Concessions (Existing plus Proposed):** | 105,701 square feet |
| **Total Proposed Post-Security Deficit:** | **16,192 square feet** |

Each area has been identified as potential space for accommodating future airport demand. The proposed facility expansion will satisfy the space and capacity requirements through PAL 3. Additional concession space can be developed with the relocation of the IAB.

**Figure 5-13** through **Figure 5-16** depict of the post-security (airside) concessions development areas. A complete presentation of the post-security (airside) concessions analysis is presented in Decision Memo 7d located in **Appendix A**.




Nashville International Airport

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation

**Figure 5-13**
**Post-Security Concessions Concourse A Development**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

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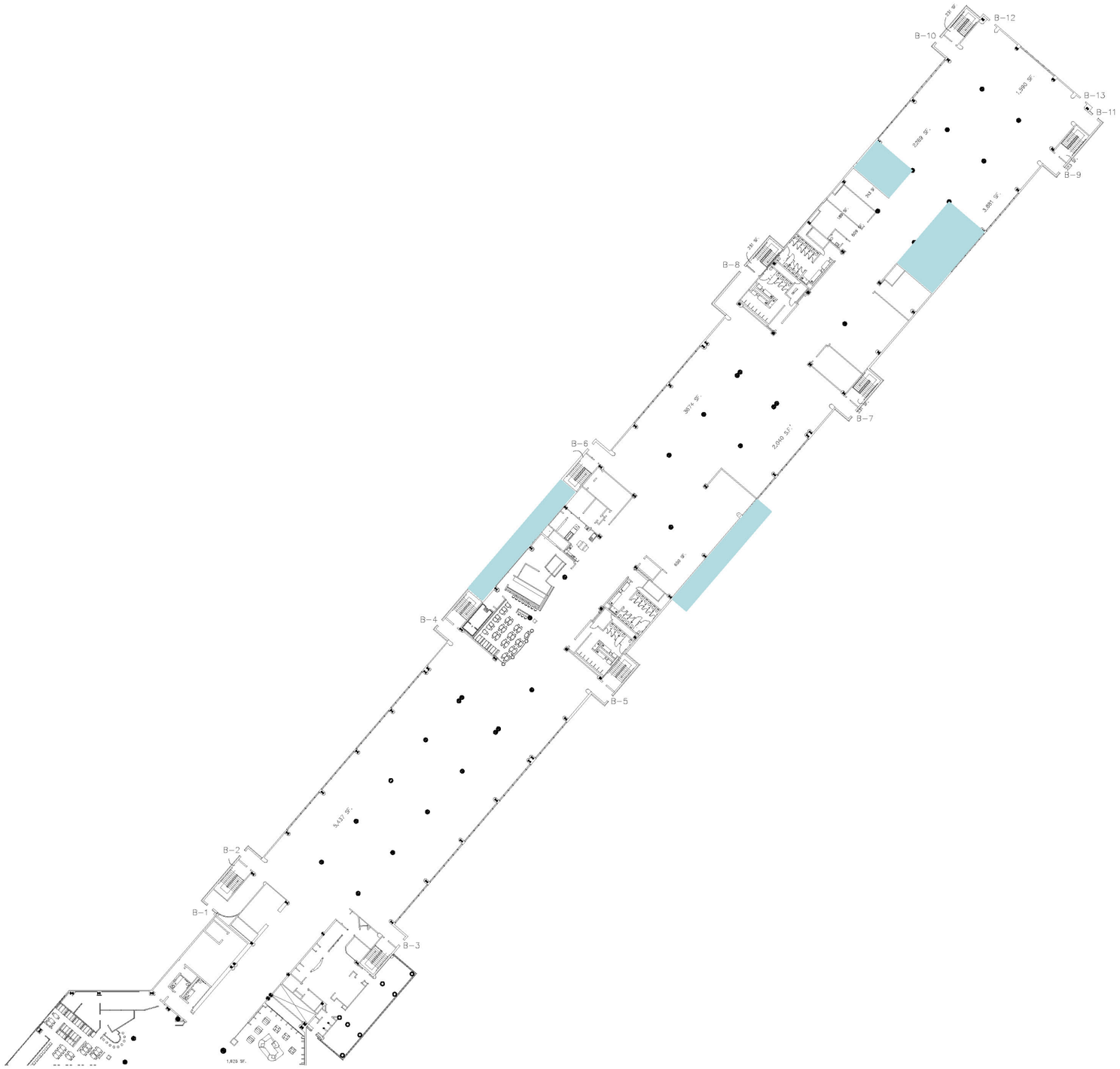


Nashville International Airport

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation

**Figure 5-14**
**Post-Security Concessions Concourse B Development**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation

