VOLUME 2

Tampa International Airport

2012 AIRPORT MASTER PLAN
2016 ADDENDUM

SUBMITTED ON: SEPTEMBER 22, 2017

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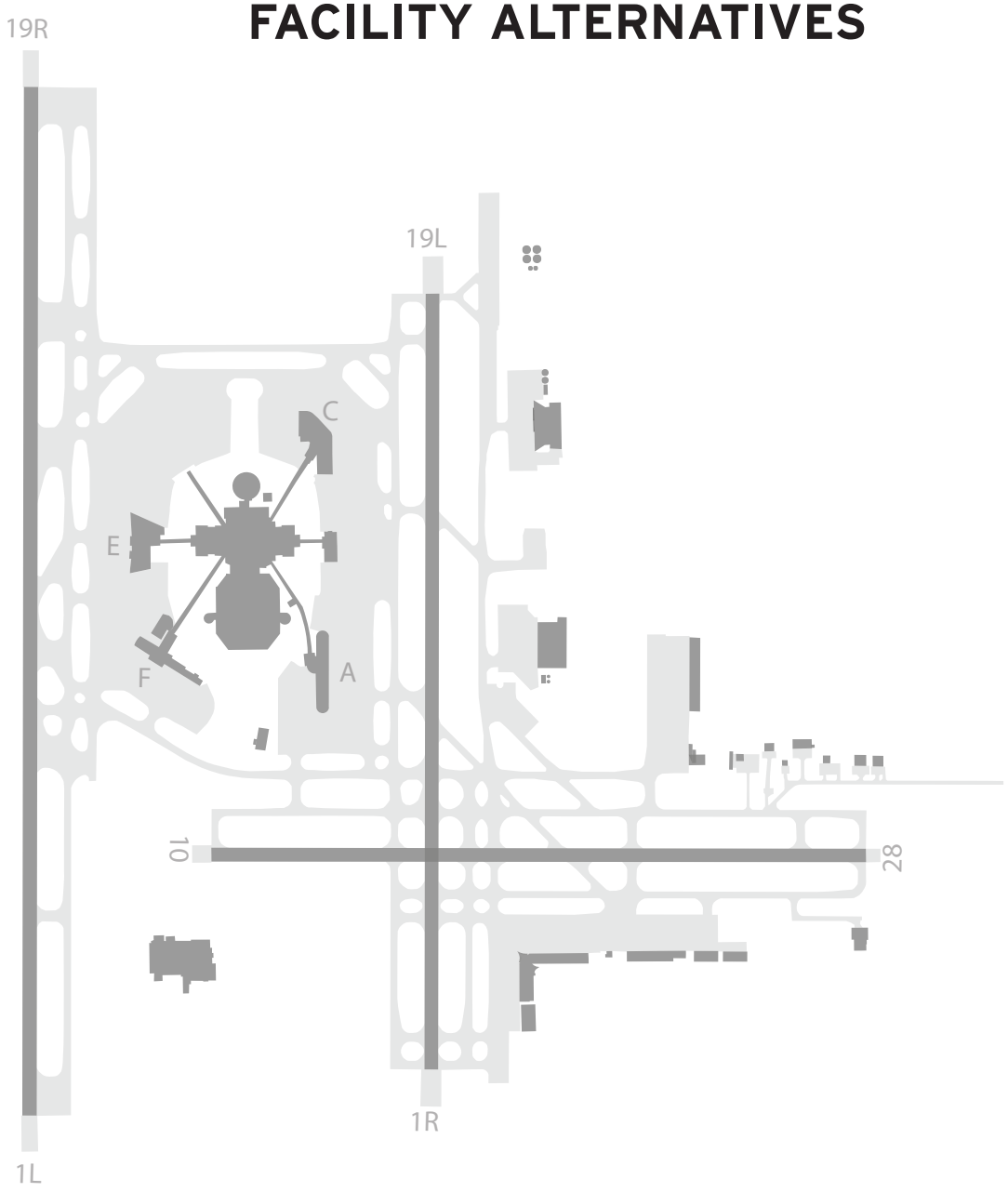


5 AIRPORT FACILITY ALTERNATIVES

The focus of this section is to provide a detailed analysis of the airport development alternatives with the inclusion of options developed during the 2016 Addendum process. While the 2012 Master Plan Update (2012 MPU) focused on the entire campus, the 2016 Addendum focused primarily on the Central Core Planning Area.

1. There are two "main sectors" at TPA; the, "East Airfield Planning Area" and the "Central Core Planning Area." The sectors and their subparts are defined as summarized in the bullets below. Additionally, the organization of this chapter follows the same structure:

    - East Airfield Planning Area (refer to the 2012 Master Plan Document)
        - Eastside Development Planning Area
        - North GA Development Area
        - South GA Development Area
    - Central Core Planning Area
        - North Terminal Development Area (refer to the 2012 Master Plan Document)
        - Terminal Development Area
        - South Terminal Support Development Area (refer to the 2012 Master Plan Document)
        - Future Airfield Development Area (refer to the 2012 Master Plan Document)

For a graphical depiction of the main sectors covered in this analysis see **Figure 5.1**.


CENTRAL CORE PLANNING AREA
EAST AIRFIELD PLANNING AREA
NORTH TERMINAL DEVELOPMENT AREA
EASTSIDE DEVELOPMENT AREA
FUTURE AIRFIELD DEVELOPMENT AREA
TERMINAL DEVELOPMENT AREA
N. GA DEV AREA
SOUTH GA DEVELOPMENT AREA
SOUTH DEVELOPMENT AREA
Note: only includes area within the airport property line
0' 1,000' 2,000'
SCALE: 1" = 2,000'
HNTB
AIRPORT SECTORS
TAMPA INTERNATIONAL AIRPORT
TAMPA, FLORIDA
DATE: Jul 02, 2013
Figure: 5.1
P:_Projects\57785 - Tampa MP\00-CADD\HNTB_Team_Dwg_files\TPA_Airport Sectors Figure.dwg Airport Sectors Jul 02, 2013 - 1:53pm

The 2016 Addendum commenced in March 2016 and with the intent to verify forecasts, capacity needs, and evaluate alternatives for the following key areas:

- Roadways/Curbsides
- All Airsides
- Main Terminal

This study was developed as a dialogue between HCAA and HNTB to revalidate the 2012 Master Plan Update (2012 MPU) to determine if current conditions still match the original findings as the Phase 1 components near construction completion. New constraints and variables have been introduced since the prior 2012 Master Plan update that could positively impact the overall program, including:

- Changes in passenger traffic
- Airline Mergers
- Changes in Agency protocols (specifically CBP and TSA)
- Flexible airline fleet mixes

The study was developed through ongoing charrette workshops with HCAA and HNTB throughout 2016 starting with a series of "refresher" workshops intended to gather all current information that had changed over the four years between study and evaluate needs due to changing variables with technologies, stakeholders and processes.

- Workshop Refresher 1: January 14, 2016
- Workshop Refresher 2: January 26, 2016
- Workshop Refresher 3: February 4, 2016

Upon completion of the "Refresher Workshops", HNTB then led a series of workshop to determine new alternatives for Phase 2 and 3 growth that aligns with the new variable and constraints:

- Alternative Workshop 1: April 11, 2016
- Alternative Workshop 2: May 24, 2016
- Alternative Workshop 3: June 20, 2016
- Alternative Workshop 4: August 9, 2016
- Alternative Workshop 5: September 16, 2016

After developing a preferred alternative in Alternative Workshop 5, HCAA hosted a series of stakeholder workshops with their Airline partners to gain consensus on the overall plan. The following workshops were held:

- Board of Directors Workshop: April 18, 2016
- Master Plan Public Meeting: April 27, 2016
- Airline Workshop 1: October 12, 2016
- Airline Workshop 2: December 19, 2016

5.1 East Airfield Planning Area Alternatives

The East Airfield was not studied further during the 2016 Addendum. Refer to the 2012 Master Plan Document for more information.

5.2 Eastside Development Planning Area

The East Development Planning Area was not studied further during the 2016 Addendum. Refer to the 2012 Master Plan Document for more information.

5.3 North GA Development Area

The North GA Development Area was not studied further during the 2016 Addendum. Refer to the 2012 Master Plan Document for more information.

5.4 South GA Development Area

The South GA Development Area was not studied further during the 2016 Addendum. Refer to the 2012 Master Plan Document for more information.

5.5 Central Core Planning Area

The Central Core Planning Area is a large portion of the airport that lies to the west of the alignment of Runway 1R/19L, to the western extent of the Airport's property which is bordered by the north/south-running Veterans Expressway. The area lies generally between Spruce Street on the south and Hillsborough Avenue to the north. Within this portion of the Airport is a mix of terminal facilities, airfield, and terminal support facilities (airport roadways, ARFF, parking facilities, rental car facilities, flight kitchen etc.) Additionally, there are multiple areas that are currently unused and available for future expansion of aviation related uses and other activities. For a graphical depiction of the Central Core Planning Area see **Figure 5.1**.

The areas that make up the Central Core Planning area are referred to as follows:

- North Terminal Development Area

- Terminal Development Area
- South Development Area
- Future Airfield Development Area

Only the Terminal Development Area was revalidated during the 2016 Addendum with the focus on impacts to Phase 2 and 3.

5.6 North Terminal Development Area

The North Terminal Development Area was not studied further during the 2016 Addendum. Refer to the 2012 Master Plan Document for more information. However, it was critical that all Phase 2 and 3 components do not preclude construction of the North Terminal Development Area in the future. This included right-of-way for new roadways, Automated People Mover (APM) (landside and potential of secure APM), utilities and all associated airside work.

5.7 Terminal Development Area

The 2016 Addendum is a continuation of planning study from the 2012 Master Plan Update in addition to a consolidation of various planning efforts in the period of time between the updates. The goal is to maintain continuity of the previous 2012 MPU with enhancements that improve passenger, airport and stakeholder operations and amenities; create an affordable plan but still flexible for the future with anticipated growth. Many variables were discussed during the process as key elements for study, including:

- Expansion
    - Maximize area within the Main Terminal Complex for continued growth
    - Improve current operations to enhance passenger level of service and customer experience
    - Develop potential for international gates on a new Airside D with a new CBP
    - Increase capacity of the existing Terminal curbfront for both arrivals and departures at Red and Blue
    - Increase capacity of the existing roadway loop to alleviate congestion during peak periods
- Renovation
    - Reallocate space to become more efficient
    - Increase capacity to incrementally allow for growth at reduced program cost
- Tradition
    - Maintain high levels of passenger convenience and comfort
    - Keep walking distances under 700 ft.
    - Maintain Automated People Mover (APM)/Shuttle Technology

- Development of incremental changes for long term capacity growth
- Maintain existing facilities
    - Marriott Hotel – Develop concepts that attempt to keep the Marriott Hotel in place with minimal impact.
        - Existing FAA Air Traffic Control Tower (ATCT)
        - Future FAA Air Traffic Control Tower site
- Stakeholder Involvement
    - CBP – New guidelines, technologies, processes (including the development of the Bag First Concept that was not conceived at the time of the 2012 MPU)
    - TSA – New guidelines, technologies, passenger throughput rates
    - Marriott Hotel – Develop concepts that attempt to keep the Marriott Hotel in place with minimal impact.
    - FAA – Develop concepts that attempt the keep the existing FAA Air Traffic Control Tower (ATCT).

The ongoing initiative of the Master Plan Update is to defer the construction of the North Terminal Complex while accommodating projected activity with an expansion of the existing terminal facility. The very nature of the aviation industry requires that the development of airport facilities be part of a step by step, flexible program that can adapt to the required changes demanded as the Airport grows. The following modifications presented below are intended to allow maximum growth within this framework of flexibility.

5.7.1 Terminal / Curbside Improvements

The facility requirements section identified functional areas that need to be addressed as the Airport continues to grow over the next twenty years. The 2016 Master Plan Addendum identified an updated list of improvements for Phase 2 and 3. Phase 1 construction included the CONRAC, APM and new campus wide concession improvement program. The new areas of focus are illustrated in the Stoplight charts (diagrams showing the relationship between level of service and demand) found in Section 4.2.2 and are summarized below:

<u>Terminal Area:</u>

- Curbside Capacity

<u>Airside A:</u>

- Security Screening Checkpoint (SSCP)
- Baggage make-up area

Airside C:

- Security Screening Checkpoint (SSCP)
- Restrooms
- Baggage make-up area

Airside E

- Security Screening Checkpoint (SSCP)

Airside F

- Airline operations areas
- Baggage make-up areas
- Holdrooms
- Customs and Border Protection (CBP)
- Airline/VIP clubs

The capacity enhancement alternatives that follow in this section were developed to meet the projected future demands while accommodating the ability of passengers to move and airlines to operate efficiently and conveniently throughout the terminal complex. The goal is to keep a high level of user satisfaction while expanding the existing facility to grow and adapt to the changing nature of demand.

5.7.1.1 Site Constraints and Connectivity

As continuation of the 2012 MPU, the early workshops in 2016 focused on overall site plan improvements that included the key areas of connectivity. At the same time, the goal was to correct any issues from the previous MPU.

The group identified key goals for study that included and is illustrated by **Figure 5.2**:

- Connectivity
    - CBP
    - Security Screening Checkpoint (SSCP)
    - Airside for possible connections
- Avoid constraints
    - Marriott Hotel
    - Existing FAA ATCT
    - Future FAA ATCT sites
    - Future North roadways & APM

Figure 5.2
Site Connectivity Goals

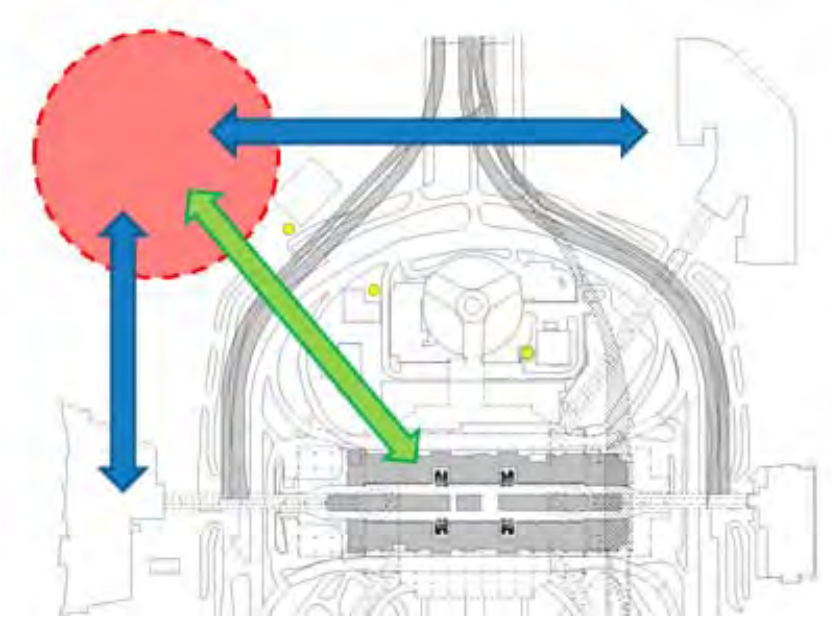


Figure 5.3
Site Availability Diagram

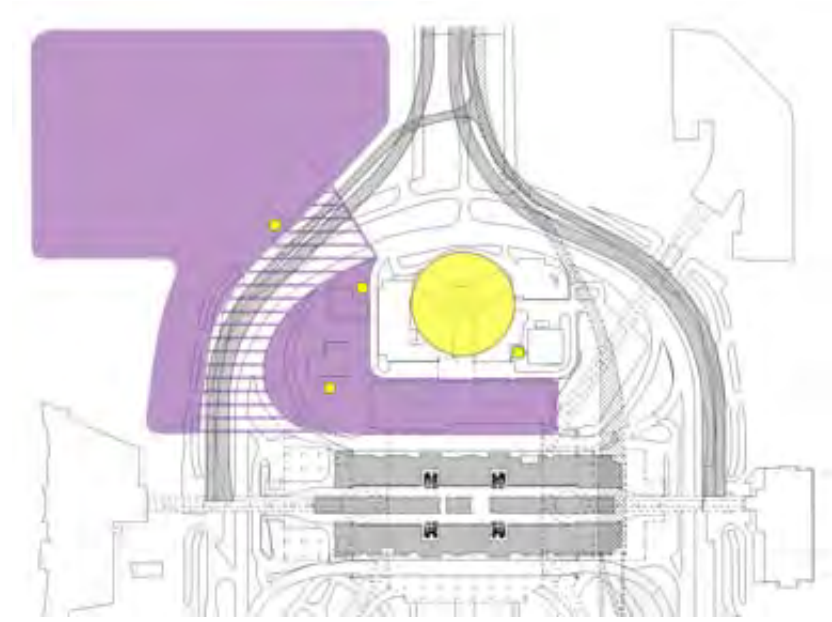
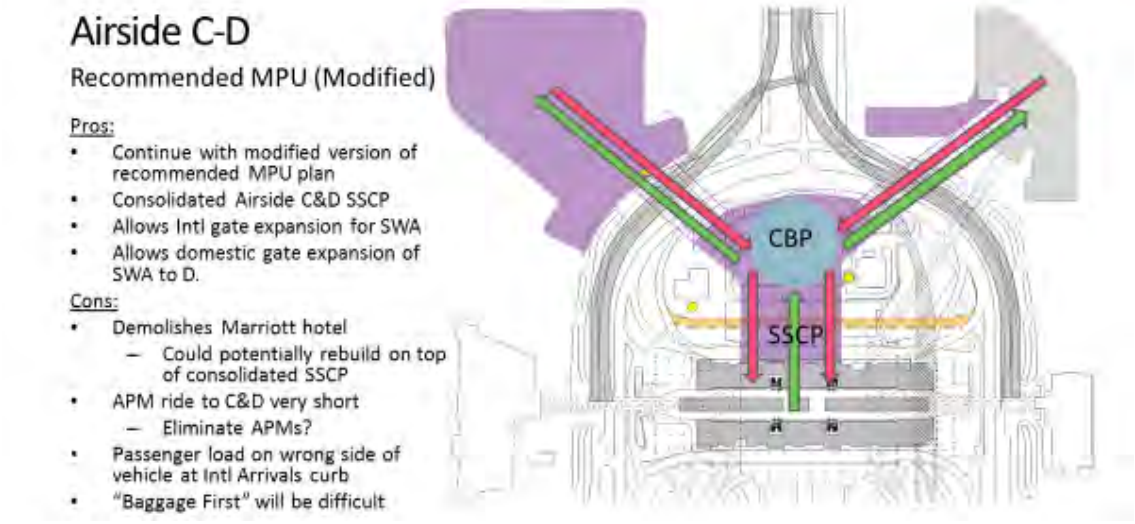


Figure 5.4
Baseline Concept – Preferred 2012 Master Plan

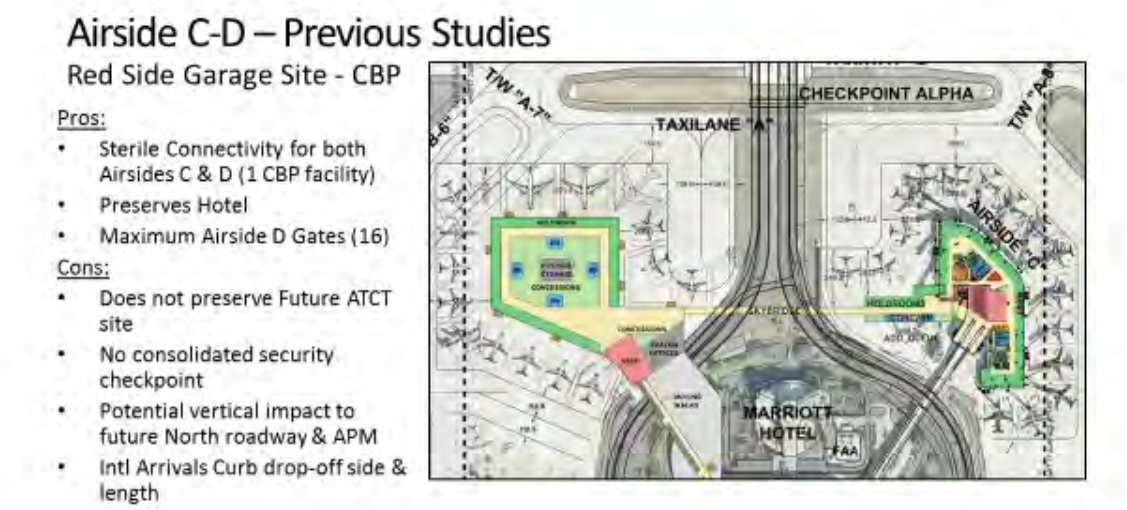
For continuity with the preferred 2012 MPU, a "modified" option was discussed that reshaped the building to maintain both FAA ATCT site (new and existing). By reducing the east to west dimension and extending the building further north, this maintained these critical sites. However, the Marriott Hotel was still demolished.

Figure 5.5
Option 1 – MPU Modified



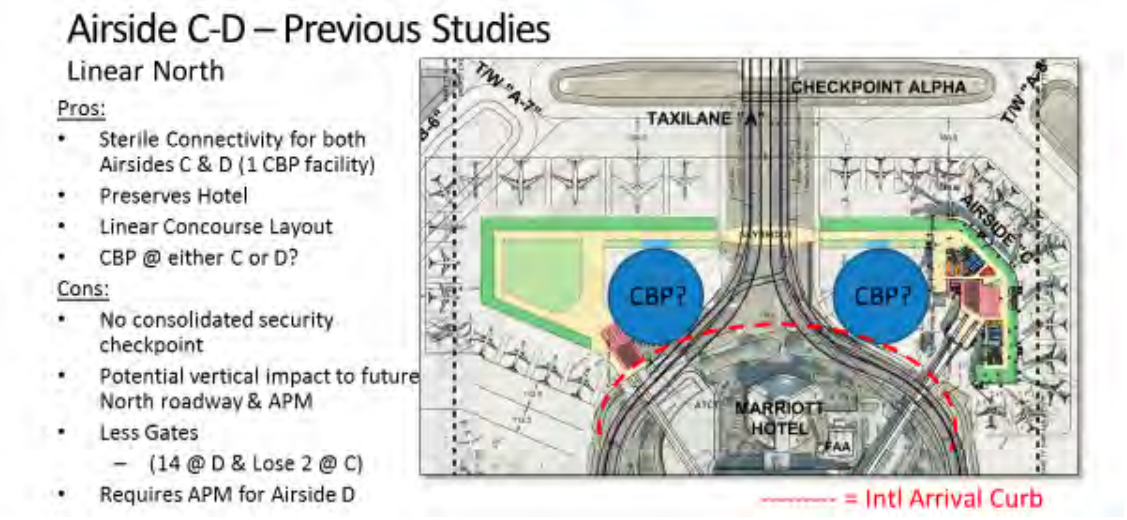
Option 1, **Figure 5.6**, was studied in the 2012 Master Plan Update and revalidated again since it maintained the existing Marriott Hotel and existing FAA site. It was not preferred since it requires development on the future ATCT site and the CBP location does not allow for the area required for the new CBP Baggage First concepts.

Figure 5.6
Option 1 – Red Site Garage CBP



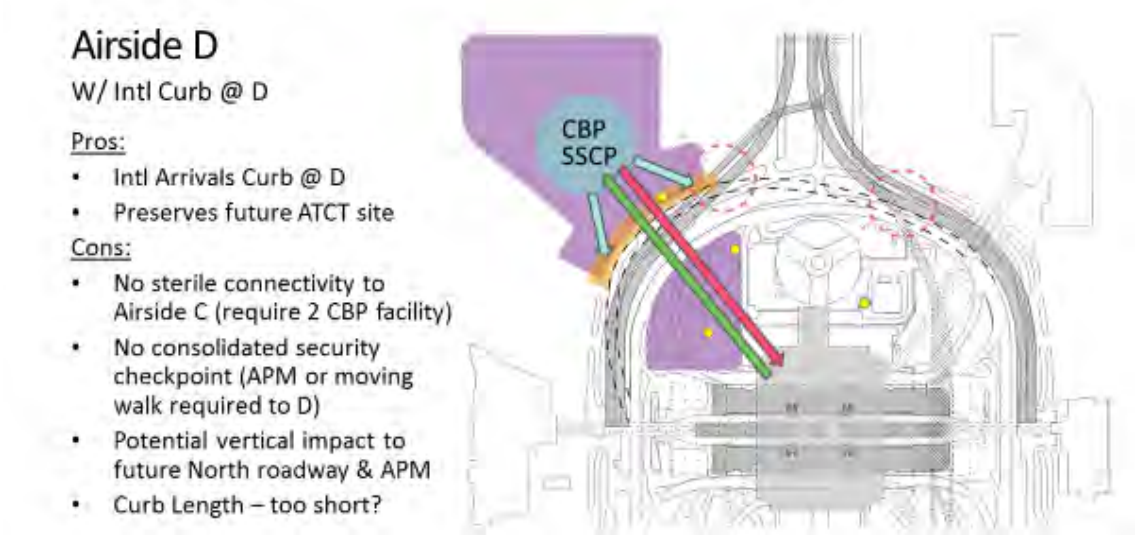
Option 2, **Figure 5.7**, was also studied during the previous 2012 MPU and was discussed again primarily due to the connectivity of Airside C and D while maintaining the Marriott Hotel and both FAA ATCT sites. This option was ultimately not shortlisted as it provided less overall gates and potentially limited the future north roadways or APM alignment.

Figure 5.7
Option 2 – "Linear North"



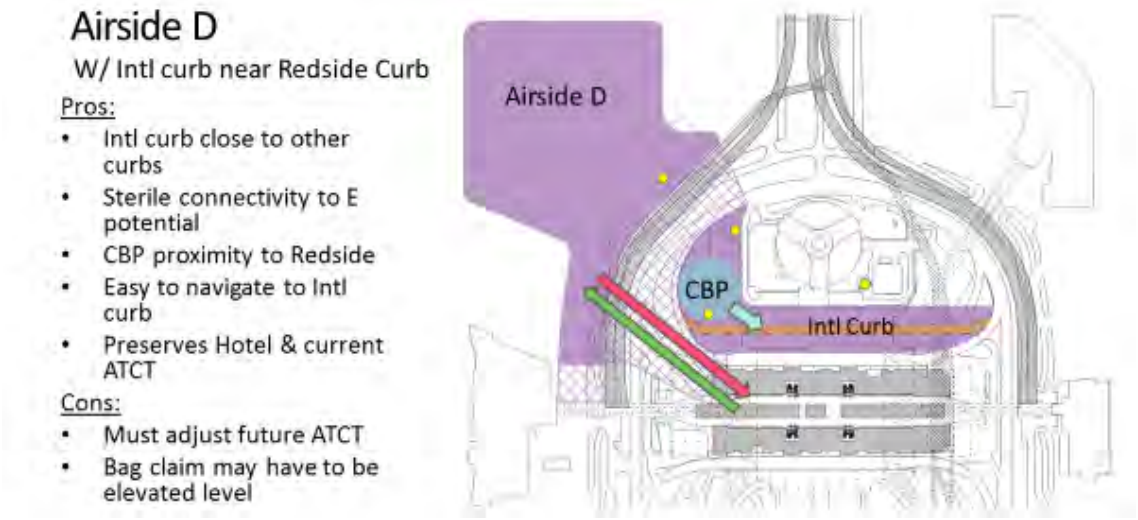
Option 3, **Figure 5.8**, provided a standalone Airside D with CBP and SSCP located within the Airside D building. A two-level roadway would have been provided at the Airside. While this scheme did preserve all key elements, the constraints at the future north roadways and the change in landside philosophy were not beneficial and the introduction of a separate curbside on the outside of the loop was problematic.

Figure 5.8
Option 3 – "Airside D – Two Level Curbfront"



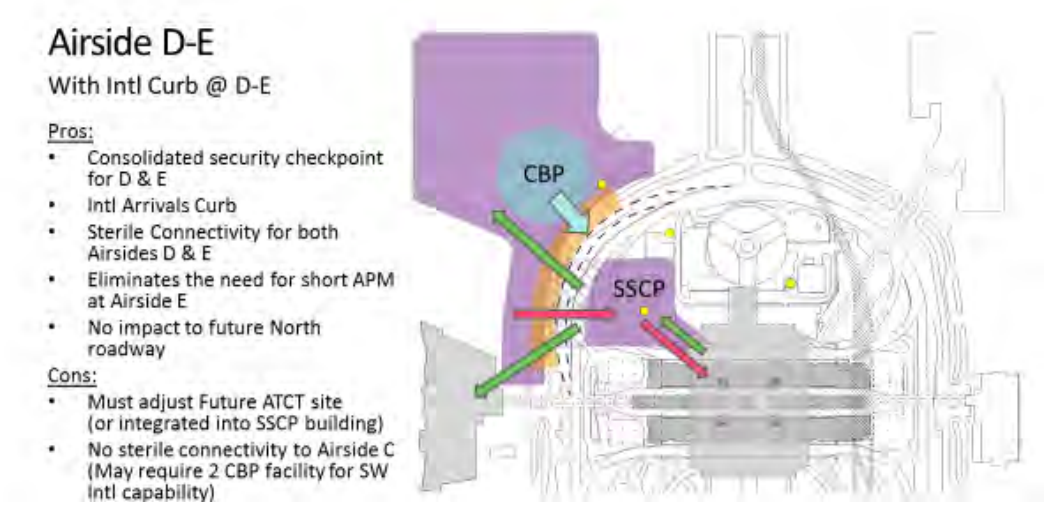
Option 4, **Figure 5.9**, included a new CBP located at the existing Red Side Garage with dedicated international arrivals curb. While it did preserve the hotel and existing FAA ATCT, it would have required the new FAA ATCT to be built as part of the new CBP building. This scheme was not shortlisted for further study.

Figure 5.9
Option 4 – "CBP at Red Side Garage"



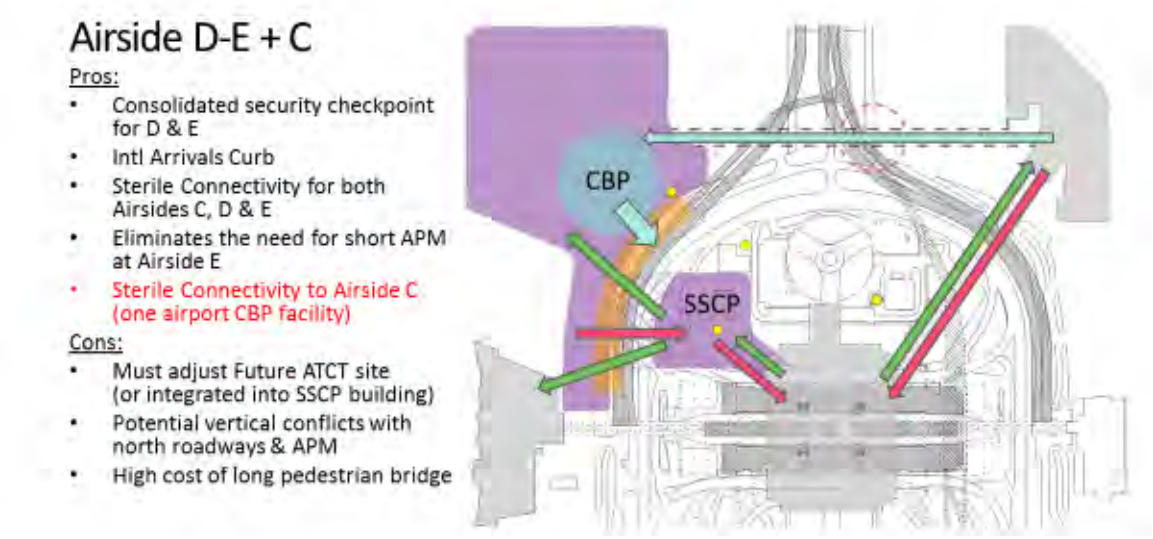
Option 5a, **Figure 5.11**, included Departures from the Main Terminal but with the international arrivals curb located at Airside D with CBP. The SSCP would be located at the current Red Side Garage. This option also provided a connection between Airside D & E. This option was not selected primarily due to the SSCP location at the future site of the FAA ATCT.

Figure 5.10
Option 5a – "SSCP at Red Side Garage"



Option 5b, **Figure 5.11**, was similar to Option 5a in passenger and vehicular flow, but with the addition of an elevated pedestrian bridge from Airside C to D. The main intent for this was to accommodate Southwest international arrivals with contact gates to the sterile corridor.

Figure 5.11
Option 5b – "SSCP at Red Side Garage with Airside C Connector"



Ultimately, the outcome of the above options was to further study Options 1 and 5A (renamed Option 3 below) and not further study the other options. The shortlisted options are explained in further detail over the next few pages.

Option 1 & 2 –

Option 1 continued study to confirm if a new consolidated SSCP and CBP could remain on the site (similar to previous 2012 preferred plan) but maintain the existing and future FAA ATCT sites. The option continued to provide sterile connectivity to both Airside C and D with a new CBP located on the upper level of the new landside terminal expansion. **Figures 5.12-5.15** illustrate the potential massing and vertical circulation flow through the new building and plan diagram for the CBP level. The consolidated SSCP was moved north to allow a smaller width immediately at the existing FAA Tower (**Figures 5.16-5.17**). Upon leaving security, passengers would board new APMs to access Airsides C & D. For arriving international passengers, the scheme started to introduce the concept of additional lanes and dedicated curbfront with pickup on the passenger side of the vehicle. This was a previous issue with the 2012 MPU preferred plan that included pickup on the wrong side of the passenger vehicle. **Figures 5.16-5.18-5.19** depict the Arrivals level plans and show one potential layout for the new curbfront/roadways.

Figure 5.12
Option 1 Terminal Expansion Massing Diagram

Figure 5.13
Option 1 Terminal Expansion Section

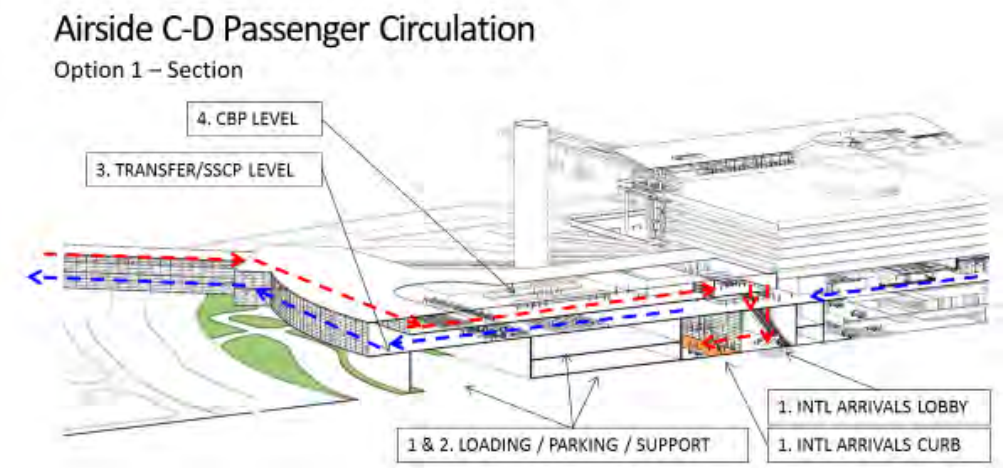


Figure 5.14
Option 1 Terminal Expansion – CBP/Sterile Level

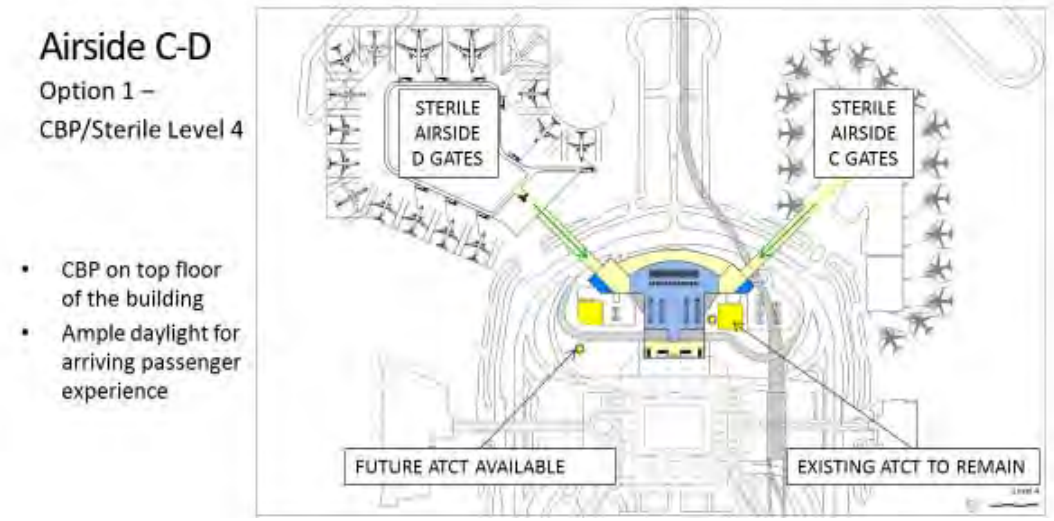


Figure 5.15
Option 1 Terminal Expansion – CBP Enlarged Plan

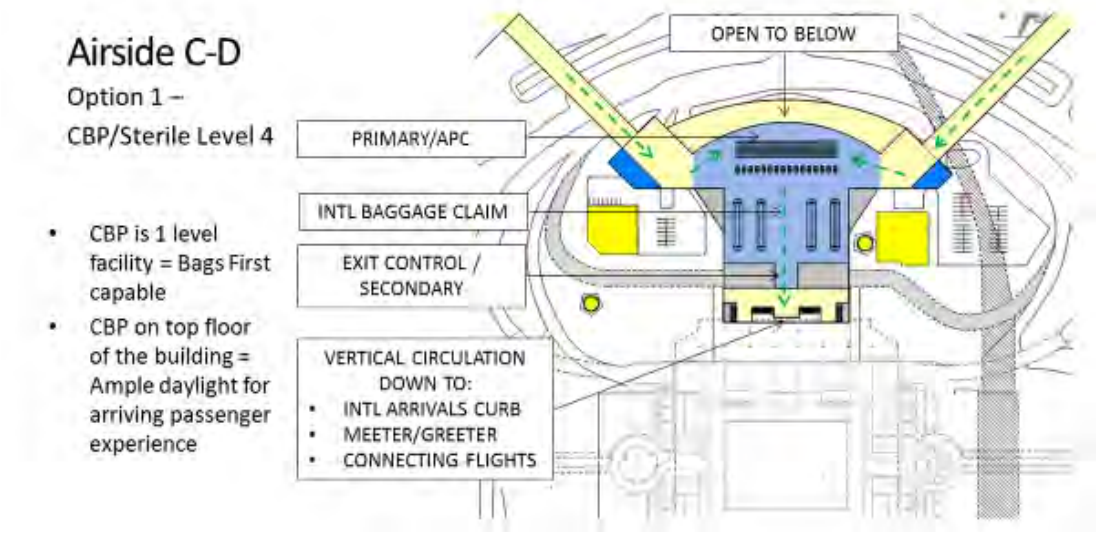


Figure 5.16
Option 1 Terminal Expansion – Transfer Level

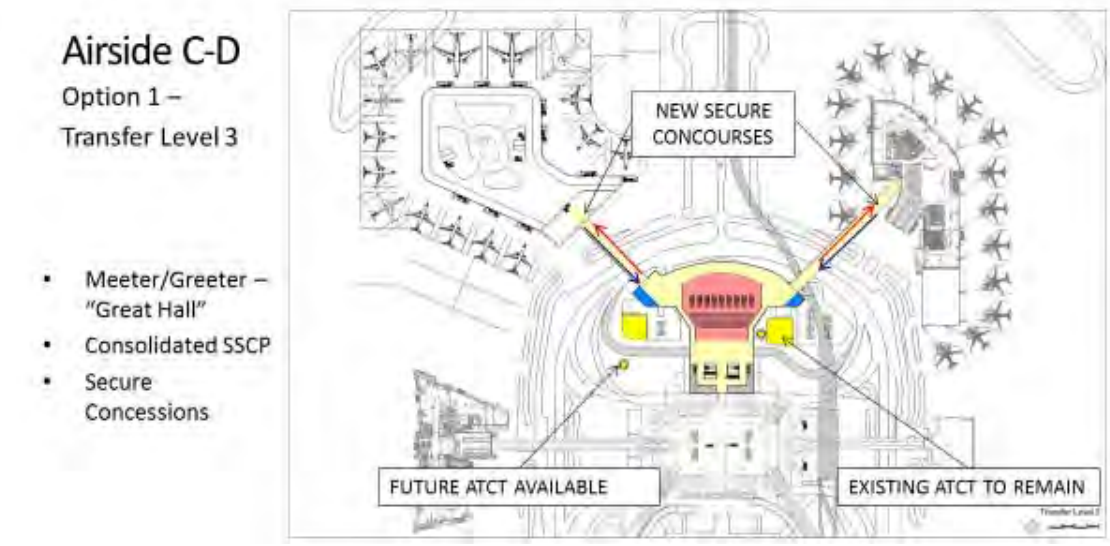


Figure 5.17
Option 1 Terminal Expansion – SSCP Enlarged Plan

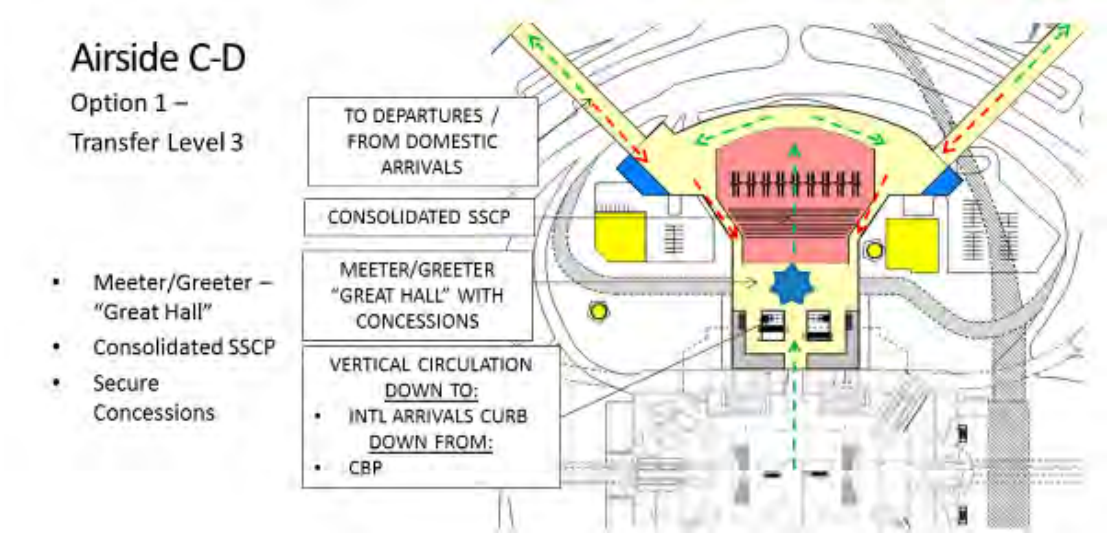
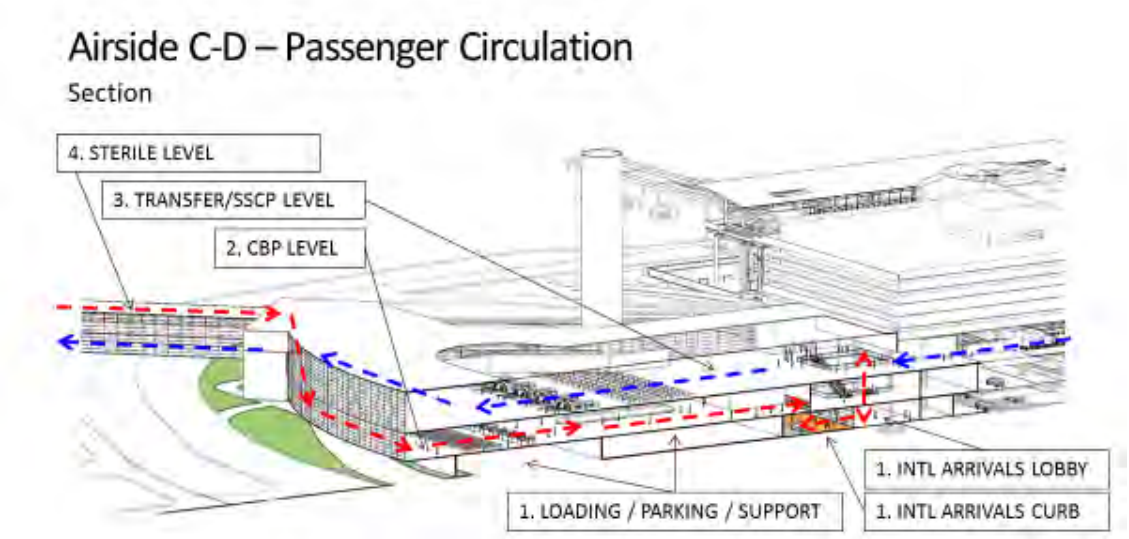


Figure 5.18
Option 1 Terminal Expansion – Arrivals Level Plan

Figure 5.19
Option 1 Terminal Expansion – Arrivals Level Enlarged Plan

A second version of this concept was developed as Option 2. The only difference from Option 1 was that the building was reduced in height by locating the CBP on a level below the SSCP on Transfer Level. The overall SF difference between the two schemes was very similar but it did provide lower ceiling heights in the CBP which was not preferred. The section showing the passenger vertical circulation is shown on **Figure 5.20** below.

Figure 5.20
Option 2 Terminal Expansion – Vertical Circulation Flow Diagram



Option 3 –

Option 3 was a study to confirm if Airside E could be connected to Airside D instead of Airside C. The major reason for this was to eliminate the major existing issue at Airside E which is the functionality of the SSCP. Currently, Airside E's SSCP is constrained by the vertical elevation differences from the Main Terminal Transfer level to the Departure level of the Airside E. If Airside E could be accessed via a new consolidated checkpoint then this would eliminate the existing constraint that is created by the APM platform and resulting slope down to the Airside E concourse.

This concept required the consolidated CBP and SSCP be located on the site of the existing Red Side Garage. Through further study, it was quickly realized that this concept had too many constraints when evaluating from a pros/cons analysis. Constructability in a constrained and small site (with no contractor laydown areas) proved to be a large limiting factor as well as it required the future ATCT to potentially be built now as it would be too difficult in the future. This concept did not get shortlisted for further development. **Figures 5.21 - 5.24** illustrate Option 3.

Figure 5.21
Option 3 Terminal Expansion – Massing Diagram

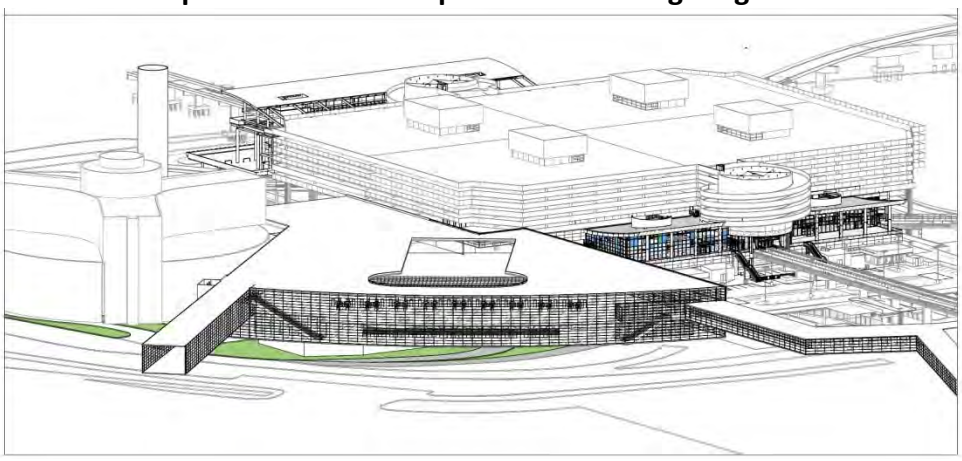


Figure 5.22
Option 3 Terminal Expansion – Transfer Level

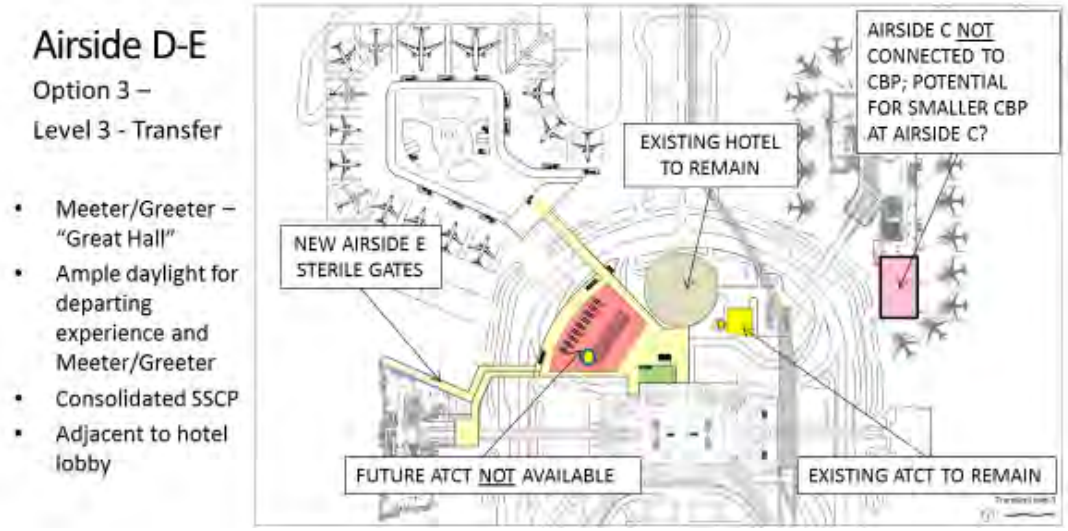


Figure 5.23
Option 3 Terminal Expansion – CBP Level

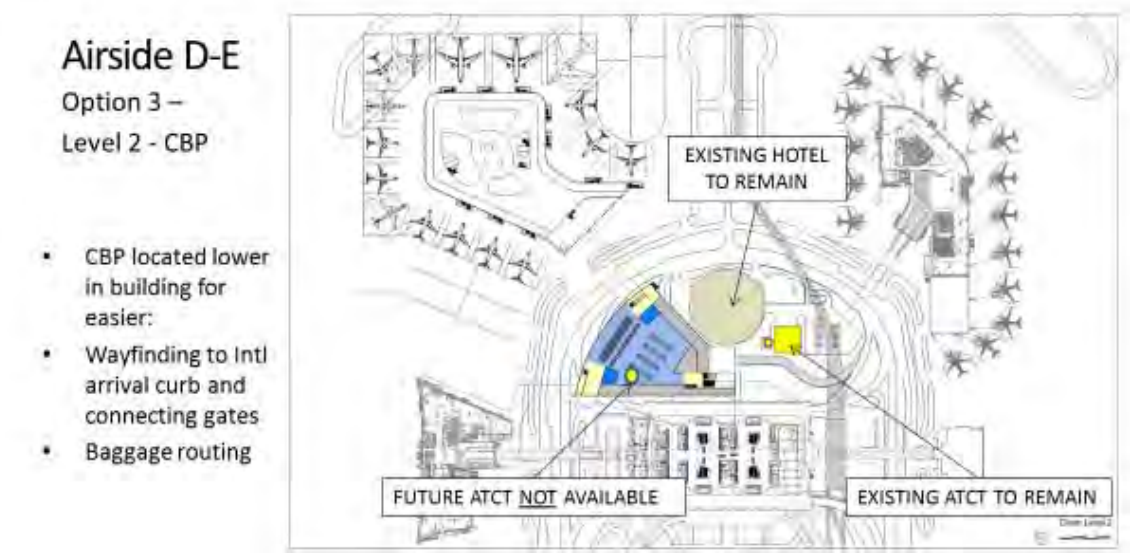
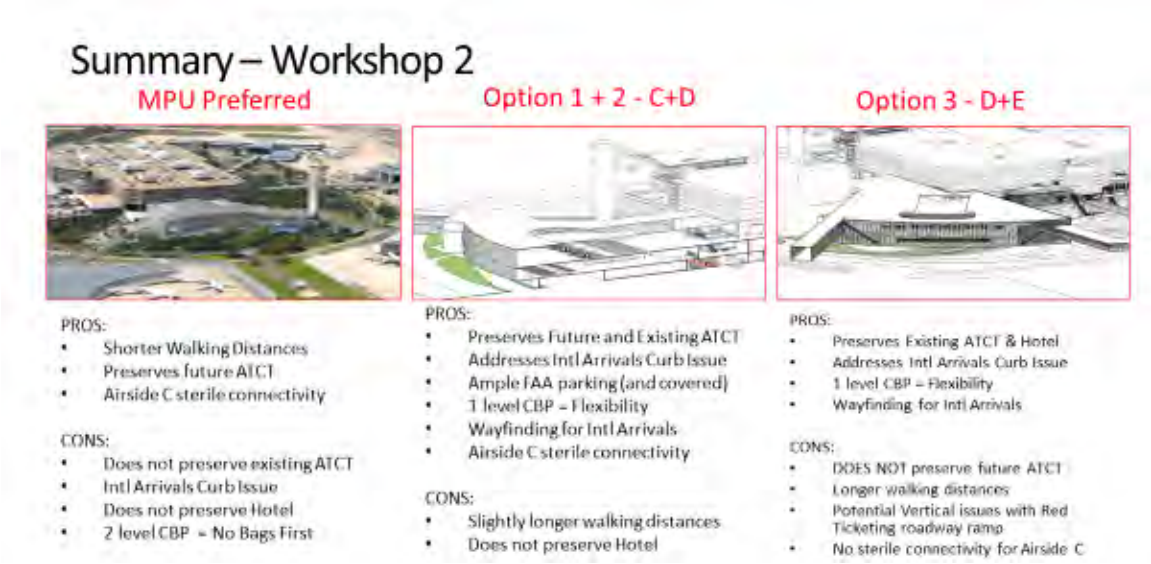


Figure 5.24
Option 3 Terminal Expansion – Intl Arrivals Level

Through pros/cons analysis, Option 1 was chosen as the preferred option (See **Figure 5.25**) and further refined to include more detail on the Airside D building.

Figure 5.25
Workshop 2 Summary



Option 1 –

The focus of refinement for Option 1 was to develop a comprehensive plan for the Airside D building that maximized the aircraft layout with sterile corridor connectivity. This scheme included a 3 story Airside D building that included Apron Level, Departures Level and Sterile Level. This scheme still includes a consolidated SSCP and CBP located on the existing Marriott Hotel site.

The Sterile Level (**Figure 5.26**) includes a sterile corridor that wraps the exterior perimeter of the building that connected 12 of the 16 aircraft to the sterile corridor. Due to Line of Sight limitations (**Figure 5.27**), the remaining 4 aircraft at the northwest side of the building were not able to connect to the sterile corridor. Locations of Airlines clubs were also identified with view down to the concession core below. A new APM would connect the Terminal Transfer Level to Airside D on the upper Sterile level and then departing passengers would go down into the center concession core of the Departures level below.

Figure 5.26
Option 1 – Sterile Level

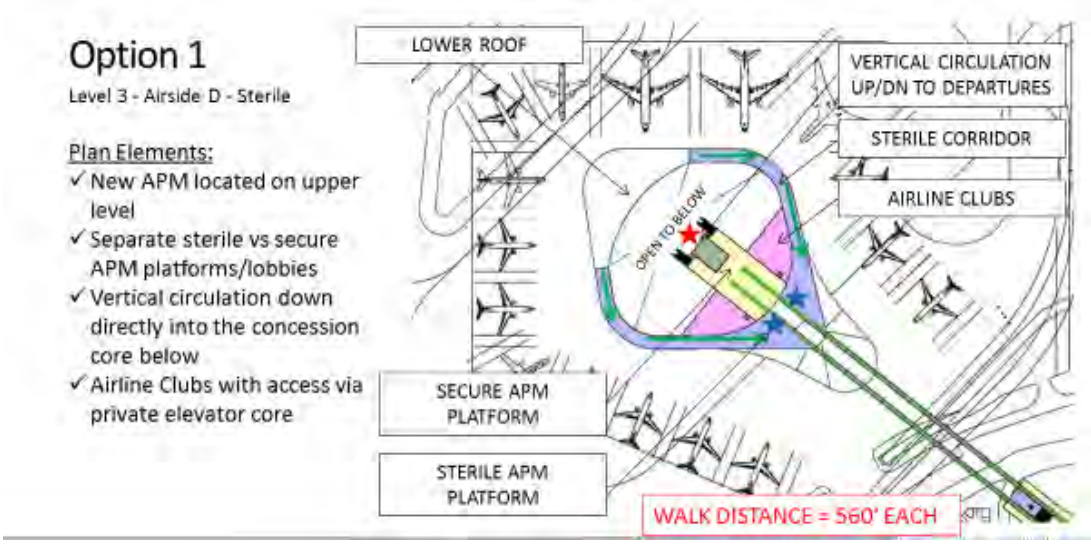
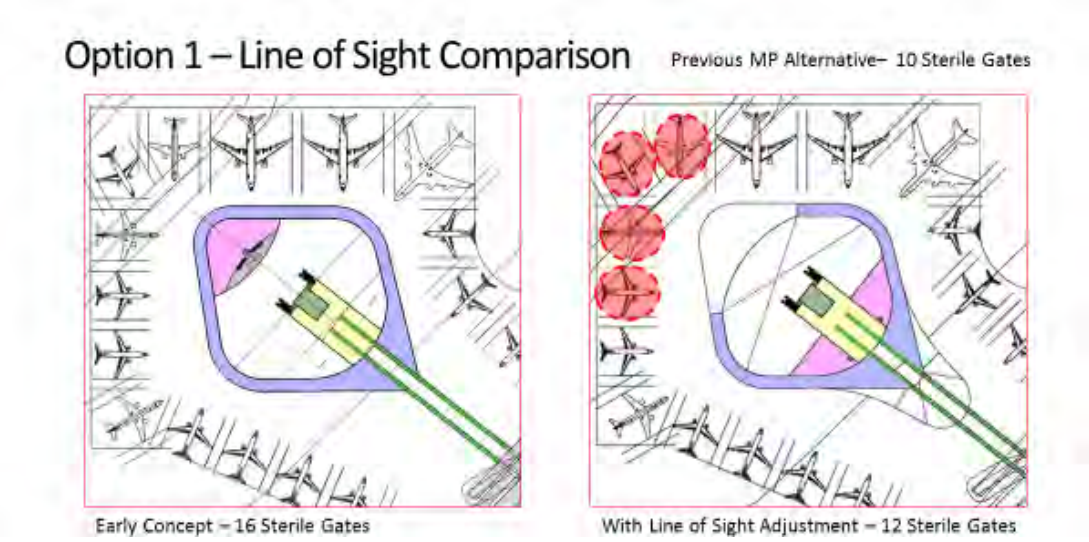
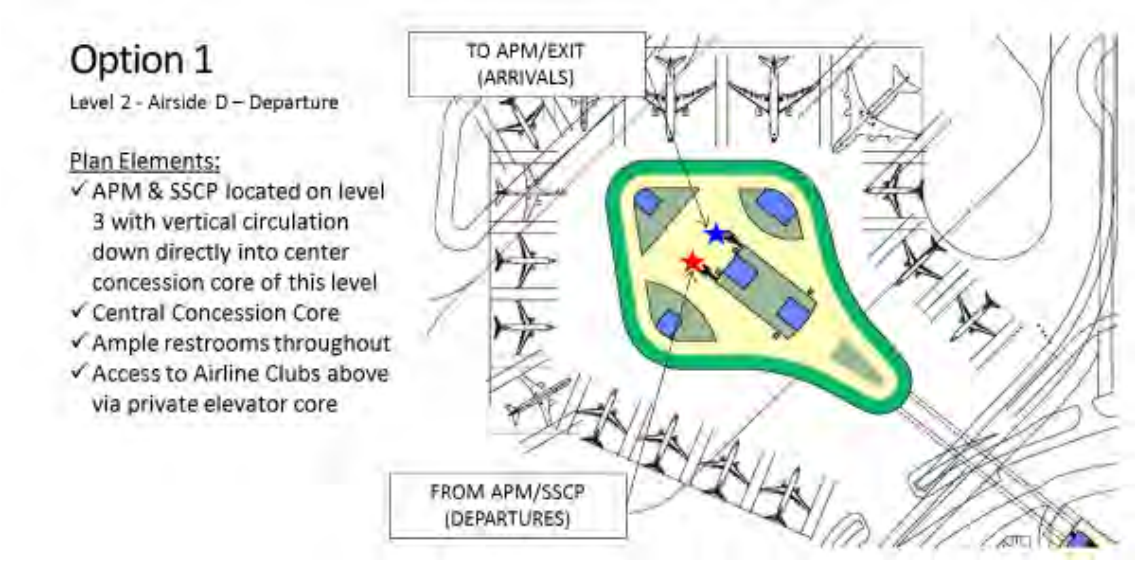


Figure 5.27
Option 1 – Sterile Level – Line of Sight



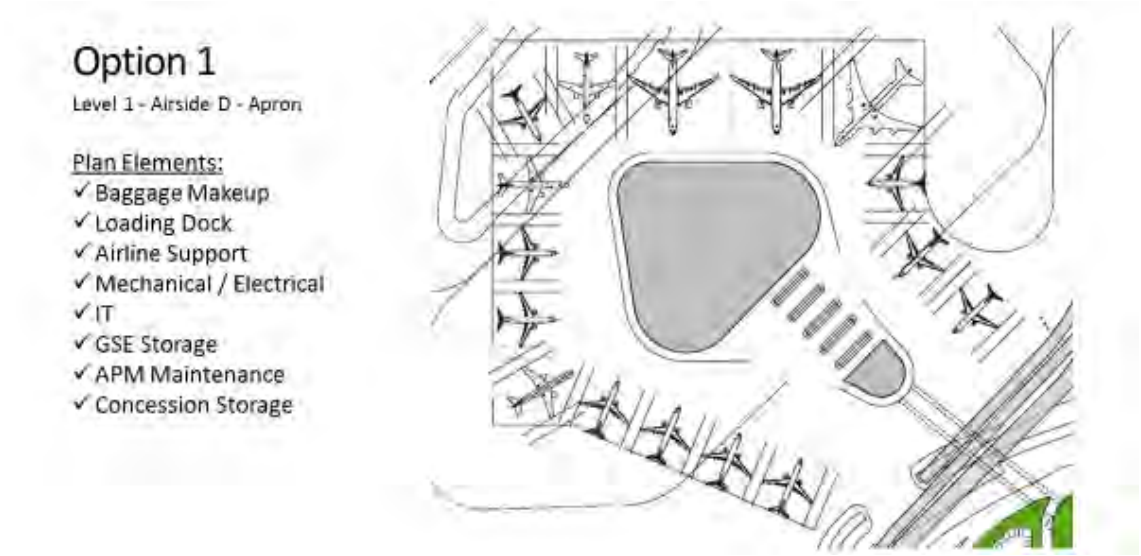
The Departure Level (**Figure 5.28**) includes the holdrooms, concourse circulation, airside restrooms and support areas. Since the APM station is located above this level, it maximized the Departure Level for passenger use and ultimate flexibility. The concessions are all located in the center of the building and all gates radiate outwards from the center core. This allows for the shortest walking distances and maintains direct line of sight from the concession core to all gates for maximum revenue generation. Restrooms are also located throughout the facility, no further than 3 gates away.

Figure 5.28
Option 1 – Departure Level



The Apron Level (**Figure 5.29**) includes all support functions for the Airside building including the items noted in **Figure 5.29** below.

Figure 5.29
Option 1 –Apron Level



Option 2 - Hybrid Option

Option 2 - Hybrid is very similar to Option 1 except it dismisses the idea of a consolidated SSCP. All existing Airsides have their own SSCP and this dispersal of checkpoints at the airside was noted as convenient for passengers and a better overall passenger experience that is unique to Tampa and this should be maintained if possible. A new APM would connect the new Airside D building to the terminal at the northwest portion of the terminal. The existing Airside C APM would remain intact (thus saving money from Option 1). Airside C & D would still have sterile connectivity to the consolidated CBP via new pedestrian walkways. See **Figures 5.30 - 5.32** for the overall concept diagrams and enlarged plan at the consolidated CBP.

Figure 5.30
Option 2 – Overall Transfer Level Plan

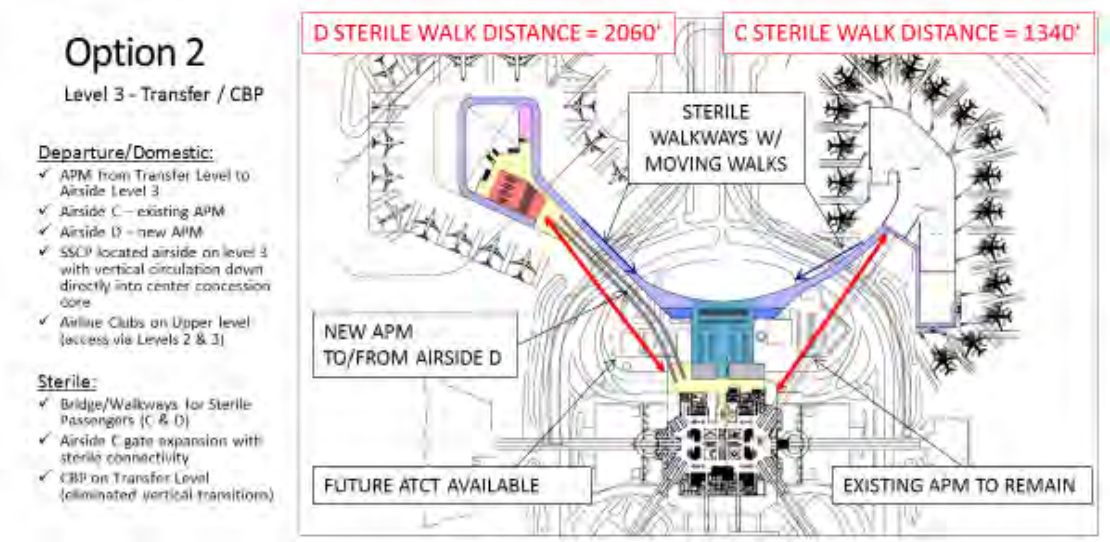


Figure 5.31
Option 2 – Main Terminal – Transfer Level

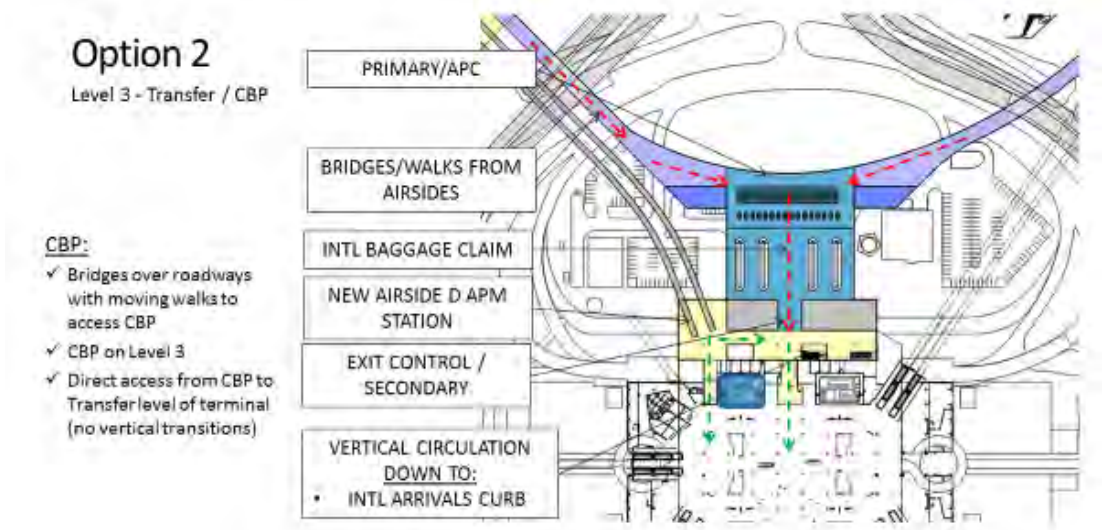
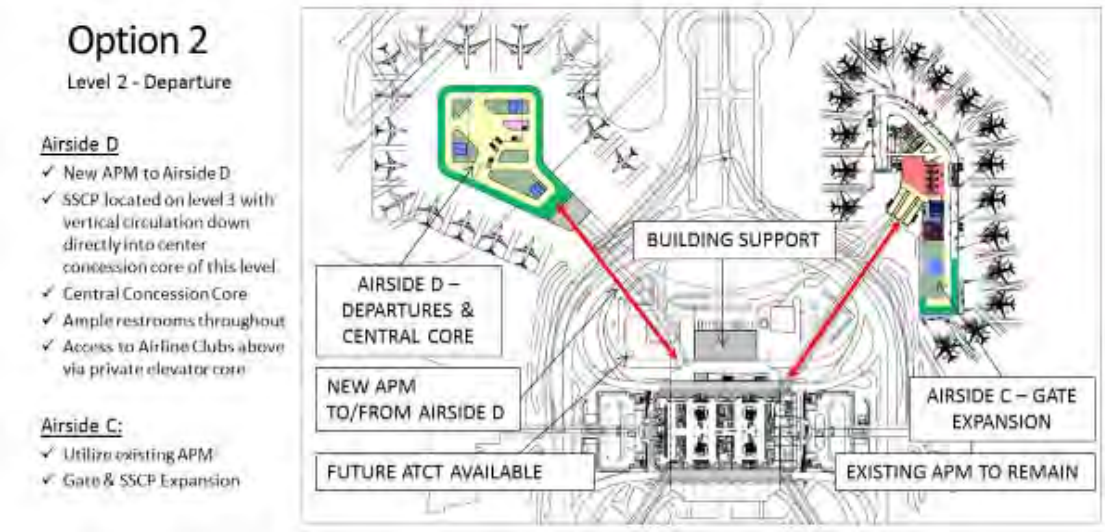


Figure 5.32
Option 2 – Overall Departure Level Plan

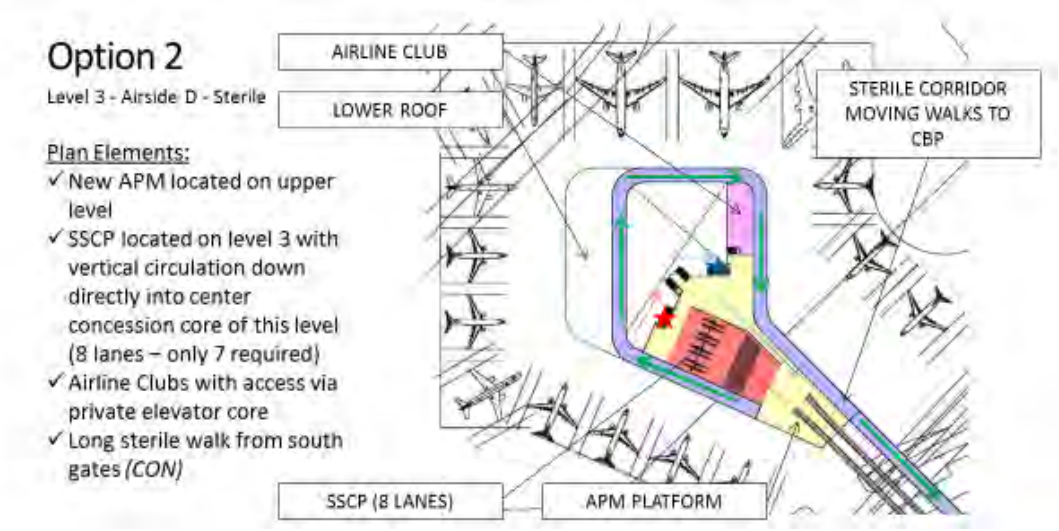


The landside (**Figure 5.33**) includes the new vertical circulation lobby building with new dedicated arrivals and departures lanes. This concept would maintain the existing and future FAA ATCT sites, however, the Marriott Hotel would be demolished. The site plan included space for the FAA parking lot and loading dock building.

Figure 5.33
Option 2 – Main Terminal – Arrivals Level

The Sterile Level (**Figure 5.34**) is similar to Option 1 with the sterile corridor wrapping the exterior perimeter of the building. The landside APM station is also located on this level and passengers disembark and go directly down to the center of the Departure level concession core below. The large difference is the inclusion of the new SSCP on the upper level.

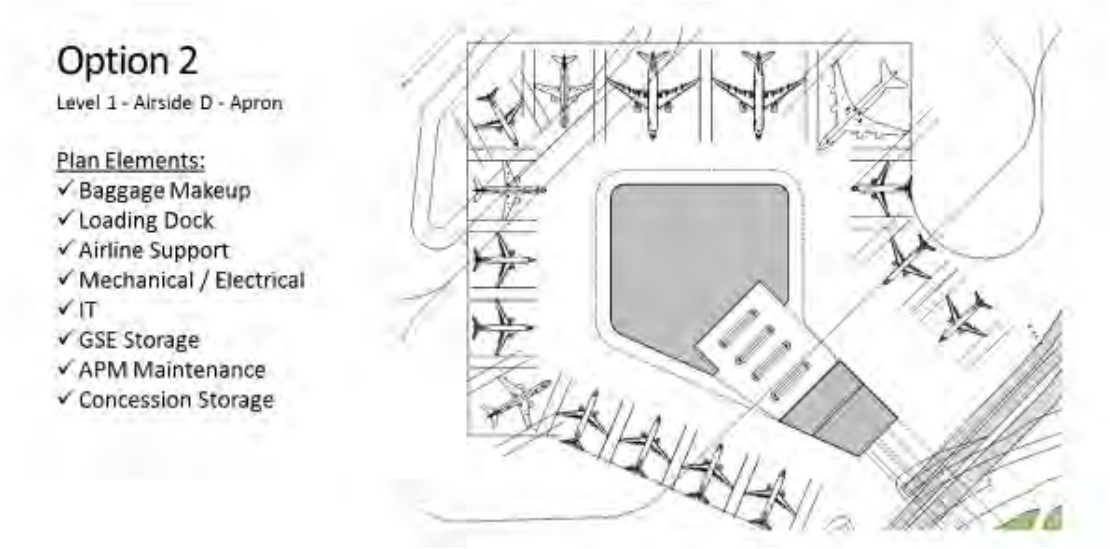
Figure 5.34
Option 2 – Airside D – Sterile Level



The Departure Level (**Figure 5.35**) and Apron Level (**Figure 5.36**) functions the same as Option 1 but with a slightly different shape and additional SF to accommodate the SSCP located above.

Figure 5.35
Option 2 – Airside D – Departure Level

Figure 5.36
Option 2 – Airside D – Apron Level



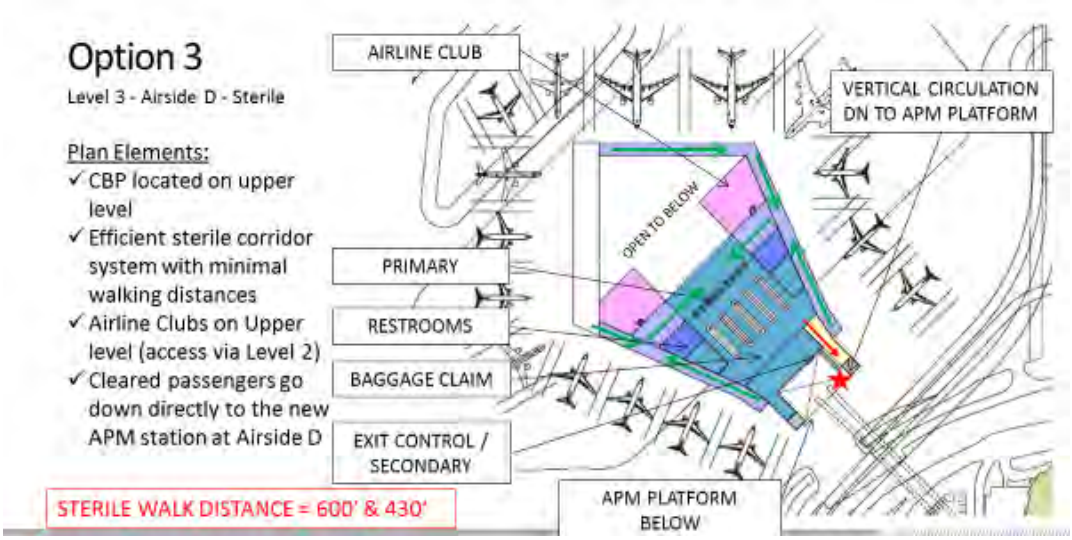
Option 3 - Standalone

Through the development of Options 1 and 2 it became apparent that the only way to maintain all key existing buildings was to eliminate the idea of a consolidated CBP and SSCP. By moving the CBP and SSCP both to Airside D, it allows the Marriott Hotel and both FAA ATCT sites to remain. This also allowed for minimal new development requirements at Airside C which was a very cost effective solution. **Figure 5.37** illustrates the overall concept plan for Option 3.

Figure 5.37
Option 3 – Overall Concept

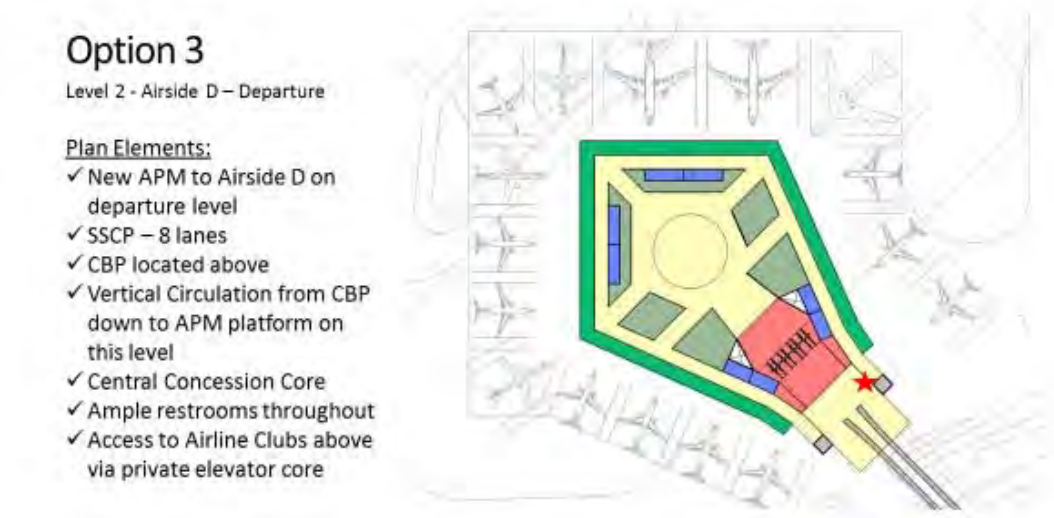
The Sterile Level (**Figure 5.38**) allows for the same flexibility of Options 1 & 2 with a sterile corridor that wraps the building perimeter. The new CBP is located on the same level which minimizes the walking distance from all gates (less than 600' LF). Once cleared from the CBP, recheck is located immediately upon exit and then passengers would go down to the Departure Level APM station to go to the Main Terminal Transfer Level.

Figure 5.38
Option 3 – Airside D – Sterile Level



The Departures Level (**Figure 5.39**) maximizes use of the site with a similar center radial concept as Options 1 & 2. This concept allows for flexibility with minimal walking distances. Upon arrival on the new landside APM from the Main Terminal Transfer Level, the SSCP is located directly upon disembark. The entire perimeter contains holdrooms and all concessions are located in the center core with excellent visibility to all gates.

Figure 5.39
Option 3 – Airside D – Departure Level



The Apron Level (**Figure 5.40**) includes all necessary support required for Airside D. With the CBP located on the upper level, it will require a baggage system that minimizes footprint. A Baggage Tray System (BTS) was utilized to bring the baggage up from baggage makeup directly to the CBP arrivals claim devices utilizing baggage shafts (similar to elevators) as opposed to conventional sloped conveying system.

Figure 5.40
Option 3 – Airside D – Apron/Arrivals Level

The landside (**Figure 5.41**) allows the concept to maintain the Marriott Hotel, as well as the existing and new FAA sites for a reduction in overall cost. New landside arrivals and departures lanes are included for additional curb capacity.

Figure 5.41
Option 3 – Main Terminal – Arrivals Level

Figure 5.42 illustrates the location options for the new Airside D shuttle station. Each location has pros/cons and described below:

Option A –

- Located at previous Airside D guideway but outside the existing building
- Accessed through the new food court – Potential accessibility and circulation flow issues
- In conflict with future FAA ATCT site

Option B-

- Located at previous Airside D guideway location inside the building
- Demolition of the new food court is required which would be large cost impact
- In conflict with future FAA ATCT site

Option C –

- Located west of the existing Hotel Gallery bridge.
- Bypasses FAA future ATCT site allowing for flexibility
- Main access from Hotel Gallery bridge or CBP lobby (depending on option)

Figure 5.42
APM Terminal Station Options

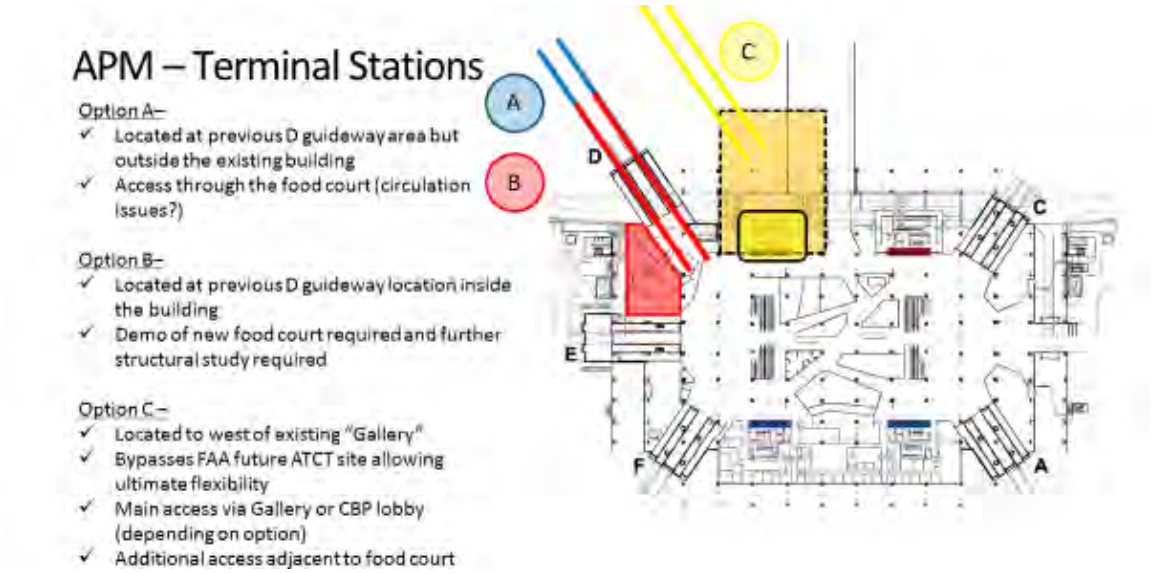
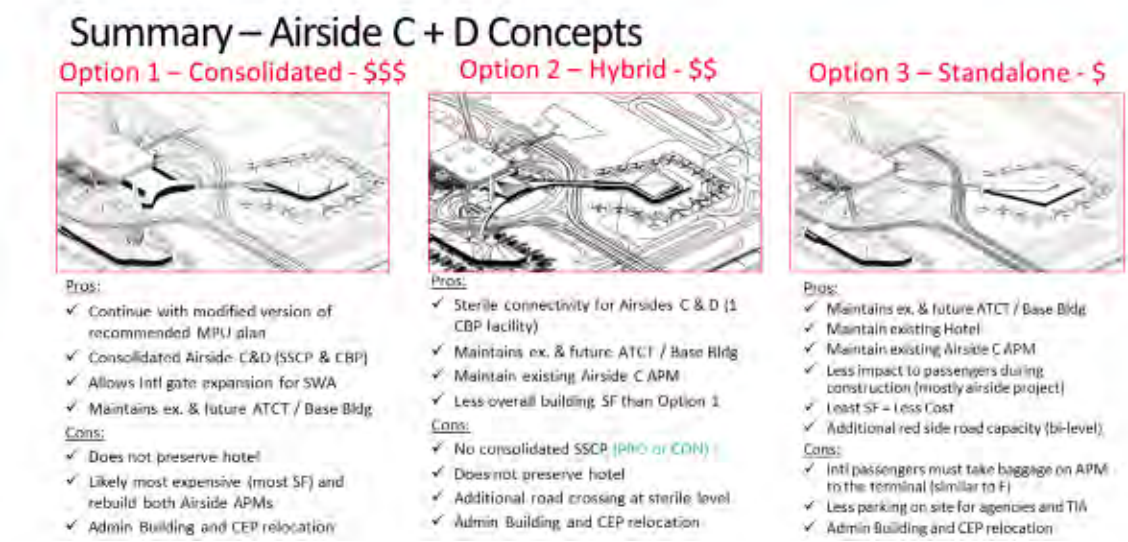


Figure 5.43 summarizes the pros/cons analysis of all three options and Option 3 was the clear favorite for its cost effective layout, maintains the Hotel and both FAA ATCT sites without loss of passenger or airport function.

Figure 5.43
Summary of Options



Option 3 (Standalone) was chosen as the preferred alternative with further refinement ensure the plan did not have any fatal flaws or to find ways to further make the scheme more cost effective.

5.7.1.2 Site Constraints and Connectivity – Preferred Alternative

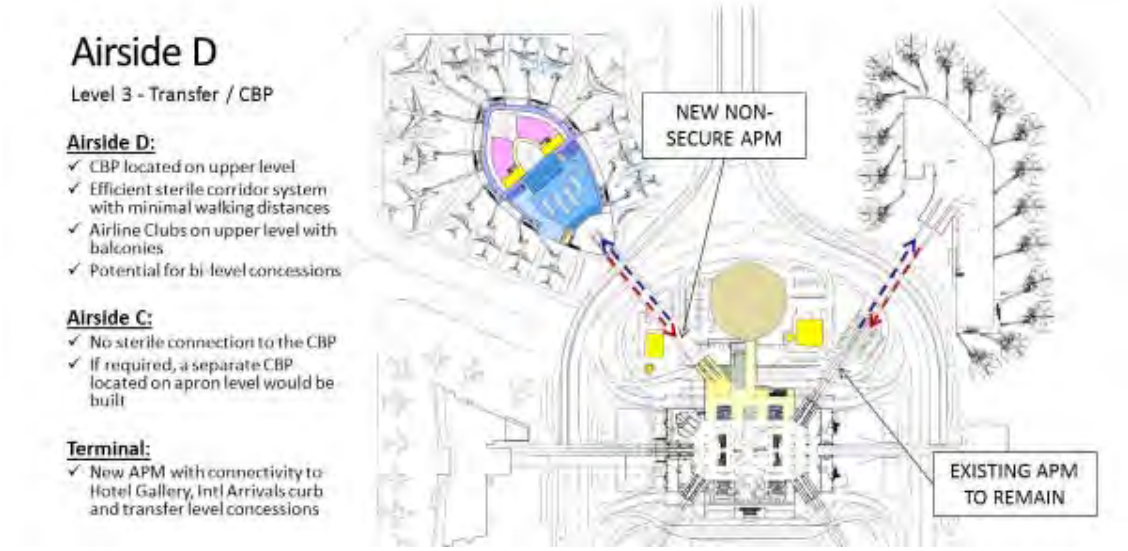
Given the earlier noted constraints and available site area, concept plans were developed and compared against the preferred 2012 Master Plan utilizing pros/cons analysis. The following diagrams summarize the various concepts studied.

Figure 5.44 represents the initial massing for the preferred Option 3 (Standalone Alternative). There are several advantages to this option: it maintains the existing hotel and does not impact the future ATCT site, there is minimal impact to passengers during construction, it requires less square-footage and is therefore less expensive than the other options, and it allows for a curbside expansion that provides additional capacity to the landside. However, this option eliminates the potential for a centralized CBP/SSCP, and requires the relocation of the Central Energy Plant and Administration Building within the Roadway loop.

Figure 5.44
Preferred Alternative (Option C)

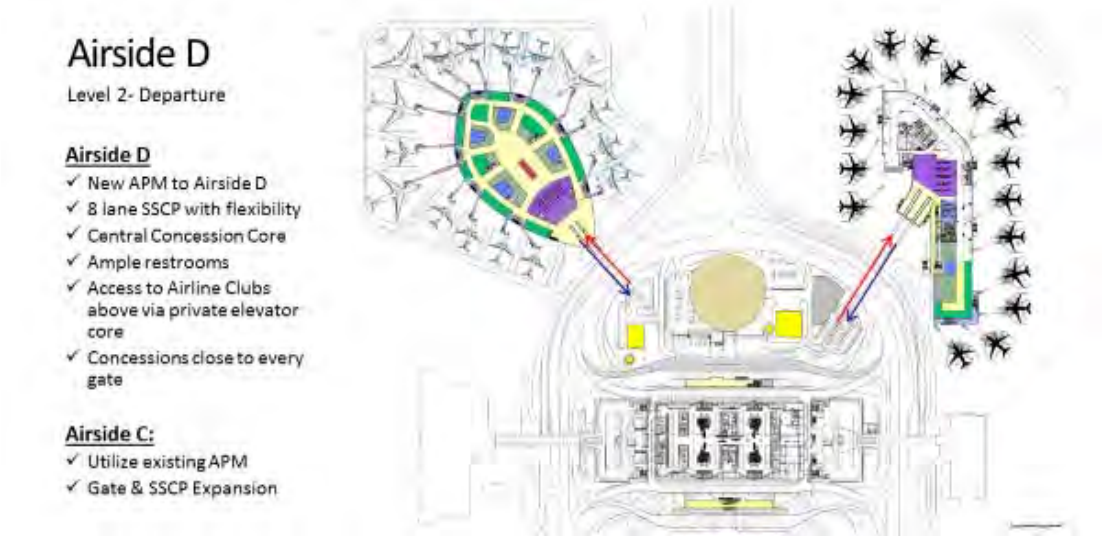
The new non-secure Airside D APM will connect the landside terminal Transfer Level with the Departure Level (Level 2) at Airside D, as shown in **Figure 5.45**. The Sterile Level (Level 3) will consist of the CBP, restrooms and a corridor that connects each gate to CBP on the sterile side with airline clubs and mechanical rooms accessible from the Departure Level on the non-sterile side. Cleared passengers exiting CBP on Level 3 will descend via elevators and escalators to reach the APM platform. This plan maintains the existing Airside C APM that connects to the Landside Transfer Level.

Figure 5.45
Red Side Sterile/Transfer Level Plan



The APM arrives at the airside departure levels, allowing all domestic passengers to move through the terminal without making a vertical transition. The new Airside D will have the space to accommodate 8 new SSCP lanes and will include a central concession core which passengers will navigate through to arrive at their gates. See **Exhibit 5-1 and Figure 5.46** below.

Figure 5.46
Red Side Departure/Ticketing Level Plan



Baggage will be routed to and from Airside D by conveyors that run below the new Airside D APM tracks, as indicated in **Figure 5.47**. The apron level at Airside D will consist of airline operations, outbound and inbound baggage, CBIS, and mechanical spaces.

Figure 5.47
Red Side Apron/Baggage Level Plan

Figure 5.48 indicates the bus route necessary to re-route sterile passengers arriving at Airside C to the Airside D CBP. International arriving planes at Airside C will park at Gate 45 so that passengers can descend to the apron level using an existing ramp system and then load onto a sterile bus. The bus will drive along the red dotted line, arriving at a sterile bus station at the apron level of Airside D. Passengers will use the vertical circulation in the bus station (in purple) to connect directly to CBP on Level 3.

Figure 5.48
CBP Bus Route from Airside C

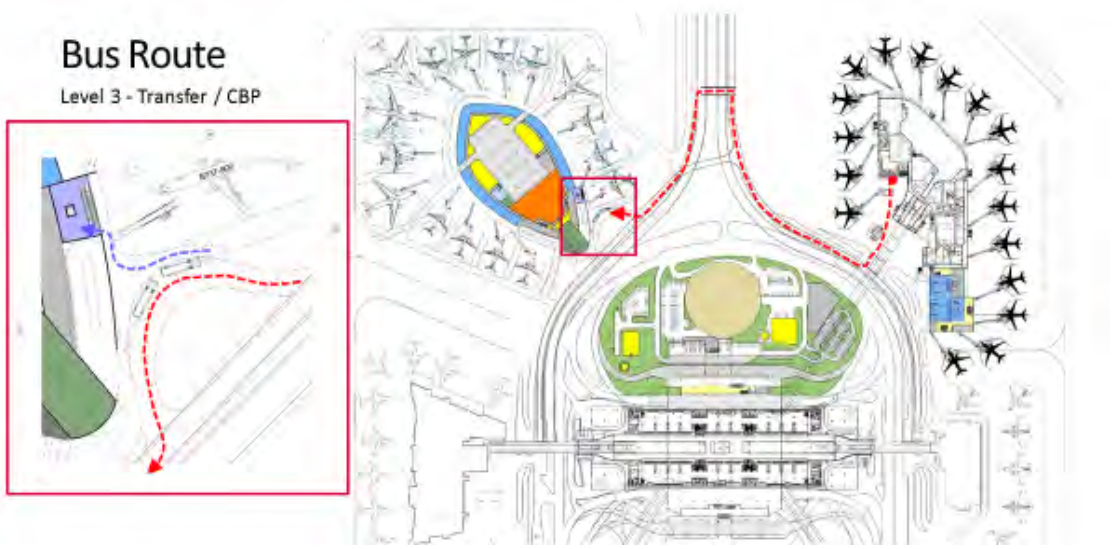


Figure 5.49 illustrates the preferred Transfer Level expansion plan at the Landside Terminal. Site constraints such as the Future ATCT site, Marriott hotel and Phase 2 Red Side roadways were crucial to the development of this level. The placement of the new Airside D APM station avoids the future ATCT site as well as reduces the overall APM length to the new Airside D. The new APM station can expand to accommodate three trains in the future, as indicated by the blue box. This plan maintains the new concession core north of the Airside E APM station and reutilizes the north restroom core. It also preserves the direct connection to the Marriott hotel and offers new opportunities for concessions. It was deemed the best plan for passenger wayfinding to and from the new vertical circulation cores. Departing passengers follow the blue arrows to board the train on the inner platforms and arriving passengers de-board the APM on the outer platforms, indicated by the red arrows. Refer to **Exhibit 5-46** for the preferred layout of this level and see **Section 5.7.2.2** for supportive text.

Figure 5.49
Preferred APM Option

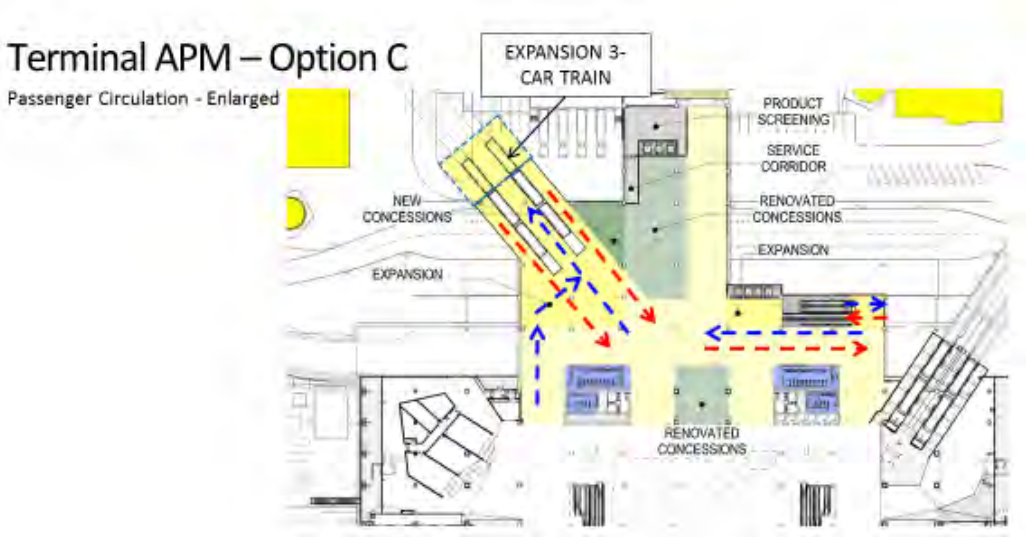


Figure 5.50 demonstrates a solution to the Line of Sight issue at Airside D discovered in earlier workshops. This was resolved by ramping the sterile corridor on Level 3 from the northwest gates up several feet to the new CBP. The ramp allowed the roof height to be much lower in the northwest corner, which helped inform the overall massing. See **Exhibit 5-2** for the final overall massing.

Figure 5.50
Line of Sight Comparison: Level 3 Plan

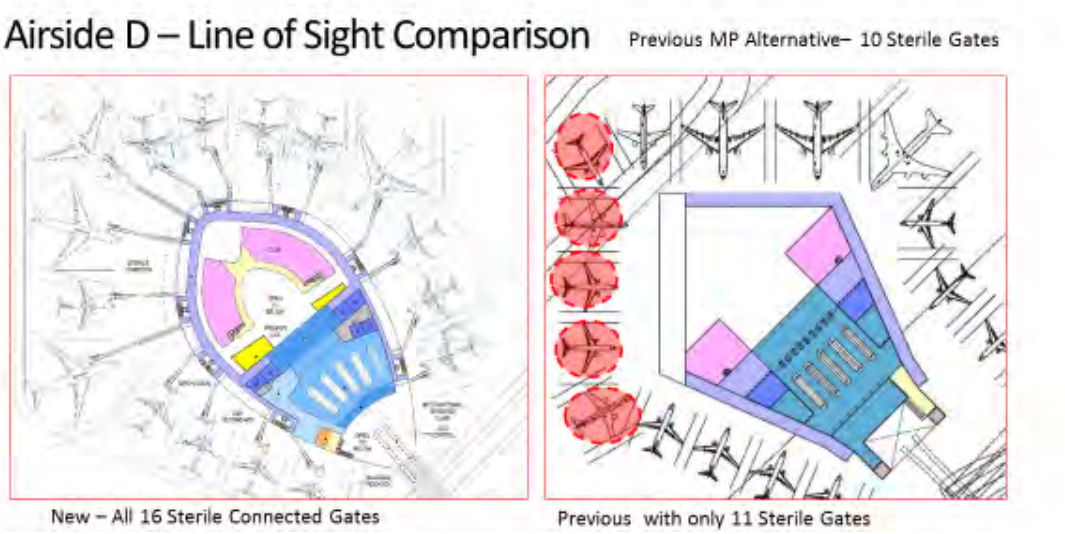


Figure 5.51, 5.52 and Exhibit 5-6 represent the preferred layout for Level 3 at Airside D. The vertical circulation cores are located within the building footprint which eliminates additional exterior walls and provides airside gating flexibility. These cores transport passengers getting off the plane up to the Level 3 sterile corridor which connects to CBP. The CBP queueing is centralized to minimize walking distances from each gate. The queueing area overlooks the central concession core as shown in **Exhibit 5-5.** Restrooms are provided on this level before and after the primary processing. The CBP area can accommodate 5 bag claim devices, but only 4 are necessary for opening day. After collecting their bags, passengers will navigate through exit control and recheck their bags if necessary. If TPA is their final destination, they will board the escalator or elevators with their bags to descend to the Level 2 non-secure train platform. Level 3 will also accommodate the airline clubs, which are accessed via two elevator/stair cores. The clubs overlook the holdrooms and have an expansive view of the airfield. Two mechanical rooms are also located on this level.

Figure 5.51
Sterile Level Plan (Level 3)

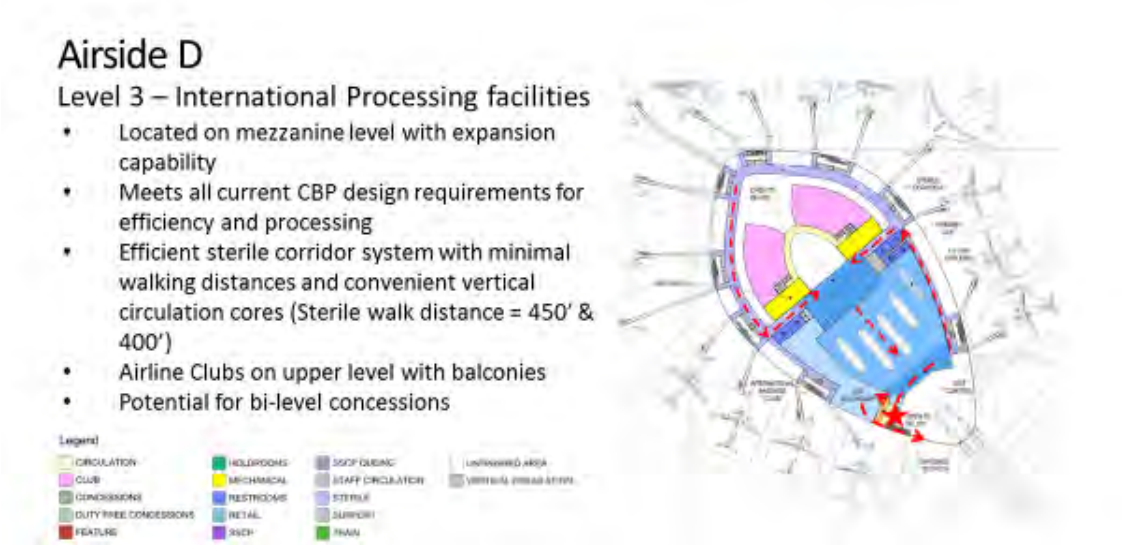


Figure 5.52
Enlarged CBP Plan

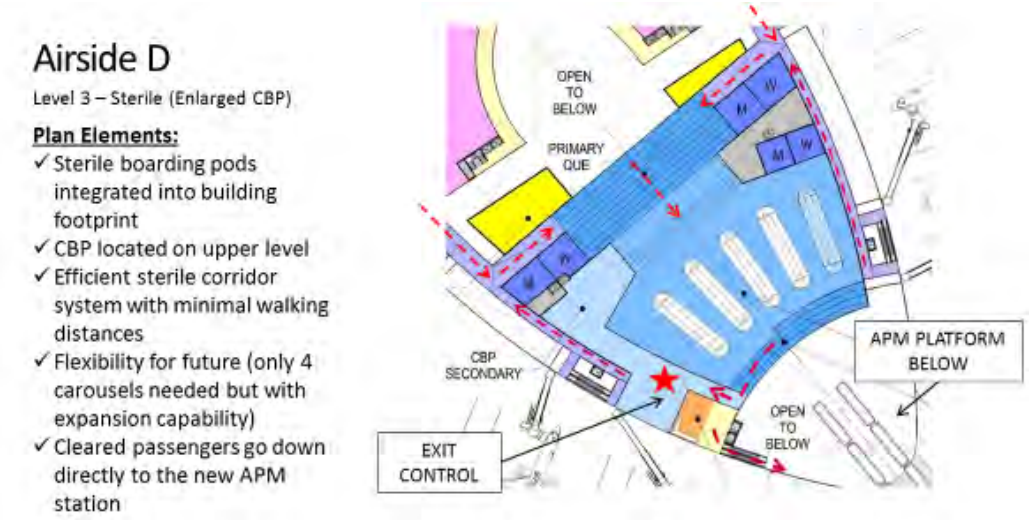
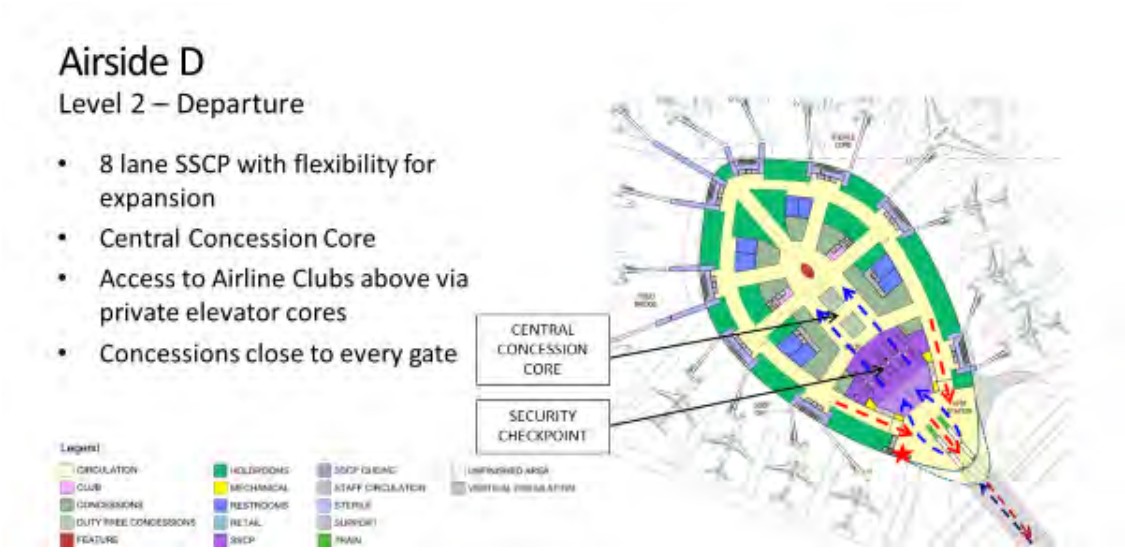


Figure 5.53 and Exhibit 5-7 depict the preferred plan for the Departure Level (Level 2) at Airside D. This new airside is a 16-gate facility and can accommodate (12) ADG III and (4) ADG VI aircraft at once, with a maximum capacity of (7) ADG VI possible when the ADG III aircraft quantity is reduced. The aircraft layout, setback requirements of adjacent taxi-lanes and LOS requirements from the FAA ATCT all contribute to the overall building shape. The plan allows for easy flow and wayfinding for both departing and arriving passengers. After arriving on the APM, travelers will proceed through security, which has immediate capacity for 8 full length automated screening lanes (ASL) which require greater length than typical TSA security screening lanes. The APM station can be expanded to a future three-car station platform, as shown in the expansion area indicated in blue. Post security, passengers have direct access to specialty and commercial retail, duty free concessions and food service venues. The airline clubs are accessible through two private elevator cores in this area. From this central concession core, passengers can easily see and navigate to their gates or relax in the blended concession/holdroom spaces. See **Exhibit 5-3** and **Exhibit 5-4** for illustrations of this passenger experience. The restroom cores were placed between every four gates so that passengers only have a short walk from their respective holdrooms. Arriving domestic passengers exit through the sterile cores and walk around either side of security to reach the APM platform.