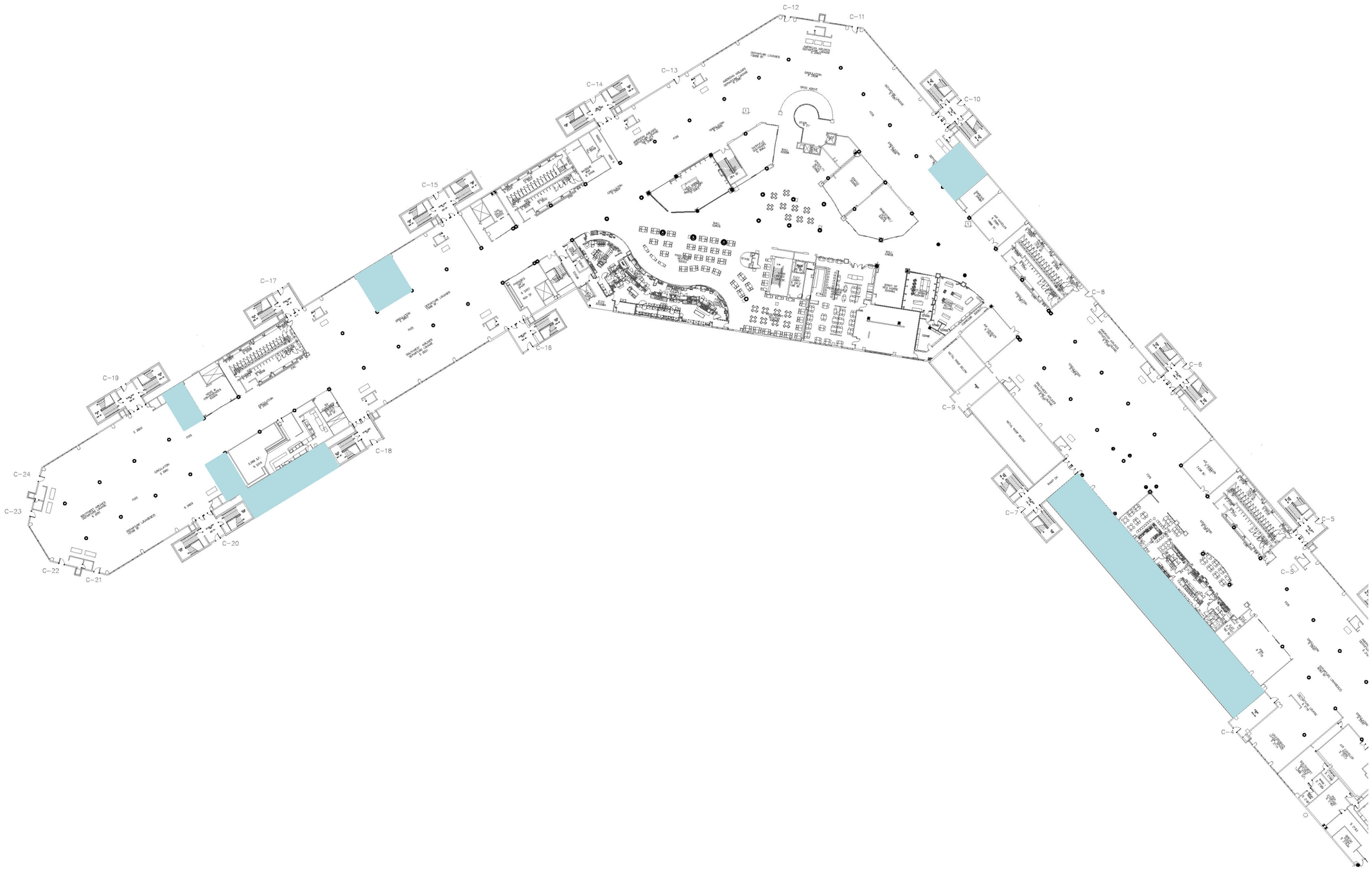


**Figure 5-15**
**Post Security**
**Concessions Concourse**
**C Development**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

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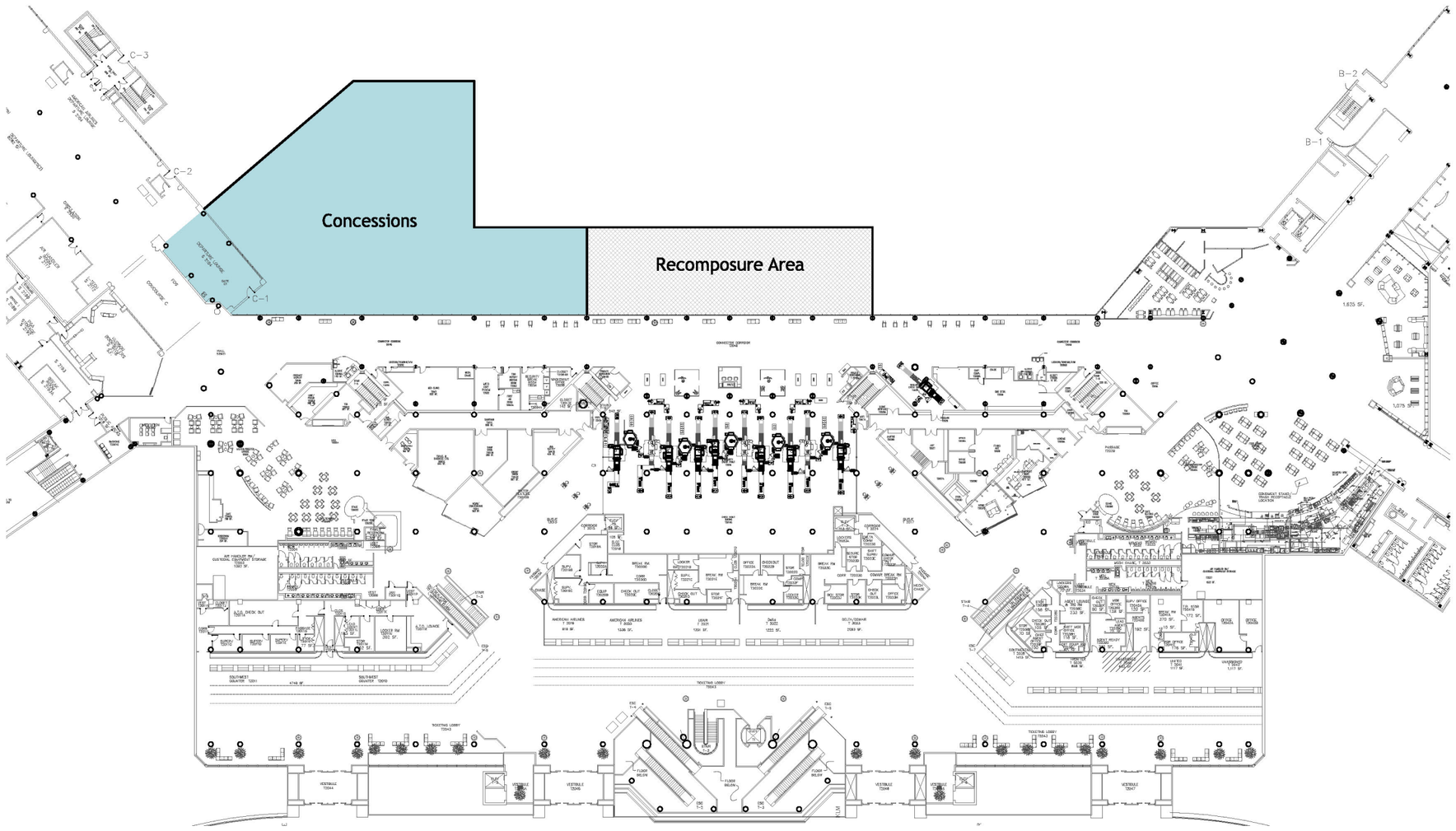