Figure 5.53
Departure Level (Level 2)



The public areas on the Departure Level are open, with voluminous heights in critical gathering areas. See **Exhibit 5-9** and **5-10** for Airside D axonometric sections that depict floor to ceiling dimensions and interior spaces by type.

The preferred Apron Level plan is represented by **Figure 5.54 and Exhibit 5-8.** This level provides Airline Operation offices at the exterior wall for easy access to all 16 gate positions. Outbound baggage will arrive at Airside D Central Baggage Inspection Services (CBIS) via conveyor that runs below the APM track from ticketing at the Landside Terminal. Cleared bags will dispense to one of the 5 bag makeup devices to be tugged out to the aircraft. Inbound tugs will circulate to the southeast tip of the terminal to get to the inbound bag drop-off. The bags will travel via the Baggage Tray System's vertical shafts to reach the international bag claim devices on Level 3. Northeast of the inbound bag drop-off, the sterile bus stop and lobby transfer international passengers arriving by bus from other airsides up to Level 3 through a sterile vertical circulation core. Restrooms will be located at this level for passengers arriving by bus. The Airside D loading dock is located on the southwest side of inbound bag drop-off, which has a direct connection to the airside service vehicle road. Exterior mechanical equipment will also reside in this area. Additionally, most of the building's mechanical space is distributed throughout this level to reduce necessary duct work. Concession storage is located on both the east and west sides of this level for quick access to and from the Departure Level.

Figure 5.54
Apron Level (Level 1)

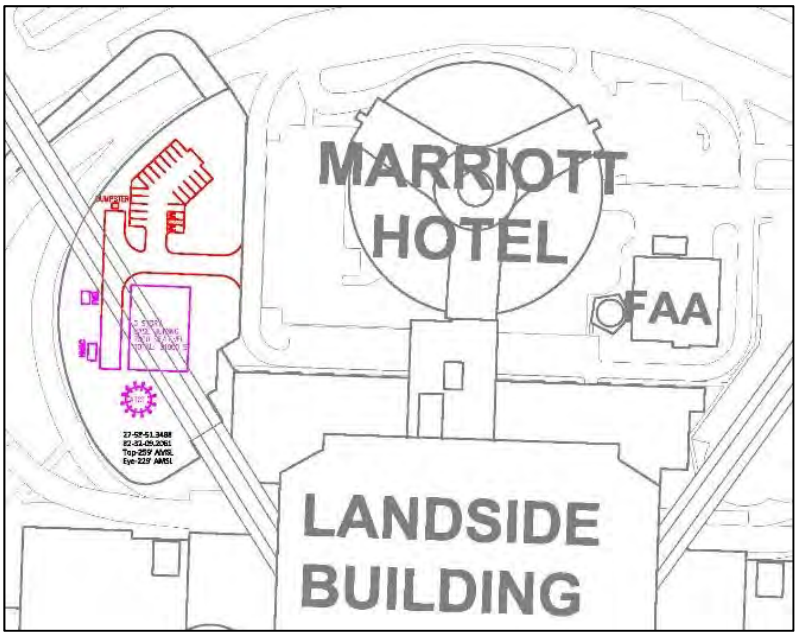
There were several alternates for roof massing considered that addressed the LOS issues from the existing and future ATCT. **Exhibit 5-11** shows the view plane restriction in section indicated by a blue line. All roof options shown in **Exhibits 5-12** through **5-18** stay below the view plane restriction. **Exhibits 5-12** and **5-13** aim to bring daylight into the central concession core. The clerestory in **Exhibit 5-14** creates a daylighted linear path of travel for the departing passenger that guides them from the train station through security and out to the holdrooms. The roof alternative on **Exhibit 5-15** steps down as it moves northwest, following the view plane restriction literally. The massing on **Exhibit 5-16** brings clerestory light into the terminal in response to the plan: the lowest clerestory brings in light to the holdrooms; the next relates to the airline clubs; and the last provides daylight for the central core. The last option on **Exhibit 5-17** is similar to the previous option but its clerestory wraps around the entire roof form, bringing in light from all sides. Ultimately, this option was selected to move forward with for renderings and cost estimates.

The phasing plans for Airside D are shown in **Exhibits 5-18** through **5-20.** As phasing is further developed, one alternative is to build the exterior shell at one time and then only build out the interior as required by demand. Airside D is projected to require 10 gates during Phase 1 and the 6 remaining gates will be added in Phase 2. The north half of the terminal was chosen for initial construction because there are more opportunities to park ADG VI aircraft and that side of the terminal will be more visible to passengers driving through the roadway loop. The first phase of the project, indicated in blue on the exhibits, will include the entire shell of the building and all essential operation spaces. CBP on Level 3 will only need 4 out of the 5 bag claim devices and fewer control booths and Automated Passport Control (APC) kiosks. About half of the sterile corridor will be built out on opening day and the other half can be constructed during Phase 2, when the remaining 6 gates are needed. Half of the restroom cores on the Departure Level and some of the food service and retail spaces can also be deferred to Phase 2. On Level 1, the Airline Operations spaces for the Phase 2 six gates and one or two of the outbound baggage carousels can be installed later. Additionally, CBIS will not need as many screening machines opening day.

5.7.1.3 Future Air Traffic Control Tower and TRACON Facility Location

The future site location of the FAA Air Traffic Control Tower (ATCT) was critical to the overall site planning within the terminal roadway loop. HCAA, in coordination with the FAA, determined that there was one location that was preferred for the future tower that allowed for the best line of sight to the airfield. This location, as shown in **Figure 5.55** and **Exhibit 5-21**, sits on the existing Red Side Parking Garage site and is located immediately west of the existing HCAA Administration Building and existing Airside D guideway. The latitude/longitude coordinates for this secondary ATCT site are: Latitude: 27-58-51.8234, Longitude: 82-32-09.5473. Other elements that are included with the future FAA site include a two-story FAA TRACON and dedicated FAA employee parking. The tower and base building must be located adjacent to each other for interior connection.

Figure 5.55
Future FAA Tower Site Conceptual Planning



Several options were considered to maximize the site and preserve the views along the new arrivals roadway. Both options in **Exhibits 5-22** and **5-23** locate the dumpster and fuel locations to the west of the new TRACON facility. They also provide continuous circulation through their parking lots so that drivers won't come to a dead end. Option 1 is the easiest navigation for cars and trucks on the site, but it moved the FAA's chosen location for the TRACON facility to the west about 20 feet. Option 2 keeps the TRACON facility in place, but navigation for the trucks may be more difficult.

5.7.2 Curbside / Terminal Connection

With the completion of the Transfer level concessions program and the new landside APM connecting the terminal to the CONRAC, the passenger circulation issues from the original 2012 MPU have been completed. The focus of the 2016 Addendum is to improve the congestion on the landside curbs (both red and blue) to gain additional capacity. This will assist with reducing the vehicular congestion on the roadways as well as improved passenger circulation to/from the terminal to curbsides.

The existing curbsides are divided by Red (north) and Blue (south) and each is vertically separated into Arrivals and Departures. Both Red and Blue contain 4 lanes for Arrivals and 4 lanes for Departures that are stacked vertically on each other. With the need for additional lanes, many options were discussed to help gain additional capacity. The following key goals were identified as drivers for the development of the final planning concept:

- Capacity – Maximize capacity for future roadway growth.
- Flexibility – Create a solution that does not physically constrain future Master Plan projects such as the Airside D Shuttle Station/Guideway, future North roadways or APM. The layout should facilitate flexibility to meet the future demands of vehicular ingress and egress with changing technologies in Ground Transportation vs Standard vehicle dropoff/pick-up.
- Safety - The current landside requires significant pedestrian circulation across all 4 lanes of traffic. While circulation is identified by crosswalk, the new concept shall eliminate this from the airport to improve safety. This concept will also help to alleviate congestion on the roadways as traffic will no longer need to stop at the crosswalks.

The following section will focus on the vertical/architectural improvements required to facilitate the new curbsides and roadways described in the roadway section of this document.

5.7.2.1 Blue Curbside

The Blue Curbside is blocked from necessary expansion by the rental car facility south of the roadway loop. As part of the 2012 Master Plan, the new CONRAC was moved to the south site as an effort to allow rental car companies to grow. After the new CONRAC is opened, the current rental car facility can be demolished to make way for the new roadway expansion.

The Blue Curbside Expansion will include a new terminal connection lobby, new passenger pick-up/drop-off curbs and four new lanes on both the bag claim (Level 1) and ticketing (Level 2) levels. The terminal connection lobby is intended to only serve the new outer lanes (see **Figure 5.56**) and will cut off circulation to/from the inner lanes, negating the need for the existing crosswalks on the inner lanes. This will improve pedestrian safety and improve vehicle traffic circulation by eliminating the conflict caused by pedestrians using the roadway crosswalks.

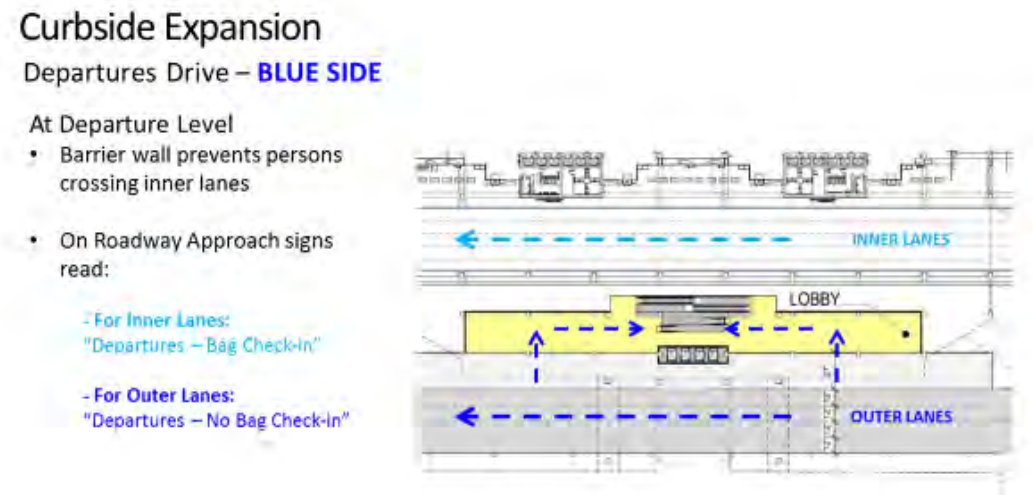
The intended operation of the new outer "departure express curbs" is to have vehicles carrying passengers who have "checked- in" remotely (prior to arriving at the airport) and who have "carry-on" only bags to be dropped off at the outer curb. This is currently 45% of all passengers. These passengers will access vertical circulation directly to the Transfer Level and therefore proceed directly to gates, without passing through the ticketing lobby.

Similarly, upon arrival, passengers with no need to claim checked bags, will be signed on the Transfer Level to the descending vertical circulation to the outside "express" arrival curbs, by-passing the baggage claim facilities.

See **Figure 5.56** for arriving passenger pick-up flows on Level 1 and **Figure 5.57** for departing passenger drop-off flows on Level 2. See **Exhibit 5-24** and **Exhibit 5-25** for preferred plans of the Blue Side Arrivals and Departure Levels.

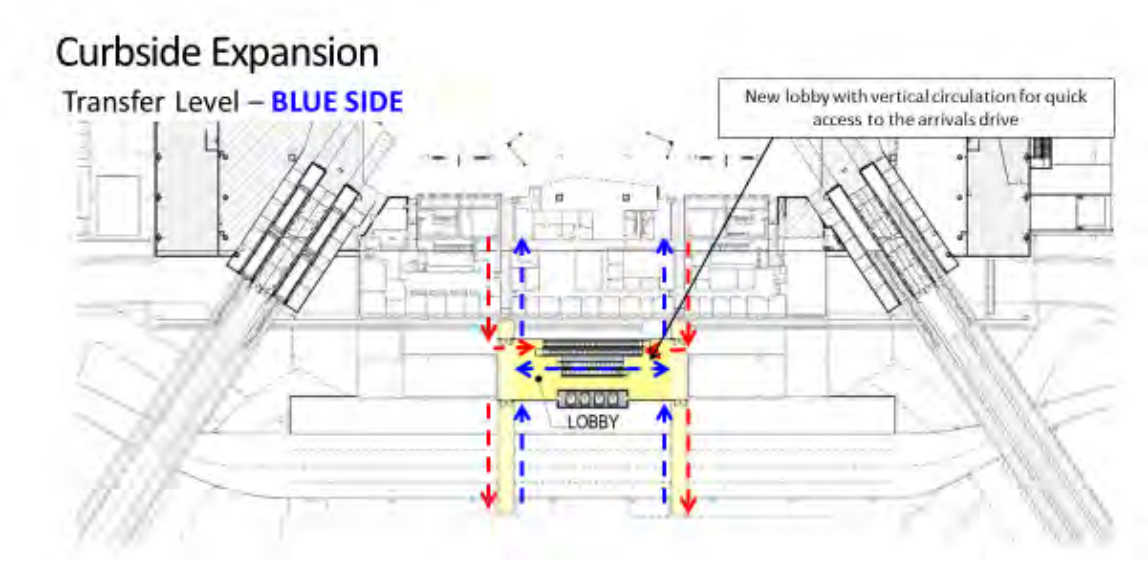
Figure 5.56
Blue Side Arrivals Drive

Figure 5.57
Blue Side Departures Drive



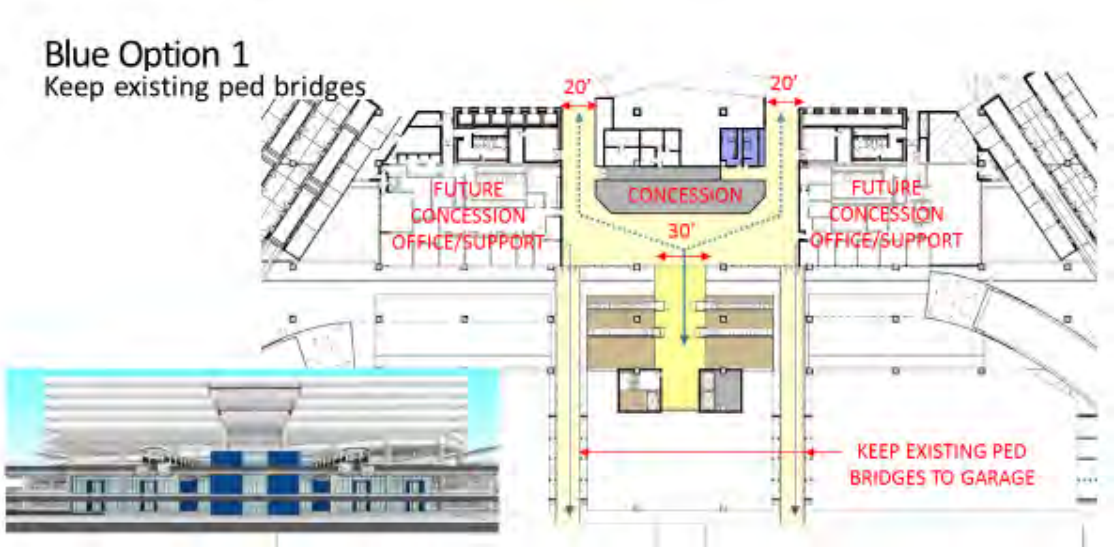
See **Exhibit 5-26** for the current preferred Transfer Level Plan. The new lobby will connect passengers from Level 1 and 2 directly to/from the Transfer Level (Level 3.) Two escalators on the north side of the lobby in **Figure 5.58** will bring passengers down to Level 1 while the two centrally located escalators will bring them up from Level 2. An elevator core will also be centrally located for redundancy and passenger convenience. The path to the south garages will be maintained on this level.

Figure 5.58
Blue Side Transfer Level



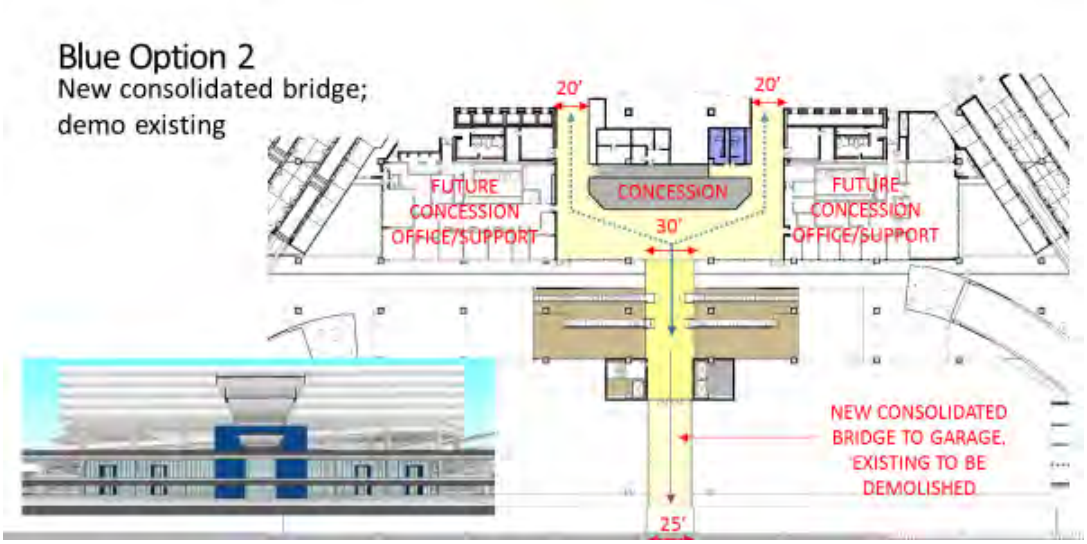
Two options are being considered by HCAA for transfer level circulation in the new lobby. The first option, shown in **Figure 5.59** (for scaled plans see **Exhibits 5-27** through **5-29**), maintains the existing pedestrian bridge connection to the garages. While keeping the bridges may reduce the cost of the new lobby, it creates potentially difficult wayfinding for passengers and produces construction challenges, as the new lobby will need to be built up around them. They also restrict the height of the interior lobby space beneath the bridges as shown in **Exhibits 5-30** and **5-31.**

Figure 5.59
Blue Option 1 Plan



Conversely, Option 2 removes the existing garage links and relocates passenger circulation through a central bridge, as depicted in **Figure 5.60** (for scaled plans see **Exhibits 5-32** through **5-34.**) This is also the access point to and from the new drop-off and pick-up curbs below, which simplifies all passenger circulation. Additionally, the design and construction of this option can be more flexible because the existing garage links will be demolished. Both options provide an opportunity for a new concessionaire and renovated restroom core north of the lobby.

Figure 5.60
Blue Option 2 Plan



Option 2 provides a view to the transfer level from the departure lobby, which is not possible in Option 1 which keeps the existing pedestrian bridges. See Section 1 on **Exhibit 5-35** and the perspective on **Exhibit 5-36** for Option 2 volumes.

Both options are restricted vertically by pedestrian ramps overhead leading to/from the garage atop the main terminal. Clearances below the ramps were considered in the planning of both options.

Exhibits 5-36 and **5-37** illustrate Option 1 of the Blue Side Curb Expansion from the east, from the perspective of a vehicle moving towards the new departure curb. The new expansion will include a canopy covering all lanes of traffic on the departure level and signage like the main terminal's blue side signage for easy wayfinding. Barriers and new landscaping can occupy the space between the roadways, eliminating any pedestrian traffic crossing the inner lanes.

Option 2 is the preferred option for future development by the Design Team as it consolidates the circulation to the Long Term Garage, opens up the volume for the lobby area and eliminates construction issues around the existing pedestrian bridges.

5.7.2.2 Red Curbside

The Red Curbside is physically constrained from growth by the existing HCAA Administration Building, Loading Dock, Red Rental Car Lobby and Garage, Existing Airside D guideway, Central Energy Plant, Marriott Hotel (including the bridge connection on the transfer level) and FAA Air Traffic Control Tower. In order for Redside curbside and roadway expansion, the HCAA Administration building will be relocated to the Gateway Development and then the current building demolished. The existing Central Energy Plant (CEP) and its systems/utilities connections must be relocated to the new Central Energy Plant located east of the Marriott Hotel and west of the Airside C APM guideway. Once these components are demolished, the Vertical Circulation Tower may be constructed. **Exhibits 5-39** through **5-41** show these enabling projects overlaid on the preferred alternative plans.

Located immediately north of the existing Red curbfront lanes (approx. in the location of the existing HCAA Administration Building), is the proposed location for the "Vertical Circulation Lobby Building". This new building will facilitate the pedestrian circulation to/from new curbsides directly to the Terminal Transfer Level above.

Similar to the Blue Curbside Expansion, the Red Side will gain four additional drop-off lanes on the Arrivals Level and four pick-up lanes on the Departure Level. Both levels will have a new curb that serves the outer lanes only, eliminating crosswalks from the inner lanes as shown in **Figures 5.61 and 5.62.**

Exactly as planned for the blue side, the intended operation of the new outer "departure express curbs" is to have vehicles carrying passengers who have "checked- in" remotely (prior to arriving at the airport) and who have "carry-on" only bags to be dropped off at the outer curb. These passengers will access vertical circulation directly to the Transfer Level and therefore proceed directly to gates, without passing through the ticketing lobby.

Similarly, upon arrival, passengers with no need to claim checked bags, will be signed on the Transfer Level to the descending vertical circulation to the outside "express" arrival curbs, by-passing the baggage claim facilities.

See **Exhibit 5-42** through **Exhibit 5-44** for scaled plans of each level.

Figure 5.61
Red Side Arrivals Drive

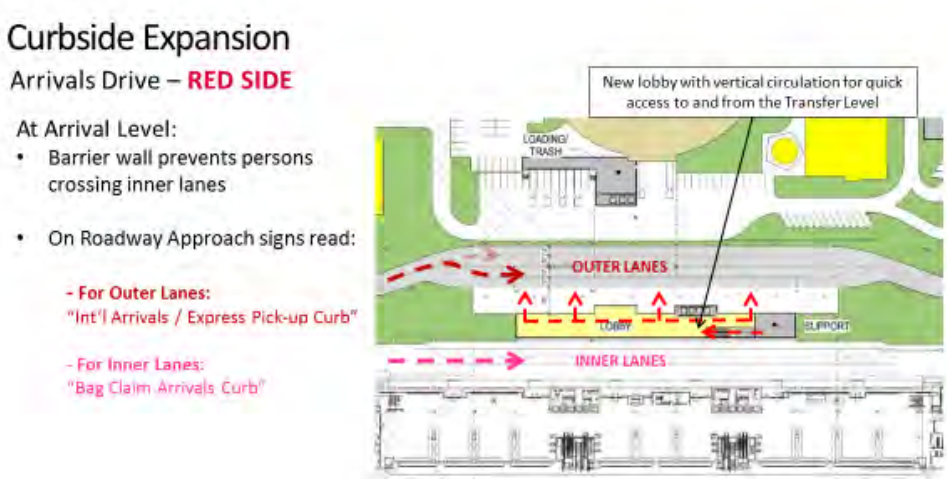


Figure 5.62
Red Side Departures Drive

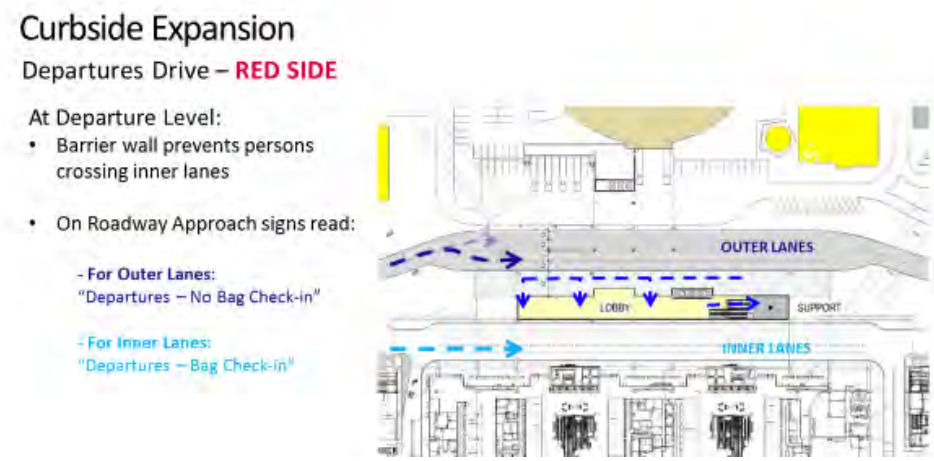


Exhibit 5-42 depicts the Red Side Arrivals Level (Level 1) preferred plan. The new lobby's elevator core and mechanical spaces are located on the east side, with a restroom core on the west side. Additional restrooms were provided on this Level for passengers waiting to be picked up. Farther north, the first level of a mechanical building sits between the arrivals drive and the new loading dock. The shaft space indicated in this building connects to the mechanical room in the new lobby by extending up through the transfer level, across the roof, and back down through a shaft in the lobby's mechanical room. **Exhibit 5-42** represents the preferred loading dock plan, but two options were studied for this area. See Section 5.7.3 for these options.

The Departure Level plan as shown on **Exhibit 5-43** is similar to the Arrivals Level plan, with an elevator core and mechanical room on the east end and restroom core on the west end. It is not anticipated that passengers will linger in this lobby for very long, so only one structural bay of restrooms was included. A small coffee or convenience retail kiosk could be centrally located, indicated in red. Ticketing kiosks will be located against the south glass, but no bag drop location is anticipated at this time. Across the departures drive, the mechanical/support building spans the loading dock service road below. The two elevators servicing the loading dock on either side of the building are connected at this level by an east/west corridor.

Figure 5.50 illustrates the Red Side Transfer Level passenger movement. The preferred plan for Phase 2 can be found on **Exhibit 5-44.** At the beginning of Phase 2, a portion of the existing Marriott "arcade" connection over the new Departures/Arrivals drive will need to be demolished and replaced to remove the columns that would protrude through the center of the new roadways below. The replaced portion will remain concession offices and circulation during Phase 2. North of this portion, the leased TSA office space indicated in purple will need to be reconfigured to allow the service corridor on the west side to pass behind it to connect with the existing corridor to the south. See **Exhibit 5-45** for a detailed layout of this area. Passengers getting dropped off at the new departures curb on Level 2 will use the north two escalators to reach this level, while passengers exiting to the arrivals curb will use the southern escalators to get down. The area indicated in brown surrounding the new escalators is open to below. People also have the option to use the elevator core just east of the escalators.

The current Airside D Guideway doubles as an egress path for the main terminal's new food court north of the Airside E APM Platform. Phase 2 will eliminate most of the Airside D guideway but leave a section that will become a bridge for people to cross the existing departure roadway to egress out of the building and construct a new exterior egress stair from Transfer Level to the Arrivals Level, as shown on **Exhibit 5-44.**

Exhibit 5-45 displays the preferred TSA office renovation plan. The offices were shifted east to extend the service corridor north, along the western exterior wall. The existing office plan utilizes 2,475 SF of space, but has an inefficient layout; some of the offices are larger than necessary or aren't shaped appropriately. The new plan is only 2,168 SF but reconfigures the main space so that all the workstations can be in one open area and the three offices are appropriately sized and aligned with each other. The adjacent storage room will lose around 150 SF for the new renovation.

The Phase 3 Transfer Level preferred plan is depicted in **Exhibit 5-46.** The concession storage space from Phase 2 and existing office space behind the Yeager elevator core will be renovated to become circulation for easy passenger flow to the new Airside D APM station expansion. The Egress stair can be relocated to within the new building footprint across from the Phase 2 escalators. The new plan retains the connection to the Marriott as well as the TSA office suite but provides a new opportunity for a concessionaire north of the APM station. The station is sized for 2 APM cars but will expand northwest if a third car is ever needed.

An exterior perspective of vehicles approaching the new departures curb is illustrated in **Exhibits 5-47** and **5-48.** During Phase 2, all drivers approaching the red side curbs will have a pleasant view of the new Vertical Circulation Lobby Building. The canopy on the west side of the Marriott will be installed during Phase 3 for ease of construction. The new Airside D APM Station will cross the new departures drive and will provide most of the canopy required.

Exhibit 5-49 represents the view of the new lobby from the northeast as drivers exit the departures drive. The canopy will extend the full length of the curb on the east side of the Marriott Bridge and will cover all four lanes of traffic. The bright red signs will administer easy way-finding for passengers and will relate to the Red Side signage throughout the building. Four new lanes at both the departures and arrivals curb will significantly alleviate traffic from the existing curbs.

5.7.3 Loading Dock

Exhibit 5-50 displays the necessary enabling projects before the new loading dock can be constructed. As mentioned in previous sections, the existing elevator shaft in the CEP building will be maintained and transformed into a mechanical/utility shaft. The large shaft shown south of the elevator shaft can be removed after all utilities are re-routed. Re-using this shaft will eliminate the need to punch more openings through the floor plates above. As depicted in the graphic, the CEP's existing transformers and switchgear will remain in place until new ones are installed west of the new CEP building site. Once the CEP building, transformers and switchgear are removed and relocated, construction can begin on the new loading dock.

Two options were conceived for the new loading dock. The Loading Dock requirements include (7) truck slips and (2) trash/recycling containers for Airport use only. The Marriott will maintain their existing quantity of truck and trash/recycling locations. Option 1, as shown on **Exhibit 5-51**, moves the hotel trash dock to be in line with the terminal trash and recycling docks. Both elevators that serve the loading dock can be ganged together on the east side of the terminal and will both extend to the Transfer Level for redundancy. The negative to this option is that it would require a re-negotiation of the Marriott lease. This option includes a canopy over the loading dock that extends past the building footprint above (indicated by a dashed line on the plan.)

Figure 5.63
Loading Dock Existing

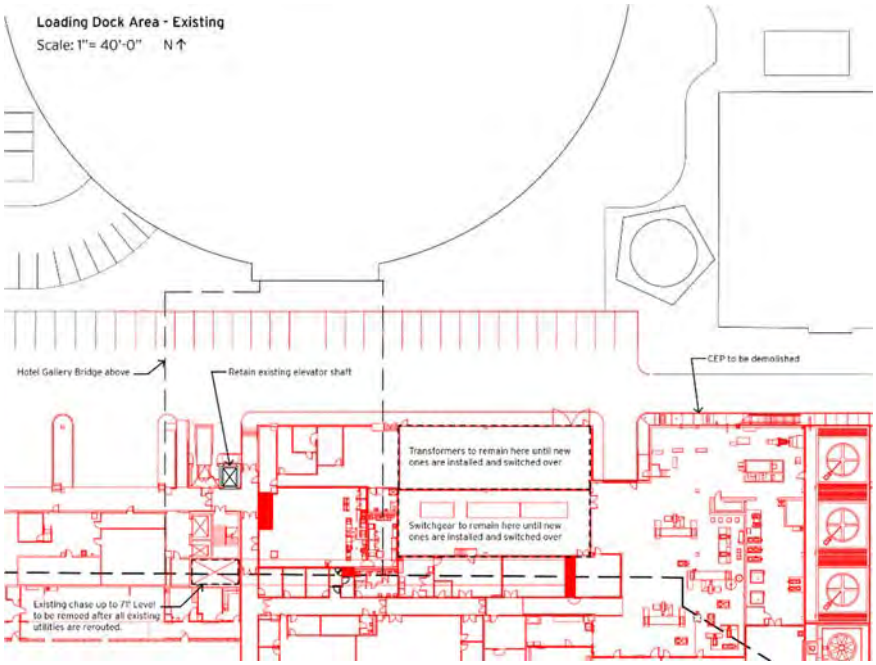
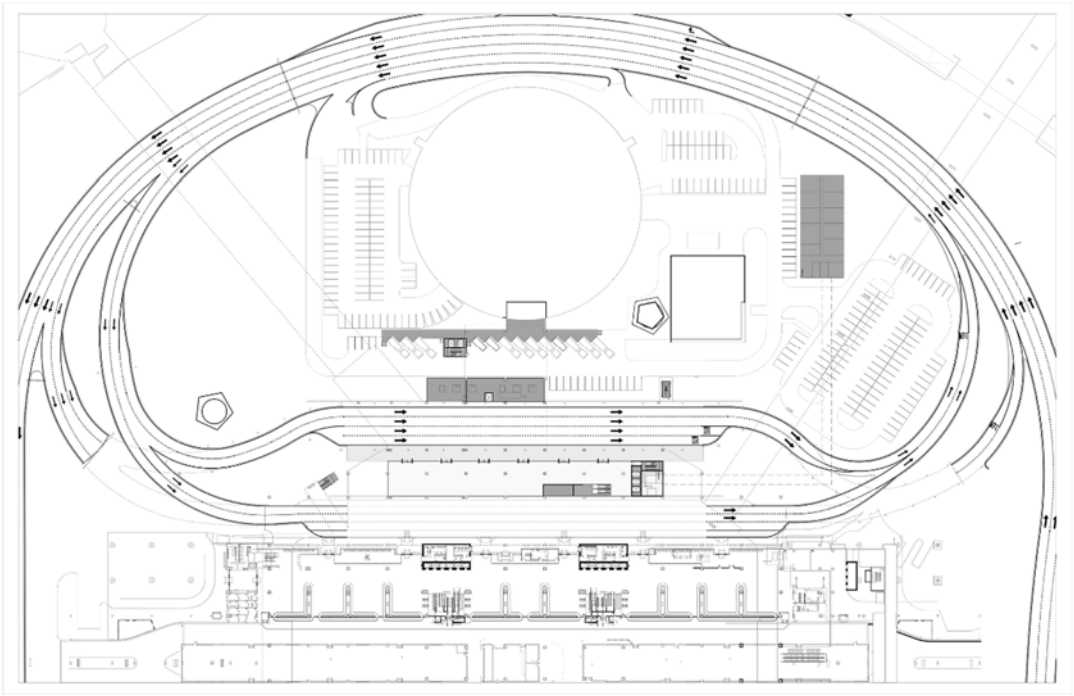
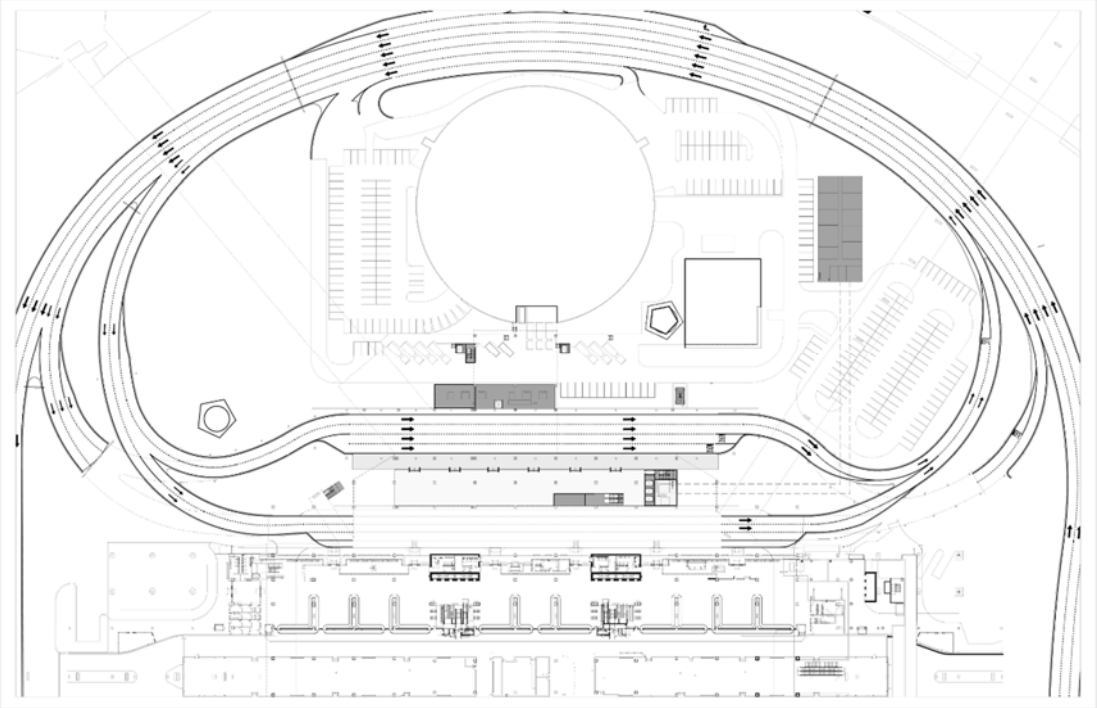


Figure 5.64
Option 1 – All New Dock



Option 2, referenced on **Exhibit 5-52,** keeps the hotel operations in place, but splits the terminal operations in two at this level. Separate loading docks are required on either side of the hotel's leased loading dock area to reach the number of positions needed. A single elevator at the east dock connects to Level 2, while the single elevator on the west side reaches Level 3. A corridor on Level 2 provides a connection between the loading dock elevators. A canopy is also included to cover the docks as part of this option. Option 2 was the preferred alternative to move forward with. A new concessions commissary is located on the Ticketing level directly above the loading dock. It includes the dry and cold storage that is lost in the demolition of the existing dock area. Additional concession storage is also located on this level with a dedicated trash room with trash chute directly down to the dumpsters below.

Figure 5.65
Option 2 – Reuse Existing Dock



5.7.4 FAA Parking Lot

Figure 5.55 shows the proposed FAA facility and roadways utilized by the Master Plan Team in developing their terminal area concepts. In this plan, there is a conflict between the secure roadway system and TRACON facility and its parking once the new roads to the north are added.

The proposed base building will be in the range of 21,000 to 26,850 sf, depending on whether District offices are accommodated on site (larger footprint) or remotely (smaller footprint). The tower location is consistently shown in the same location in all concept alternatives, but the base building/TRACON is seen as flexible and may be arranged on two or more levels and located on any side of the tower.

When the red side garage is demolished and the Phase 2 Red Side departures and arrivals drive are constructed, the east surface parking lot will need to be reconfigured to accommodate a minimum of 90 parking spaces. The original concept for the area is represented in **Exhibit 5-53.** The development of the surface lot is shown in **Figures 5.66** through **5.68** below. Alternate 1 (Figure 5.72) significantly changes the vehicular flow by widening drive aisles for two-way circulation and by utilizing perpendicular parking. This scheme provides a location for a gate arm, which would be needed to secure the lot from the service road. This alternate also moves the parking for the new CEP to the west side of the structure to eliminate unnecessary pavement and pull the transformer yard away from the main loop road. Alternate 2 (Figure 5.73) was developed after significant changes to the arrivals drive exit were made. The preferred arrivals drive roadway is a broader curve and is located farther to the east, which allows enough room on the parking site for another drive aisle. Alternate 2 layout is simpler than the previous schemes and is the only concept that can reach the required amount of parking spaces. The preferred alternate is very similar to Alternate 2 and can be found in **Exhibit 5-52.**

Figure 5.66
Original FAA Parking Lot

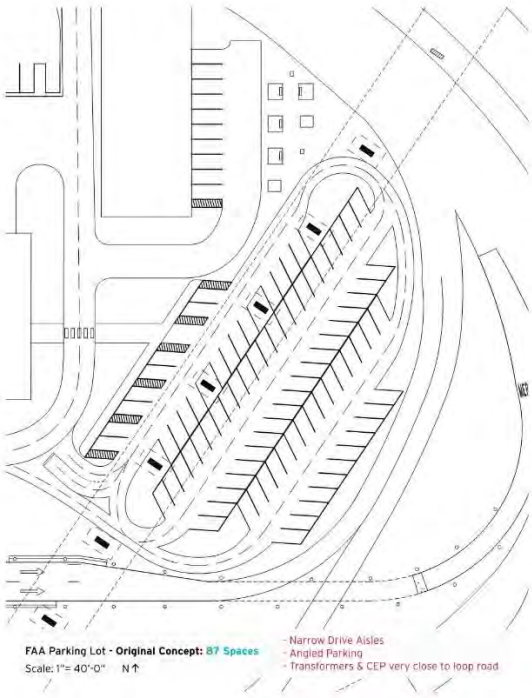
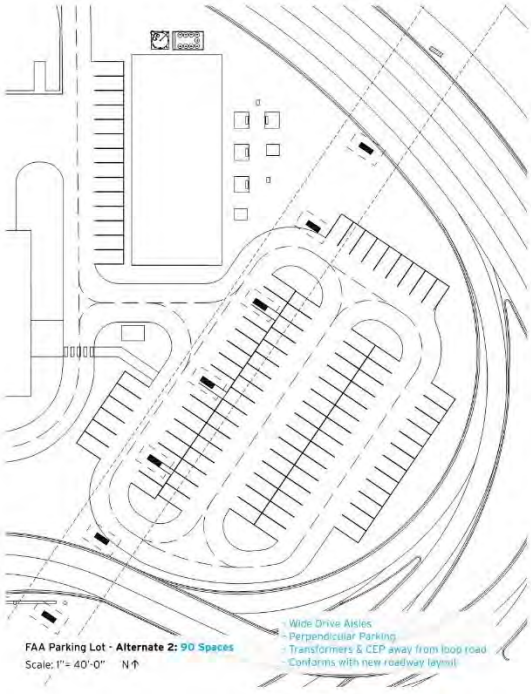


Figure 5.67
FAA Parking Lot Alternate 1

Figure 5.68
FAA Parking Lot Alternate 2

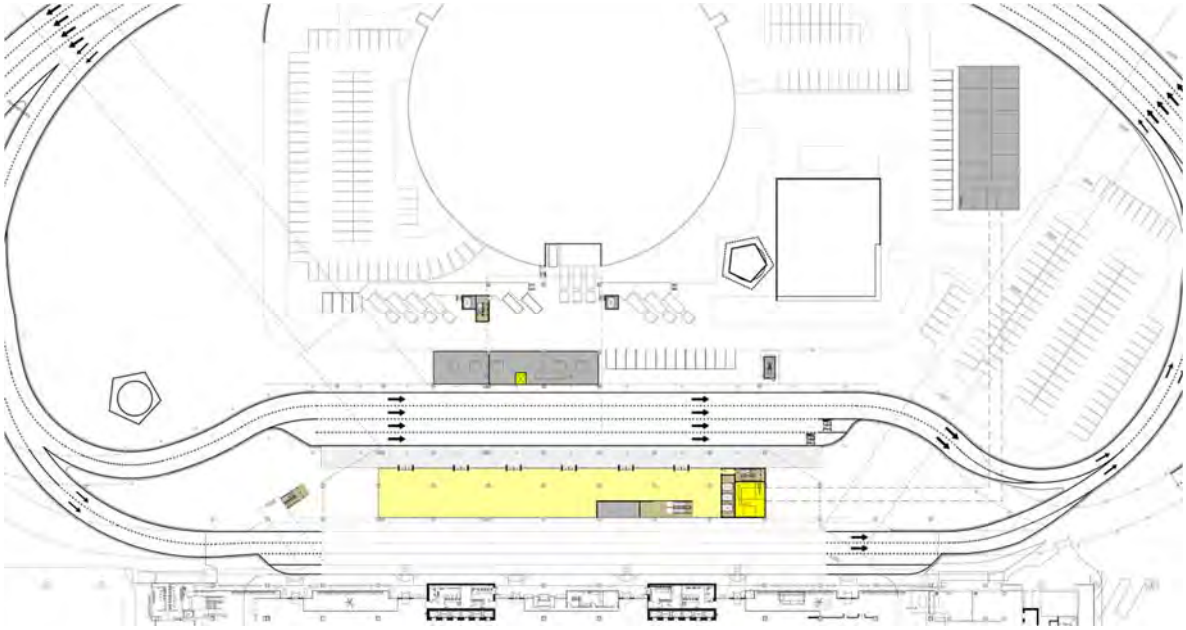


Refer to **Exhibits 5-54** through **5-56** for all Phase 2 improvements at the Landside Terminal by level: Baggage Level (**Exhibit 5-54**), Ticketing Level (**Exhibit 5-55**) and Transfer Level (**Exhibit 5-56**.

5.7.5 New Central Energy Plant and Utility Tunnel

The existing Central Energy Plant (CEP) and its systems/utilities connections currently located within the HCAA Administration Building must be relocated to a new Central Energy Plant (CEP) to be located east of the Marriott Hotel and west of the Airside C APM guideway. The CEP serves the existing central terminal building with chilled, hot water and emergency power and will feed the same requirements for the new vertical circulation buildings constructed for the new curbsides. The new building will be a three-level facility with offices and storage on the first level, chillers, boilers and pumps on the 2nd level, and cooling towers on the 3rd roof level. The chilled and hot water lines and electrical and communication lines will be connected via an underground utility tunnel and through a vertical shaft to a connection point within the existing main terminal building. Refer to **Appendix O – Utilities and CEP** for the energy plant study.

Figure 5.69
New CEP and Utility Tunnel



5.7.6 Airside Improvements

Airside D is the recommended path for achieving additional gating capacity required during the planning horizon. This plan provides the flexibility of 16 domestic/international swing gates that will not be possible on other airsides. The ability to build a new CBP facility on this site will be more functional and cost effective than continued expansion to the existing Airside F CBP facility.

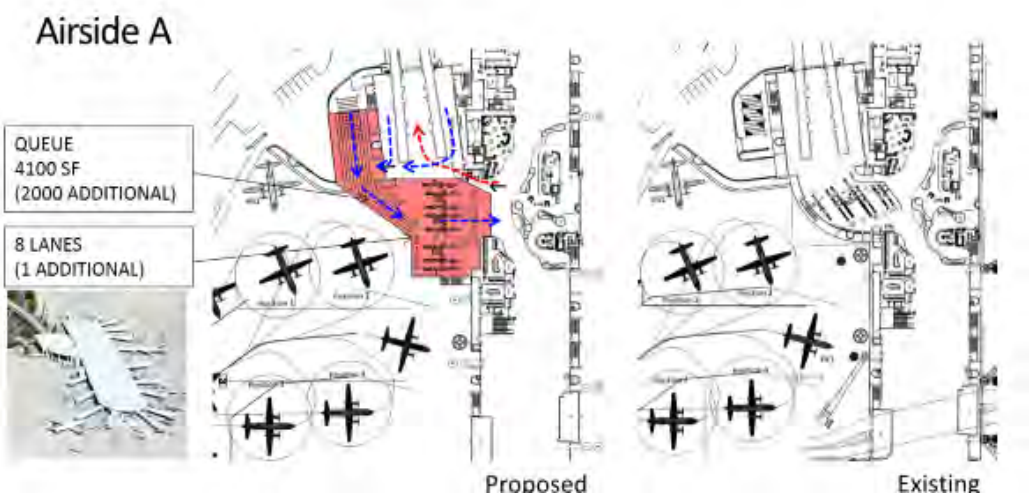
If Airside D is not constructed, improvements will be required at the existing Airsides A, C, E & F to maintain level of service and capacity required. The following sections describe the potential improvements required only if Airside D is not constructed.

5.7.6.1 Airside A

By 2023, the Level of Service (LOS) at the Security Screening Checkpoint for Airside A will reach LOS F. To remedy this, the terminal will require an additional 2,000 SF of queueing and additional space to eliminate the difficult wayfinding to access the checkpoint immediately off the APM. The existing building footprint does not have the capacity for these requirements and must be expanded. Two alternates were proposed, as shown in **Figures 5.70** and **5.71.** Both schemes meet the new SSCP requirements for 2025.

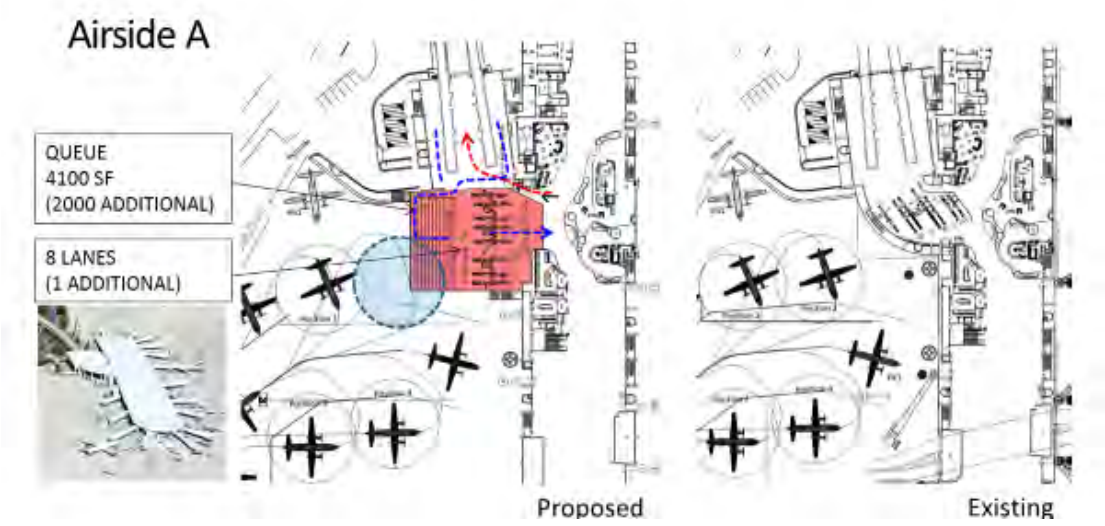
Alternate 1, as shown in **Figure 5.70**, is the better option to reach the SSCP requirements without impacting the Airside A hardstands. However, wayfinding could be difficult for passengers de-boarding the east train, and the cross traffic of arriving passengers indicated by the red arrow could cause congestion in front of the SSCP queueing. This option maintains all hardstand gates.

Figure 5.70
Airside A SSCP Alternate 1



Alternate 2, illustrated in **Figure 5.71**, provides a simpler approach to the expansion and interior layout at the Security Checkpoint. Passengers arriving at Airside A will continue south after getting off the train, with the entrance to the SSCP queue within their line of sight. This should cause less congestion at the APM platform area because of easier wayfinding. The con to this option is that this expansion will eliminate one of the RON hardstand positions. Despite that, this alternative was selected as the preferred plan to move forward with. Refer to **Exhibit 5-57** for an enlarged preferred plan.

Figure 5.71
Airside A SSCP Alternate 2



The restrooms at Airside A will reach a LOS C by 2022 and LOS F by 2033 with no alterations. They will need to expand adding more capacity as passenger loads rise.

The airlines utilizing Airside A, including Spirit and JetBlue, are among the fastest growing carriers at TPA, and therefore have an increasing demand for additional gates and holdroom spaces. With no change to the airlines utilizing Airside A, the number of gates and holdrooms will reach LOS C by 2026 and LOS F by 2033.

5.7.6.2 Airside C

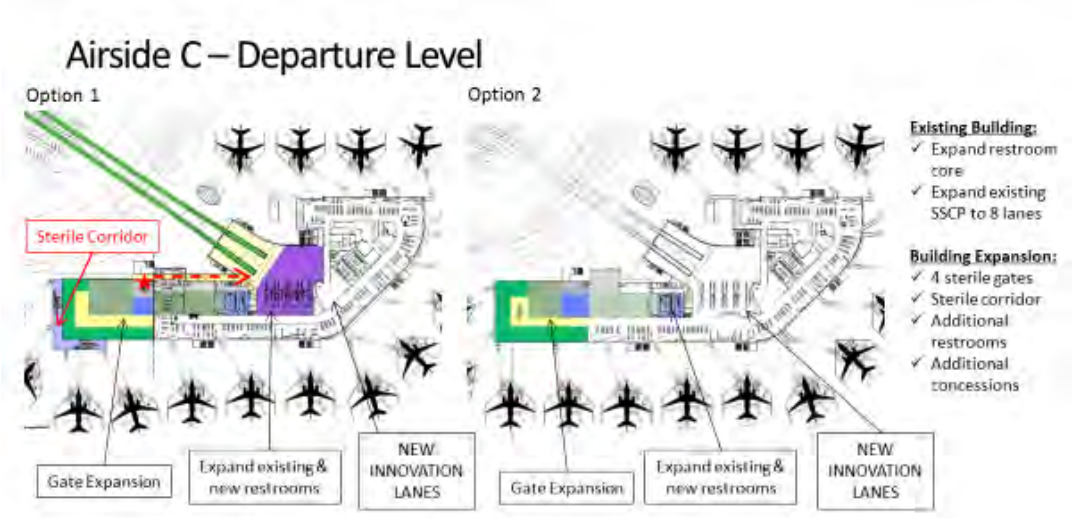
The Airside C restrooms are currently shown as a LOS C in **Section 4** and are projected to reach a LOS D by 2026. However, the stoplight chart in **Figure 4.7** represents the combined restroom LOS and does not evaluate the restroom cores separately. HCAA staff have witnessed an imbalance of usage, where the northern restrooms utilized by the northern gates have sufficient capacity and remain cleaner longer, but the southern restrooms have consistently long lines during peak departing times. **Exhibit 5-58** shows the recommended expansion areas for the south restroom core.

Exhibit 5-58 displays a renovation to the area that creates enough room for 9 Automated Screening Lanes (ASL). The existing Southwest Customer Service south of the screening area will be demolished to make way for the additional lanes and restroom expansion. The exit vestibule will be relocated south of the ninth lane, just north of a freight elevator to remain. The new configuration also provides enough queueing space to meet the demand.

The Baggage Makeup (Outbound) area at Airside C is already at capacity, operating currently at a LOS D and will reach LOS F by 2026. Currently, Southwest utilizes all three bag makeup devices but has indicated that they could give up one of the smaller units. However, there is still a potential shortfall in this space with ongoing growth by the Airside C airlines. The apron level, shown in **Exhibit 5-59**, does not have room to expand the baggage makeup area.

As part of the Airside C planning study, TPA considered an expansion off the south end of the terminal that would expand the restrooms and concession space and add an additional gate, along with necessary MEP upgrades in the modified areas of the existing terminal spaces. This expansion would also allow for the potential of a new CBP on the apron level to accommodate Southwest Airlines international arrivals without bussing to other facilities. The roof height of the expansion would be at or lower than the existing roof elevation to maintain the line of sight to the parked aircraft. Two options were considered for this study, illustrated in **Figure 5.72.**

Figure 5.72
Airside C Expansion Options – Departure Level



For Option 1, the four gates at the end of the addition would be connected to a sterile vertical circulation corridor. International passengers arriving at Airside C would use one of these four swing gates to descend to the apron level to go to a potential new CBP, but domestic passengers would continue straight out of the sterile corridor and proceed to the main exit. The sterile corridor is indicated in purple in **Figure 5.73.** Option 2 keeps the same building expansion and aircraft layout, but eliminates the four swing gates (they are domestic only). International passengers would arrive at Gate 45 and be transferred to Airside D via bus.

Figure 5.73
Airside C Expansion Options – South Gates at Departure Level

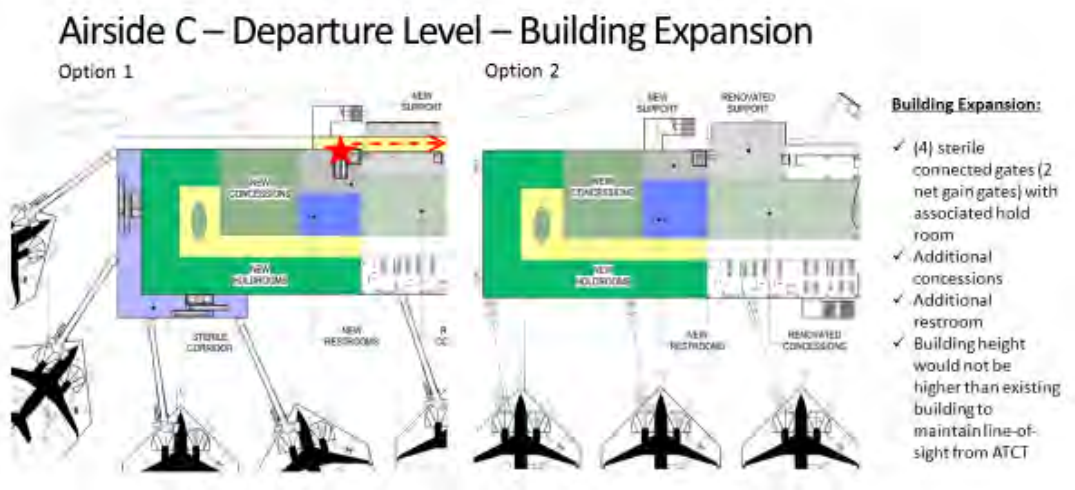
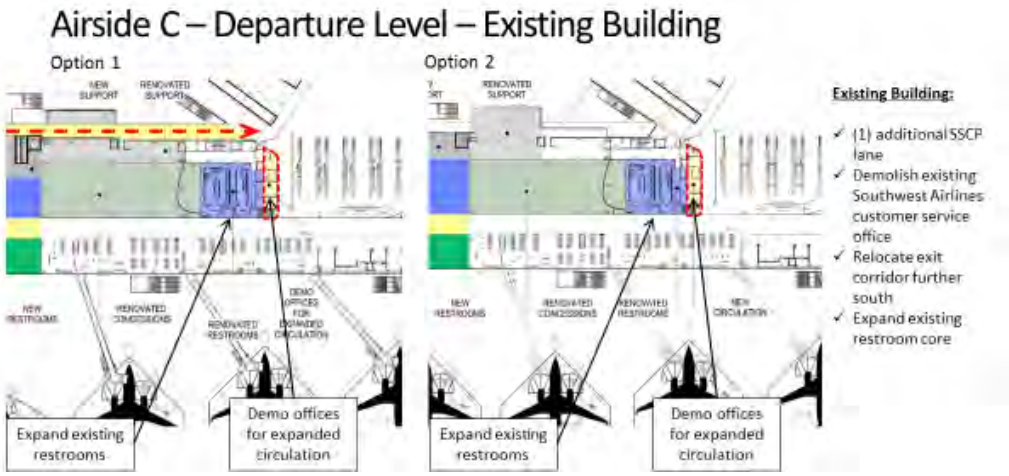


Figure 5.74 shows the apron level for both options. In the Option 1 scenario, international passengers will enter primary processing through the (plan) south queueing, collect their bags and exit up the escalators/elevator core indicated by the red star. Secondary processing is indicated in gray (plan) east of primary processing. Option 2 indicates an expansion of airline operation offices with extra support space located (plan) north. This area could be used for an expansion to outbound bag makeup to relieve the pressure on existing operations.

Figure 5.74
Airside C Expansion Options – Apron Level

Both options include the expansion and renovation of the SSCP area to get the required lanes. To do this, the offices next to the restroom core would be demolished to make way for a new exit corridor, as shown in **Figure 5.75.** For Option 1, international passengers who have been cleared from CBP will need an exit path to return to the APM platform that bi-passes the secure holdrooms. The cleared passengers are considered “non-secure” and will need to pass through the security checkpoint if they have a connecting flight. This exit corridor will be an expansion on the (plan) north side of the structure, behind the concessions back of house corridor and will connect directly to the APM platform. See **Exhibit 5-60** for a larger scale plan of Option 1. If the Option 2 expansion occurs, no modification beyond the concession BOH corridor will be necessary.

Figure 5.75
Airside C Expansion Options – Connection to Existing Terminal



The expansion of Airside C was ultimately not recommended if Airside D is constructed as the CBP is unlikely to allow two FIS facilities at TPA and the demand was not significant enough to warrant the additional cost. The only improvements recommended include additional baggage makeup, expanded restroom facilities and future provisions for additional SSCP lanes as demand requires.

5.7.6.3 Future Airside D

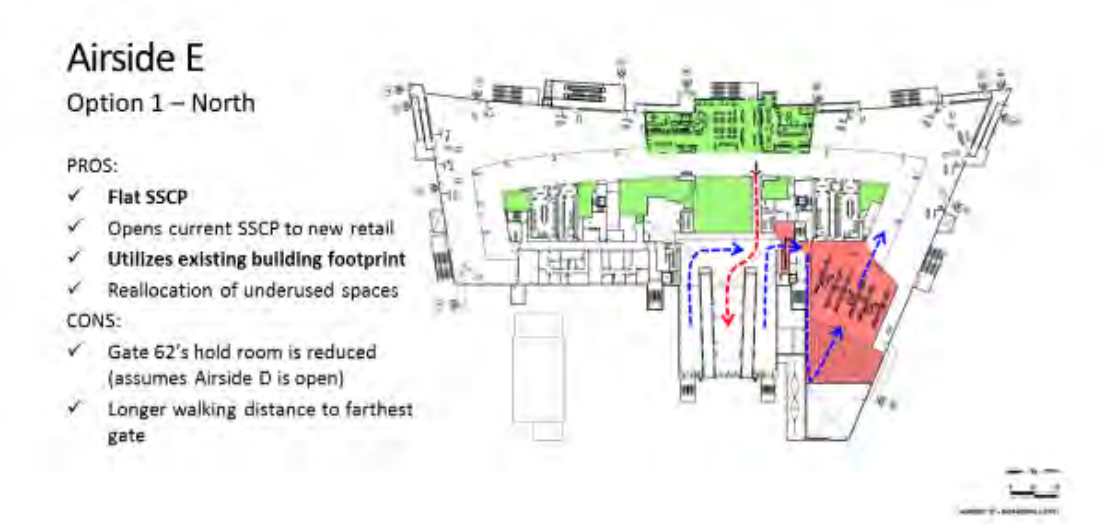
Refer to Section 5.7.1.2 for future Airside D alternatives.

5.7.6.4 Airside E

Airside E requires improvements to the security screening checkpoint. Screening is currently at a LOS C and is quickly degrading to LOS D. By 2021, it will reach LOS F. The current screening area has enough lanes to operate but the lanes are on a sloped floor, which impedes operations. In addition, there is very little room for SSCP queueing, and overflow queue blocks the flow of passengers getting on and off the train. Several options, in figures below, were studied to flatten the SSCP area, add more queue space, retain 6 SSCP lanes and eliminate conflict with access to/from the APM platform.

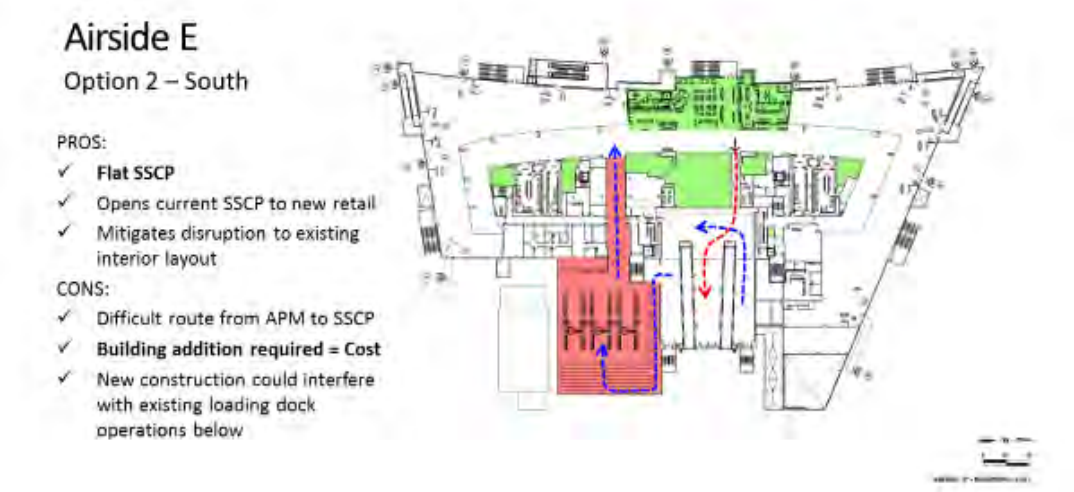
Option 1, as shown by **Figure 5.76**, reallocates underutilized back of house spaces near Gate 62 for the new screening checkpoint space. This puts the checkpoint lanes on a flat level and creates an opportunity for a new concessionaire where the existing lanes are today. This option also utilizes existing space in the terminal and does not require an expansion, like some of the other options. However, this alternate reduces the gate 62 holdroom size and creates longer walking distances for passengers trying to reach gates on the south side of the terminal. Additionally, the wayfinding may be less intuitive for passengers trying to get to security.

Figure 5.76
Airside E SSCP Option 1 (North)



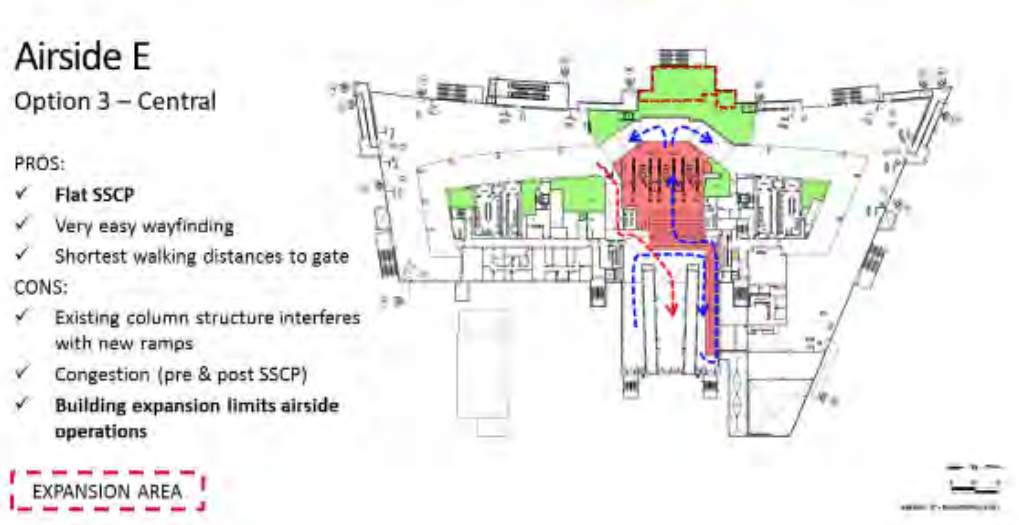
Option 2 proposes an expansion on the south side of the APM platform, as depicted in **Figure 5.77.** The expansion negates interruption to existing operations at the departure level; it provides a flexible, open and efficient space for security; and it creates a new central concession space, like the previous option. However, the new addition will come with a larger cost than the other options, construction could impact loading dock operations below and the wayfinding for passengers getting to security could be difficult, especially for passengers de-boarding the north train.

Figure 5.77
Airside E SSCP Option 2 (South)



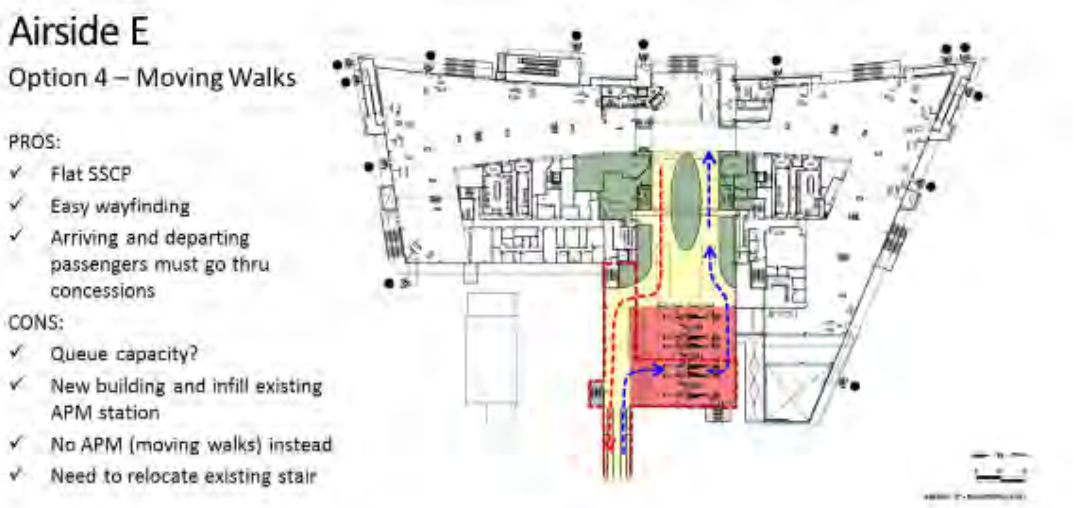
Option 3 keeps security centralized to the APM platform, but moves the ramps out into the main circulation space, as illustrated in **Figure 5.78**. Security is now on a flat surface and has the queueing capacity required, but has no room for expansion and makes a significant impact on operations, circulation, and the concessions. By pushing the ramps beyond security, all pedestrians are forced to navigate through the ramps when circulating through the terminal. Columns would protrude from the center of the ramps, making circulation confusing and having a negative aesthetic effect. The new ramps would block views to gates and would require Airside E's largest concession to shift north. The expansion required for the concession would be costly and could ruin the building's form and impact the aircraft layout. Even though this option provides the shortest walking distances to the gates and the easiest wayfinding for departing passengers, it creates congestion pre- and post-security and causes difficult wayfinding for arriving passengers.

Figure 5.78
Airside E SSCP Option 3 (Central)



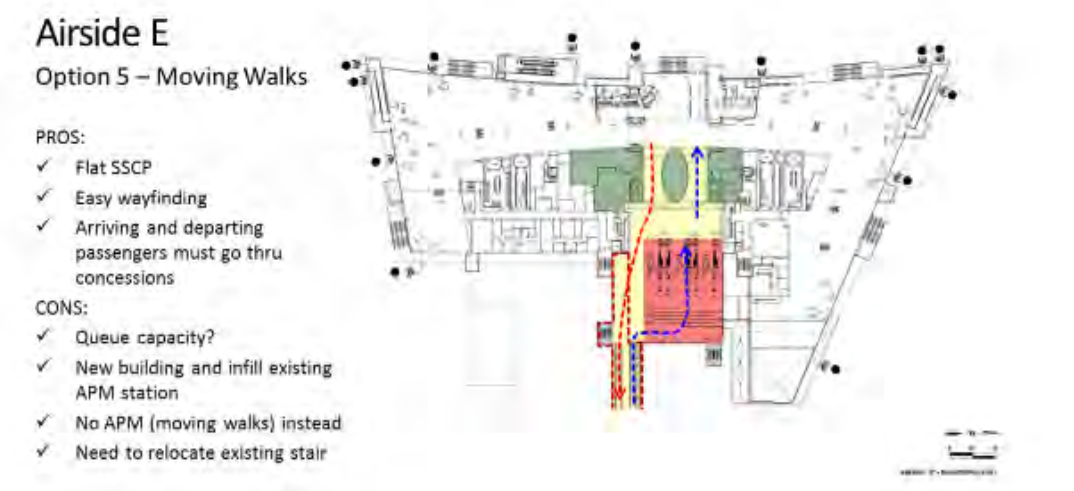
Option 4 removes the APM station altogether and replaces it with a bridge with moving walks to/from the main terminal. The distance to/from the main terminal is short enough that the time it would take to walk across is comparable to the train ride, and the new bridge would save on operational costs. This alternate allows the security checkpoint to move east to a flat surface, at the location of the existing APM platforms. The new SSCP location establishes very easy wayfinding for all pasengers and generates new concession opportunities, which all passengers would pass through on their way to/from the main terminal. However, there are several cons associated with this option. The airport does not want to replace the APMs as they are iconic to the Tampa Airport, and there would be a large cost associated with the new bridge. This option also limits the amount of queue space without an additional expansion. Option 4 is displayed more clearly in **Exhibit 5-61.** The new footprint of the terminal expansion has been highlighted in dark blue and the new bridge with moving walks is highlighted in cyan. In this scheme, the entire area highlighted in red could be flattened and lowered to the elevation of the existing concourse.

Figure 5.79
Airside E SSCP Option 4 (Moving Walks 1)



Option 5 is similar to the previous option, but rotates the screening checkpoint lanes to be perpendicular with the new bridge, as represented in **Figure 5.80.** This adds additional queueing capacity, but still does not provide much flexibility for expansion.

Figure 5.80
Airside E SSCP Option 5



Option 2 was selected as the preferred alternative, and is displayed on **Exhibit 5-62.** The red area on the plan indicates the expansion area, while the green represents the renovated areas. The APM platform would be leveled out to eliminate the ramp and the SSCP would be constructed at that same level. A ramp from security to the concourse elevation is needed before it intersects the BOH corridor. The main exit corridor is indicated by the black arrow and would require a ramp up from the concourse to get to the APM platform. The space south of the exit corridor ramp could be flattened to be level with the concourse and then transformed into a new concession space.

5.7.6.5 Airside F

Upon direction from HCAA, RS&H conducted a study to expand Airside F. The major goals of this study include:

- Additional club/VIP space – Current plan does not allow for sufficient club space for the airline needs since Airside F is the existing international Airside
- Expand the existing FIS for additional primary processing queue, baggage claim and exit control. New requirements in the 2016 CBP Guidelines require new operations that are not easily introduced into the existing Airside F footprint.
- Additional holdroom – The growing international market at TPA requires larger holdroom SF areas to accommodate larger aircraft
- Additional concessions and restrooms are required to accommodate the larger aircraft.

Refer to Appendix P for the full Airside F Improvement Analysis.

5.7.6.6 Airside F RON

One of the largest issues for Airside F is the aircraft capacity, specifically, the hardstand locations. Currently, the only close option for hardstand is to tow to Airside E where there are minimal opportunities. The preferred alternative was to locate a new Hardstand ramp directly south of the Airside F building. See **Exhibit 5-63.** The location provides:

- Close hardstand parking positions for Airside F
- No runway/airside issues
- Requires relocation of an existing detention pond.
- An initial study on storm water draining analysis has been completed and determined that this location is feasible.

Figure 5.81
Proposed Pond Layout

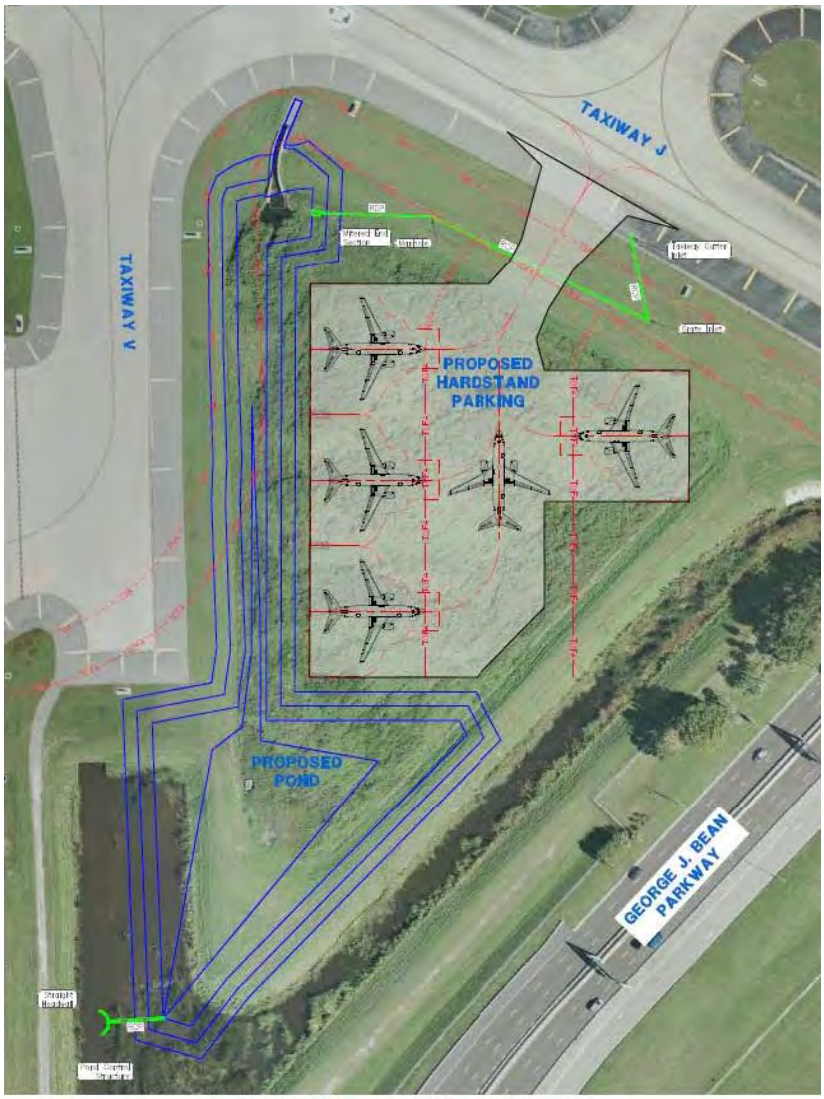


Figure 3: Proposed Pond Layout

5.7.7 Terminal Curb Roadway Requirements Overview

5.7.7.1 Modifications from 2012 Master Plan Update

The 2012 Master Plan Update proposed the following improvements to the existing curbsides:

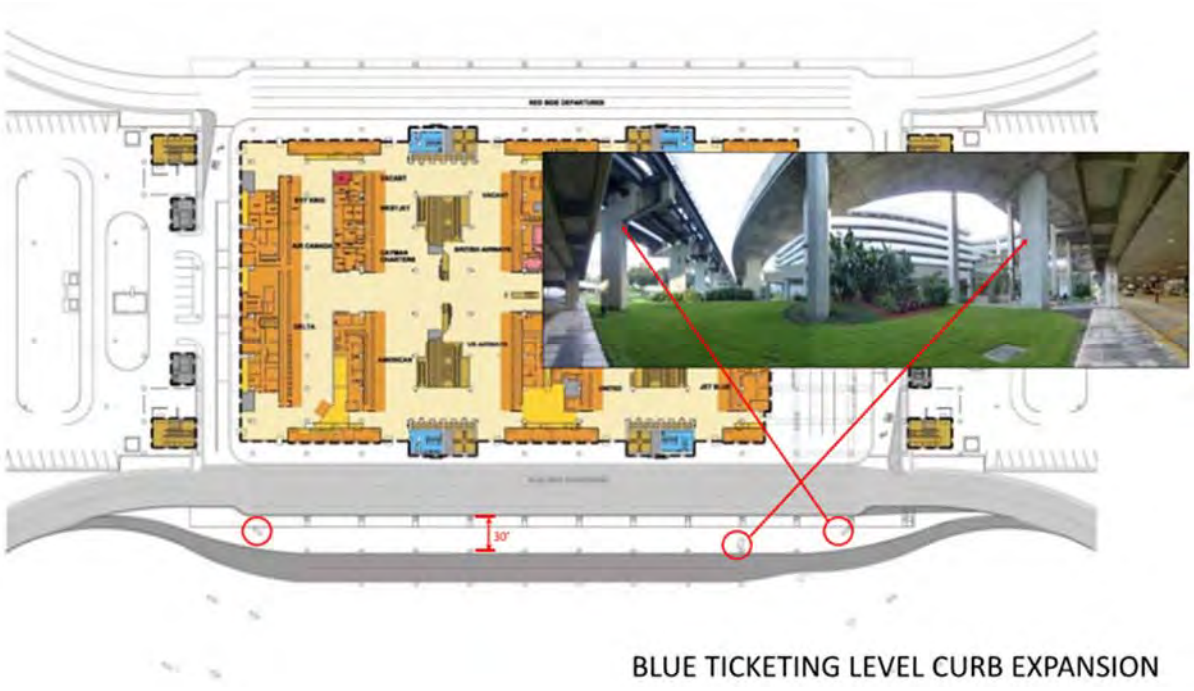
- Eliminate the dwell times at the curbs
- Restripe the existing curbs from four lanes to five lanes
- Construct an additional two lanes at each curb, except for the red arrivals which would be handled by a new International Arrival Curb

The only improvement that has been incorporated to date is the elimination of the dwell times at the existing curbs. While this has helped eliminate traffic along the curbs at the lanes closest to the terminal, this has greatly increased circulation traffic as people will now loop around the airport until their party arrives. It was anticipated that vehicles would utilize the cell phone waiting lot and the one hour of free short-term parking, however it is apparent that motorists prefer not to park or leave their vehicles. This additional "re-circulation" traffic is now causing the curb lanes furthest from the terminal to back up onto the parkway, especially during peak periods.

Restriping the existing curbs from four lanes to five lanes has been considered since the 2012 Master Plan Update, however it has not been implemented due to safety concerns. The existing curb roadways are approximately 46' from inside face of curb to outside face of curb, which would only allow 9'2" per lane. This is below the minimum lane width preferred by HCAA. With the additional "re-circulation" traffic due to the no dwelling at the curb enforcement, these reduced lane widths would cause a safety concern.

While the capacity analysis from the 2012 Master Plan Update shows that only two additional lanes need to be constructed along the curbs to accommodate the future volume required, there are additional issues that arise from constructing only two additional lanes. Due to the pier layout at the airport, the two lanes would need to be constructed detached from the existing curbs, not adjacent to them (See **Figure 5.82**). This would introduce additional pedestrian crossings across the existing curbs for anyone trying to drop off passengers along the new two-lane segment which in turn would increase vehicle backups due to waiting for pedestrians to cross. In addition, if any vehicles stop to unload along the new separated two lanes traffic would immediately be backed up along those new two lanes.

Figure 5.82
2012 Master Plan Update Curb Side Expansion Exhibit



Lastly, the construction of a new International Arrival Curb was proposed in the 2012 Master Plan Update, See **Figure 5.83**. This recommendation has been eliminated for two key reasons. First, the construction of an International Arrivals area would require the total demolition of the existing Marriott Hotel, the construction of a new Air Traffic Control Tower, and the relocation of the FAA Offices. Second, the construction of an International Arrivals area would lock the airport into using Airside C and future Airside D for International Travel, losing the current flexibility the airport maintains to relocate flights to different terminal/gates as needed.

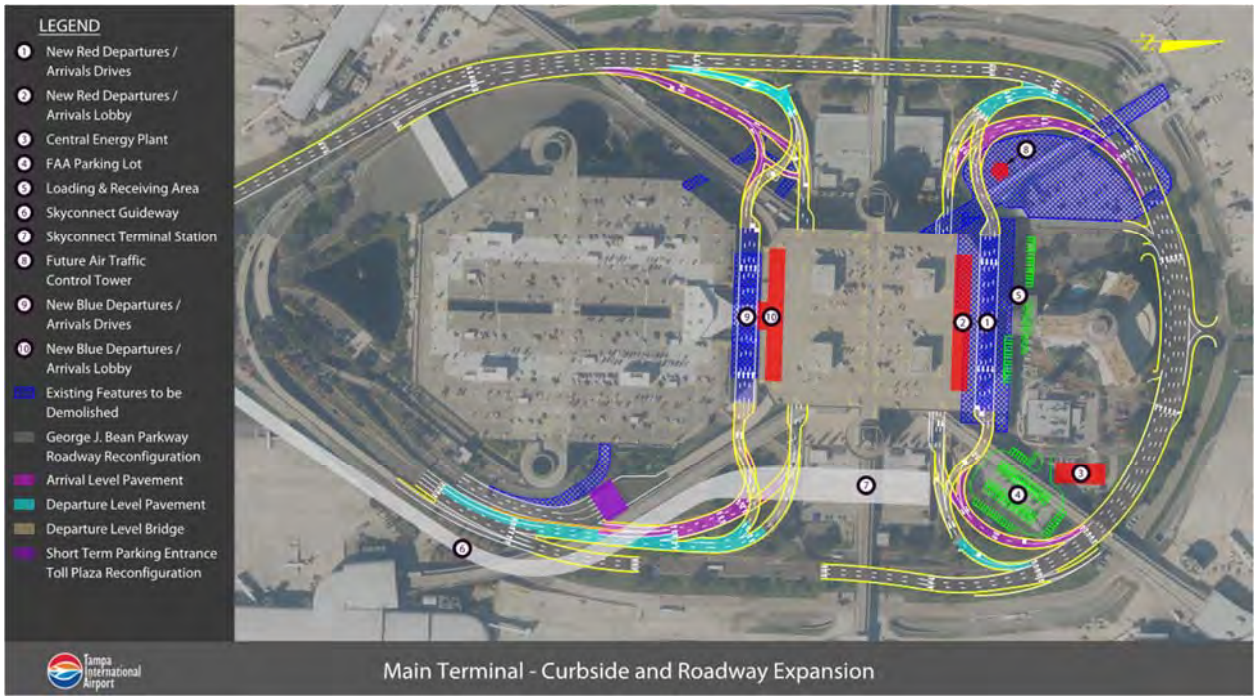
Figure 5.83
2012 Master Plan Update International Arrivals Exhibit

In addition to the reasons listed above there are new factors since the 2012 Master Plan Update that have attributed to the development of the new preferred alternative. First, the number of flights has increased faster than what was anticipated in the 2012 Master Plan Update. Second, the dramatic increase in TNC vehicles, such as Uber or Lyft, has greatly increased the number of passengers utilizing the curbs instead of utilizing economy and long-term parking. Third, the amount of traffic during the peak hours has greatly increased since the 2012 Master Plan Update.

5.7.7.2 Roadways- Preferred Alternative Development

Initial concepts for the George J. Bean Parkway expansion and express curbsides were presented to HCAA staff and other consultant partners in January 2017. Comments were received and incorporated and additional iterations of the concept were submitted and reviewed over the subsequent weeks. Additional comments were given and incorporated for each iteration until an approved preferred alternative was completed. The final, approved preferred alternative was presented to the HCAA Board of Directors during the Master Plan Phase 2 Workshop and again at the Master Plan Phase 2 Open House in April 2017.

Figure 5.84
Preferred Alternative Exhibit



Preferred Alternative Design Criteria

Two sources were utilized for design criteria for the Tampa International Airport Roadway and Curbside Expansion Preferred Alternative:

- American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets,* 2011, 6th Edition

- Florida Department of Transportation (FDOT), *Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways*, 2013

In addition, the following Design Speed Criteria was utilized:

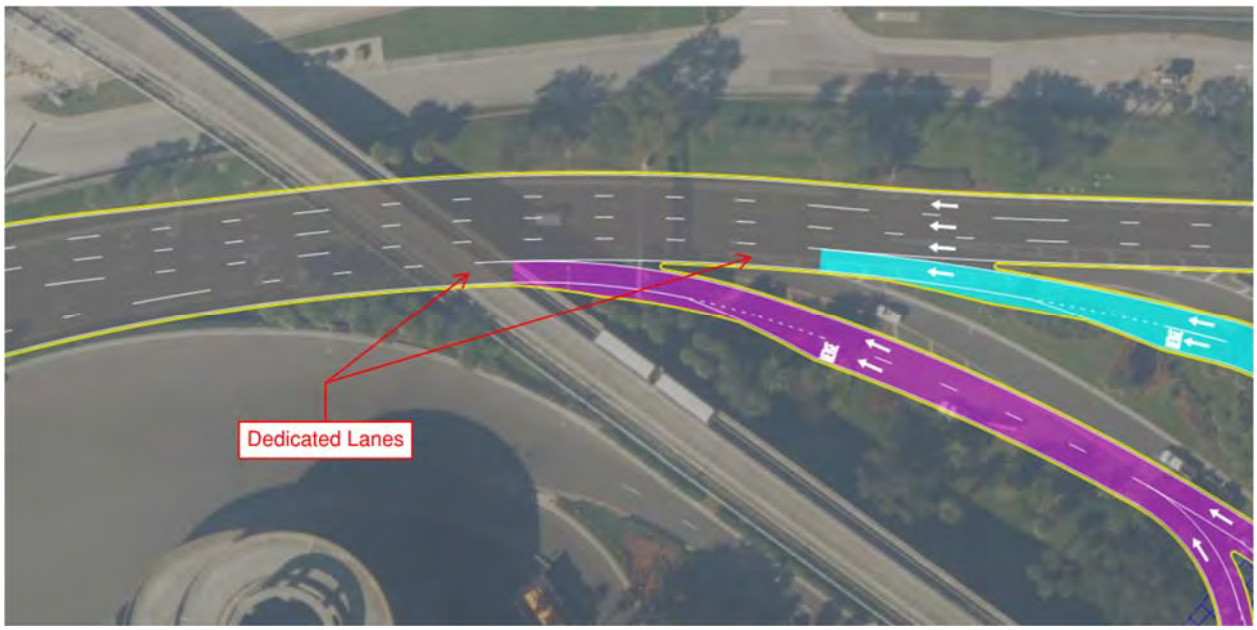
- A design speed of 35 MPH was utilized for the George J. Bean Parkway. This design speed matches the existing posted speed limit signs.
- A design speed of 20 MPH was utilized for the ramps approaching and departing the proposed new curbsides. The existing posted speed limits for the current curbside ramps are:
  - Blue Side Arrivals Ramp: 15 MPH
  - Blue Side Departures Ramp: 10 MPH
  - Red Side Arrivals Ramp: 15 MPH
  - Red Side Departures Ramp: 10 MPH

Preferred Alternative Design Elements

Dedicated Lanes for Curbside Exit Ramps

The proposed ramps coming from the curbsides to the George J. Bean Parkway were designed to provide dedicated lanes for each ramp joining the parkway. This eliminates any merge or yield conditions which require drivers exiting the curbsides to have to look back over their shoulder to see if there is any incoming traffic along the George J. Bean Parkway that needs to be avoided.

Figure 5.85
Dedicated Lanes

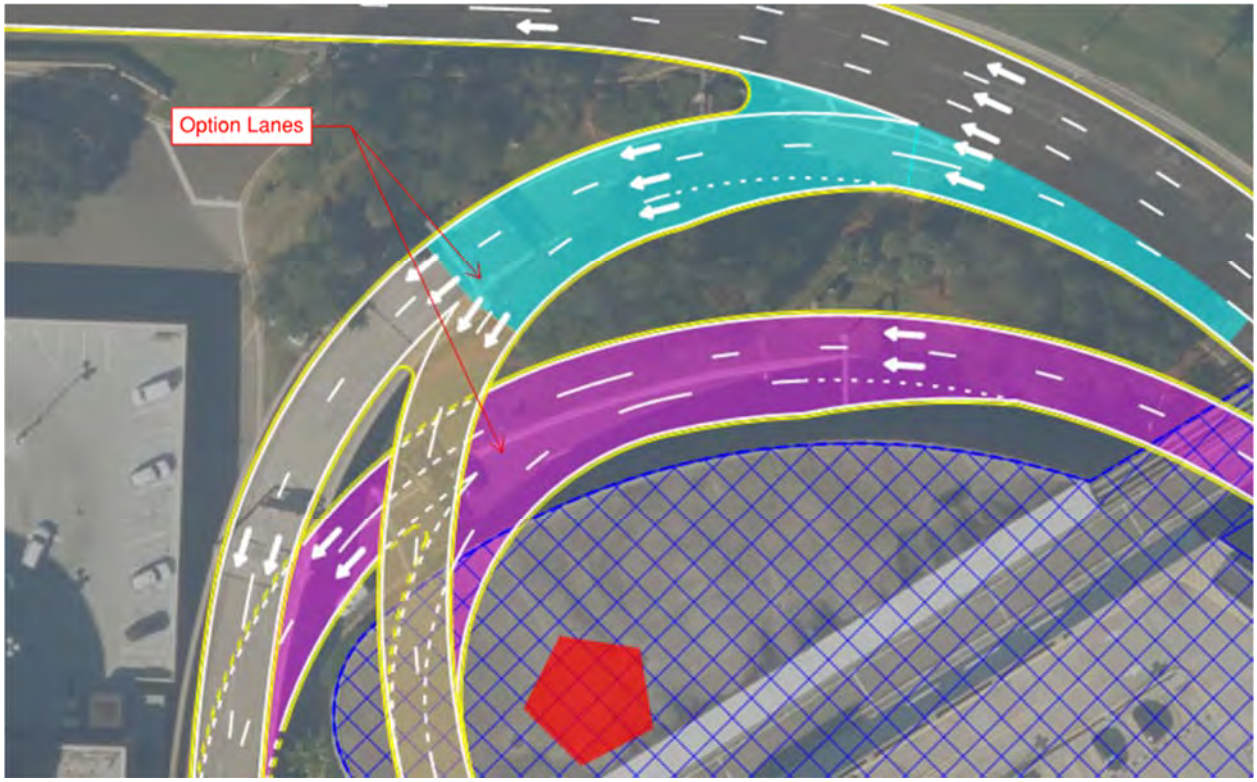


Option Lanes

Option (or choice) lanes at the entrances to the existing curbside roadways and the future outer curbside roadways were included in the plan. This was done to maximize the capacity of vehicles that can utilize the curbside roadway system and to give the undecided driver the ability to utilize the center option lane which maximizes the amount of time they must decide which curbside to use without making a potentially unsafe last-second lane change.

In addition, an option lane was included between where the Parkway exits the airport and Airport Recirculation Drive. This allows any drivers coming from the Blue Side arrivals ramp to only need to shift one lane to exit the airport.

Figure 5.86
Option Lanes



Maximized Distances Between Add Lanes from Curbsides

The distances between the George J. Bean Parkway added lanes for the departure ramps and arrival ramps were maximized. This was done to allow motorists the maximum amount of time to shift over onto the main travel lanes along the parkway. Making the length of the added lanes as long as possible is essential to assigning drivers to their proper lanes and allowing time to position their vehicle for the proper destination.

Avoiding Existing Piers

Throughout the airport property there are multiple bridge piers that needed to be avoided during the parkway widening and the Express Curbside Roadways. These structures included:

- The CONRAC People Mover
- The Airside A, B, C, E, F and G People Movers
- The entrance ramp to the short-term parking garage
- The exit ramp from the short-term parking garage

Figure 5.87
Existing Piers

Vertical Clearance

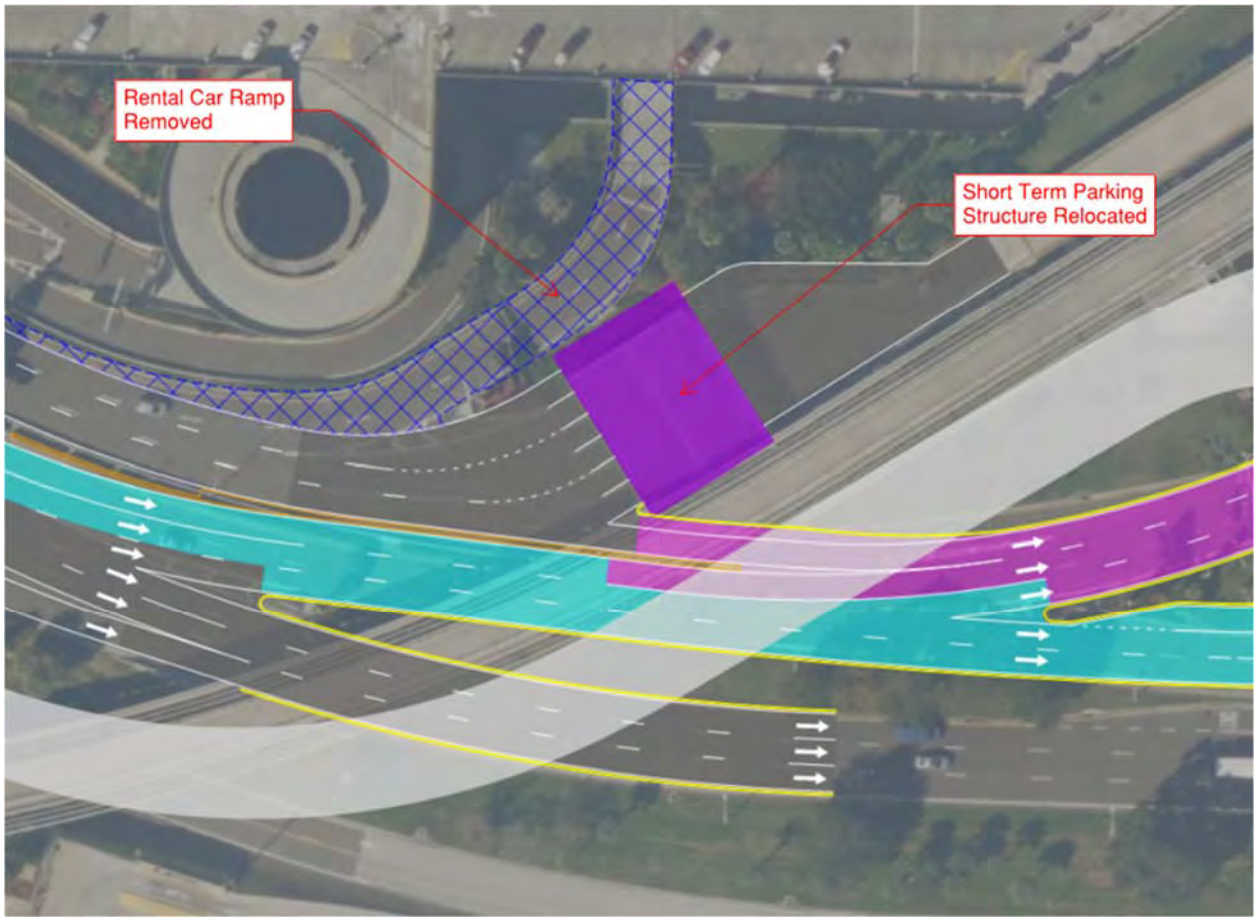
The required vertical clearance that was utilized for the lower level express curbsides was 11'-0". This meets the current vertical clearance for the existing arrival curbsides. This criterion was utilized at all areas where the express curbs venture under airside existing people movers and roadway.

Figure 5.88
Existing Curbside Vertical Clearance

Short Term Parking Garage Entrance Plaza

The layout of the ramps from the George J. Bean Parkway to the Blue Side curbsides requires an additional lane between the Short Term Parking Garage Entrance Plaza and the Parkway. In order to accommodate this extra lane, the existing Short Term Parking Garage Entrance Plaza will need to be shifted approximately 1 lane to the west. The removal of the ramp leading into Rental Car Return area will provide sufficient space to shift the toll plaza.

Figure 5.89
Shifted Short Term Parking Garage



City of Tampa Sanitary Lift Station

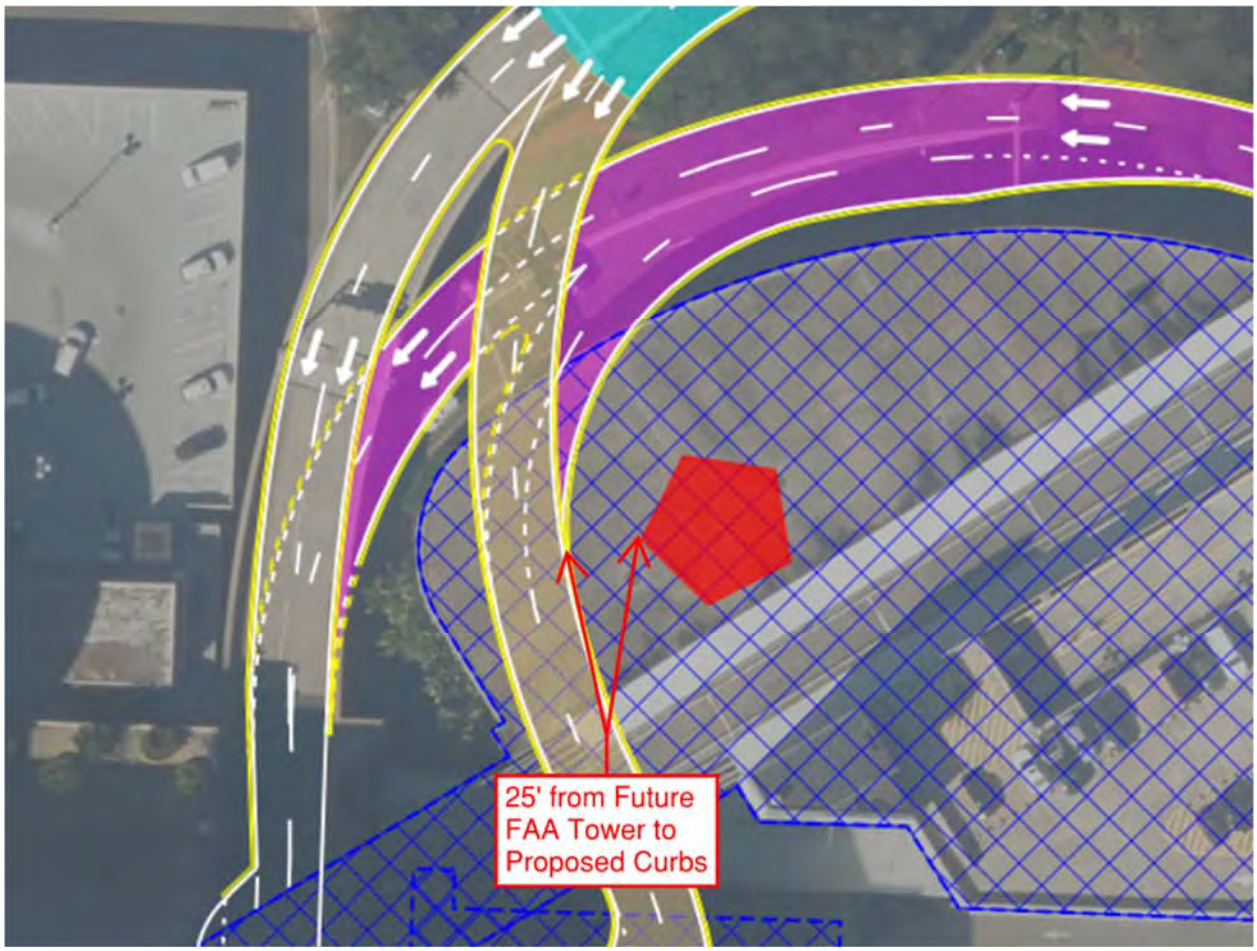
The City of Tampa is planning to construct a sanitary lift station near the ramps exiting the Blue curbsides to the George J. Bean Parkway. The at-grade ramps were planned to not conflict with this proposed sanitary lift station. In addition, a small access road was provided to allow maintenance vehicles to access the lift station. The lift station will be directly under the exit ramp from the express departures curbside so vertical clearance will need to be coordinated with the City.

Figure 5.90
Sanitary Lift Station Location

Maximized Distance from Future FAA Tower

The proposed ramps coming from the George J. Bean Parkway to the Red curbsides were planned to maximize the distance from the edge of pavement of the ramp to the Future FAA tower. The preferred alternative provides approximately 25 feet of clearance between the Future FAA tower and the ramp edge of pavement.

Figure 5.91
Future FAA Tower Clearance



Roadway Signage

To take full advantage of the existing roadways/curbs and new roadways/curbsides, frequent and adequate signage to guide drivers to the proper destination choices is essential. Signage should start early to assign drivers into proper lanes. It is preferred that each destination is signed three times before drivers must take final action to make their last adjustment to get to their destination. It is anticipated that overhead dynamic signage may be helpful to help direct drivers. See Figure 5.96 for an example of the proposed signage leading to the express curbs.

Figure 5.92
Express Curb Signage

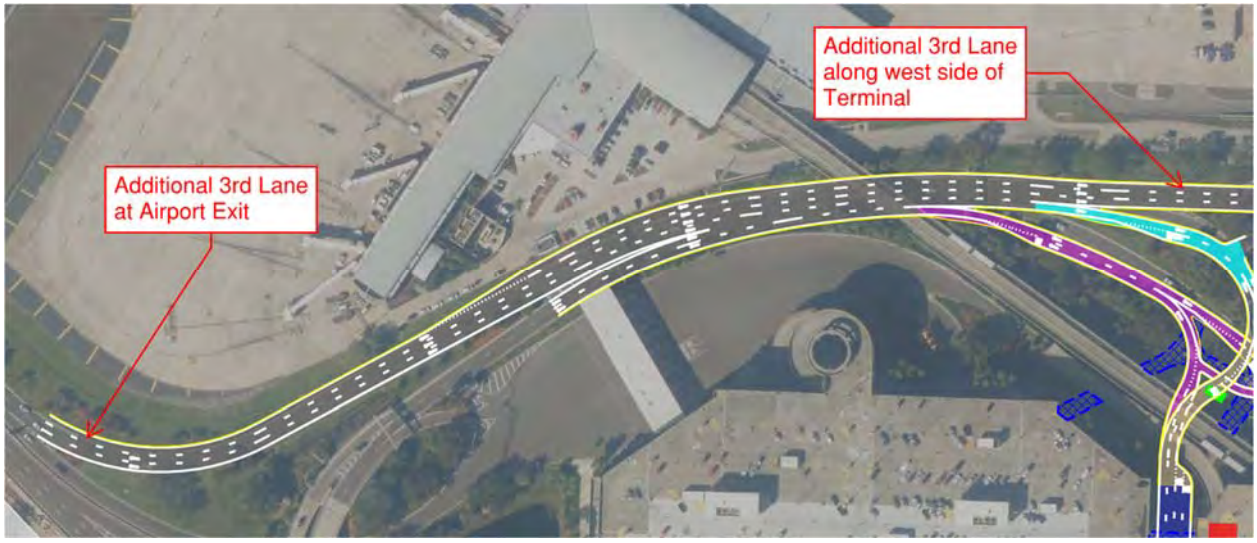
5.7.7.3 Parkway Expansion

Multiple improvements are planned to the Parkway not only to accommodate the new express curbs but also to increase capacity along the Parkway.