Nashville International Airport

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation
- Future Phase Considerations

**Figure 5-16**
**Post-Security Concessions Main Terminal Development**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

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### 5.1.11 Decision Memo 7e – Pre-Security (Landside) Concessions

Current trends in travel and security processes have impacted airport concession programs nationwide. The opportunity to generate revenue through concession offerings both on the pre-security and post-security sides of the Security Screening Checkpoint (SSCP) have now become an emphasis on where the traveler will spend most of their time utilizing those concession offerings – on the post-security side of the facility. The offerings for the passenger on the pre-security side of the facility have become reduced, more utilized by meeters/greeters and well wishers.

While a square foot UF of 18 square feet per 1,000 enplaned passengers has been applied to determine the overall BNA concessions program square foot area required to support the forecasted passenger growth, the distribution between pre-security and post-security concessions is significant, weighted heavily to post-security. Landside, or pre-security concession offerings distribution, represents approximately 9 percent of the total concessions requirements. It is recommended that over 55 percent of this concession distribution be dedicated to Food and Beverage, while the remainder be dedicated to News/Gifts and Specialty retail.

Concession locations were investigated at both sides of the Ticket Lobby adjacent to each concourse exit lane. The Concourse C exit lane location provided the best opportunity related to concessions exposure and minimal facility impacts. Opportunities adjacent to the Concourse A/B exit lane were determined to be too constrained by existing concessions and their related infrastructure. Locations were also considered at the Baggage Claim Level, but determined to be cost prohibitive. The proposed concept meets the demands projected for the planning period. As passenger activity levels increase throughout the planning period, pre-security concession offerings should be reviewed at each PAL to determine when additional offerings should be provided.

This concept consists of:

- Re-purposing the existing Business Center adjacent to the Concourse C exit lane for concessions in PAL 2. This area could provide an expanded seating area for Starbucks or provide the opportunity for a new concessions concept.

**Figure 5-17** depicts of the pre-security (landside) concessions development areas. A complete presentation of the pre-security (landside) concessions analysis is presented in Decision Memo 7e located in **Appendix A.**

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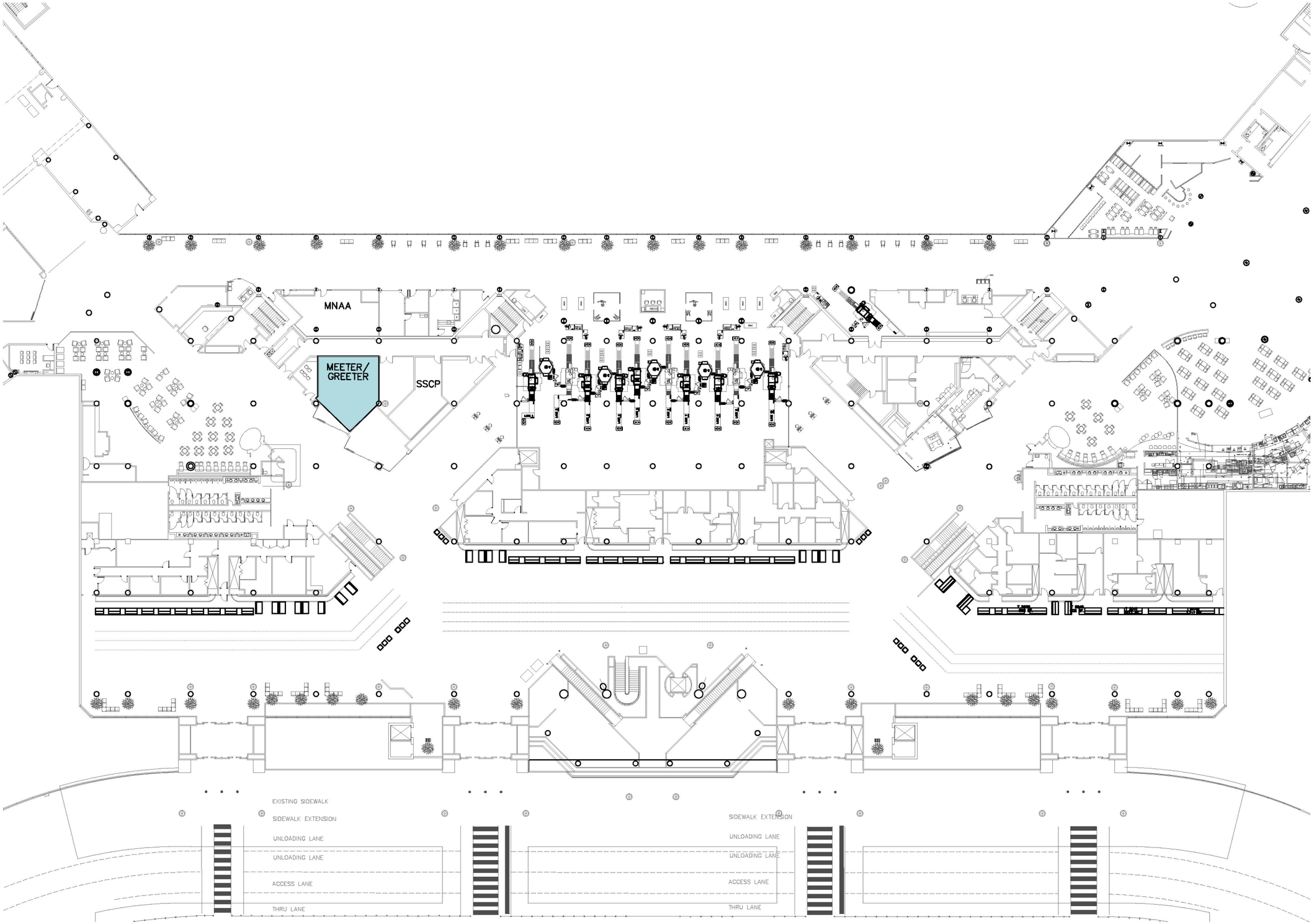


Nashville International Airport

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## LEGEND

- Airline
- Concessions
- MNAA
- Security Regulatory
- CBP
- Circulation

**Figure 5-17**
**Pre-Security Concessions Development**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY 2012

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### 5.1.12 Decision Memo 8 – Ground Transportation Center

The Ground Transportation Center (GTC) at an airport is an extensive network of public transit, taxicab, shuttle, and limousine services working to get travelers to their desired destinations when they leave the airport. A GTC is the most efficient way to assist travelers to avoid confusion and delays. This center serves as a one-stop shop for safe, courteous, and efficient travel modes. By locating these transportation links in a designated area, the overall professional image of the airport is improved.

Currently, approximately 2.8 acres are dedicated to commercial ground transportation functions within the passenger terminal area. These functions occur on roadway Levels 1, 2, and 3. On Level 1 (Ground Transportation), taxi cabs, hotel/parking shuttles, limos, and local/charter buses pick up arriving passengers. On Level 2 (Baggage Claim/Arrivals), BNA parking shuttles pick up arriving passengers. On Level 3 (Ticketing/Departures), taxi cabs, commercial shuttles, employee shuttles, and BNA parking shuttles drop-off departing passengers.

To reduce future curbside congestion it is recommended that most of the ground transportation functions be moved to a new GTC on Level 1.

The following four locations were identified for a potential GTC:

- Concept 1 – North Wing Lot
- Concept 2 – Parking Garage
- Concept 3 – South of Parking Garage
- Concept 4 – South Wing Lot

Based upon the weighted scoring criteria, Concept 2 provides the greatest benefits and is the preferred concept. Based on the current vehicle use characteristics at BNA, the physical configuration of Level 1 is adequate to satisfy curbside demand through PAL 2; Concept 2 identifies a future location for a GTC in the south half of the lower level of the parking garage. This GTC would include a climate controlled waiting and information center. Immediate benefits include simplified wayfinding for passengers while also reducing Level 1 roadway congestion. This location also provides the flexibility and space necessary to accommodate all future ground transportation needs through PAL 4, except for large buses, which must continue operating on Level 1 curb due to their heights. If additional space is required for staging large buses, a portion of the area currently used for valet parking might be utilized.

- Total GTC area is 4.7 acres with a net gain of 2.4 acres

- Pedestrian/vehicle conflicts still remain on the Level 1 roadway and inside of the GTC, due to the need for large buses to continue operating from the Level 1 curb
- All Airport shuttle buses pick up and drop off on Level 1

**Figure 5-18** provides a depiction of the preferred GTC concept. A complete presentation of the GTC analysis is provided in Decision Memo 8 located in **Appendix A**.