Terminal Parkway Widening

The George J. Bean Parkway is planned to provide three continuous lanes throughout the entire Airport property; currently only portions of the parkway provide three continuous lanes while other portions only provide two continuous lanes. This mainly includes the area along the west side of the airport along with the airport exit lanes.

Figure 5.93
Terminal Parkway Widening



Marriott/FAA Entrance and Exit

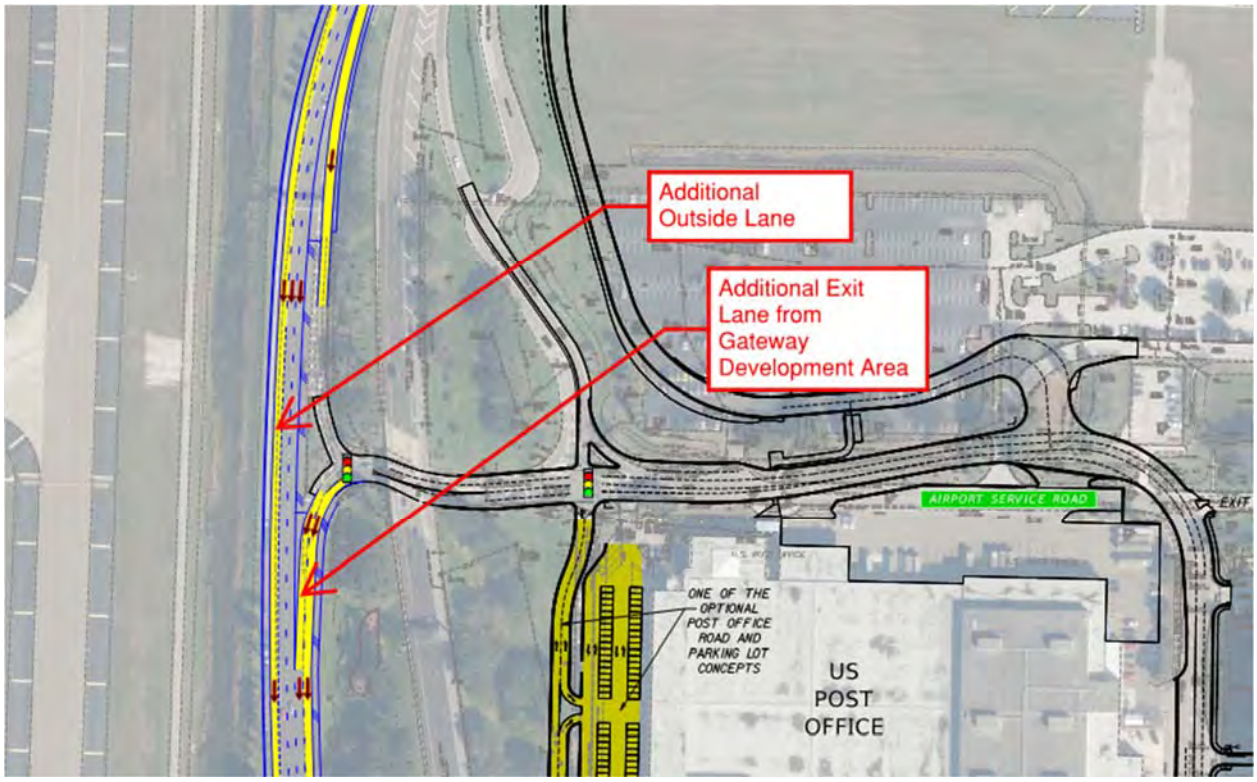
A dedicated lane was included between the Marriott/FAA exit and the Marriott/FAA entrance. This is to allow motorists entering this area time to decelerate and not interrupt the flow of traffic along the George J. Bean Parkway. This also allows motorists exiting the Marriott/FAA area time to accelerate prior to entering the flow of traffic along the Parkway.

Figure 5.94
Marriott/FAA Acceleration/Deceleration Lane

Gateway Development Area Roadway Expansion

Portions of the Parkway near the Gateway Development Area will be improved to improve access from the Gateway Development Area to the WB SR 60 and NB Veterans Expressway Exit Ramp. This includes providing an additional lane from the northern exit from the Gateway Development Area to the Parkway. This additional lane will require the widening of the Parkway to the outside. See Figure 5.99. Additional Information regarding these improvements can be found in the "Alternatives Feasibility Study for New Roadway Exit Configurations" in Appendix T.

Figure 5.95
Gateway Development Area Roadway Expansion



5.7.7.4 Future North Terminal Roadways

During design of the preferred alternative the future North Terminal Roadways were considered to ensure compatibility. Two additional lanes will be constructed along the outside of the existing Parkway to provide connection from the Parkway south of the existing terminal. In addition, Bessie Coleman Boulevard will need to be realigned to accommodate the future north terminal roadway. In addition, slip ramps will be required from the existing Parkway near the terminal to the future Norther Terminal Roadways. This North Terminal concept will most likely require the reconfiguration of one of the airplane envelopes at Airside A. See Figure 5.100.

Figure 5.96
Future North Terminal Roadways Concept

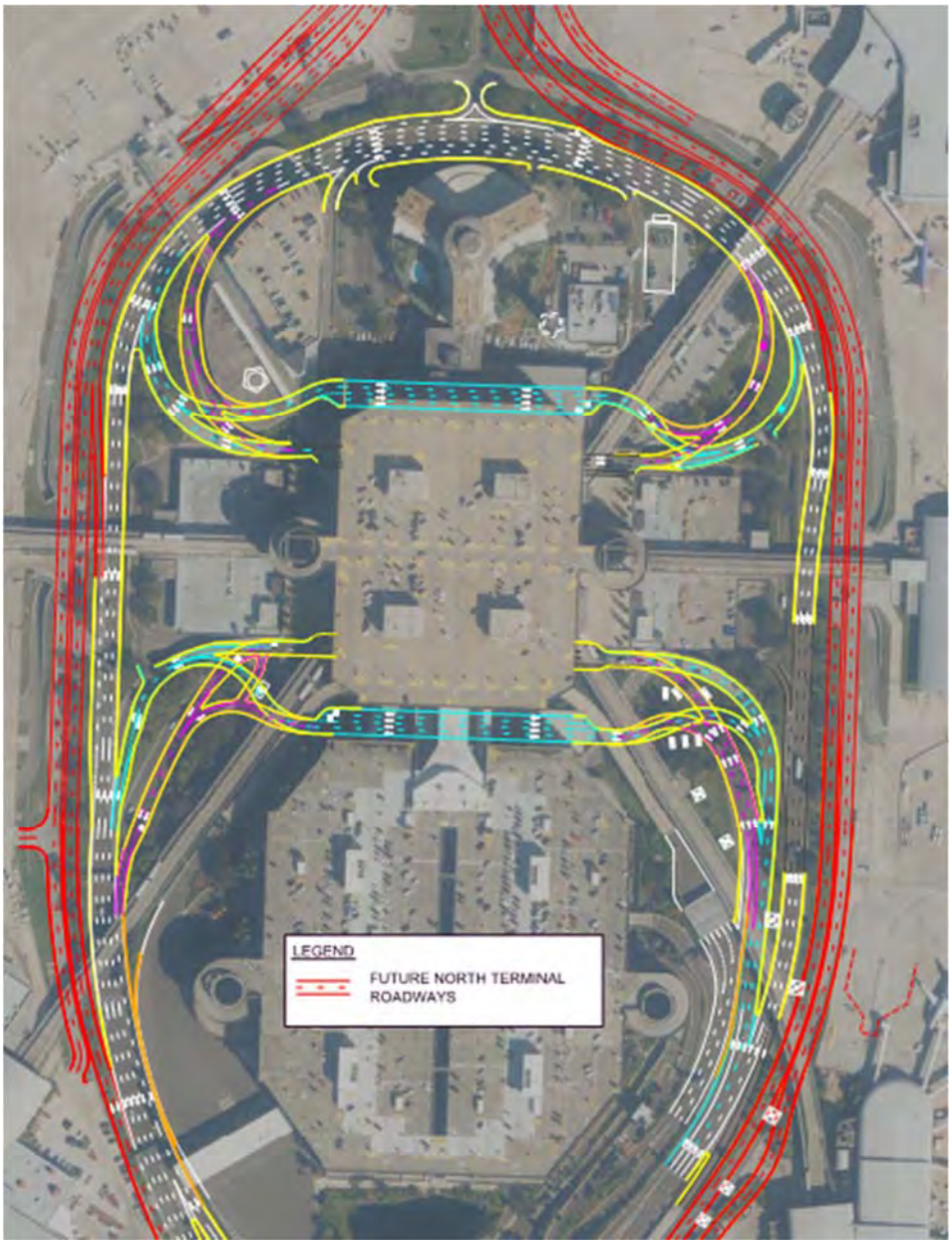
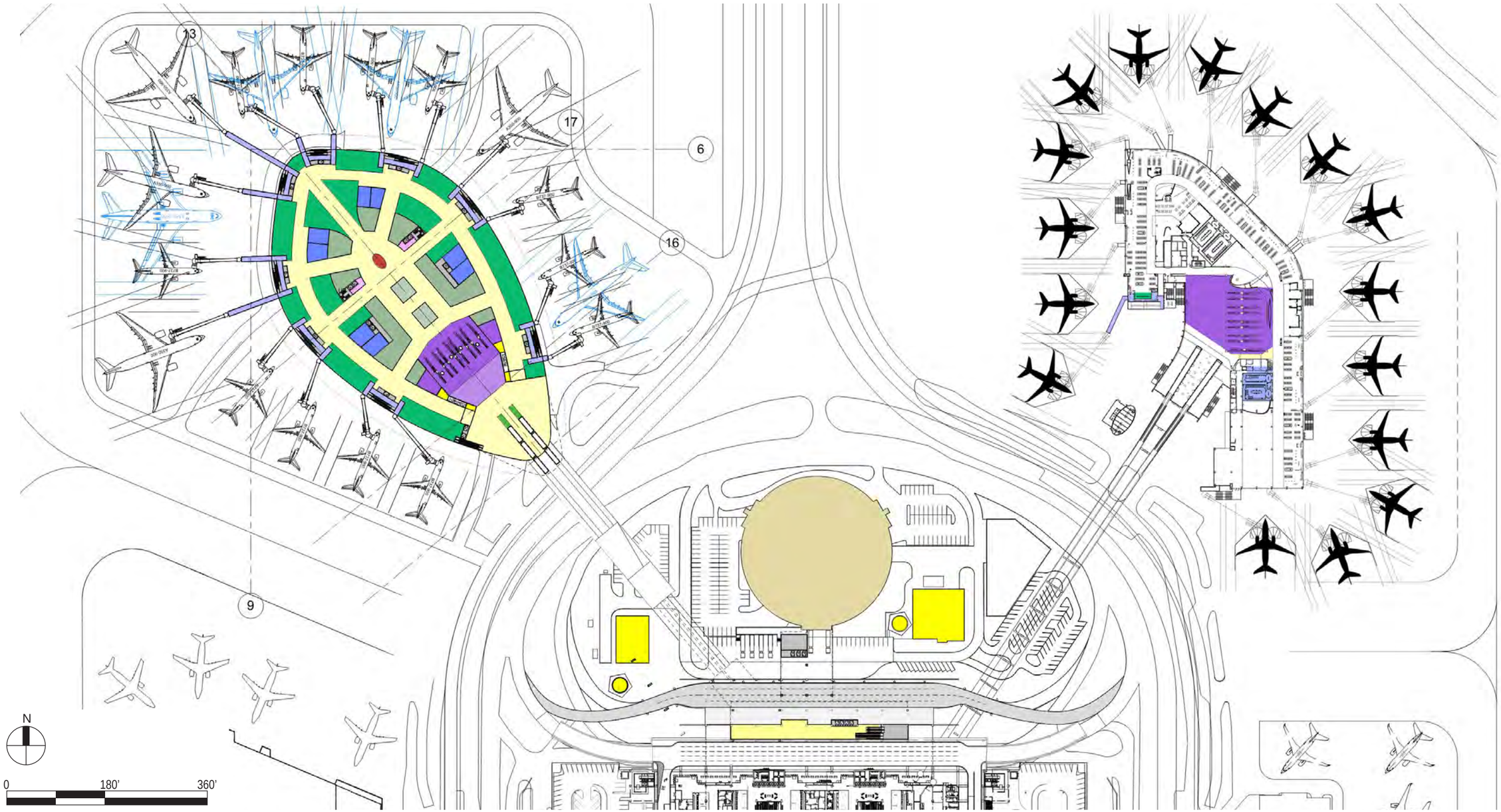


Figure 5.97
Overall Departure Level Combined



SECTION 5 - AIRPORT FACILITY ALTERNATIVES - AIRSIDE D

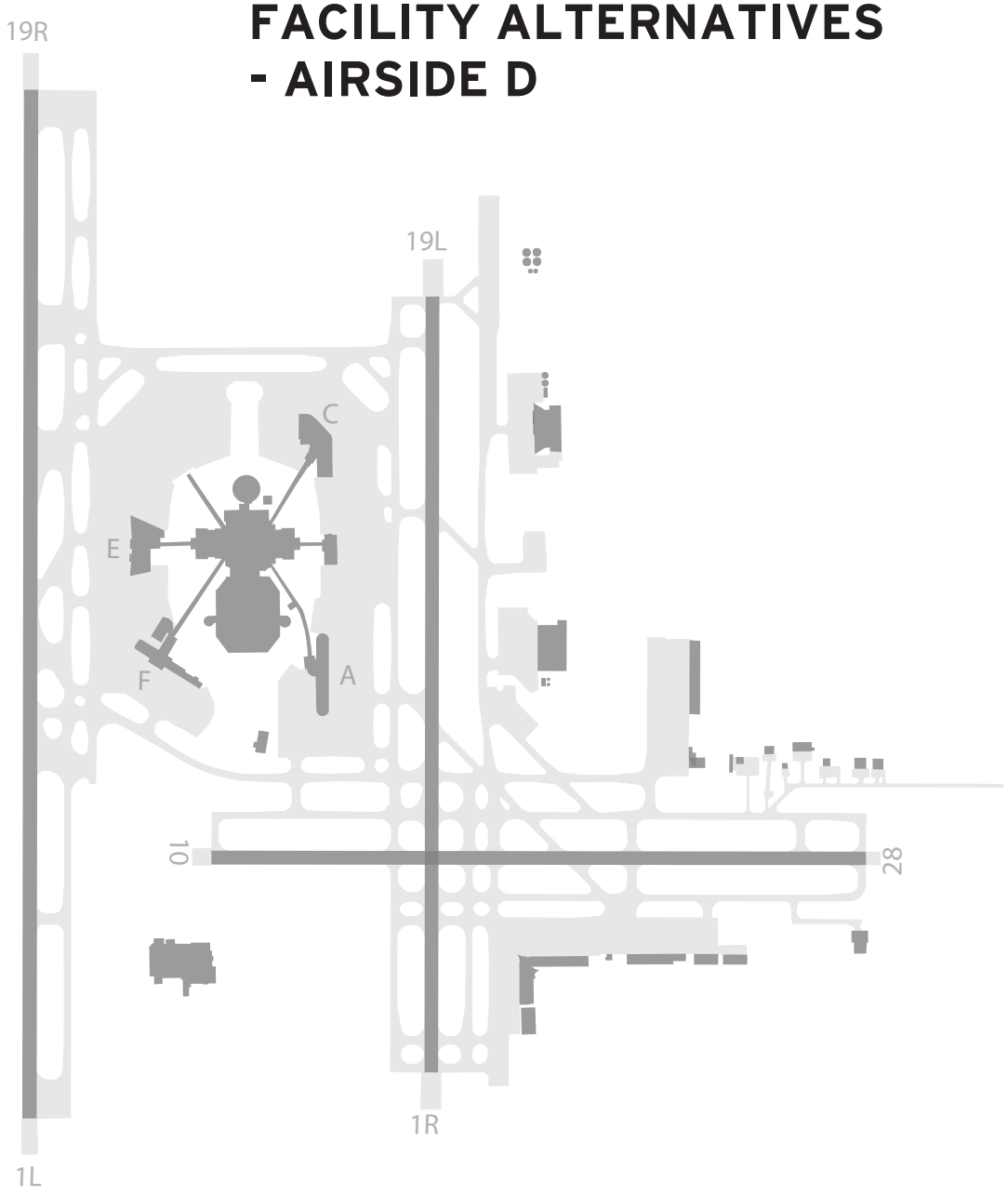


Figure 5.98
Airside C & D Masterplan Aerial

Figure 5.99
Airside D - Interior Perspective from Center Concession Core

Figure 5.100
Airside D - Interior Perspective from Holdrooms

Figure 5.101
Interior View 3

Figure 5.102
Airside D - CBP Level

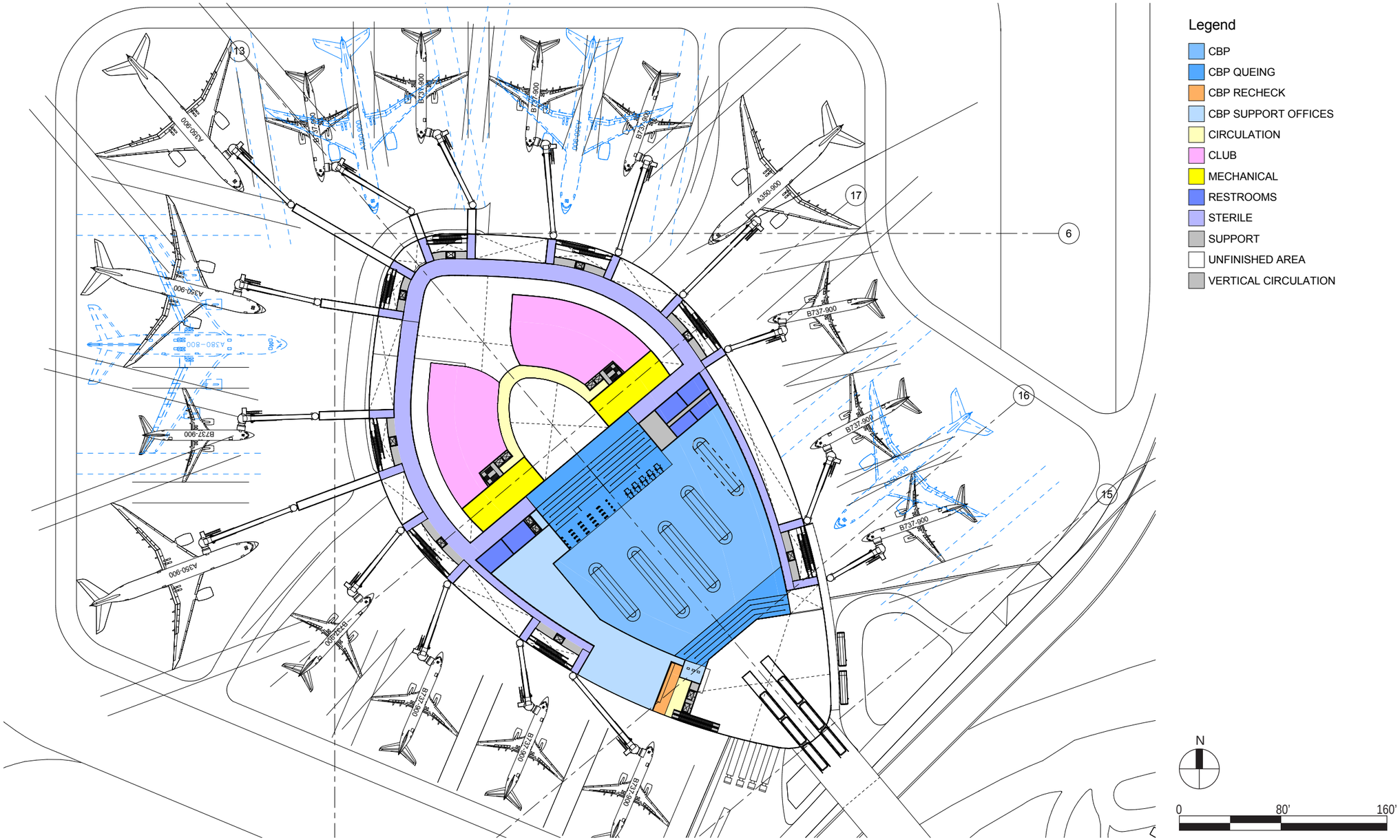


Figure 5.103
ASD Departure

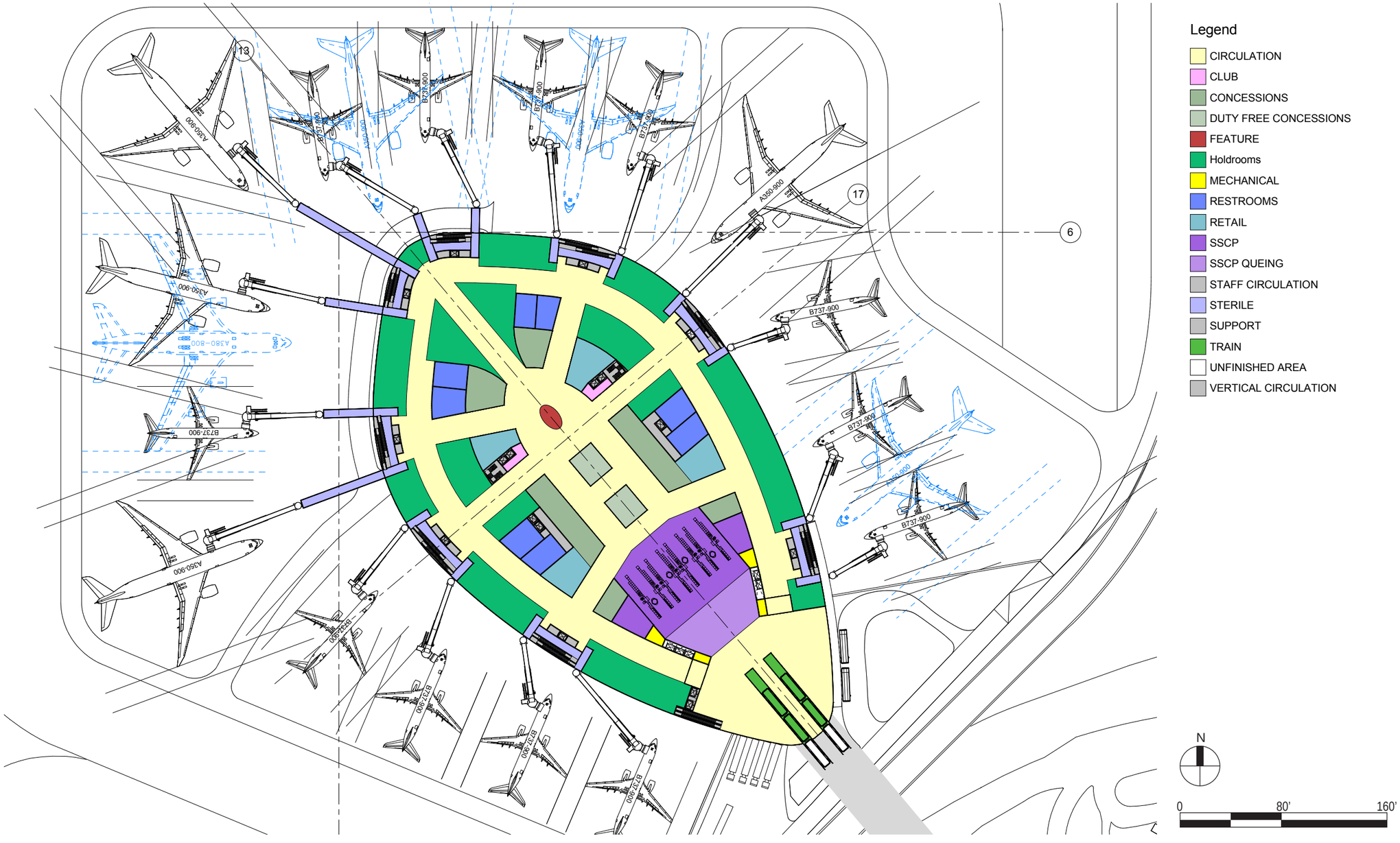


Figure 5.104
Airside D - Apron Level

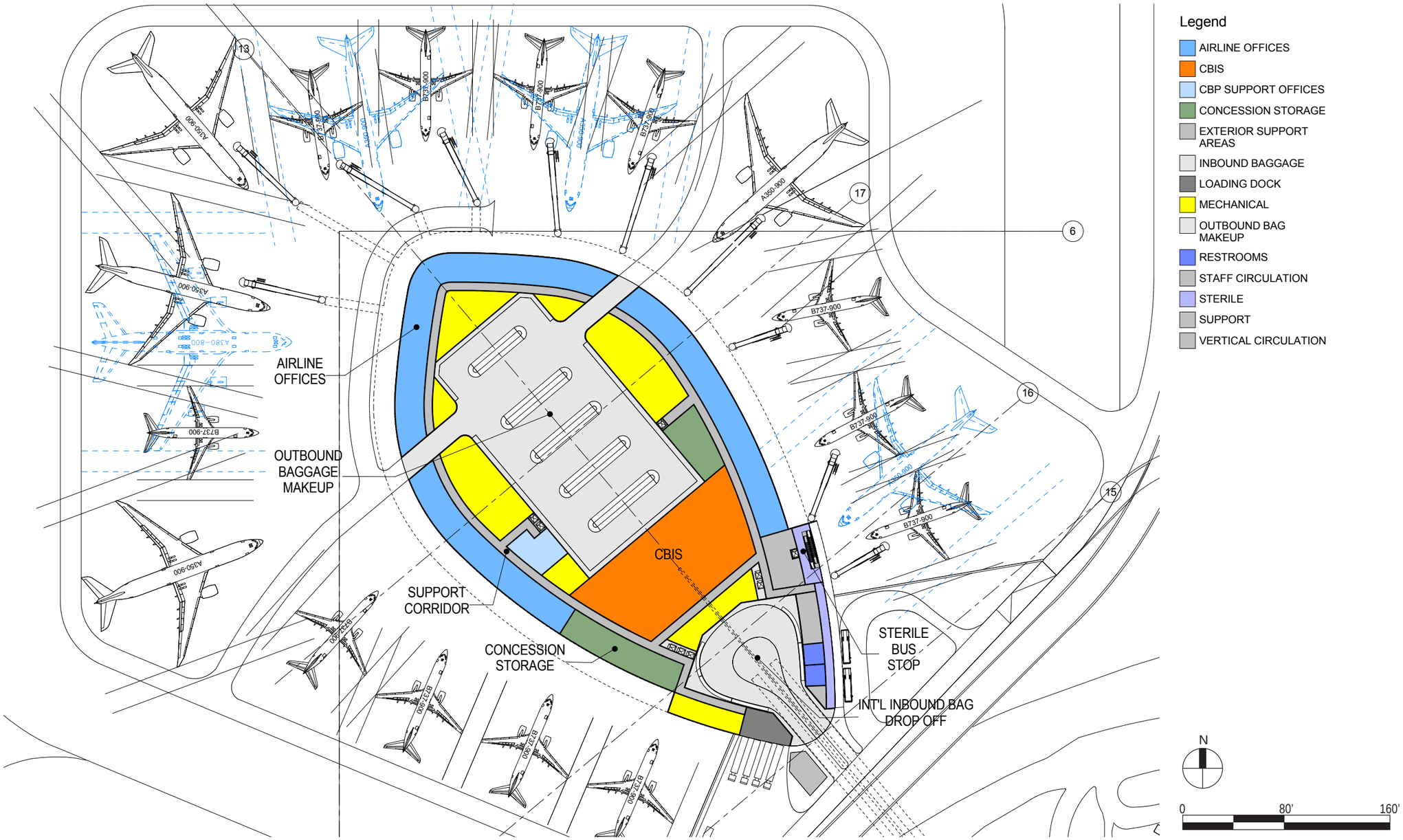


Figure 5.105
Airside D - Section Perspective

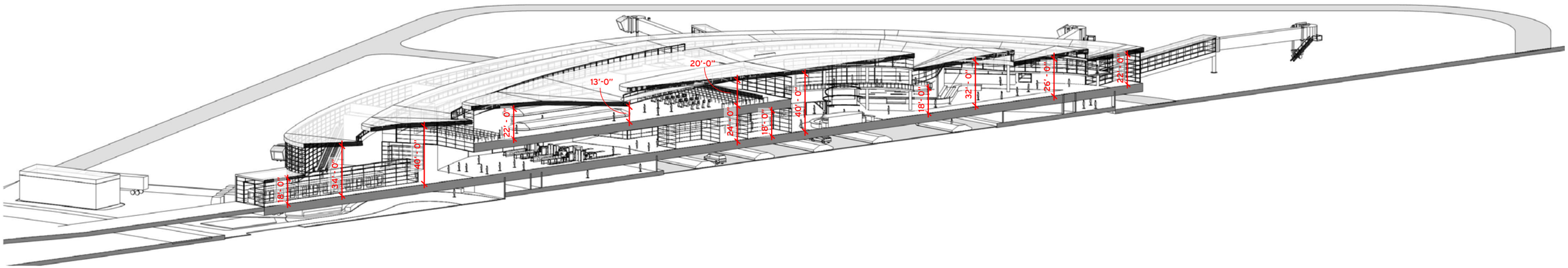


Figure 5.106
Airside D - Section Perspective

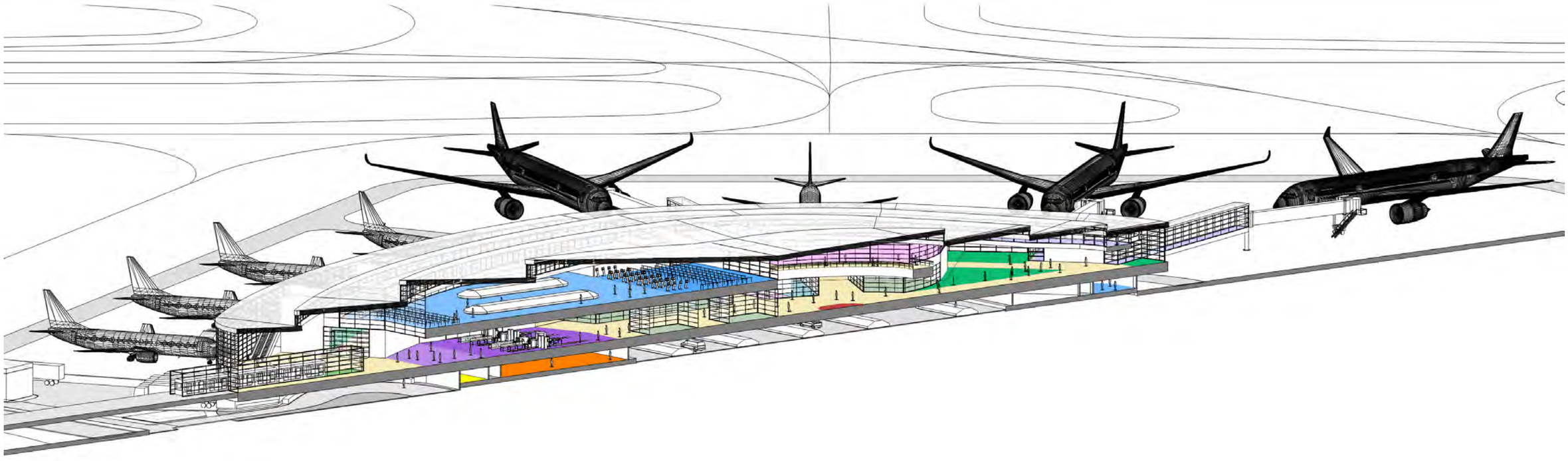


Figure 5.107
Airside D - ATCT View Plane Restriction

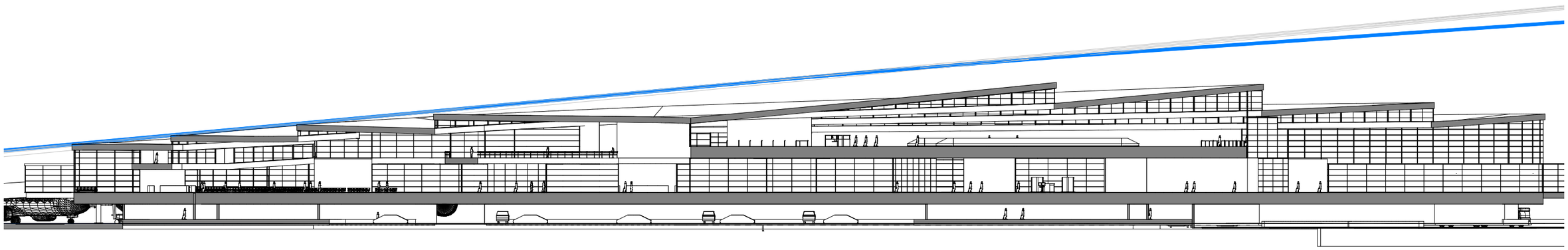


Figure 5.108
Airside D - Roof Option 1

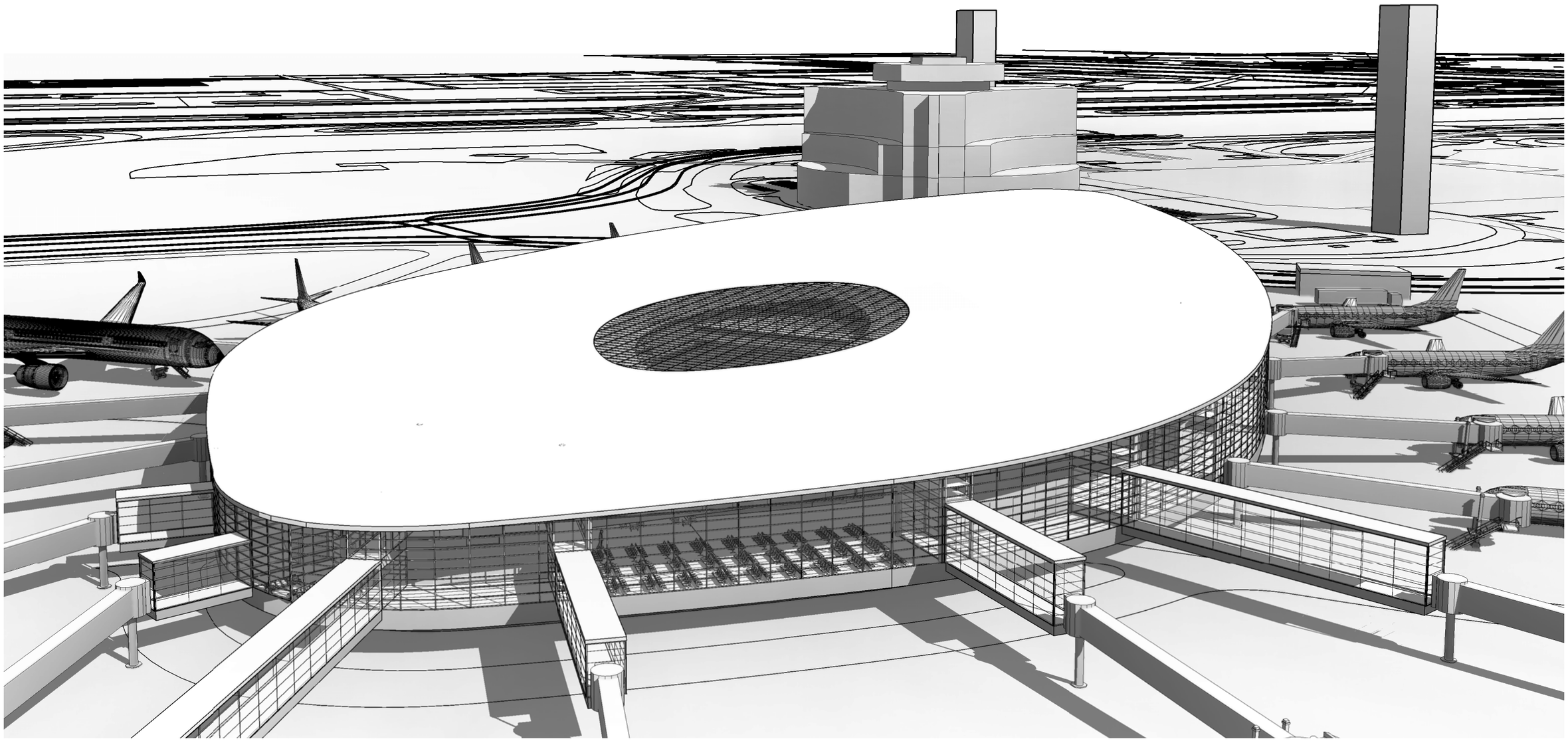


Figure 5.109
Airside D - Roof Option 2

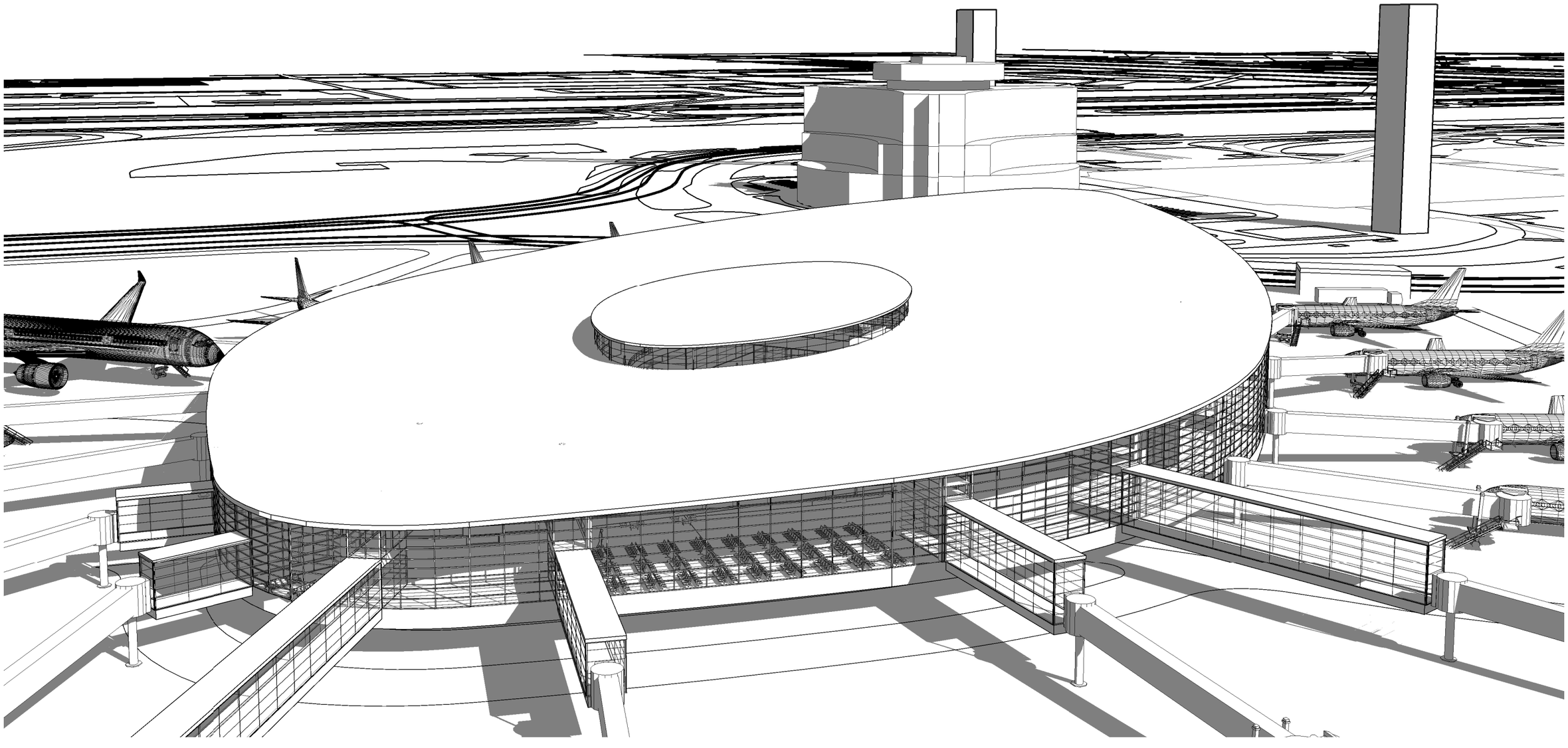


Figure 5.110
Airside D - Roof Option 3

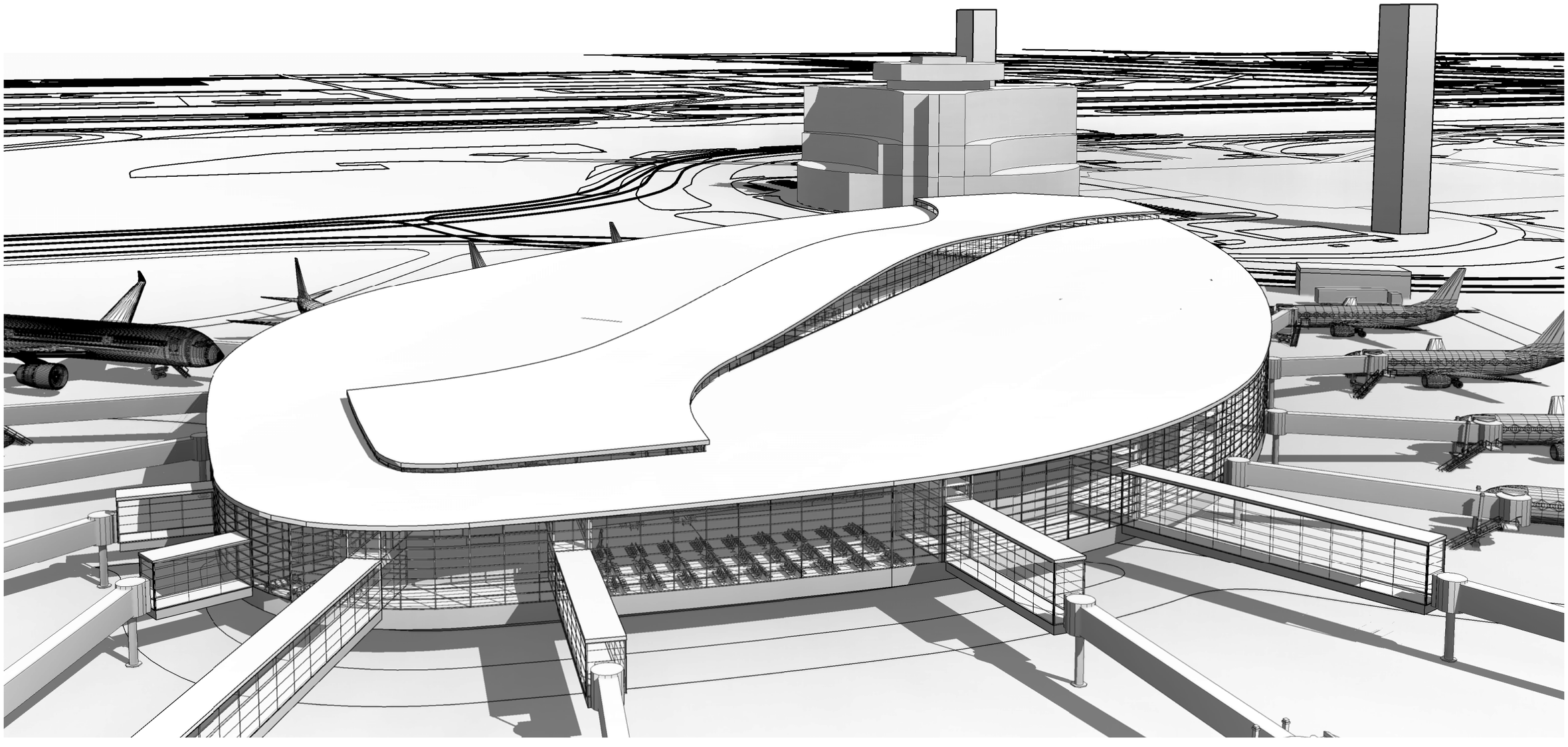


Figure 5.111
Airside D - Roof Option 4

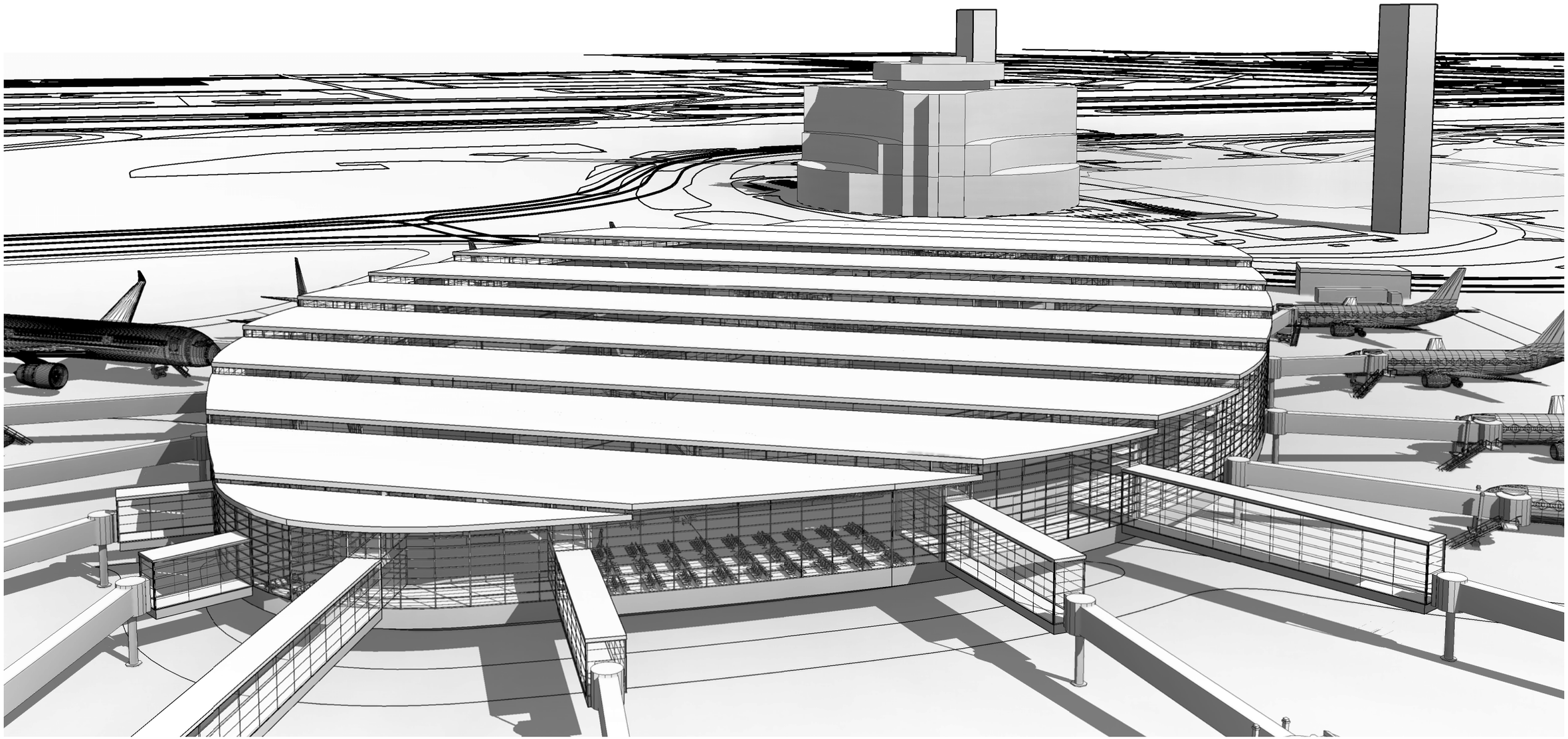


Figure 5.112
Airside D - Roof Option 5

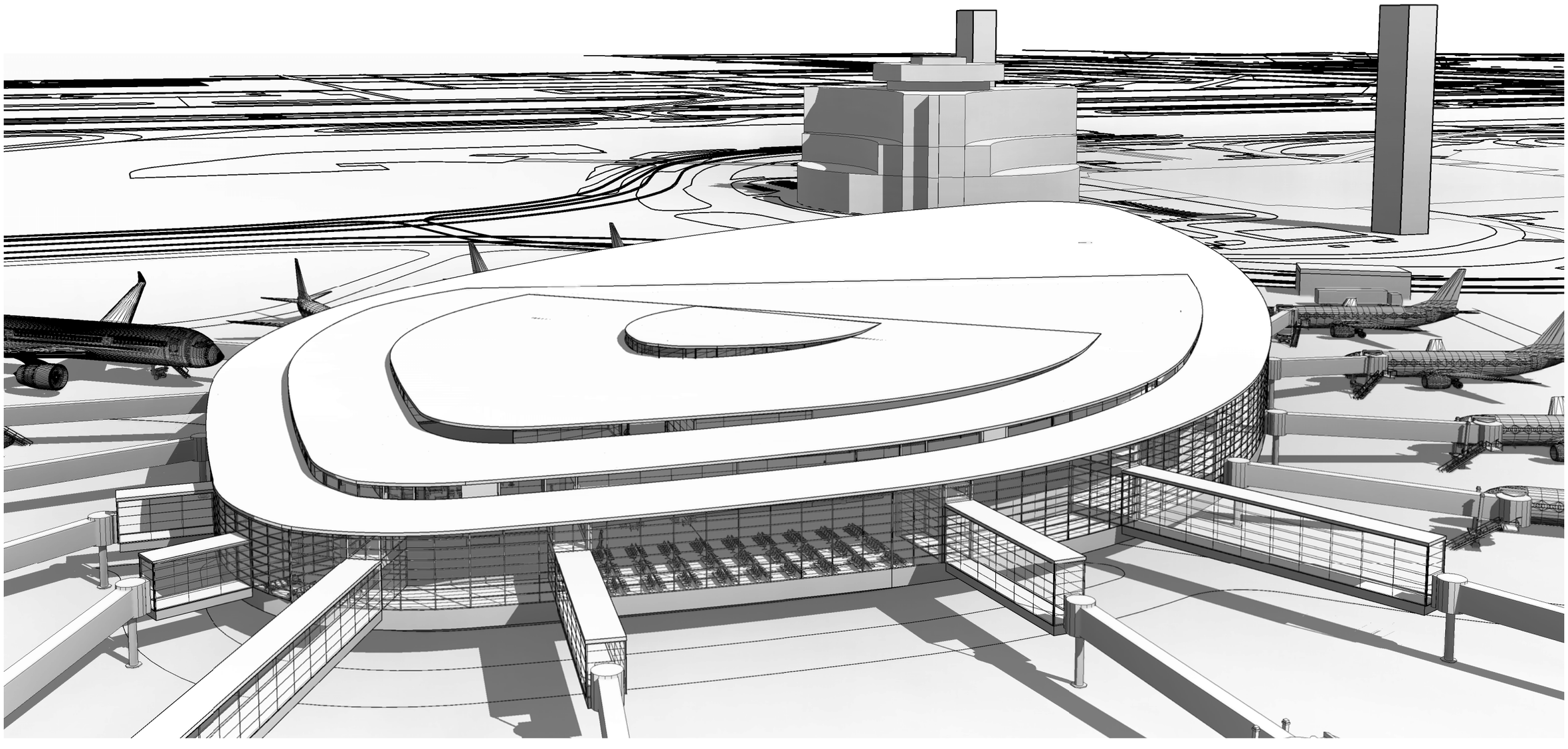


Figure 5.113
Airside D - Roof Option 6 (Preferred)