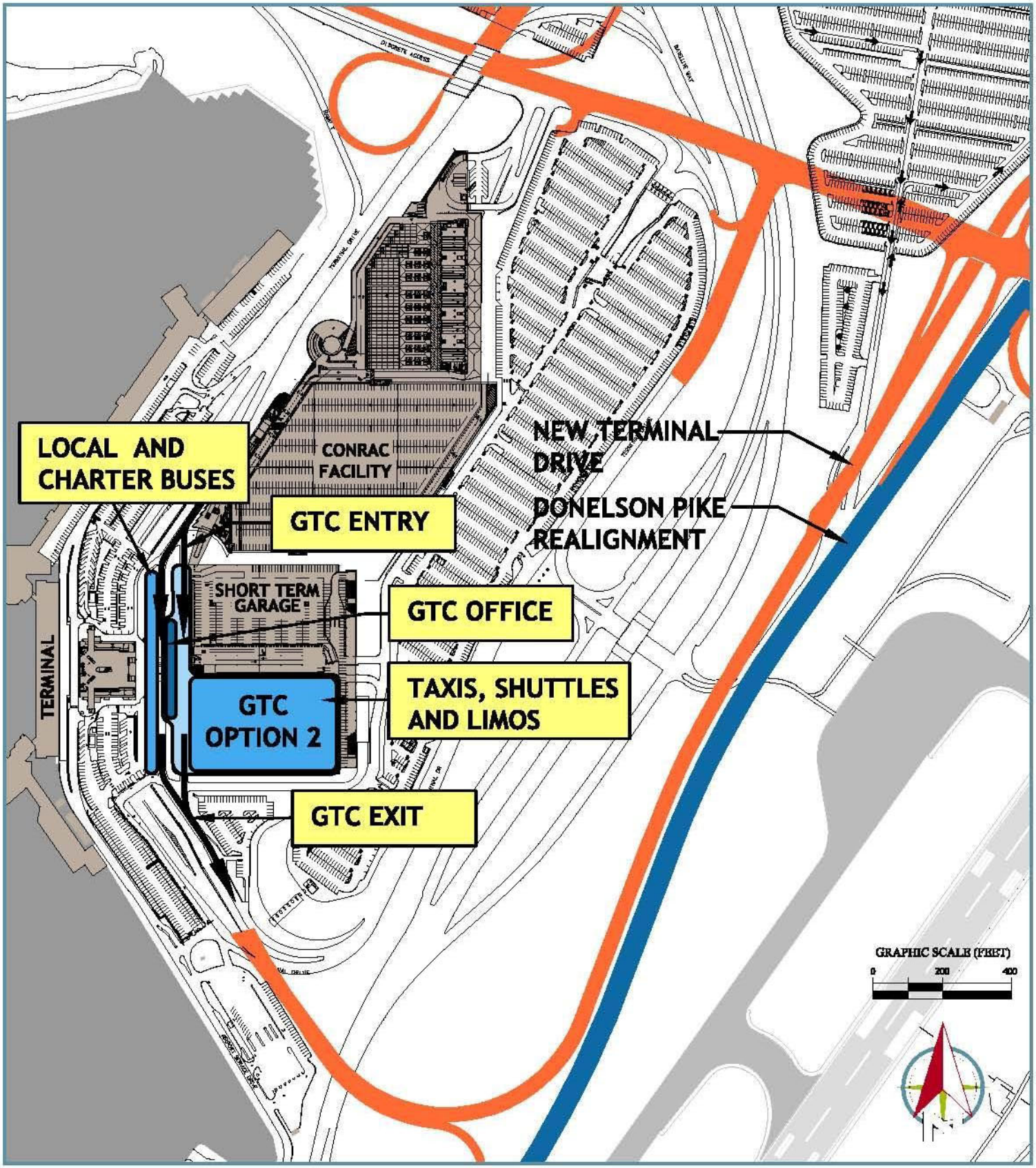


**Figure 5-18**
**Preferred Ground Transportation Development Concept**

SOURCE: METROPOLITAN NASHVILLE AIRPORT AUTHORITY, RW ARMSTRONG, 2011

### 5.1.13 Decision Memo 9 – Arrival Level Curbside Congestion

The Baggage Claim/Arrivals level roadway provides a total of six lanes with two curbed areas designated for passenger pick-up by privately owned vehicles (POVs) and one curbed area dedicated for use by BNA parking shuttles. Commercial vehicles do not access this level for picking up passengers. The lanes for this level are currently configured as follows:

- Lane 1 – Lane 1 is adjacent to the terminal front and is utilized exclusively by the MNAA parking shuttles. It is a single lane framed by two raised concrete curbs. Support columns for the Baggage Claim/Arrivals level roadway are located between Lanes 1 and 2; therefore, this curb cannot be removed to provide additional capacity for POVs. This lane provides no additional curbside parking capacity for vehicles.
- Lane 2 – Lane 2 is a passenger pick up lane adjacent to the curbside. This represents the first available parking for POVs to pick up passengers. This parking lane is adjacent to two through lanes for traffic (Lanes 3 and 4). The assumed dwell time for passenger pick-up in Lane 2 is three minutes.
- Lanes 3 and 4 – Lane 3 is immediately adjacent to Lane 2 curbside parking and is currently used for loading, maneuvering, and through traffic. Lane 3 cannot be utilized for double parking capacity without reducing roadside capacity and creating congestion. Lane 4 not only provides vehicle circulation, but also serves as the entry point for the angled timed parking spaces.
- Angled Parking – Between Lanes 4 and 5 there are 20 angled parking spaces with 10-minute time limits for POV parking to facilitate passenger pickup. Once time expires, vehicles must vacate their spaces, thus allowing the opportunity for other vehicles to pick up passengers.
- Lanes 5 and 6 – These lanes are utilized for through traffic circulation, with Lane 5 also being utilized as the exit lane for the angled timed parking.

A suggested modification concept to improve the curbside congestion was developed in a two-phased approach.

- Phase 1 – Eliminate the angled timed parking spaces to construct an additional loading lane and sidewalk to increase curbside capacity.
- Phase 2 – Add a fourth lane on the outermost (eastern) edge of the baggage claim/arrivals Level.

**Figure 5-19** depicts the arrivals level curbside congestion relief concepts. A complete presentation of the arrivals level curbside congestion analysis is provided in Decision Memo 9 located in **Appendix A**.

### 5.1.14 Future Mass Transit, Rail, and Public Transportation

A brief look at mass transit, rail, and public transportation is provided to consider these future transportation nodes and connectivity with future airport developments while meeting the increased capacity requirements on the internal roadway network. The conceptual layout of this future mass transit system should provide internal connectivity between the terminal building and airport support facilities, including internal parking, new rental car facility, and most future landside developments. The concept should also provide a connection to Nashville Metropolitan Transportation Authority's (MTA) future Bus Rapid Transit network.

The conceptual layout for mass transit/people mover corridor is depicted in Figure 5-20 on the Airport Layout Plan. This layout provides a circular route within the limits of Donelson Pike in its current alignment, allowing for initial development to occur as necessary. Several options are available to provide a direct connection between remote airport facilities and the terminal building efficiently, including, but not limited to a rail or people mover system. A connection to the future MTA Bus Rapid Transit network has been discussed south of the airport on Murfreesboro Road, adjacent to the current employee parking facility. This concept is provided so that opportunities to build and expand the airport's mass transit system can occur incrementally as future development progresses.

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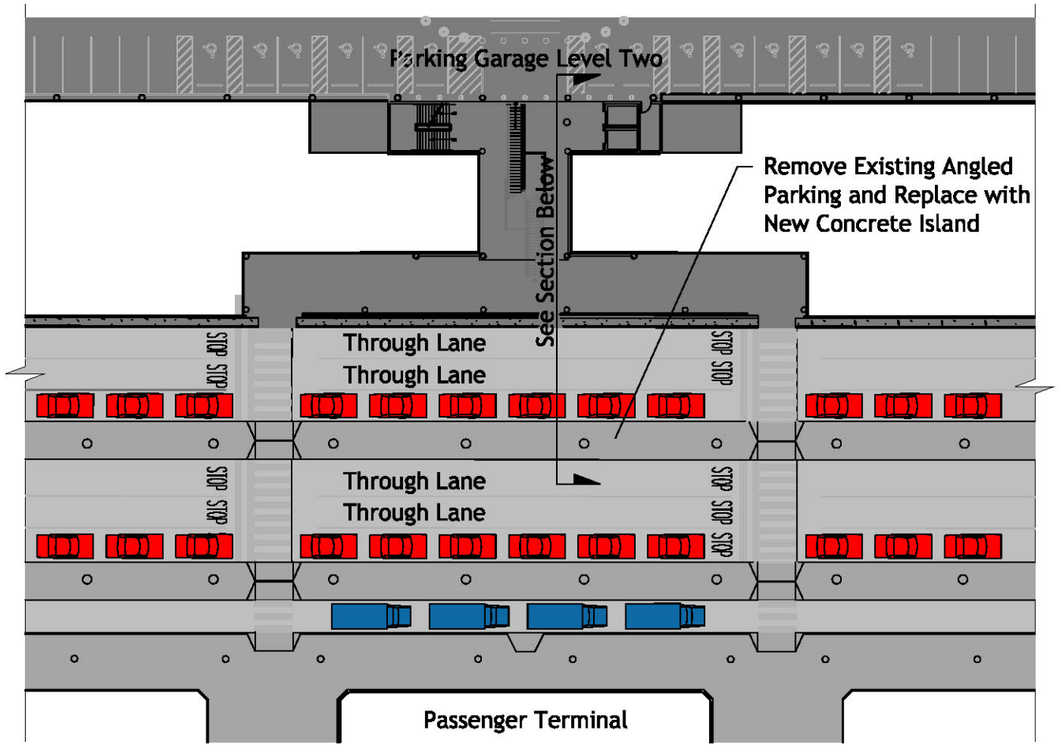
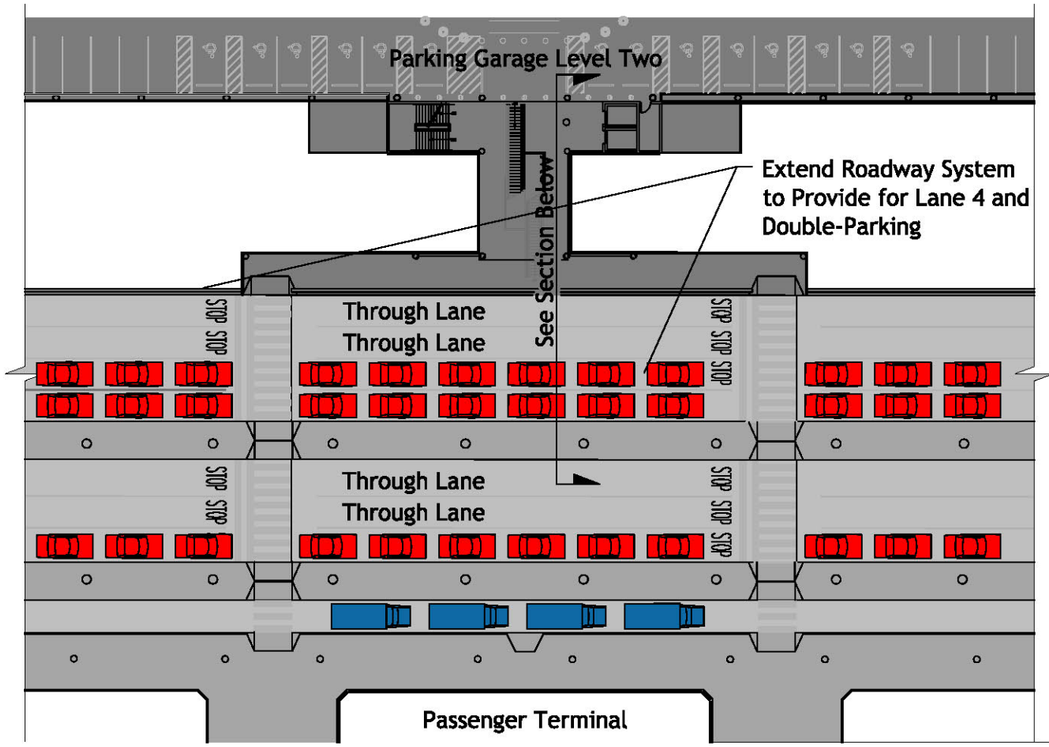
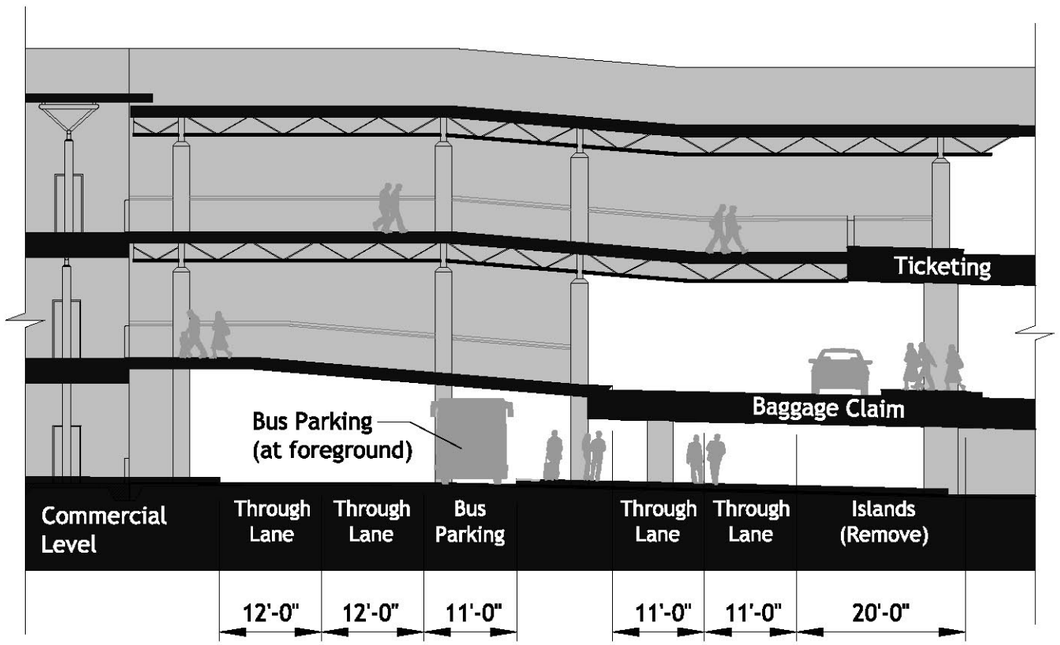