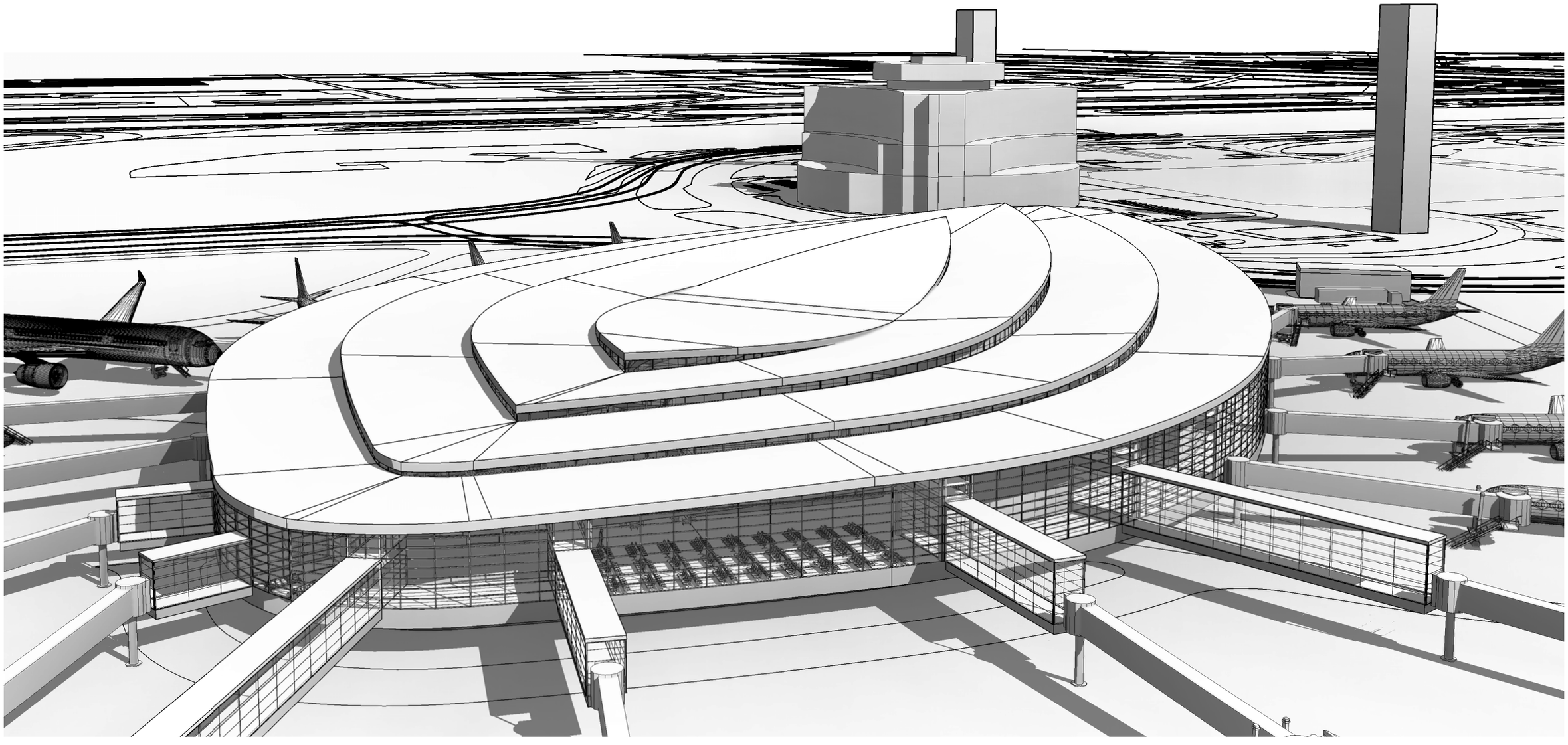


Figure 5.114
Airside D -CBP Level Phasing

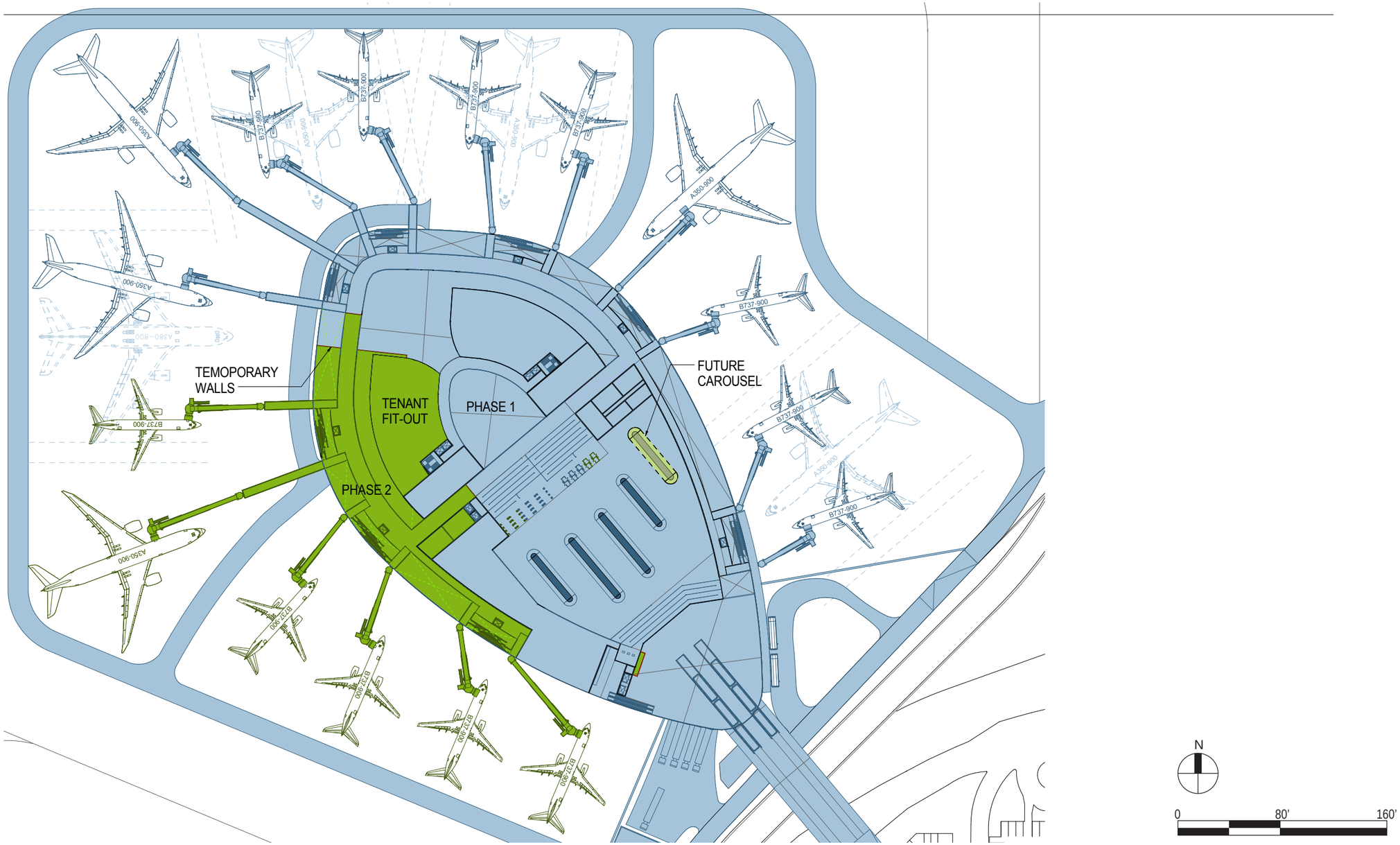


Figure 5.115
Airside D - Departure Level Phasing

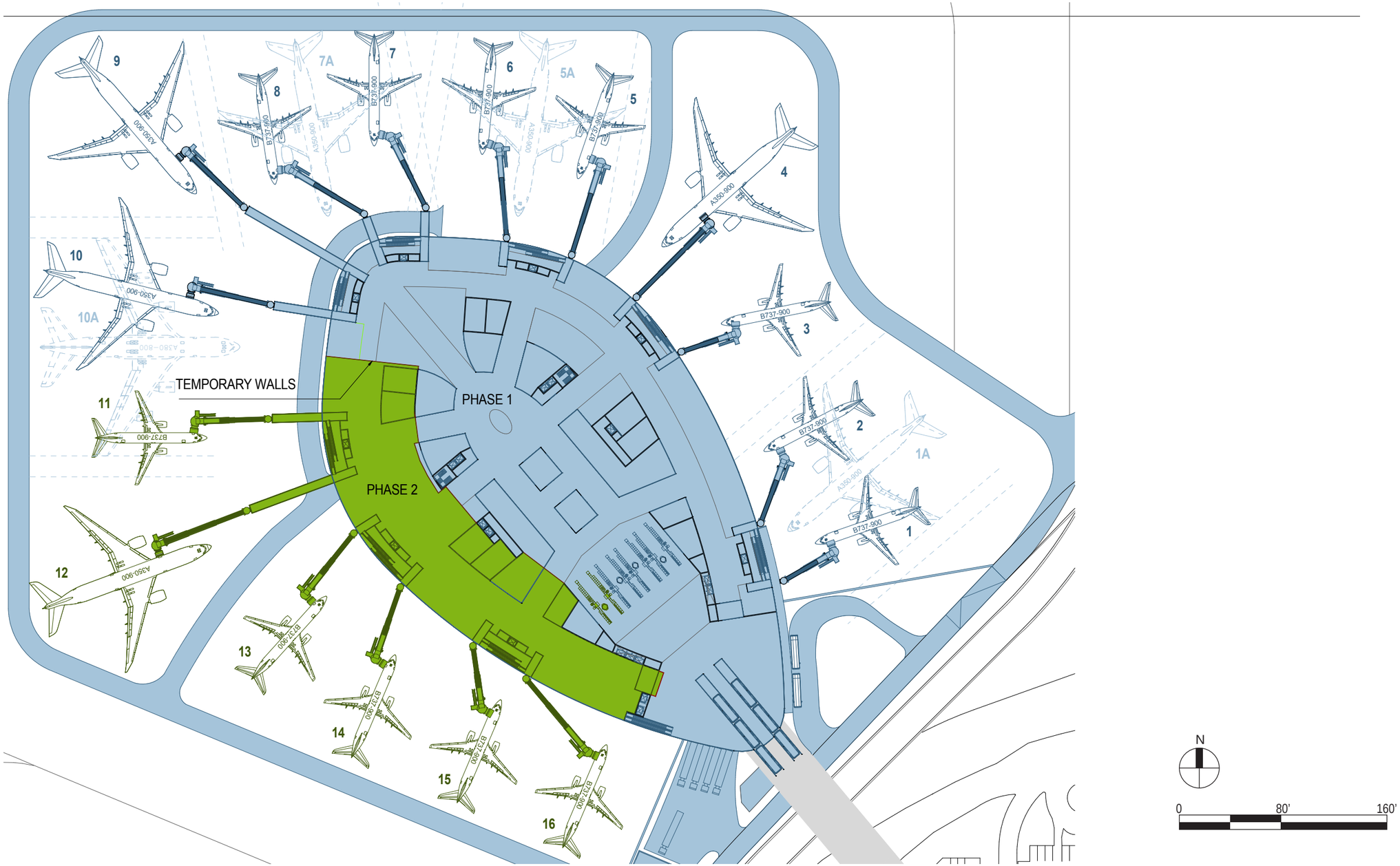


Figure 5.116
Airside D - Apron Level Phasing

Figure 5.117
Red Side - Future ATCT Site - HCAA/FAA Original Concept

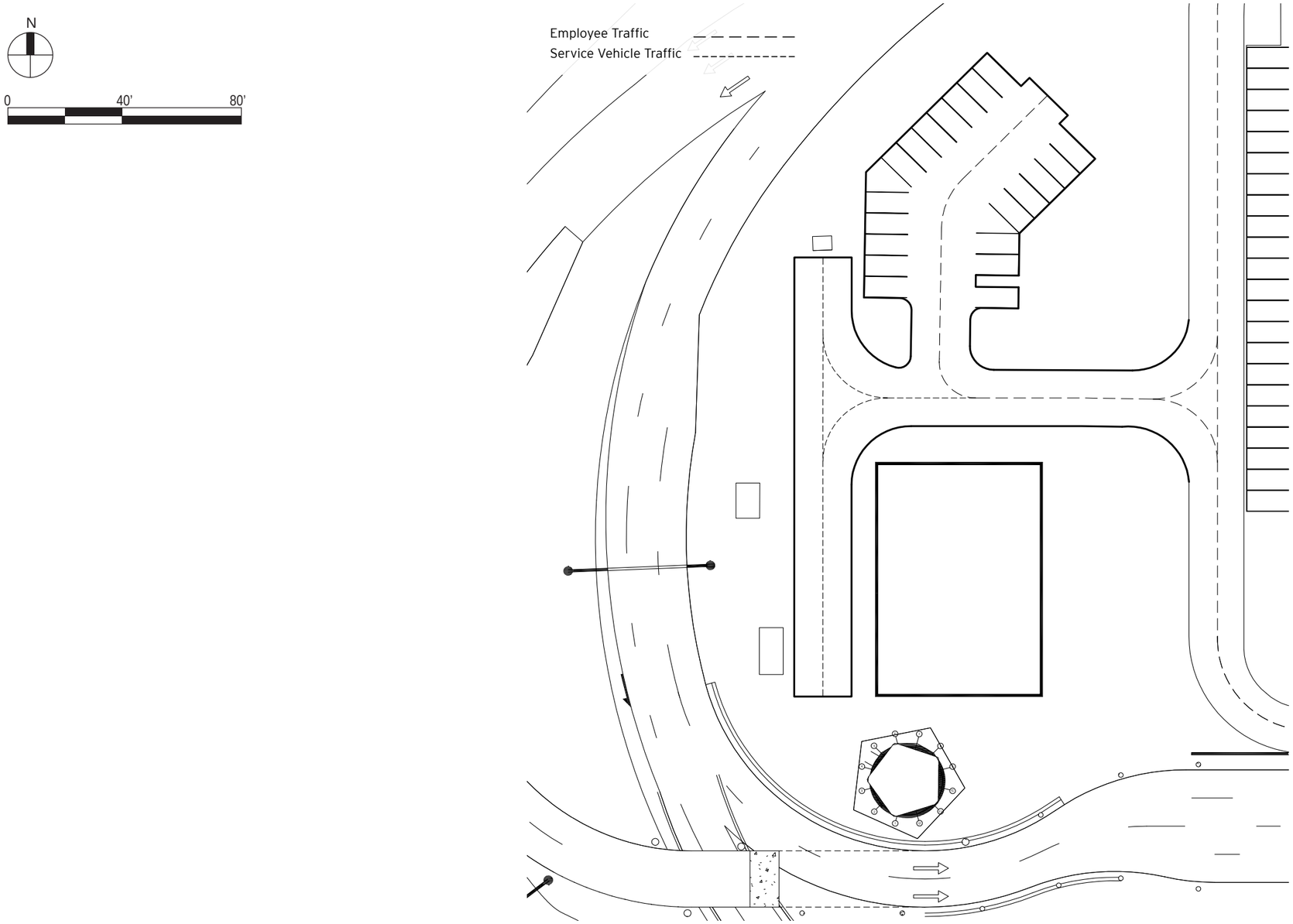


Figure 5.118
Red Side - Future ATCT Site - Option 1

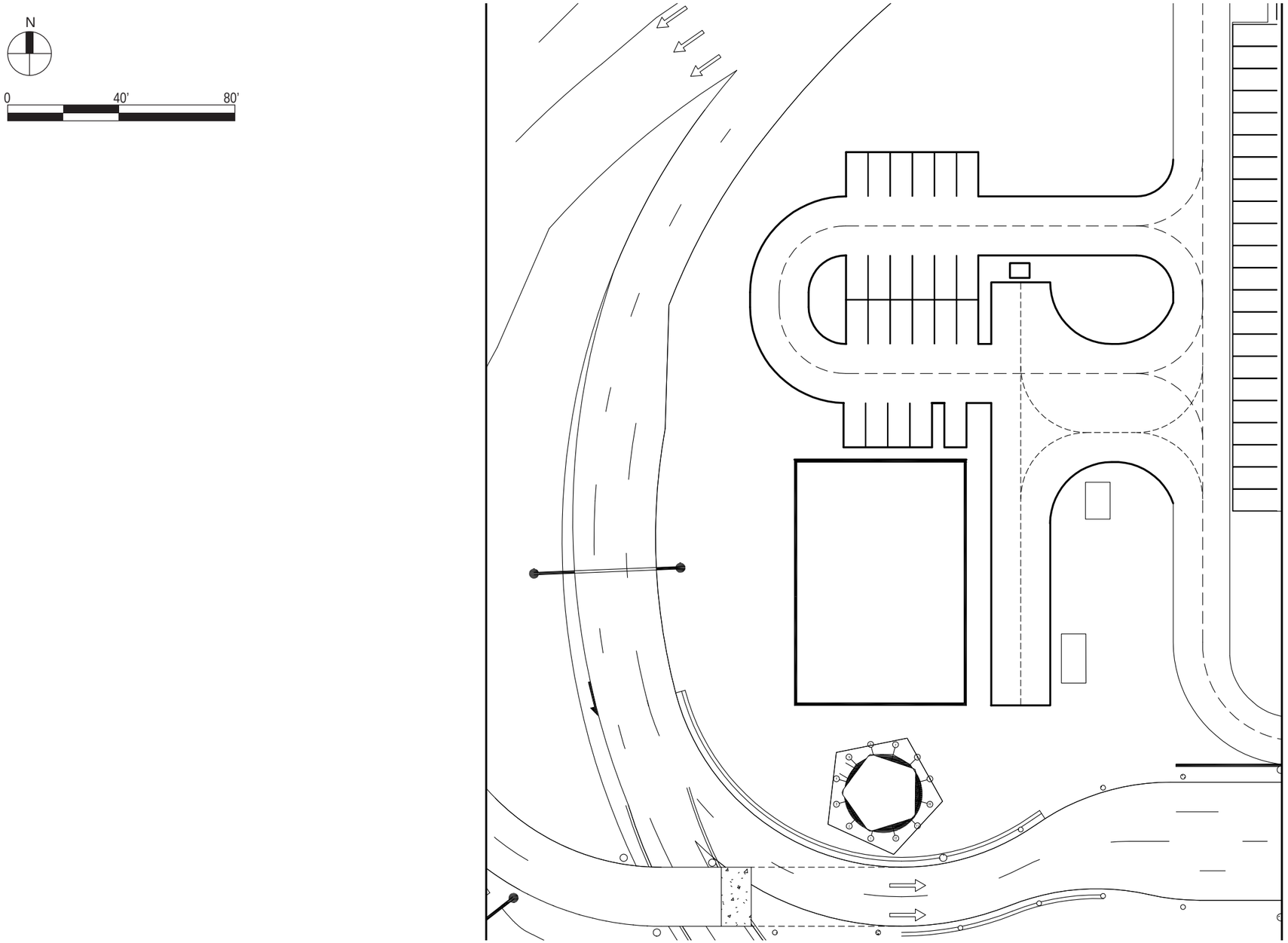
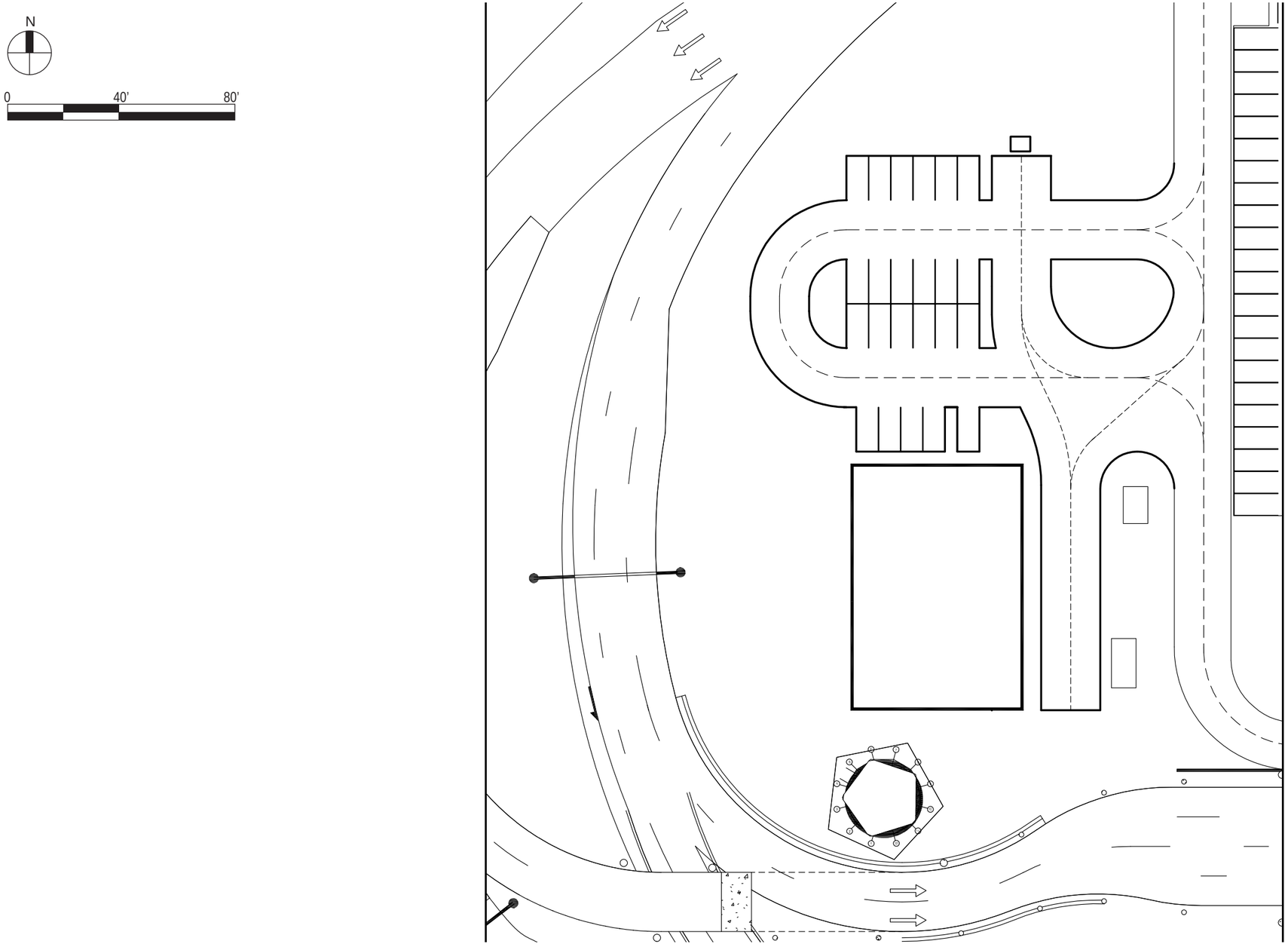


Figure 5.119
Red Side - Future ATCT Site - Option 2



SECTION 5 - AIRPORT FACILITY ALTERNATIVES - BLUE

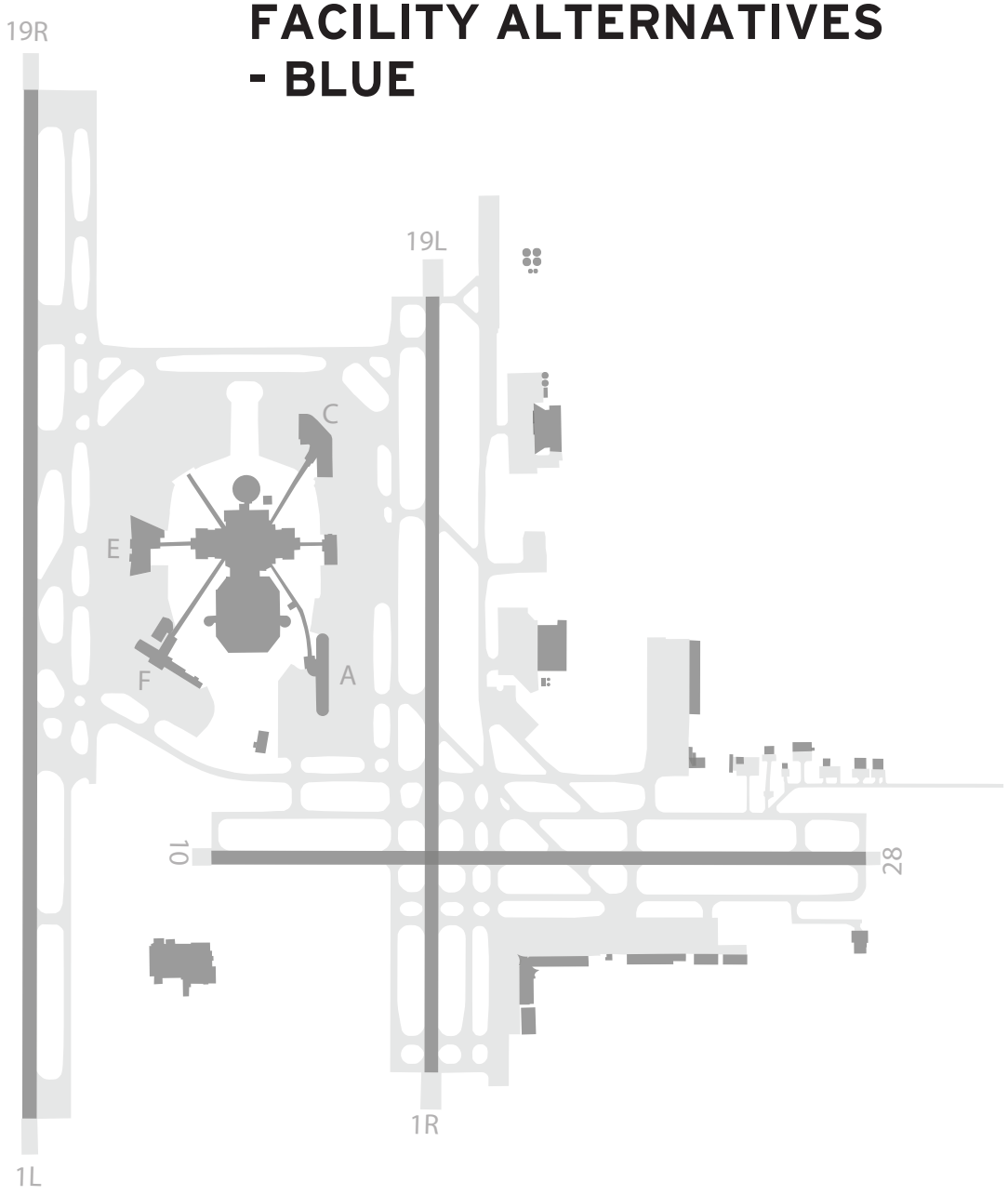


Figure 5.120
Blue Side Level 1

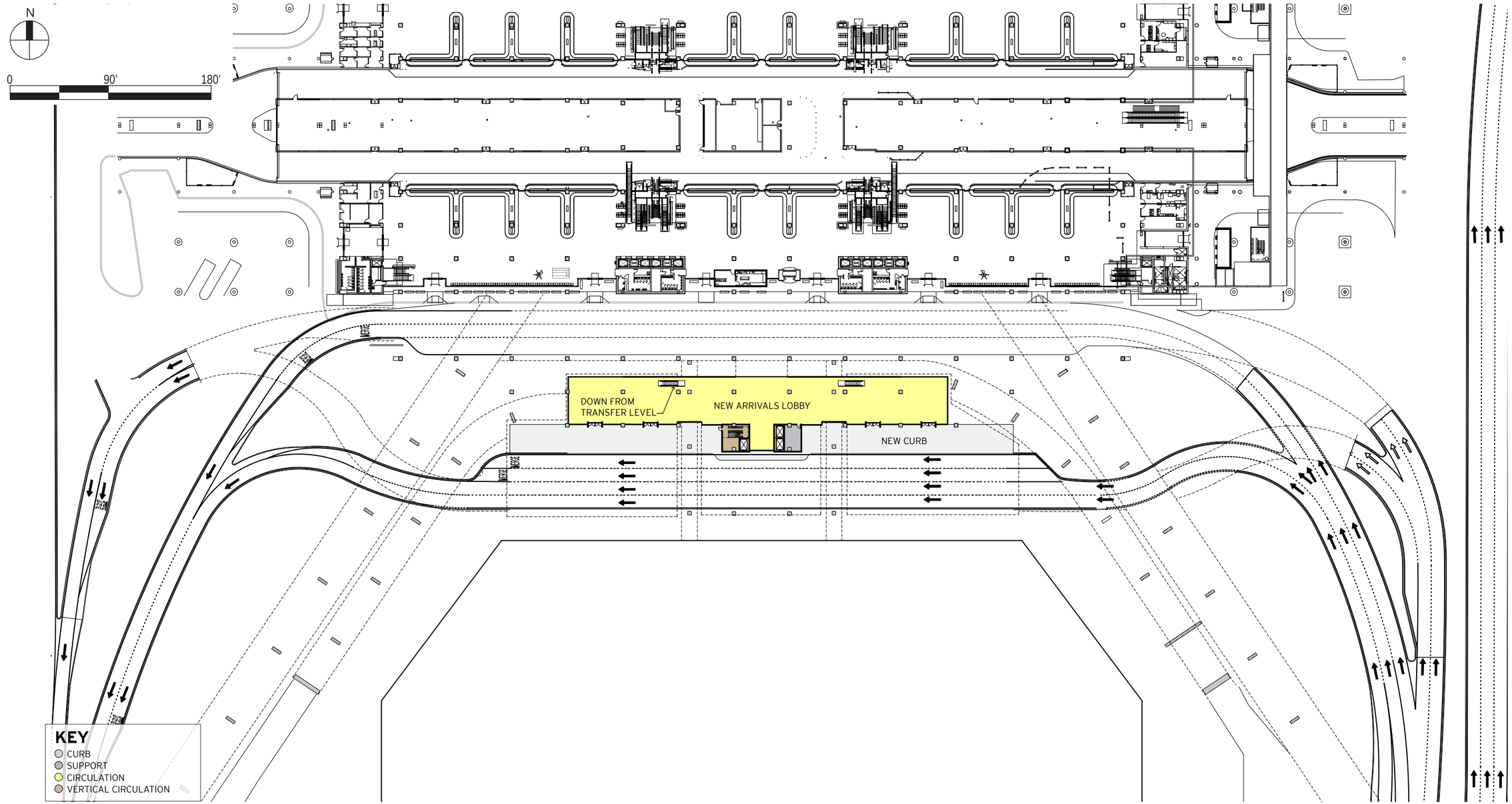


Figure 5.121
Blue Side Level 2

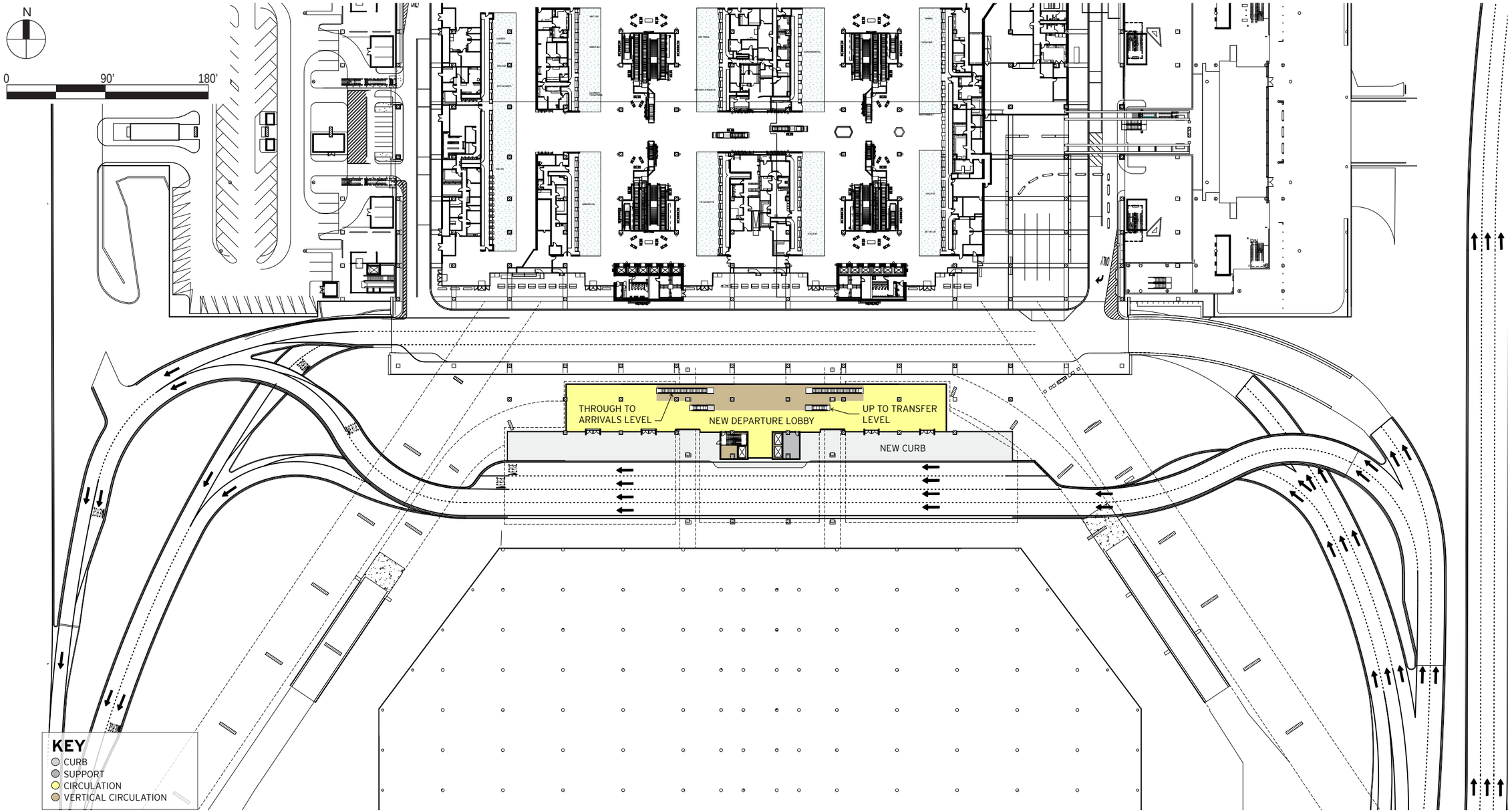


Figure 5.122
Blue Side Level 3

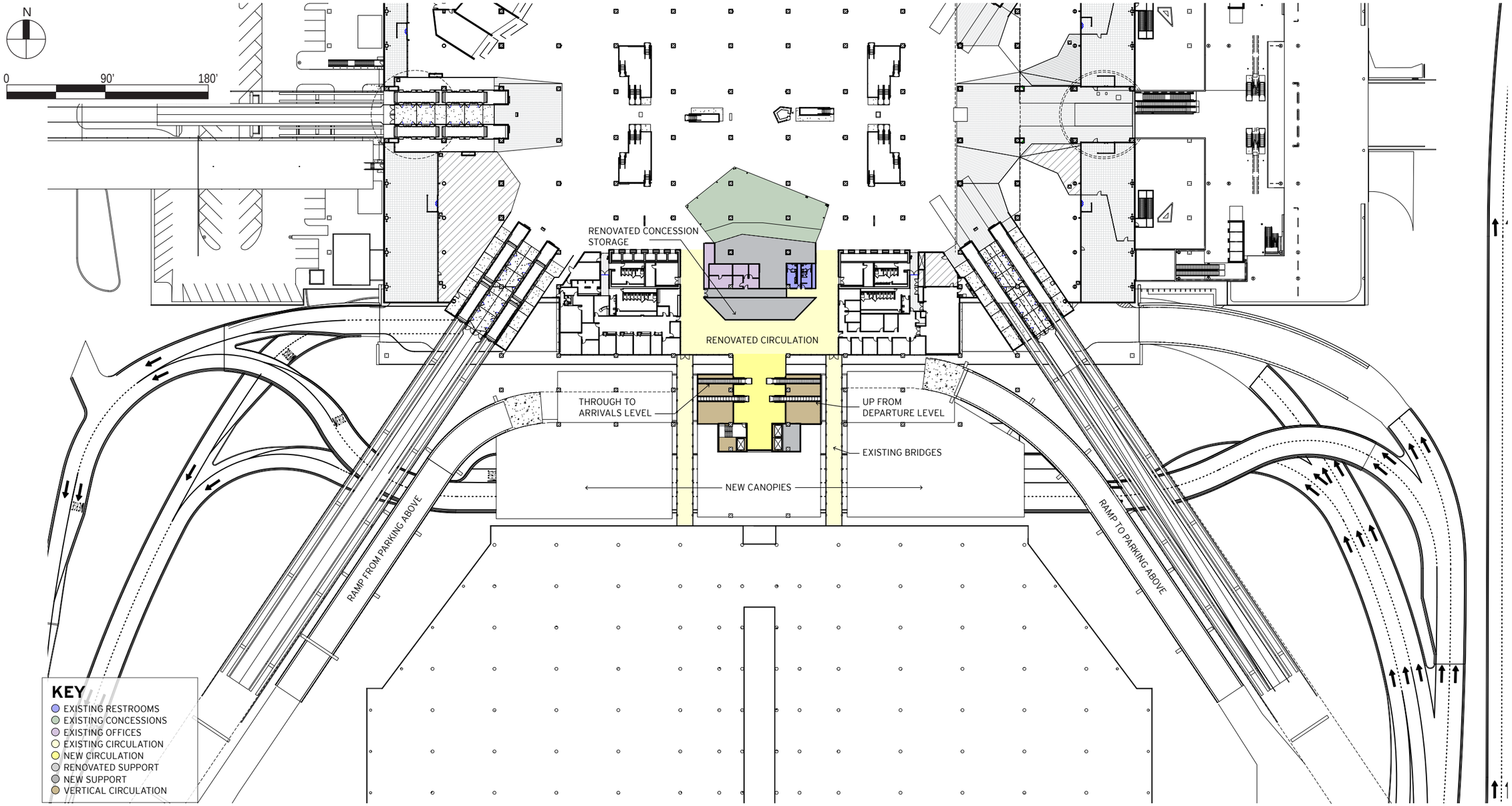


Figure 5.123
Blue Side-Existing Bridge Level 1 Baggage Claim Plan

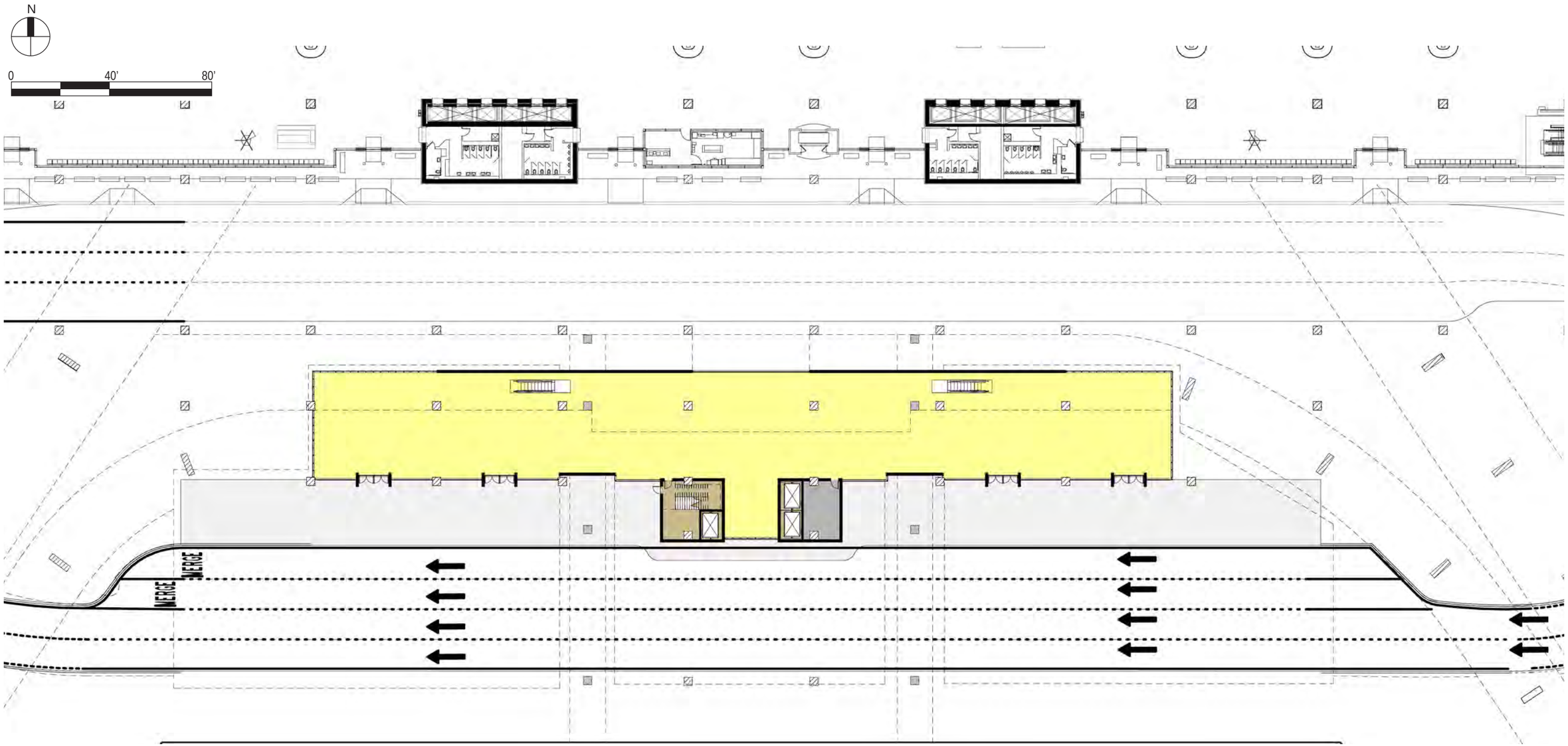


Figure 5.124
Blue Side-Existing Bridge Level 2 Ticketing Plan

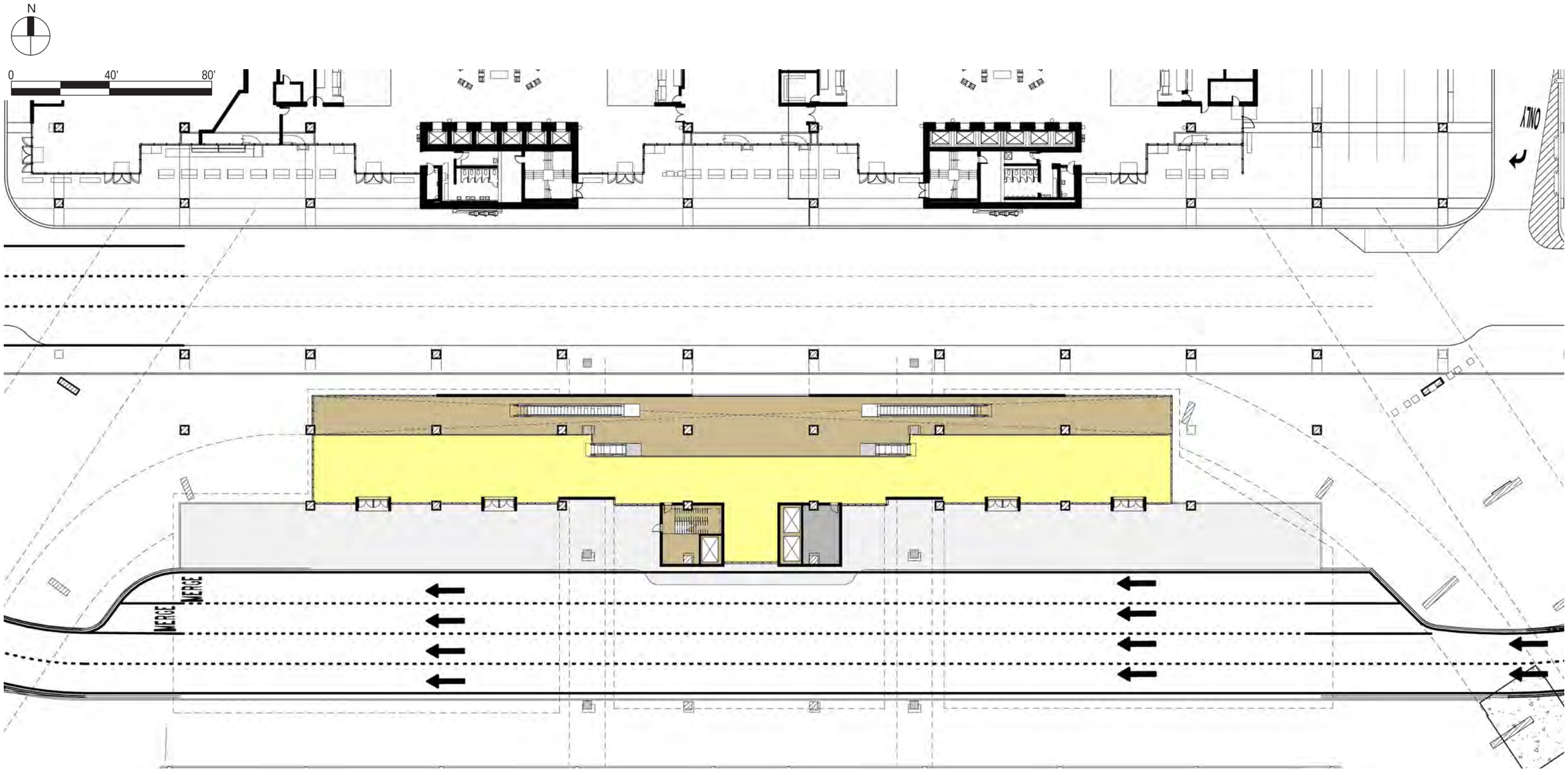
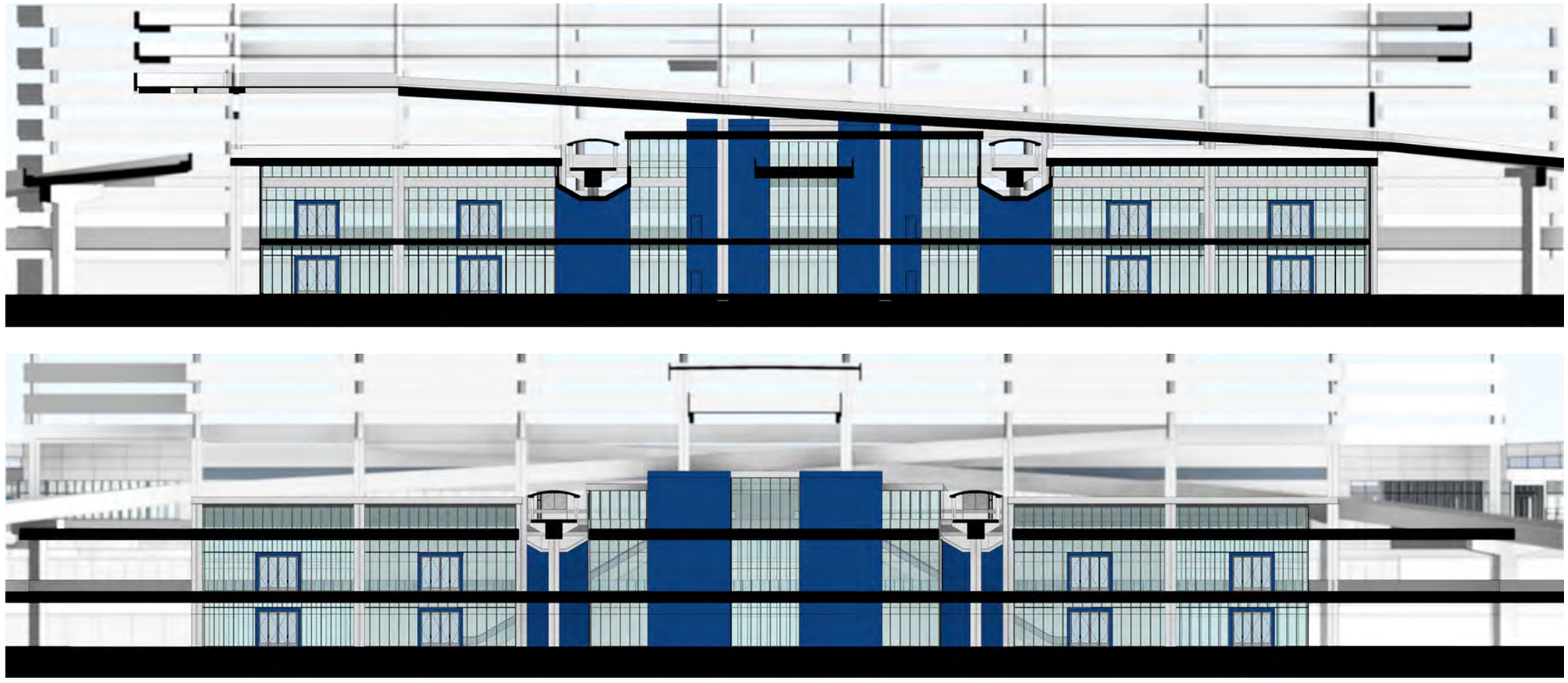