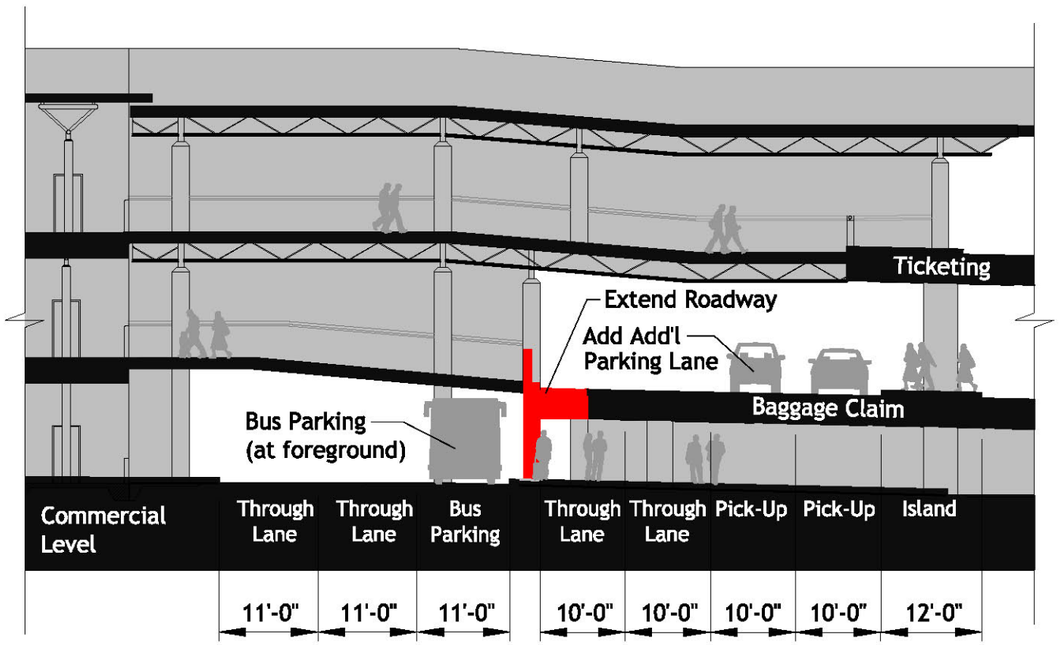

ARRIVALS ROADWAY PLAN - PHASE 1




ARRIVALS ROADWAY PLAN - PHASE 2




SECTION BLOWUP - PHASE 1




SECTION BLOWUP - PHASE 2

Nashville International Airport

RW ARMSTRONG a CHA company

LEGEND

PUBLIC PICK-UP

PARKING SHUTTLES

**Figure 5-19**
**Preferred Baggage Claim / Arrival Level Curbside Congestion Concept**

SOURCE: (EXAMPLE) METROPOLITAN NASHVILLE AIRPORT AUTHORITY, RW ARMSTRONG, 2011

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## 5.2 Airport Development Plan Summary

Upon identifying development concepts for each functional area, a compiled list of preferred concepts was developed. These concepts were prepared to meet the forecast demand presented in Chapter 3, *Demand/Capacity Analysis and Facility Requirements*. In addition, a recommended Airport Development Plan (ADP), **Figure 5-20**, is included to depict proposed airport improvements in various functional areas of the Airport.