Figure 5.125
Blue Side - Existing Bridge 03 - Transfer Plan

Figure 5.126
Blue Side - Existing Bridge - Sections



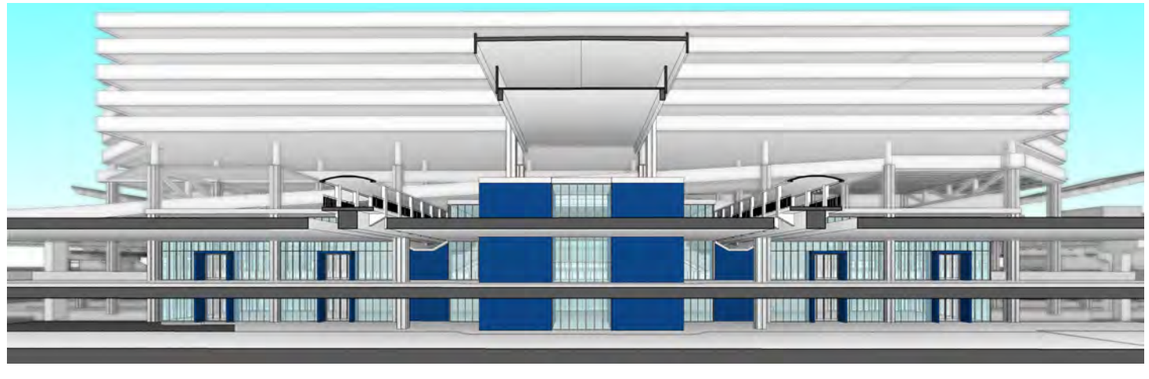


Figure 5.127
Blue Side - Existing Bridge - Interior Perspective

Figure 5.128
Blue Side - New Bridge 01 - Bag Claim Plan

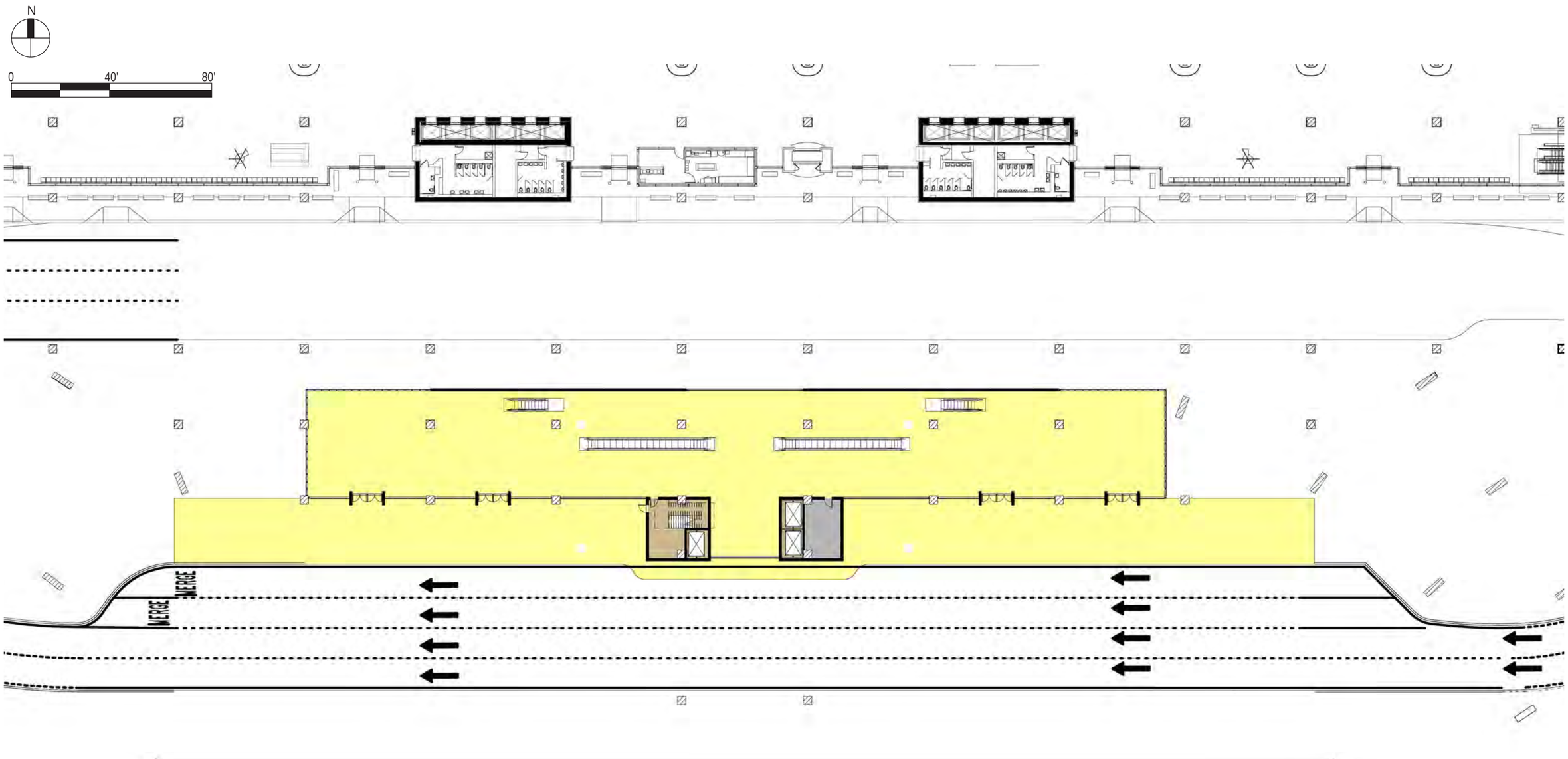


Figure 5.129
Blue Side - New Bridge 02 - Ticketing Plan

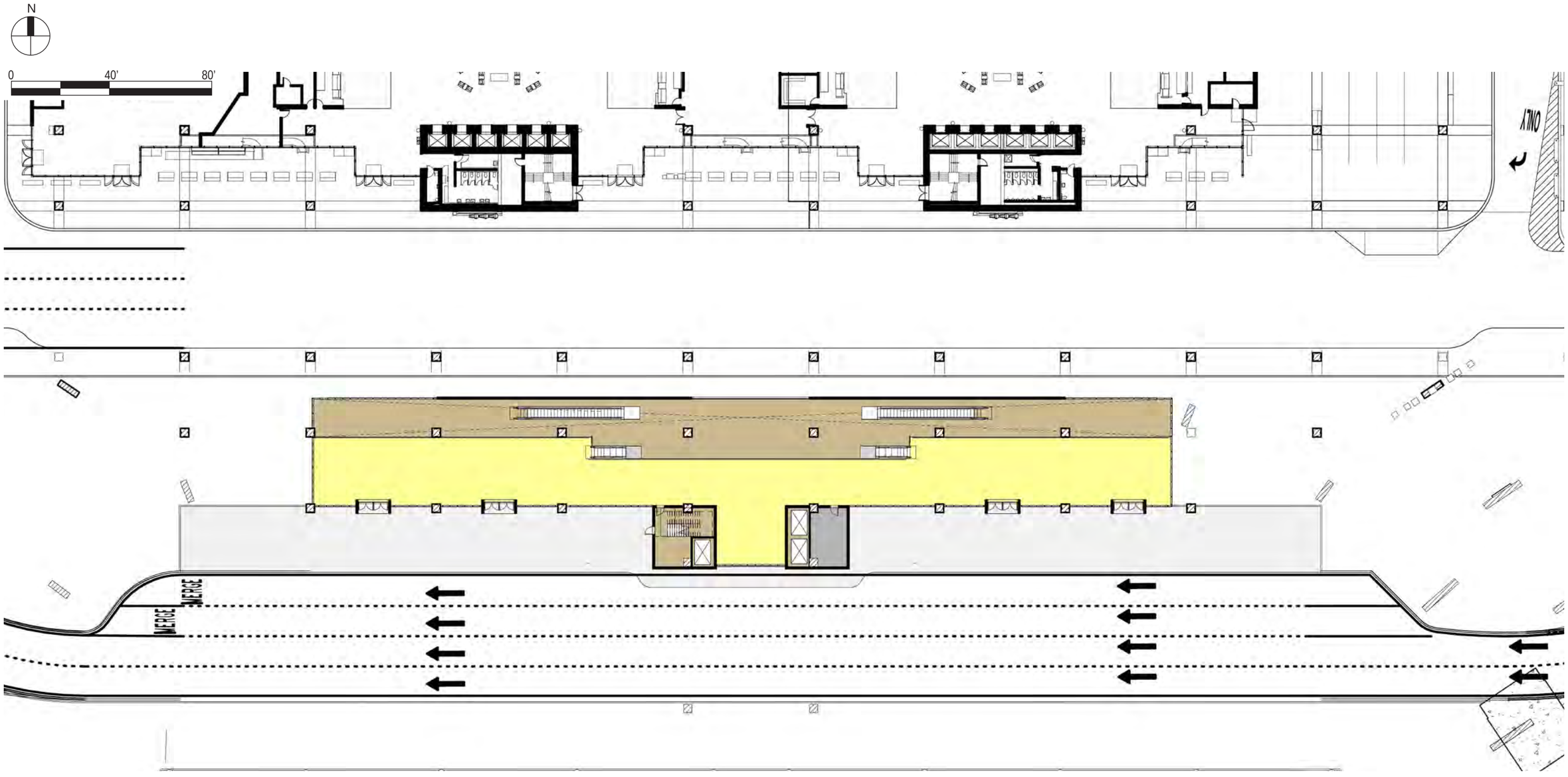


Figure 5.130
Blue Side - New Bridge 03 - Transfer Plan

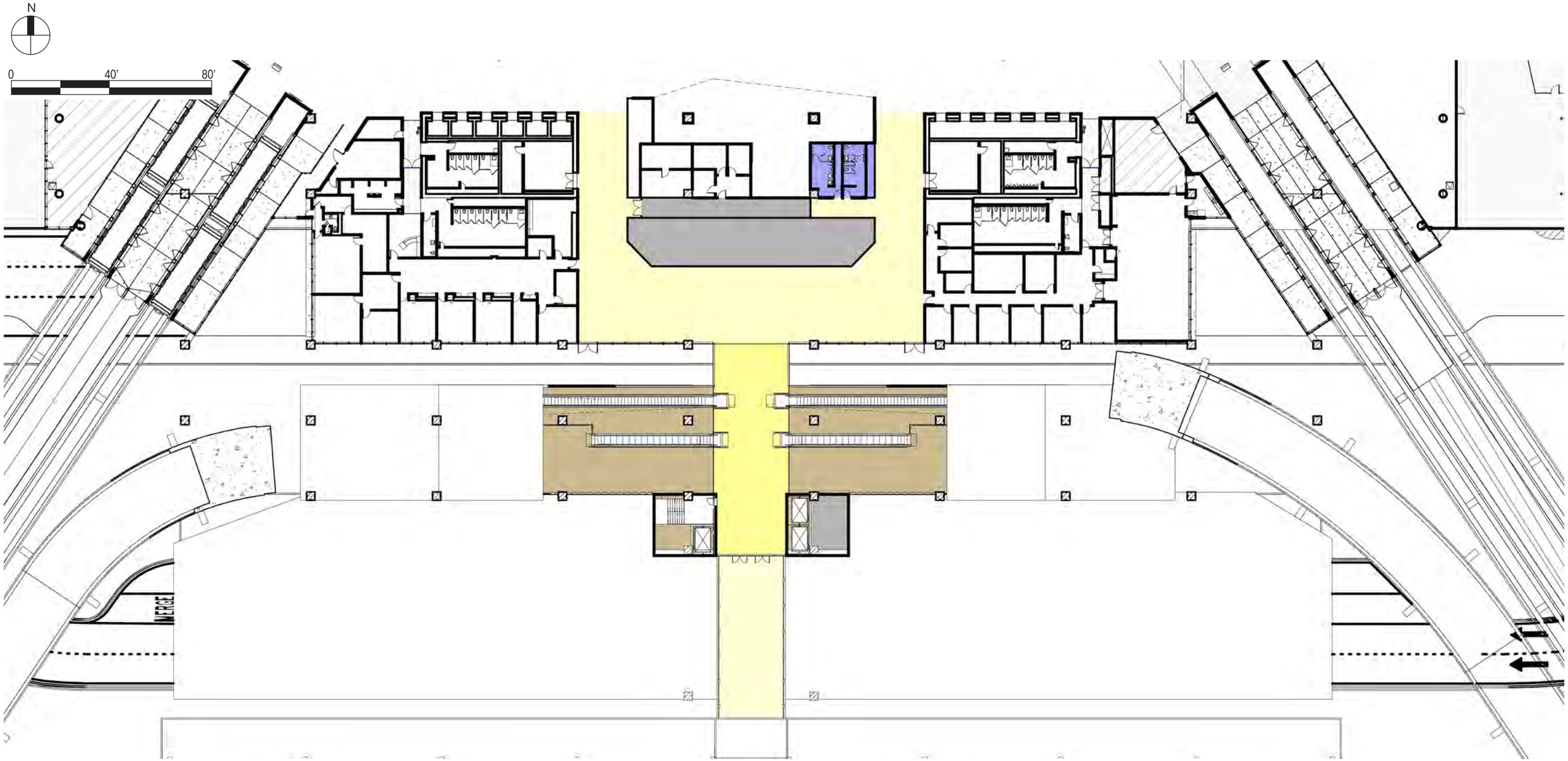


Figure 5.131
Blue Side - New Bridge - Sections

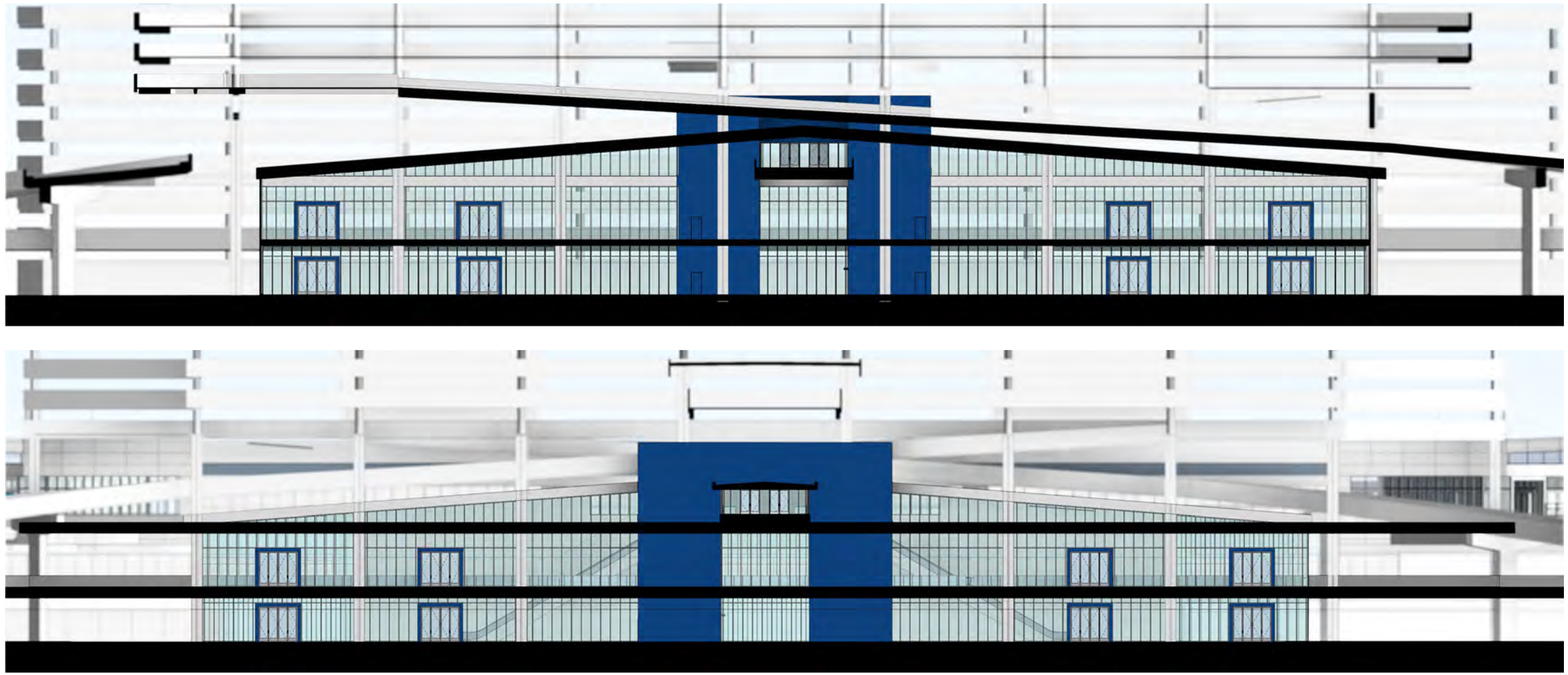


Figure 5.132
Blue Side - New Bridge - Interior Perspective

Figure 5.133
Blue SIde - Curb Expansion View

Figure 5.134
Blue Side - Curb Expansion View

SECTION 5 - AIRPORT FACILITY ALTERNATIVES - RED

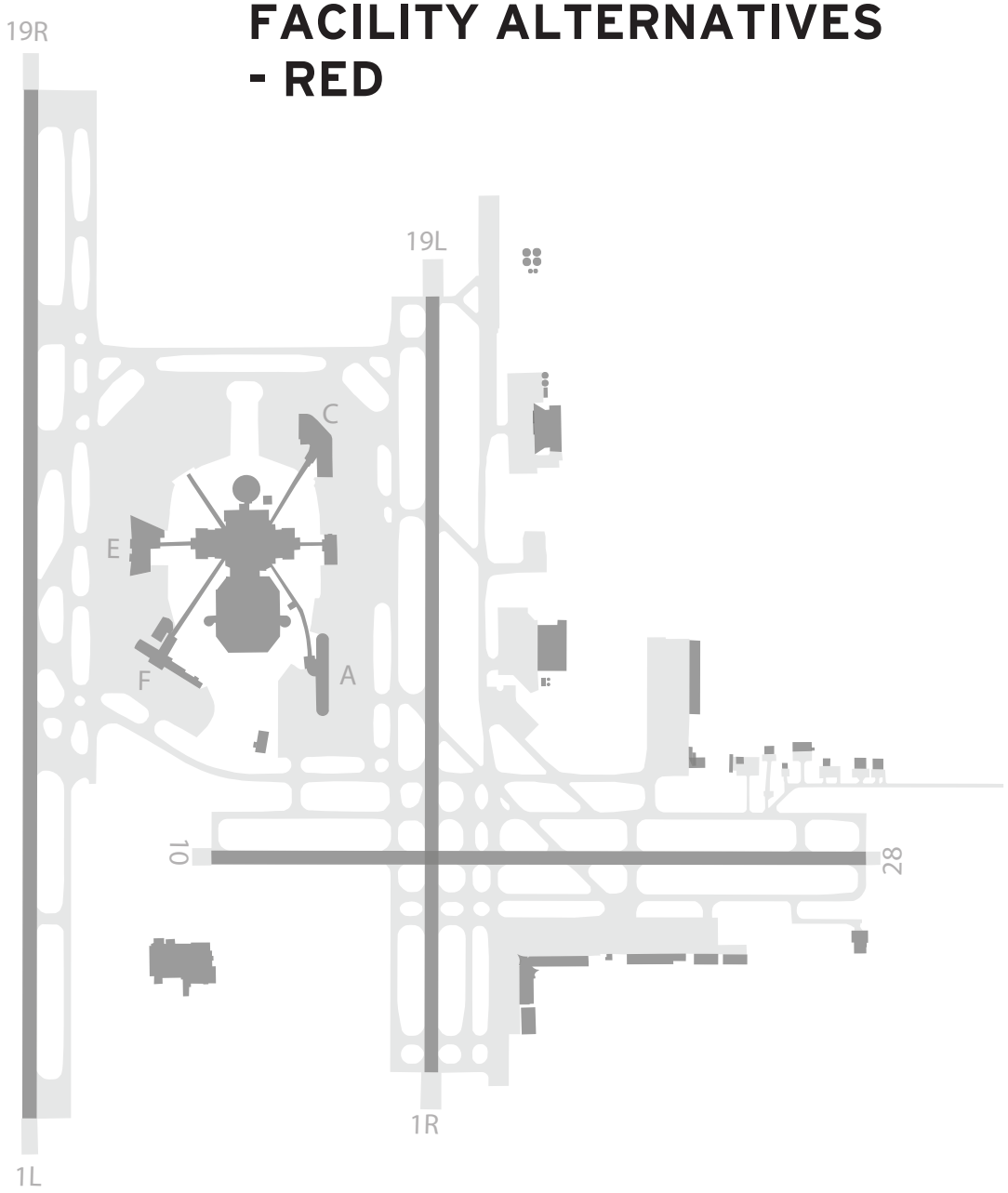


Figure 5.135
Red Side Level -1 Arrivals - Demolition

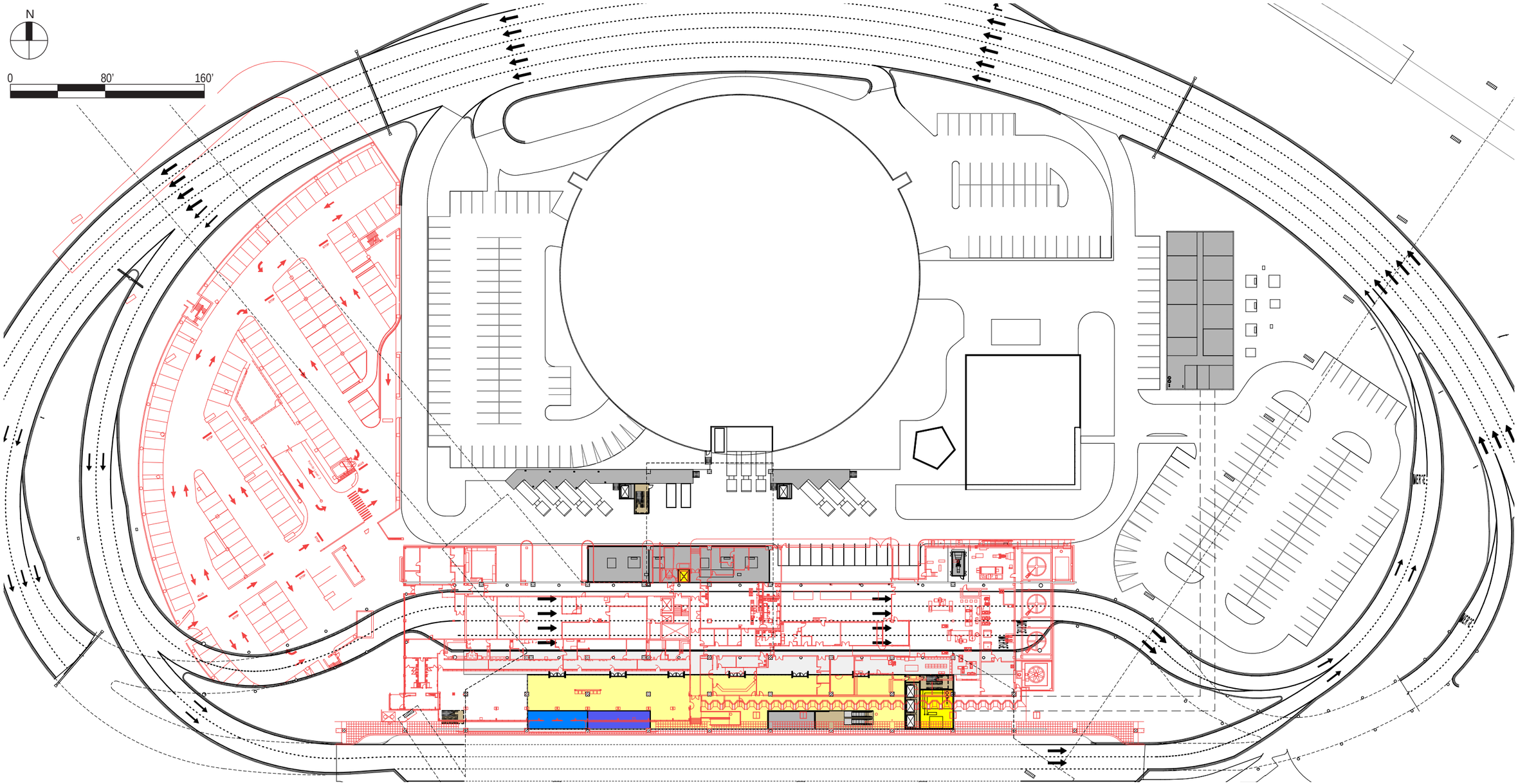


Figure 5.136
Red Side Level 2 Ticketing - Demolition

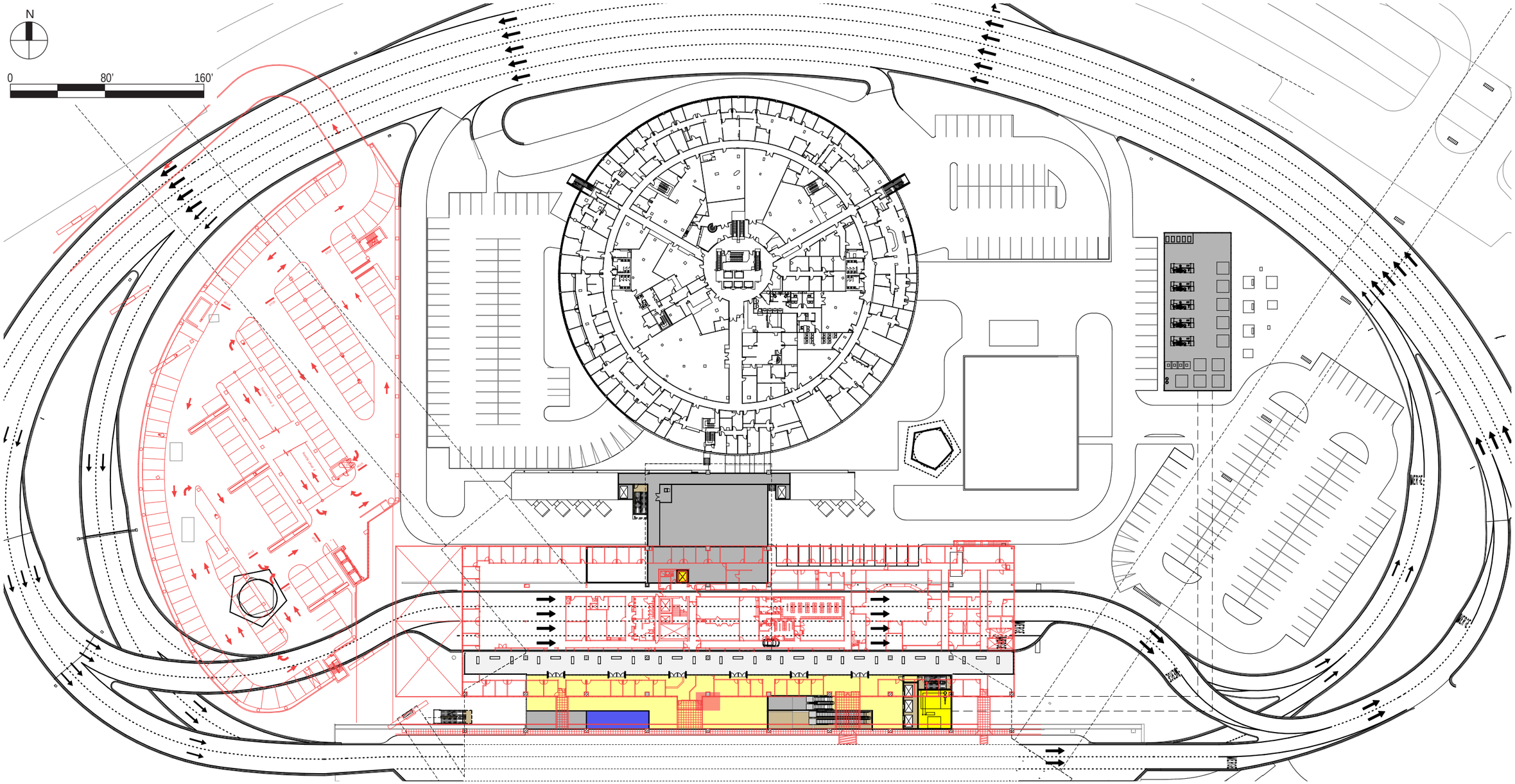


Figure 5.137
Red Side Level 3 Transfer - Demolition

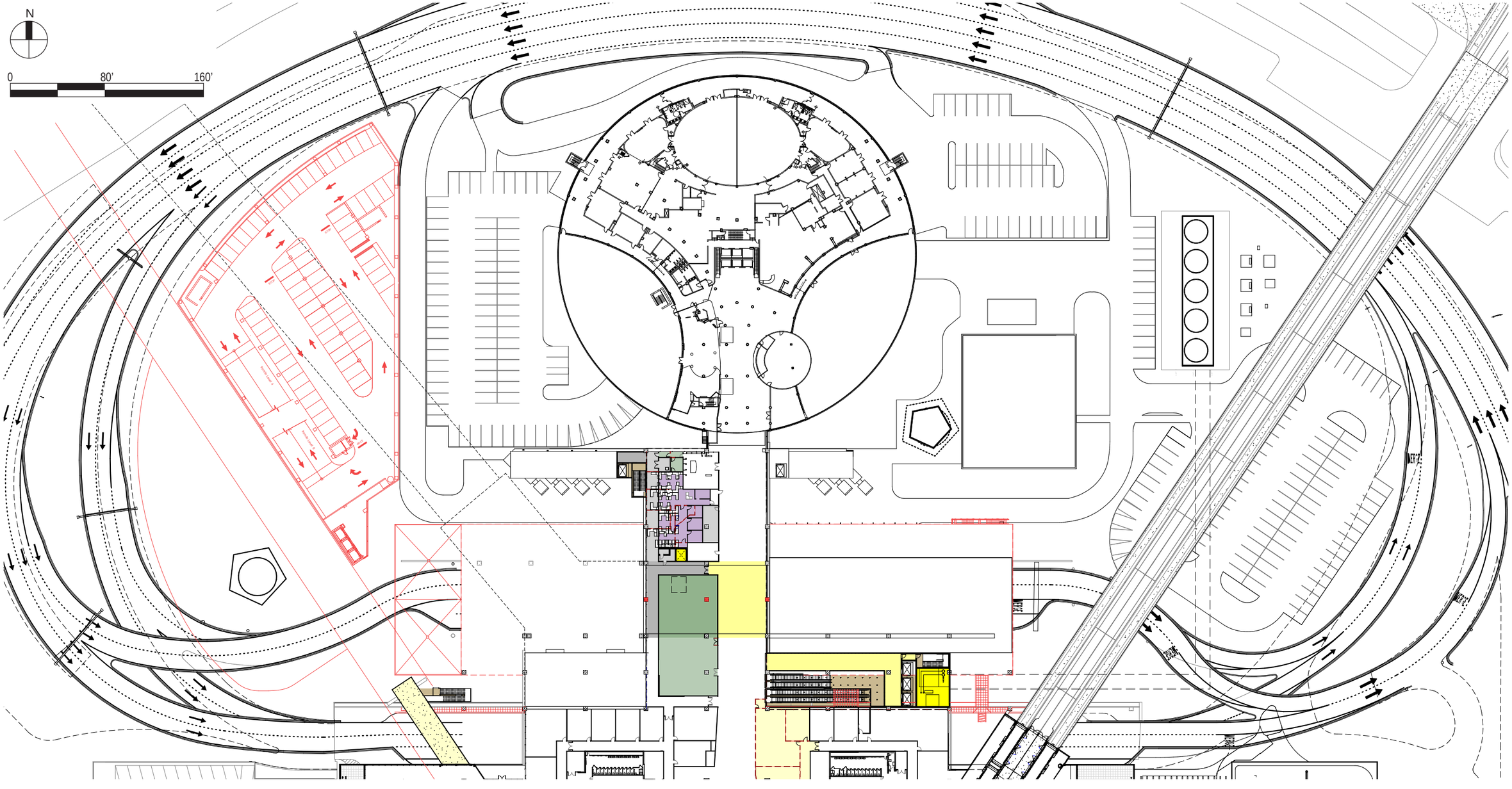


Figure 5.138
Red Side Level 1 Arrivals

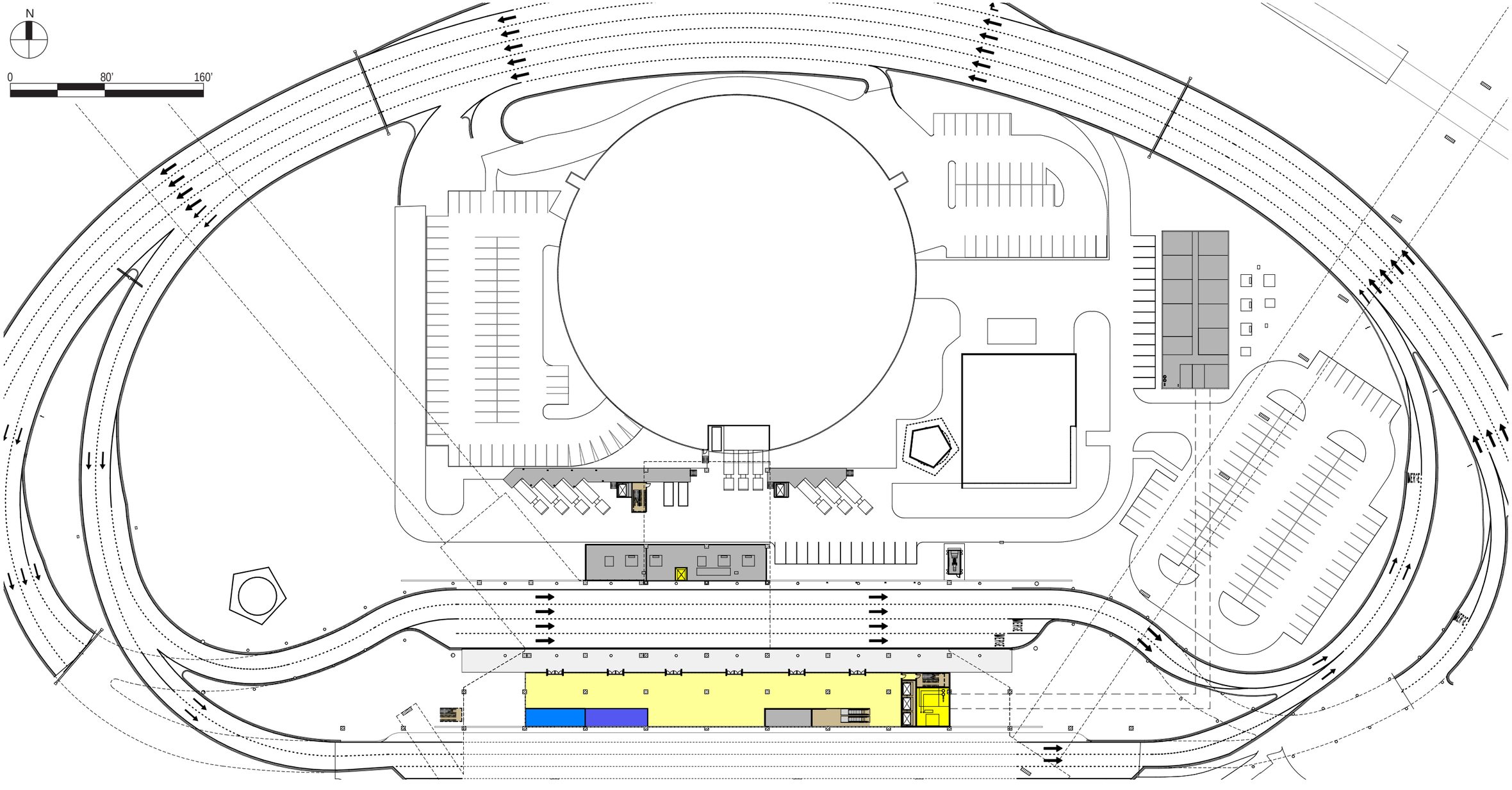


Figure 5.139
Red Side Level 2 Ticketing

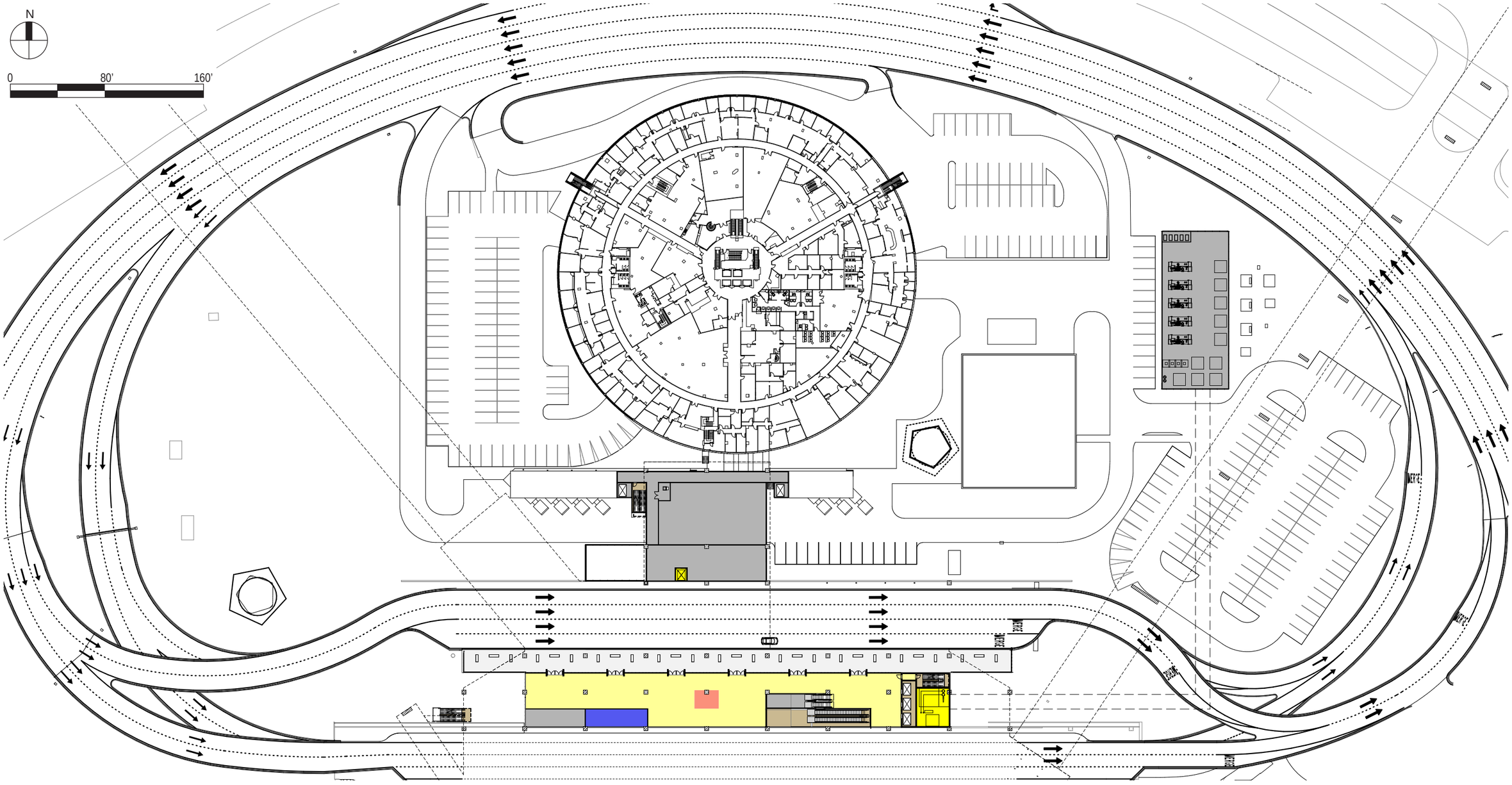


Figure 5.140
Red Side Level 3 Transfer

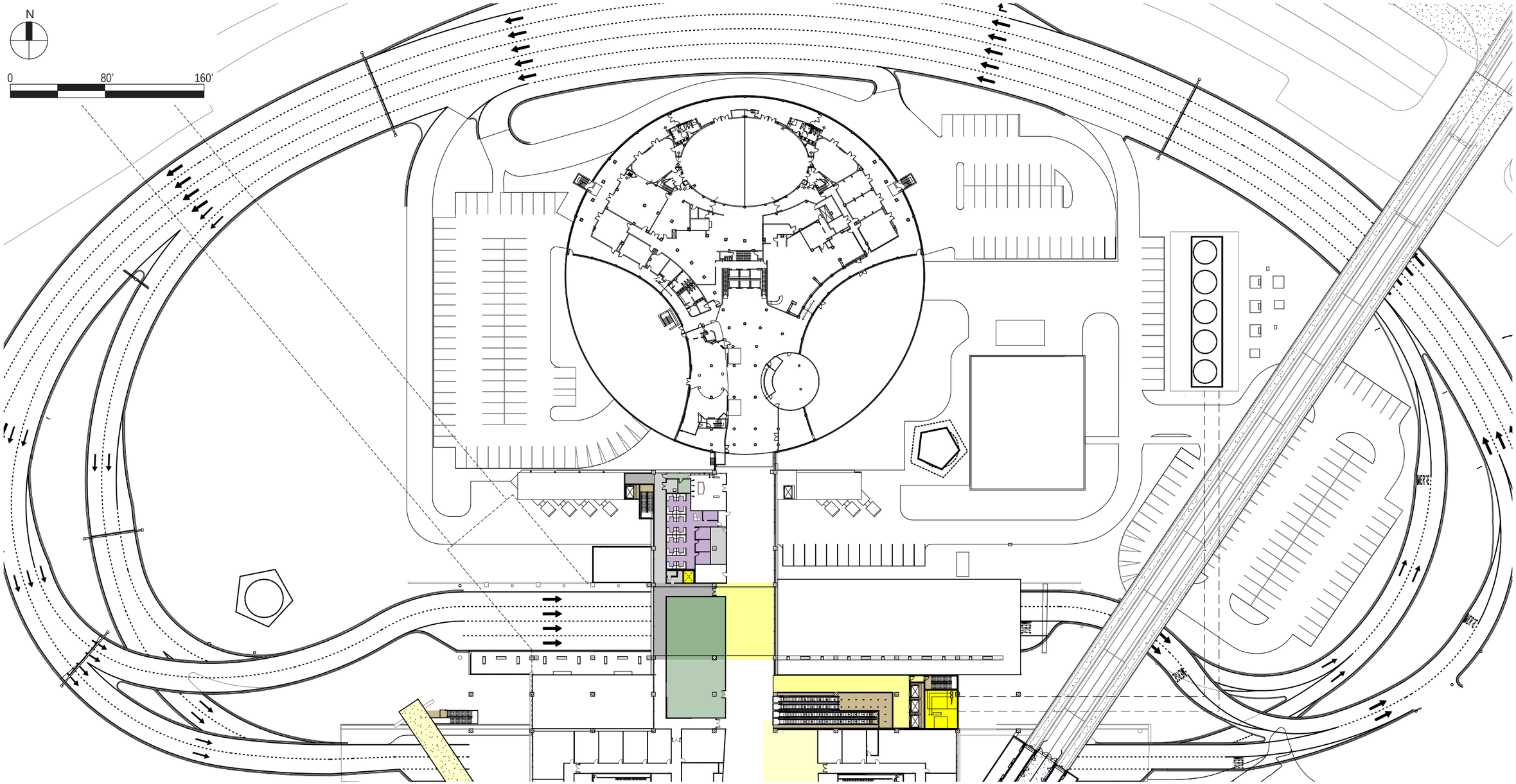


Figure 5.141
Red Side - Level 03 - Marriott Bridge

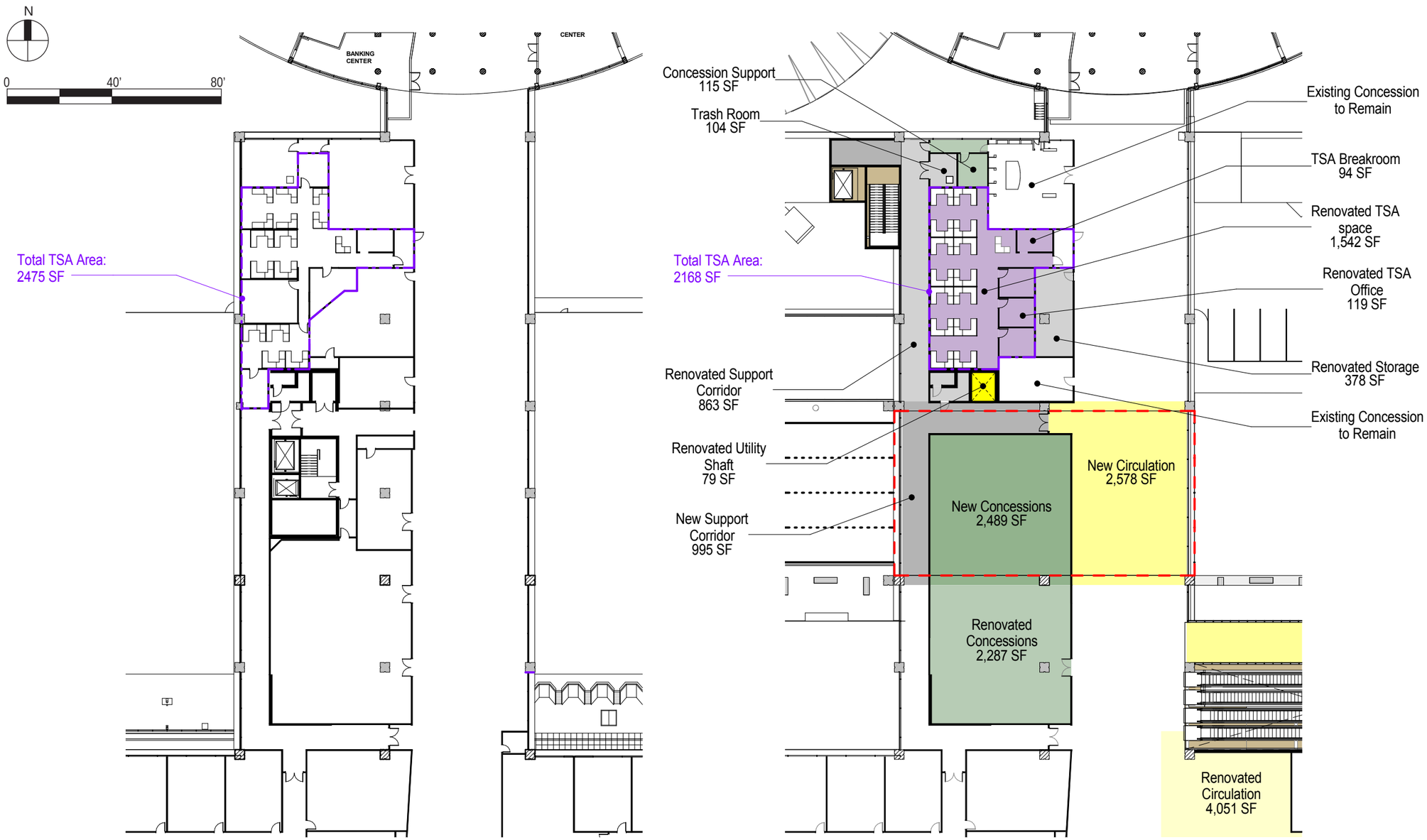


Figure 5.142
Red Side Level 3 Phase 3

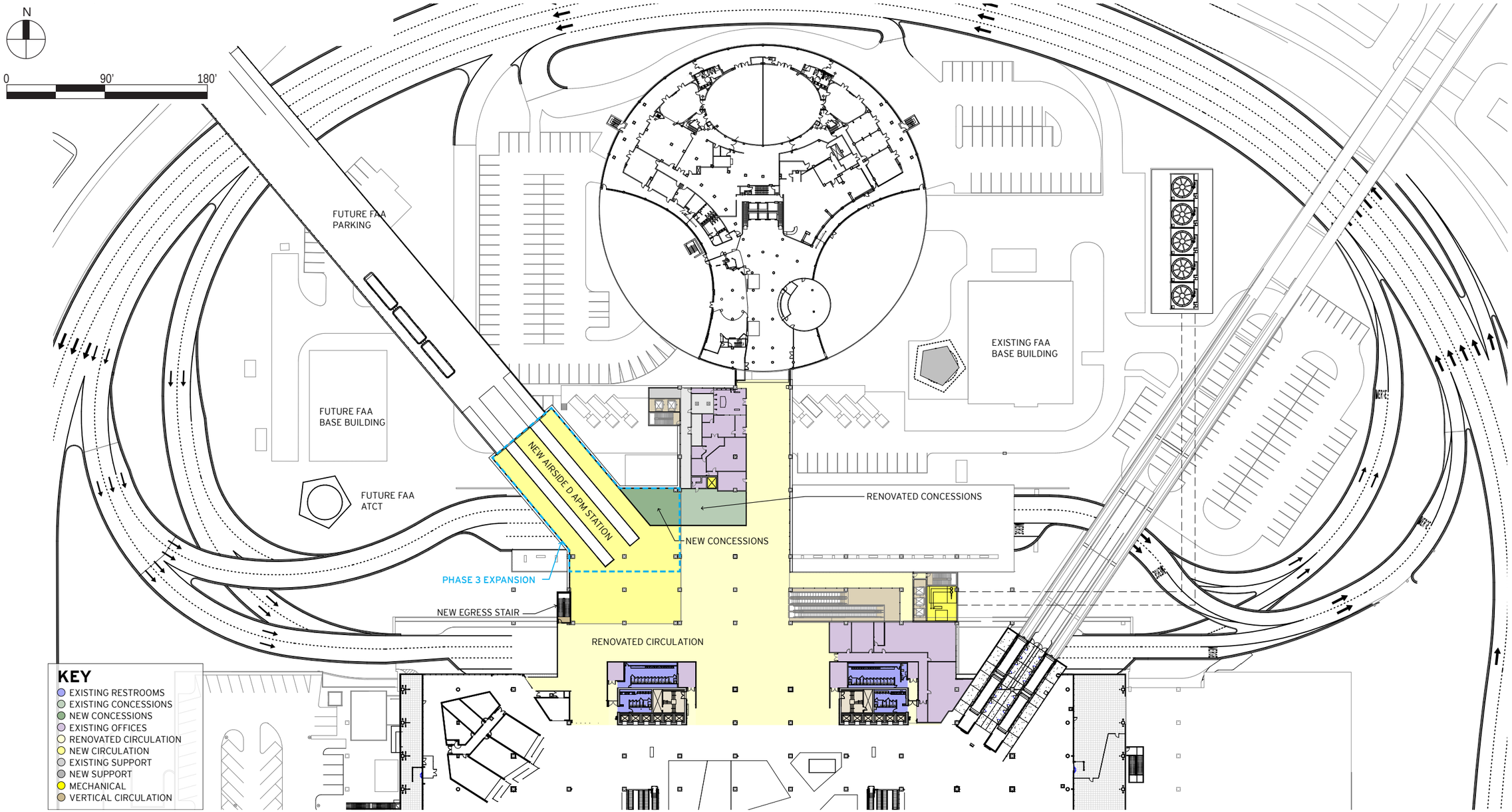


Figure 5.143
Red Side - Curb Expansion View

Figure 5.144
Red Side - Curb Expansion View

Figure 5.145
Red Side - Curb Expansion View

Figure 5.146
Red Side - Loading Dock - Enlarged Loading Area

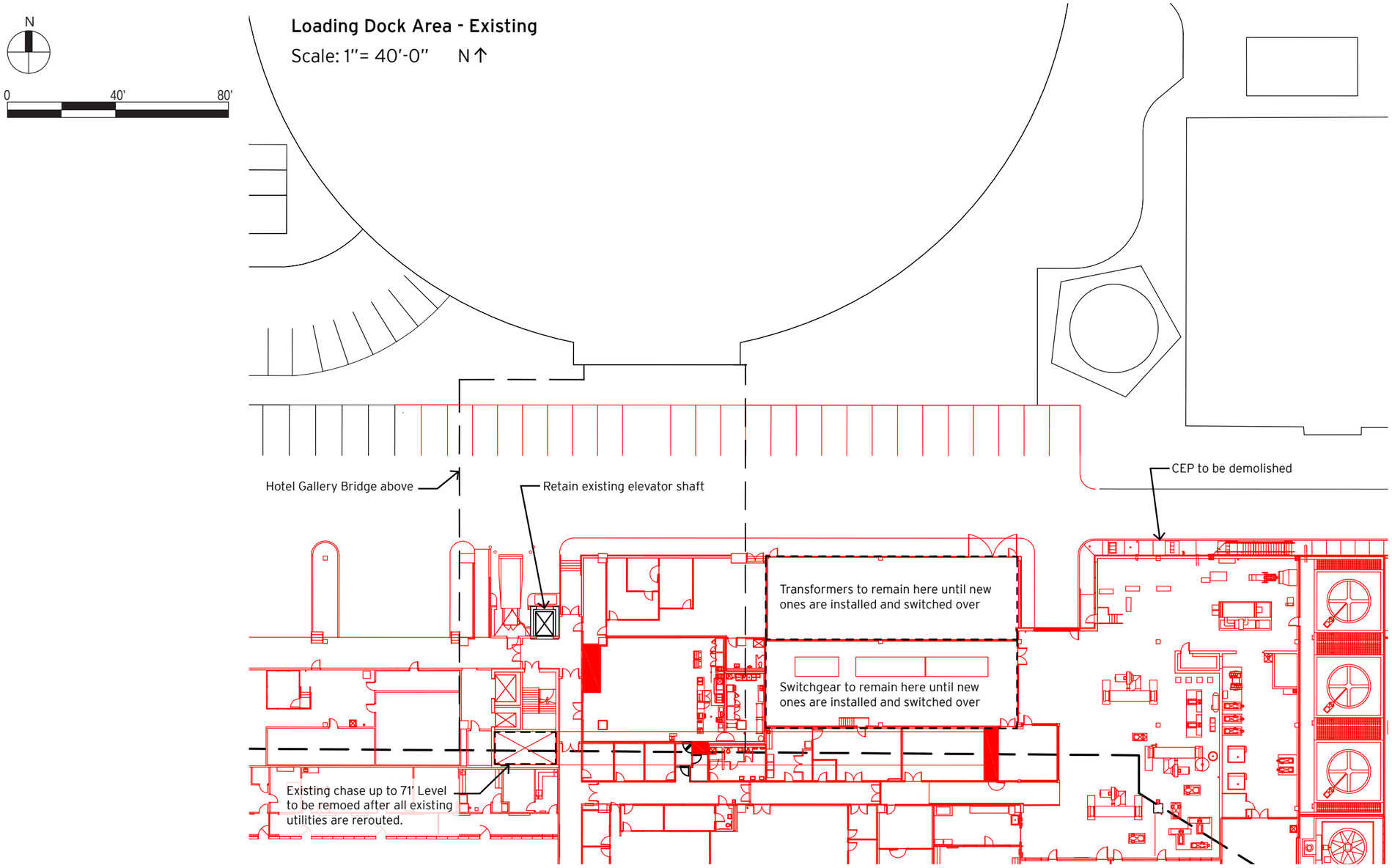


Figure 5.147
Red Side - Loading Dock Option 1

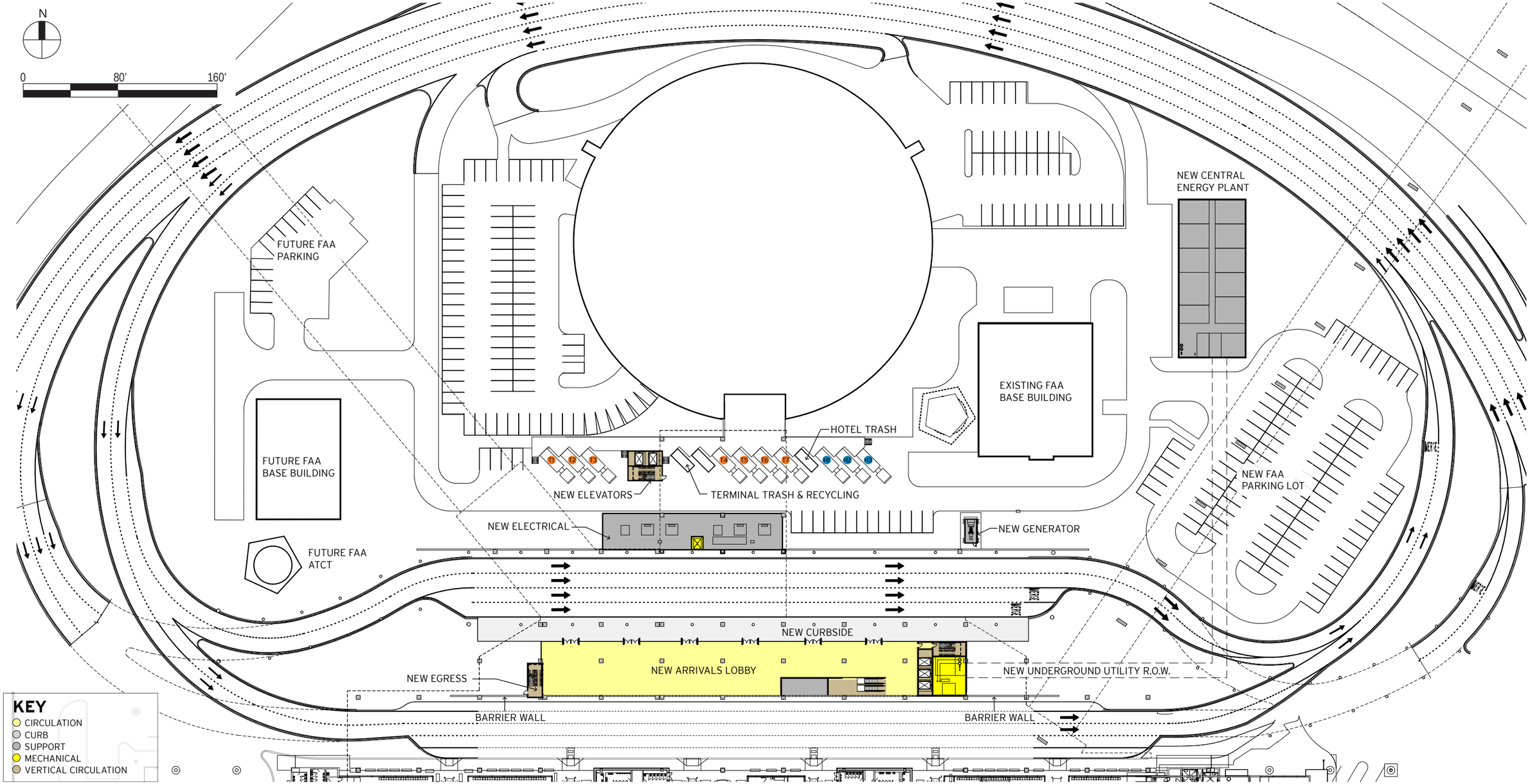


Figure 5.148
Red Side - Loading Dock Option 2 (Preferred)