The following is a summary of the preferred concepts for each functional area. **Appendix A** contains the Decision Memos and provides further analysis for each area. The phasing and cost estimates for these projects will be discussed in further detail in Chapter 8, *Financial Plan.*

- International Arrivals Building (IAB):
    - Located on south end of A Concourse near the main terminal
    - Provide two "swing" gates
- Proposed Airport Hotel:
    - Locate hotel in location of the existing D Concourse with direct connectivity to the terminal building
- On-Airport Development Areas:
    - West of Runway 2L/20R
    - South of Runway 13/31
    - North of Runway 13/31 (A)
    - North of Runway 13/31 (B)
    - South of Murfreesboro Road
    - West of Runway 2L
    - Existing GA Area
    - Proposed ATCT and ARFF Locations
- Airfield:
    - Extend Runway 2L by 3,297 feet, for a total of 11,000 feet
    - Extend Taxiways A, B, and K
    - Construct six-lane highway tunnel underneath Runway 2L/20R for rerouting Murfreesboro Road

- Close McGavock Pike north of Currey Road
- Close Parry Drive, Portview Drive, Cummins Drive, Convair Circle, and School Lane west of Forrester Drive
- Remove all structures and trees located along referenced roads for Runway Protection Zone (RPZ) clearance of Runway 2L extension
- Closure of the former Johnston & Murphy eastern vehicle parking lots and portions of their factory buildings to clear the parallel taxiway's object free area (TOFA) and Runway 2L/20R transitional surface
- Reroute airport perimeter roads
- Relocate 200-foot by 200-foot blast pad
- Pave runway and taxiway shoulders
- Relocate Runway 2L Glide Slope Antenna and Approach Lights and Runway 20R Localizer and all associated equipment

- Roadways, Parking, and Rental Car:
  - Parking Phase 1: Construct three-level parking structure on Long Term Lot A.
  - Realign Donelson Pike and expand the internal Ring Road to the east side of Long Term Lot B
  - Parking Phase 2: Realignment of expanded surface parking for Long Term Lot A.
  - Relocate rental car service centers to area east of Donelson Pike.
- Passenger Terminal Area Development
  - Baggage Make-Up:
    - Consider increasing the baggage make-up areas to accommodate the processing of forecast volume of outbound checked baggage
    - Consider expanding the northern-most baggage make-up room. Coordinate to accommodate aircraft parking limitations
    - Consider a phased approach for relocation of the concessions storage area and ramp offices to provide southward baggage make-up expansion
  - Baggage Claim:
    - Consider additional baggage claim device by PAL 4
    - Consider reconfiguration to increase the area of the baggage claim lobby area to accommodate increased general circulation needs, baggage claim needs, and meeter/greeters

  - Post-Secure (Airside) Concessions:
    - Consider each existing and proposed concession location to maximize passenger satisfaction and Airport revenue-generating opportunities
    - Consider anticipated concessions expansion away from the concourse to maintain current concourse circulation widths
    - Consider the repurposing or reuse of existing space to accommodate new or expanded concessions offerings. Emphasis should be placed on maintaining existing concourse circulation widths
  - Pre-Secure (Airside) Concessions:
    - Evaluate passenger and meeter/greeter behavior, as well as travel and security protocols, at each PAL to determine the need for and ability to support increased concessions offerings
    - Consider placing an emphasis on the repurposing or reuse of existing space to accommodate increased concessions offerings
- Ground Transportation Center
  - Phase 1: Relocate GTC functions to south half of existing parking garage
  - Phase 2: Relocate GTC functions to south wing lot currently used for valet parking
- Arrivals Curbside Congestion
  - Phase 1: Convert angled parking spaces to additional curb frontage
  - Phase 2: Development of an additional lane along the curbside, this will also require changes to the canopies and walkways

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1. DONELSON PIKE REALIGNMENT
2. PARKING GARAGE EXPANSION
3. FUTURE RENTAL CAR FACILITY
4. VARIOUS TERMINAL IMPROVEMENTS:
   - *INTERNATIONAL ARRIVALS BUILDING (IAB)*
   - *BAGGAGE CLAIM EXPANSION*
   - *MAIN TERMINAL / C CONCOURSE EXPANSION*
   - *GROUND TRANSPORTATION CENTER (GTC)*
5. PEOPLE MOVER
6. GA DEVELOPMENT
7. RUNWAY 2L EXTENSION
8. TAXIWAY K EXTENSION
9. FUTURE AIR TRAFFIC CONTROL TOWER
10. GA DEVELOPMENT
11. GA DEVELOPMENT
12. GA DEVELOPMENT
13. GA / MRO / CARGO DEVELOPMENT
14. FUTURE ARFF FACILITY
15. FUTURE DEICING PAD
16. MRO / CARGO DEVELOPMENT
17. GA / MRO / CARGO DEVELOPMENT
18. MRO / CARGO DEVELOPMENT
19. FUTURE ARFF FACILITY
20. FUTURE MASS TRANSIT CONNECTION

BRILEY PARKWAY

INTERSTATE 40

MURFREESBORO ROAD

DONELSON PIKE

Nashville International Airport™

**LEGEND**

**PROPOSED FACILITIES**

- FUTURE TERMINAL DEVELOPMENT
- FUTURE AIRFIELD FACILITIES
- FUTURE SUPPORT FACILITIES
- FUTURE MRO / CARGO DEVELOPMENT
- FUTURE GA DEVELOPMENT
- FUTURE DEICING AREA
- FUTURE PROPERTY / ACQUISITION
- FUTURE ROADS
- FUTURE ROAD CLOSURES
- FUTURE PARKING GARAGE
- FUTURE RENTAL CAR USE
- FUTURE PARKING

**EXISTING FACILITIES**

- EXISTING BUILDING
- EXISTING RUNWAY PAVEMENT
- EXISTING TAXIWAY PAVEMENT
- EXISTING APRON PAVEMENT
- EXISTING ROADWAYS
- EXISTING AIRPORT PROPERTY

RW ARMSTRONG™

**Figure 5-20**
**Airport Development Plan**

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