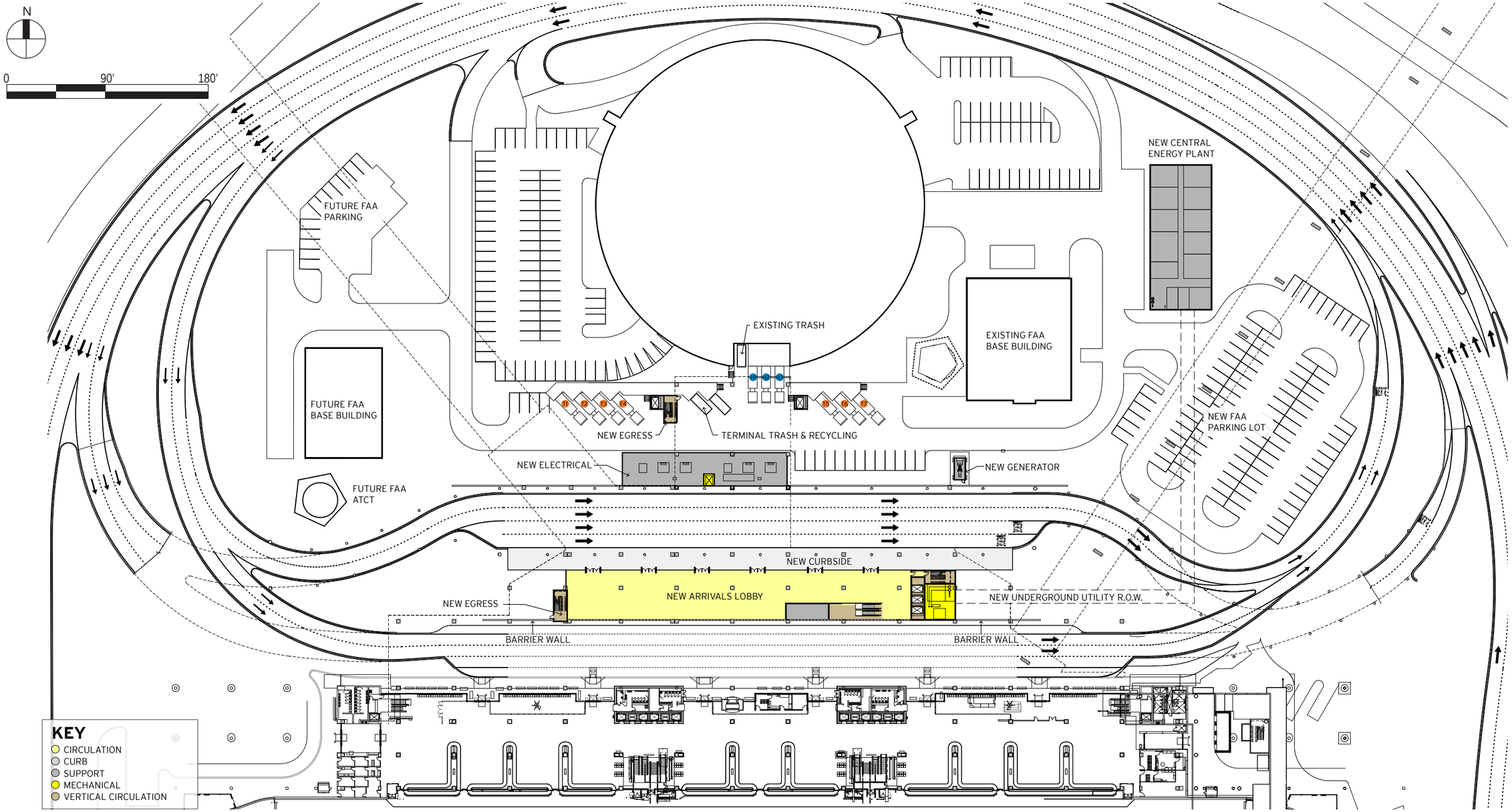
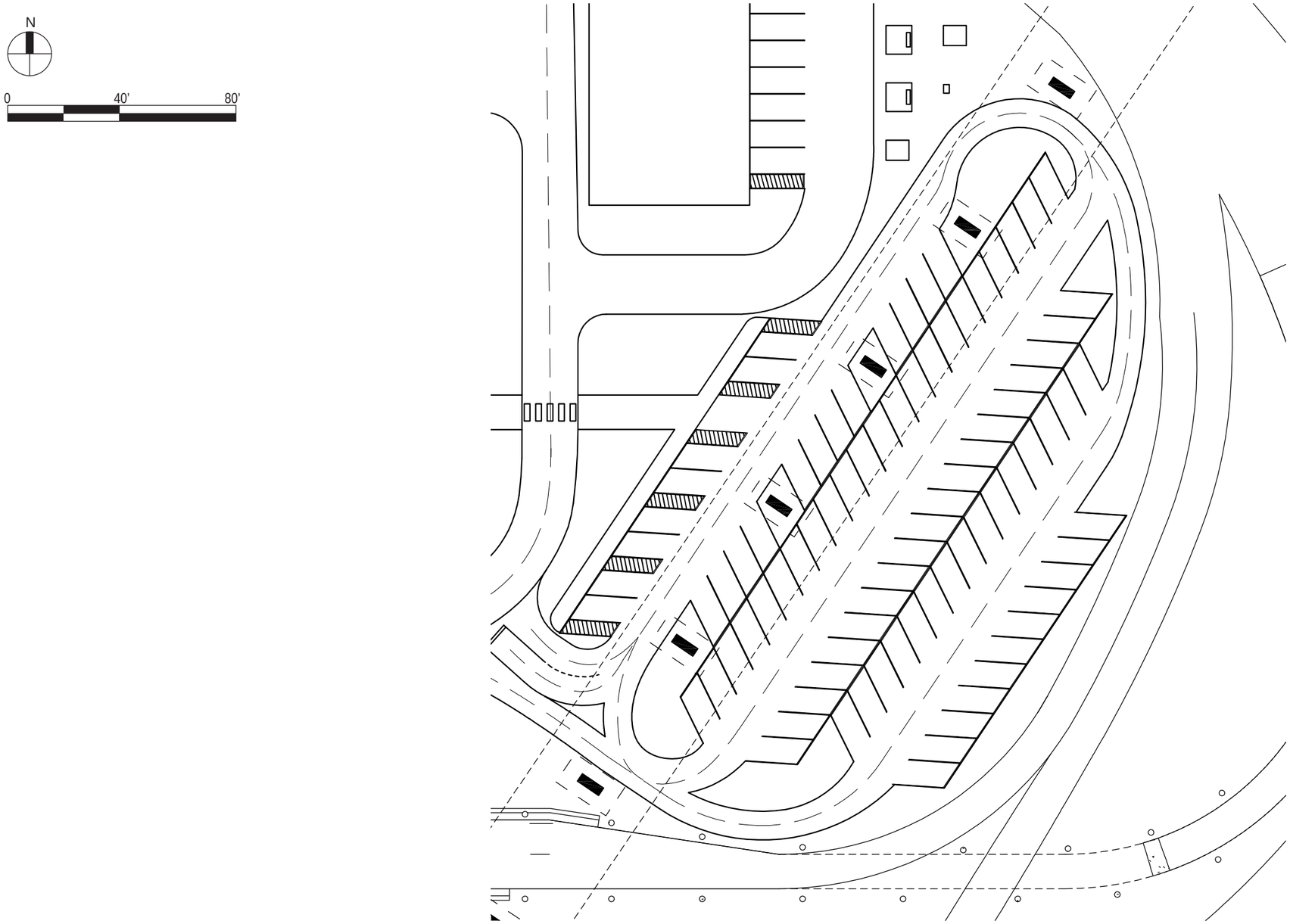


Figure 5.149
Red Side - FAA Parking Lot - Option 1



SECTION 5 - AIRPORT FACILITY ALTERNATIVES MAIN TERMINAL

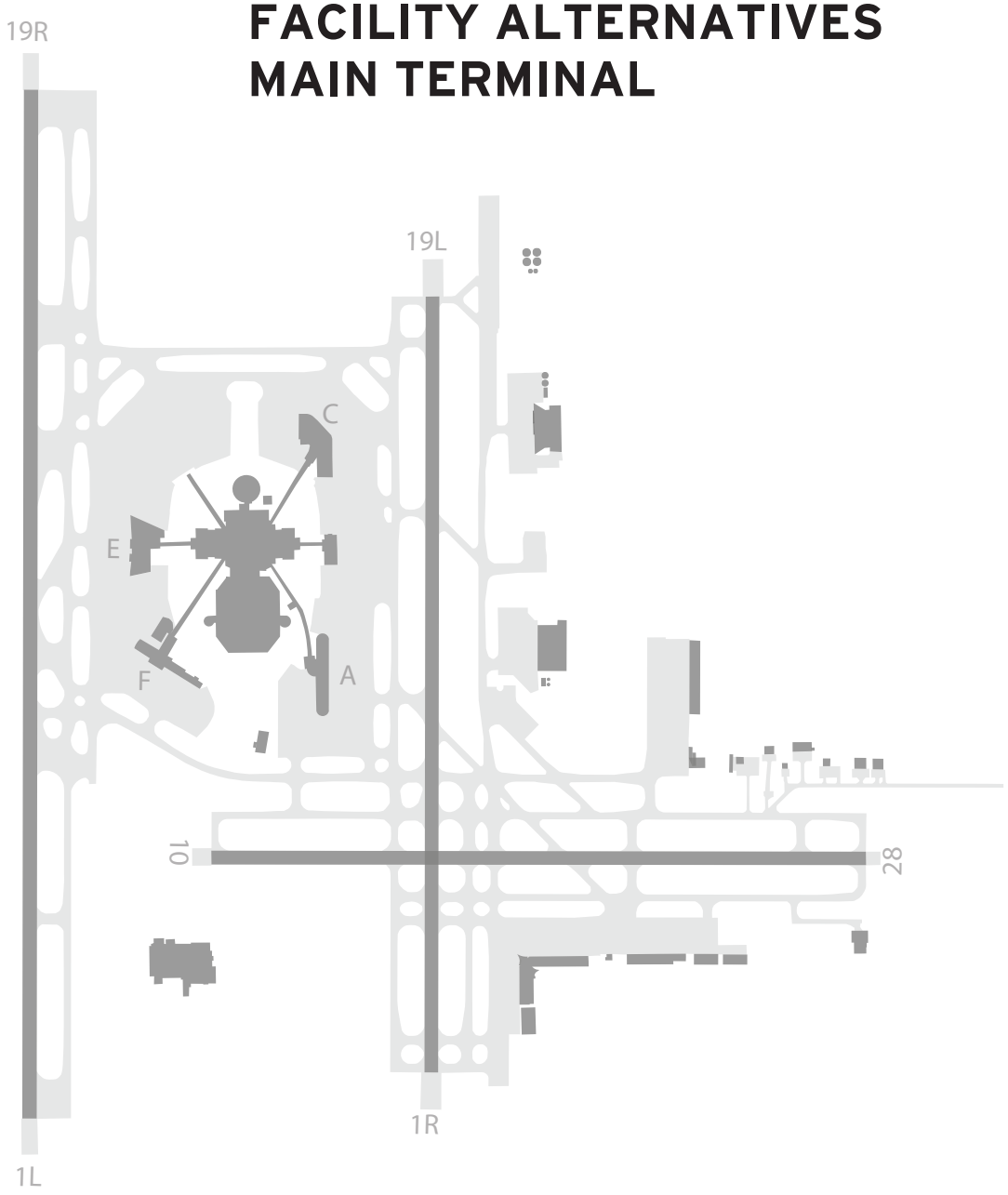


Figure 5.150
Main Terminal Improvements - Level 01

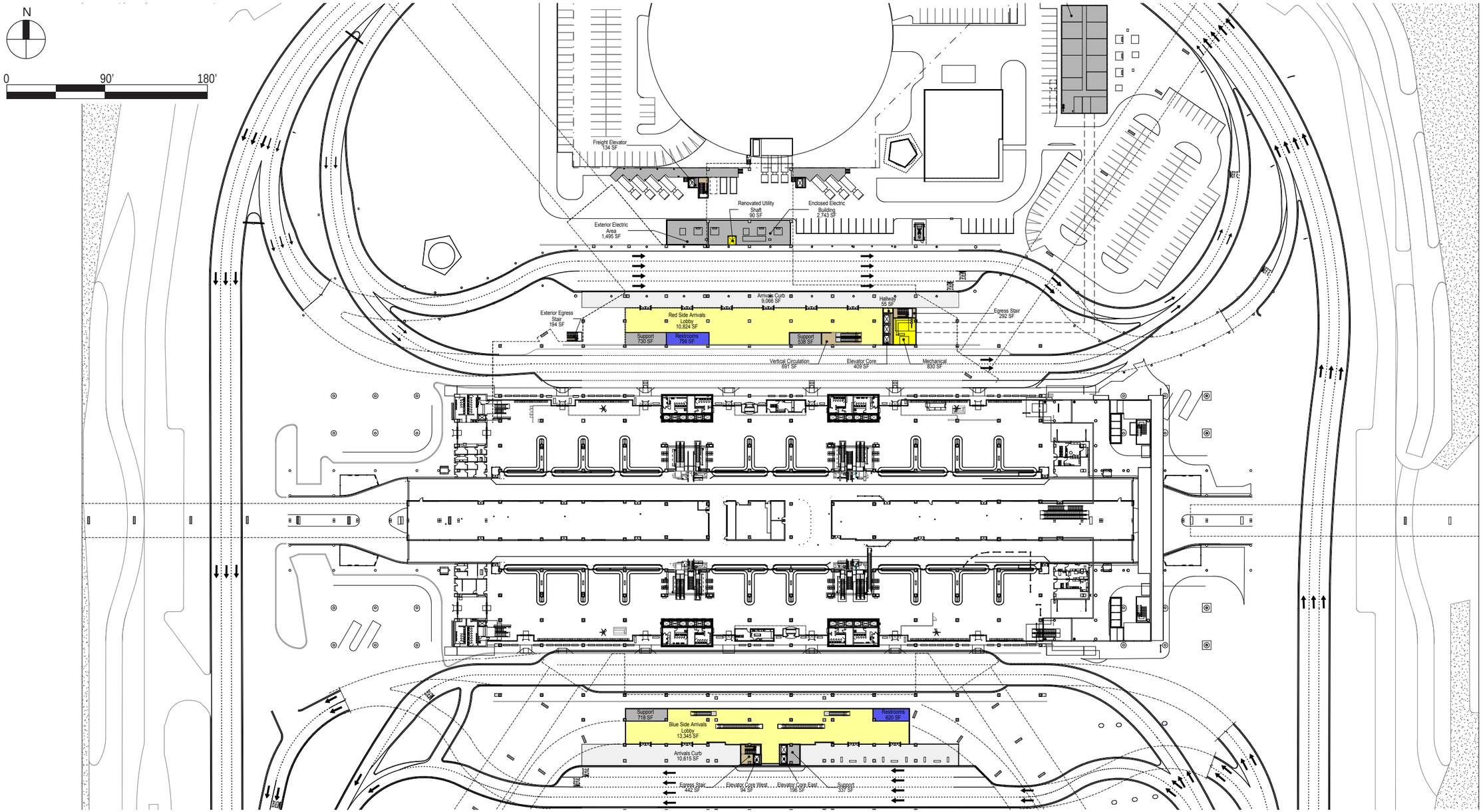


Figure 5.151
Main Terminal Improvements - Level 02

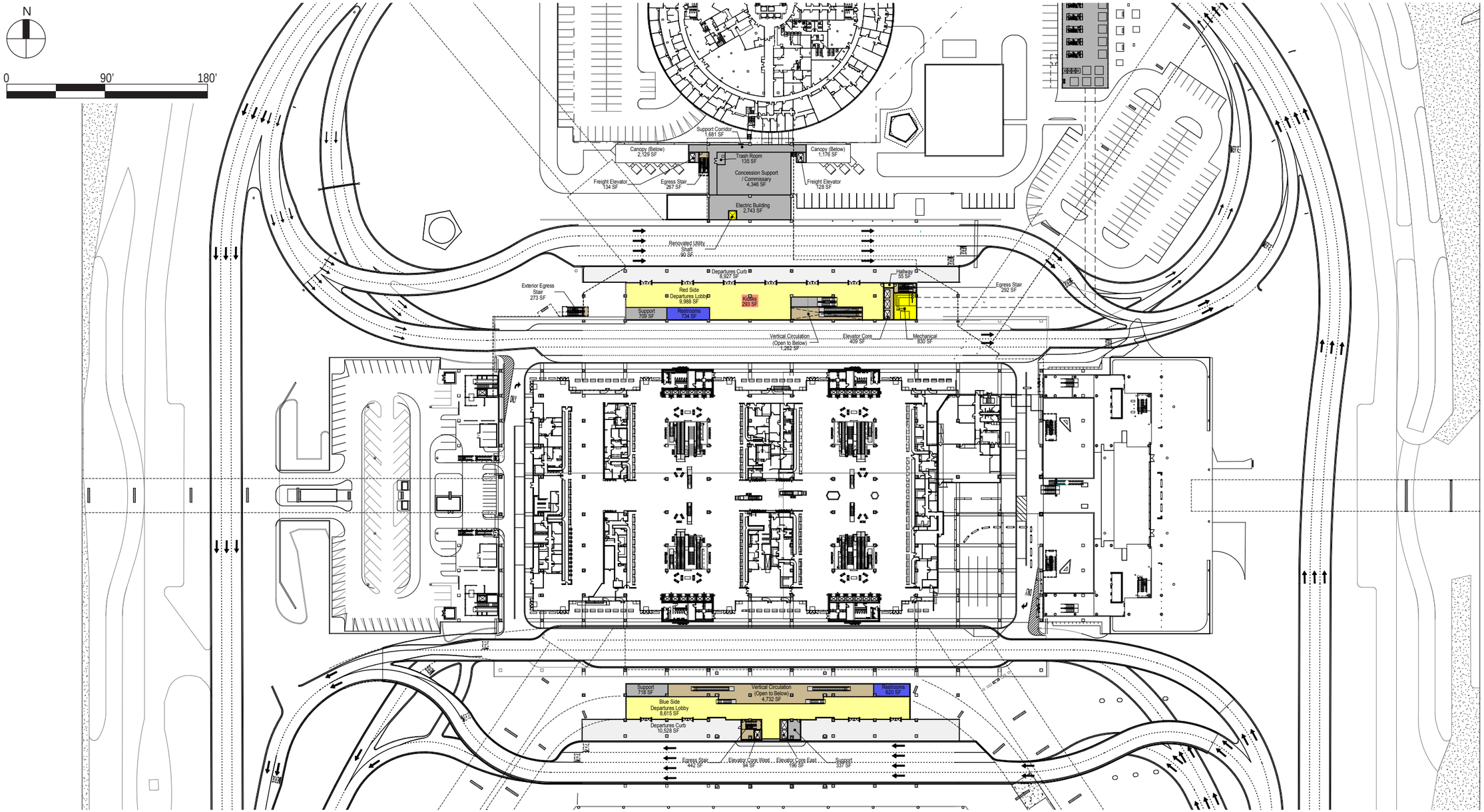
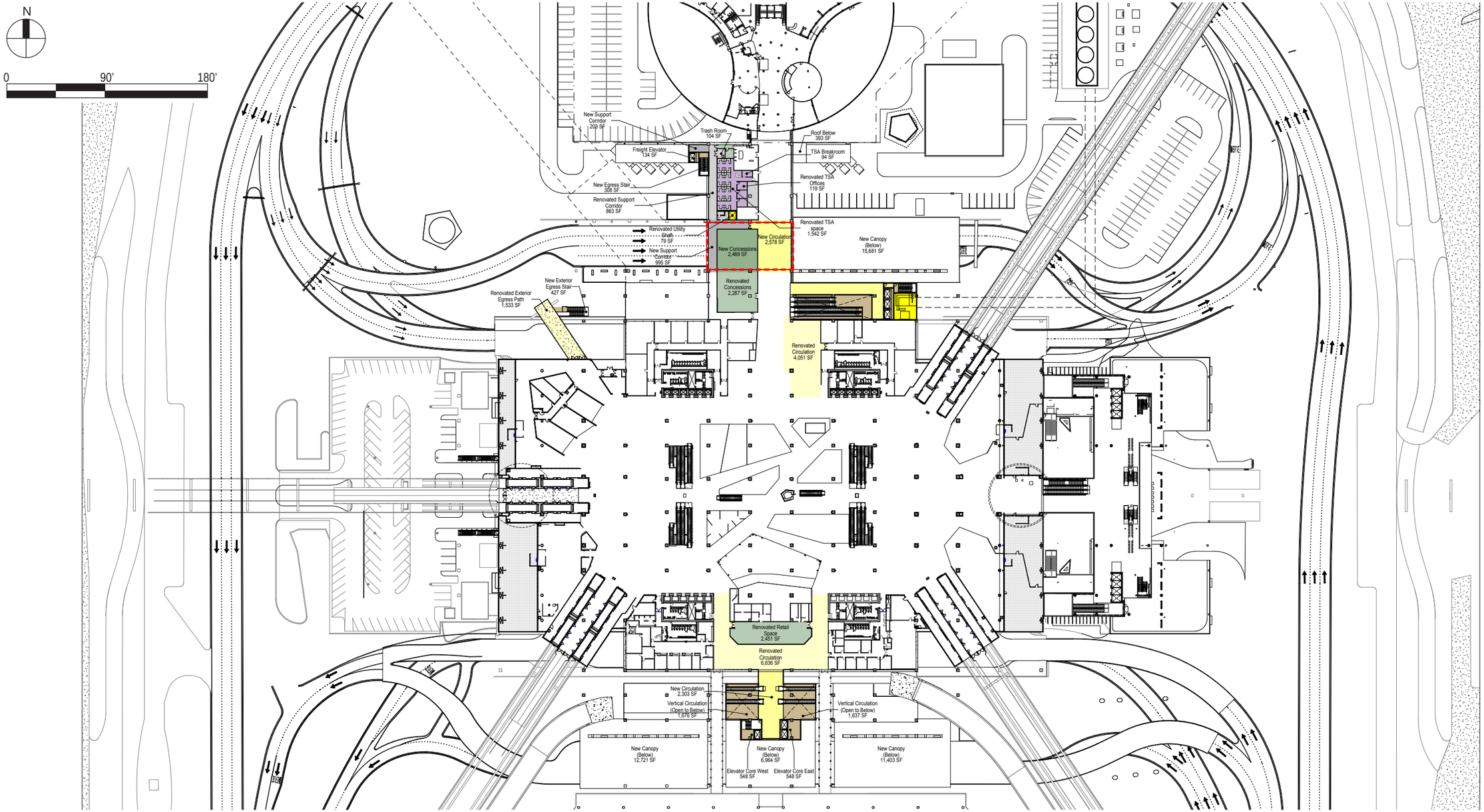


Figure 5.152
Main Terminal Improvements - Level 03



SECTION 5 - AIRPORT FACILITY ALTERNATIVES - AIRSIDE A

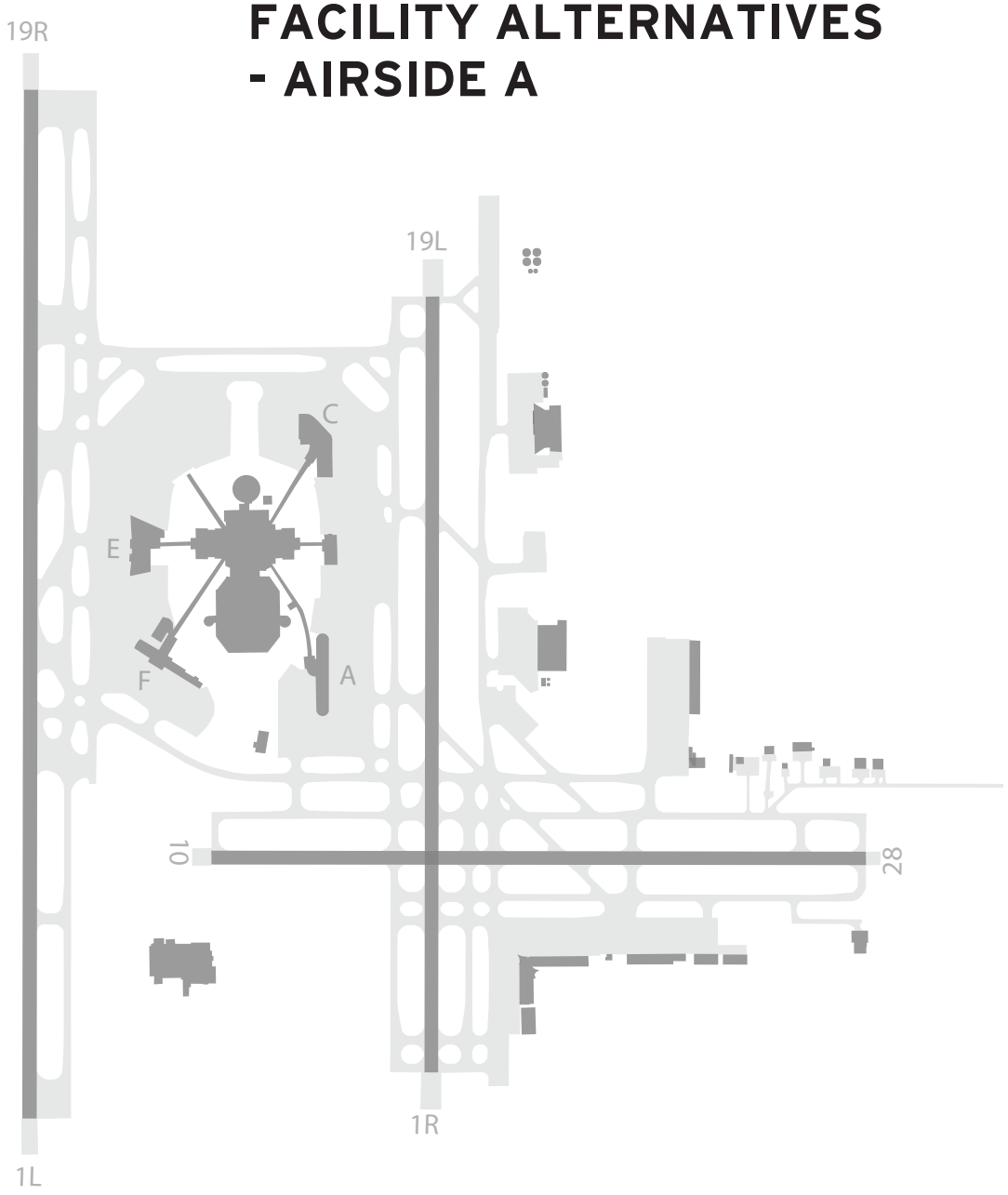
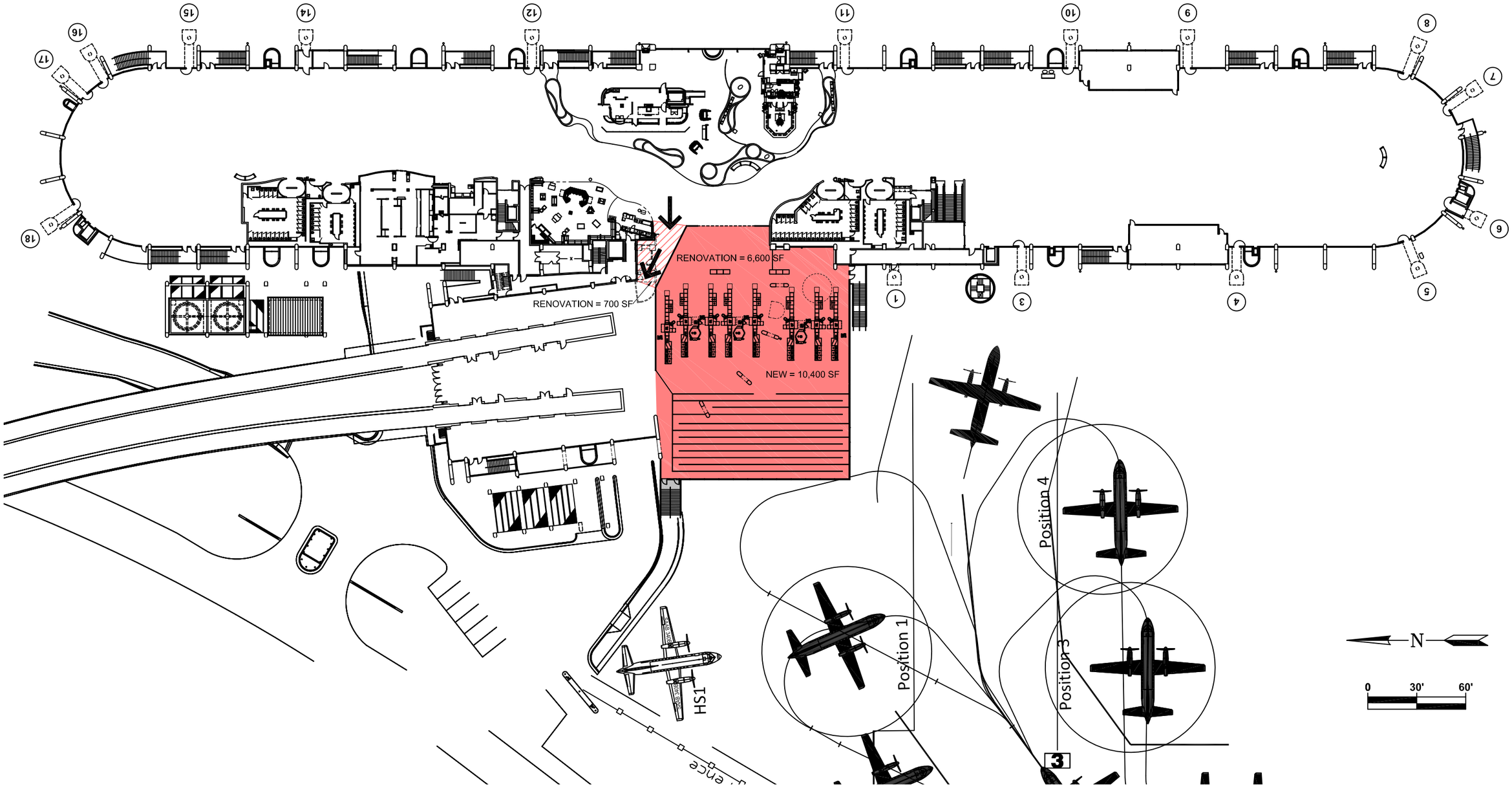


Figure 5.153
Terminal A - Preferred SSCP Scheme



SECTION 5 - AIRPORT FACILITY ALTERNATIVES - AIRSIDE C

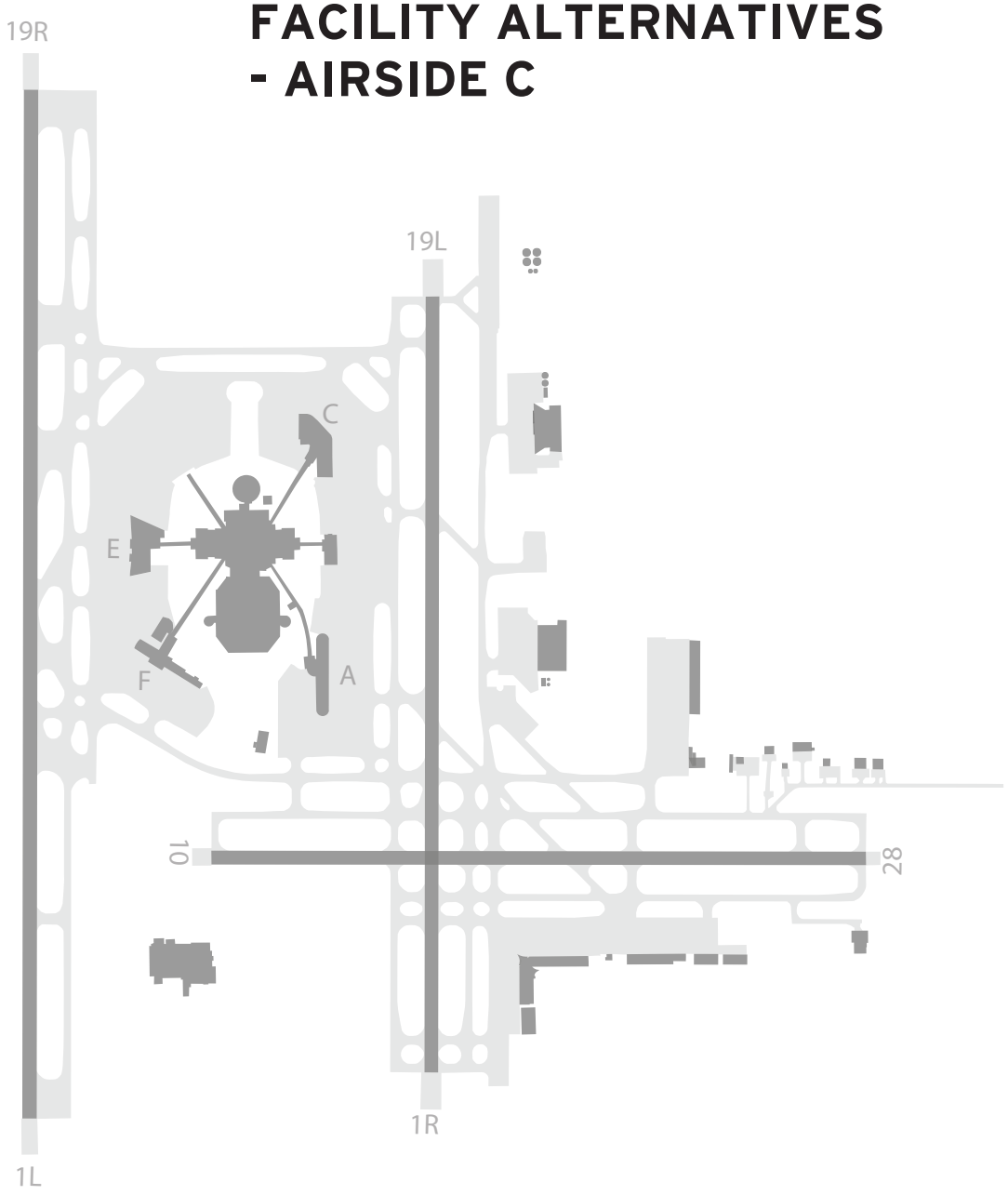


Figure 5.154
Airside C - Level 02

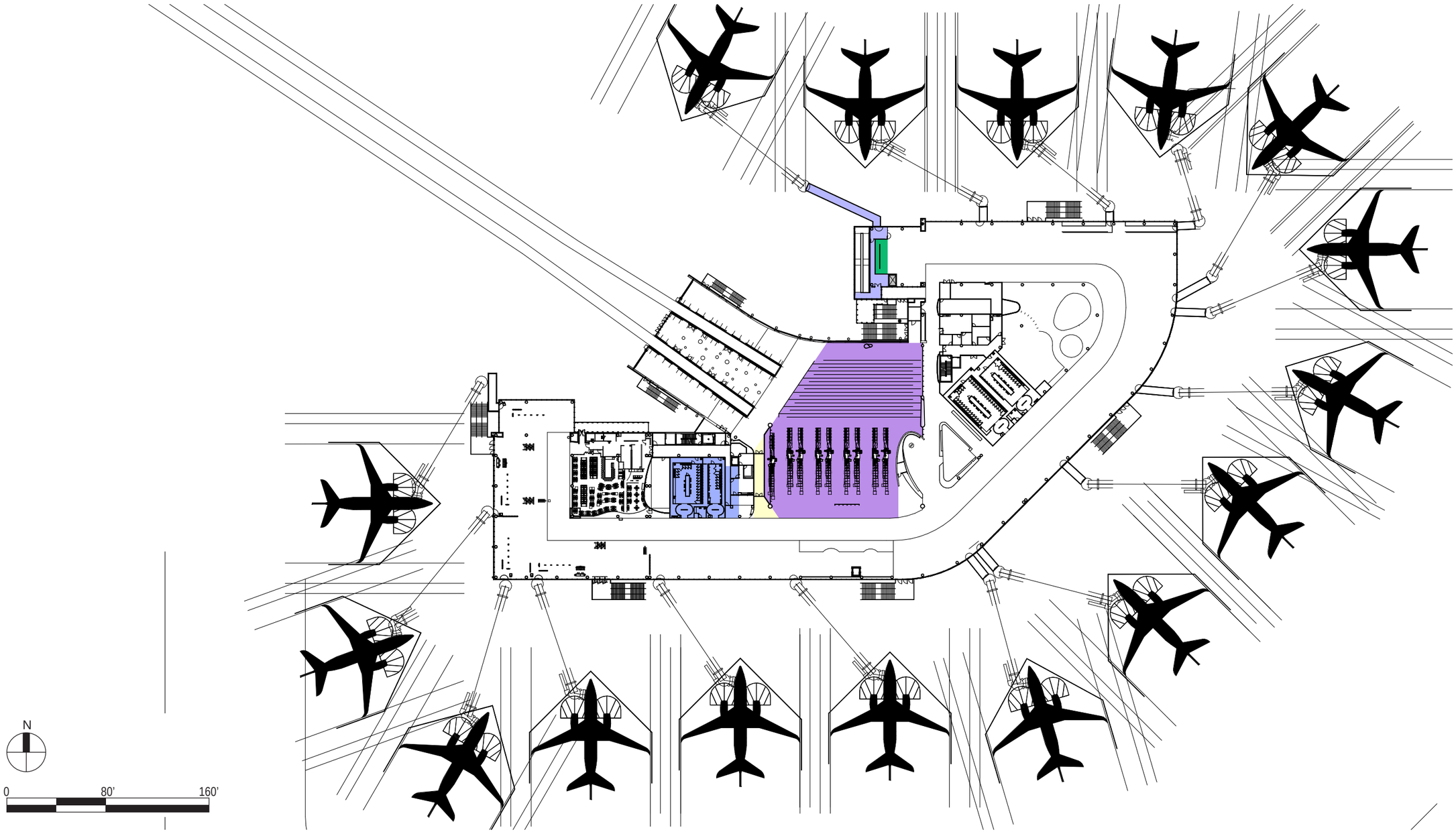


Figure 5.155
Airside C - Level 01

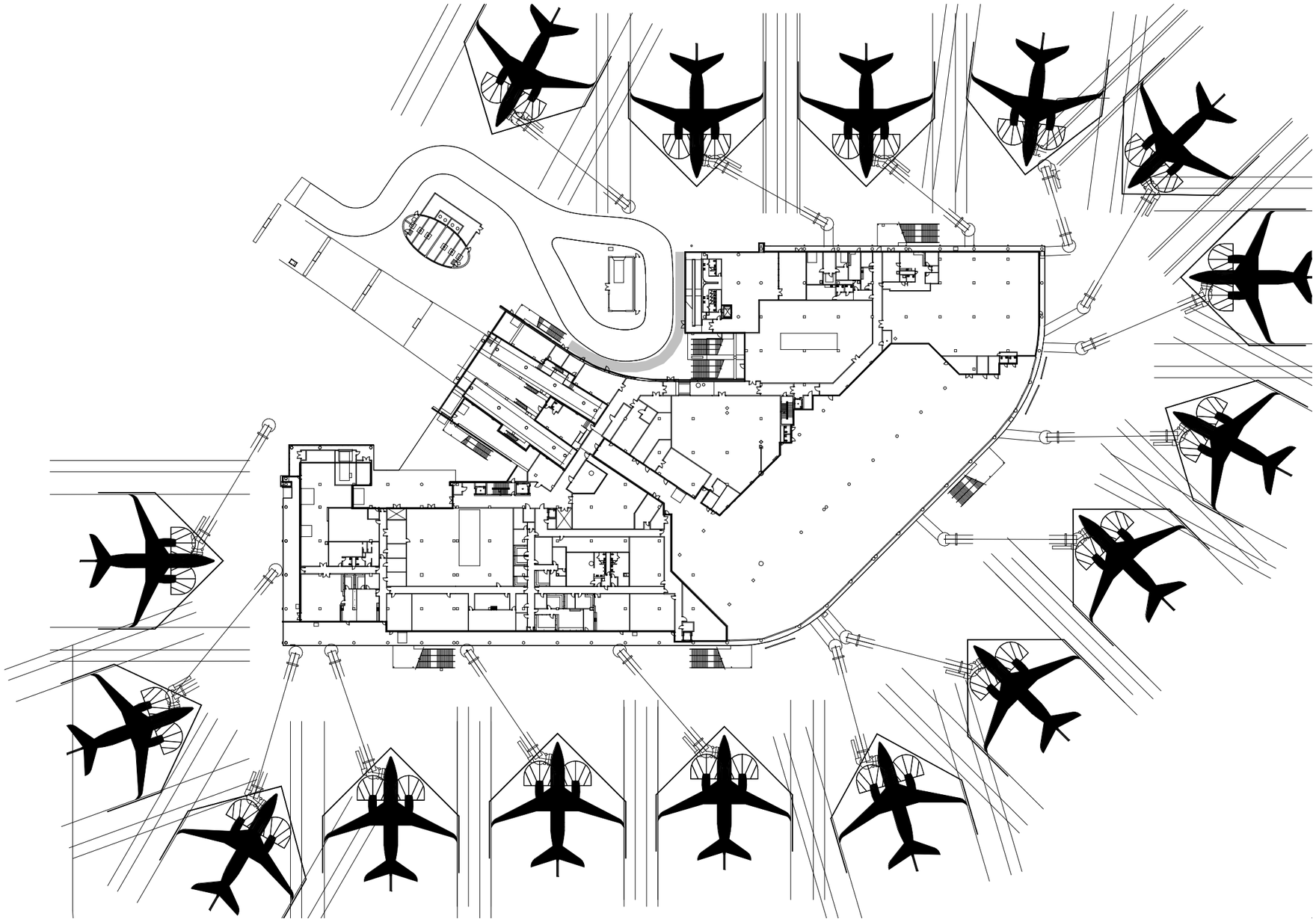


Figure 5.156
Airside C - Departure Plan - Proposed Expansion

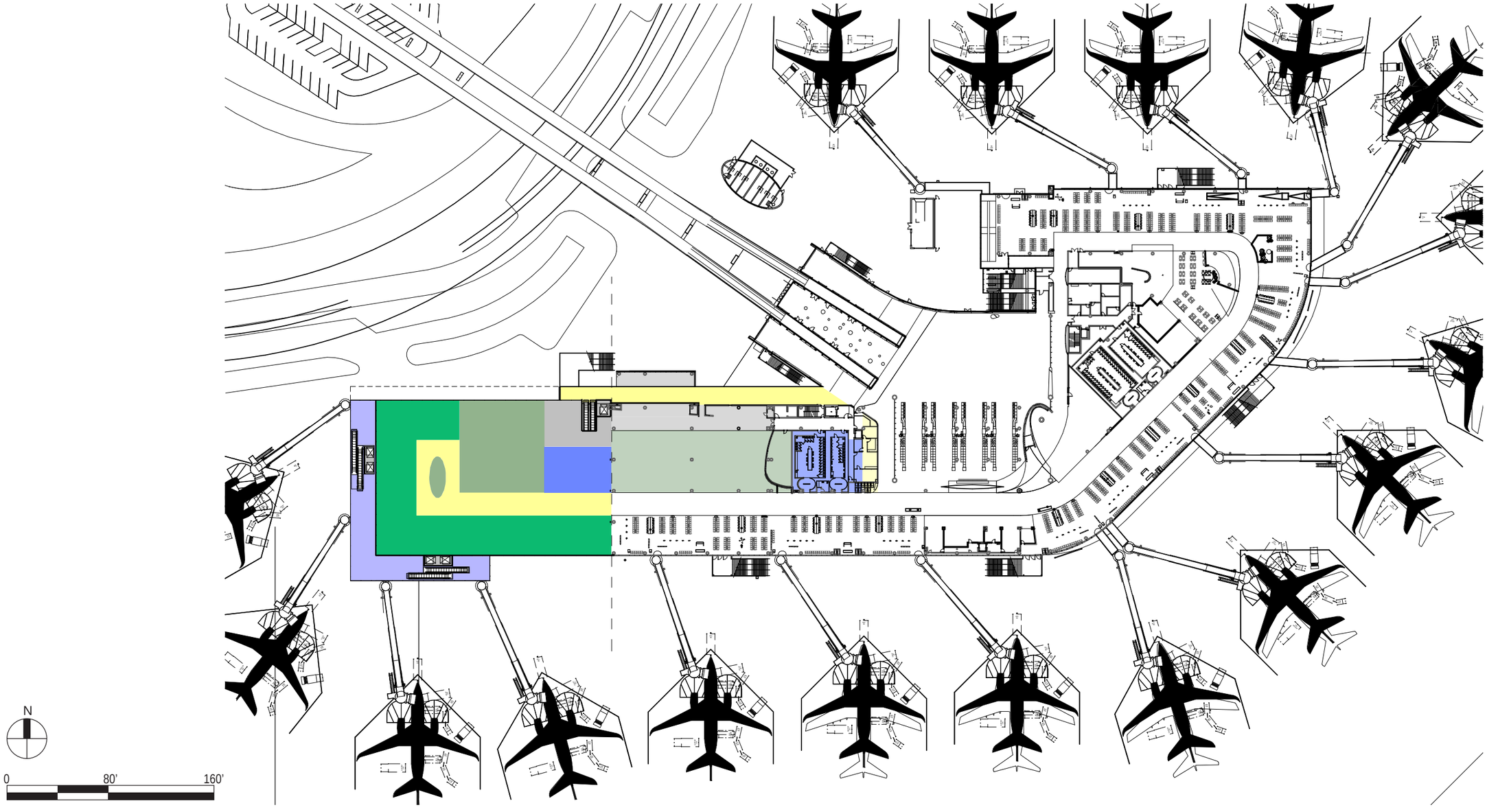
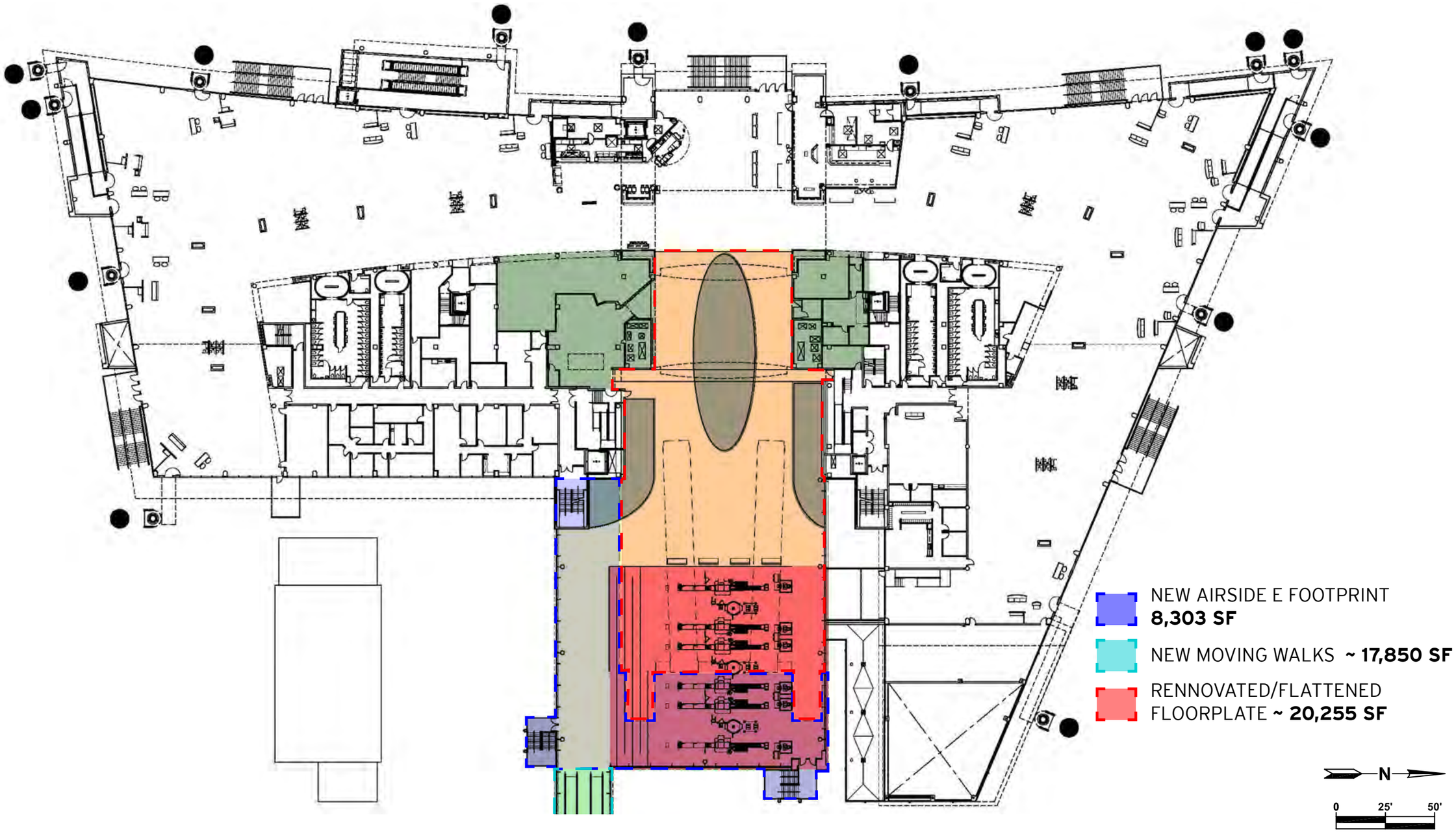


Figure 5.157
Airside E - SF Breakdown



SECTION 5 - AIRPORT FACILITY ALTERNATIVES - AIRSIDE E

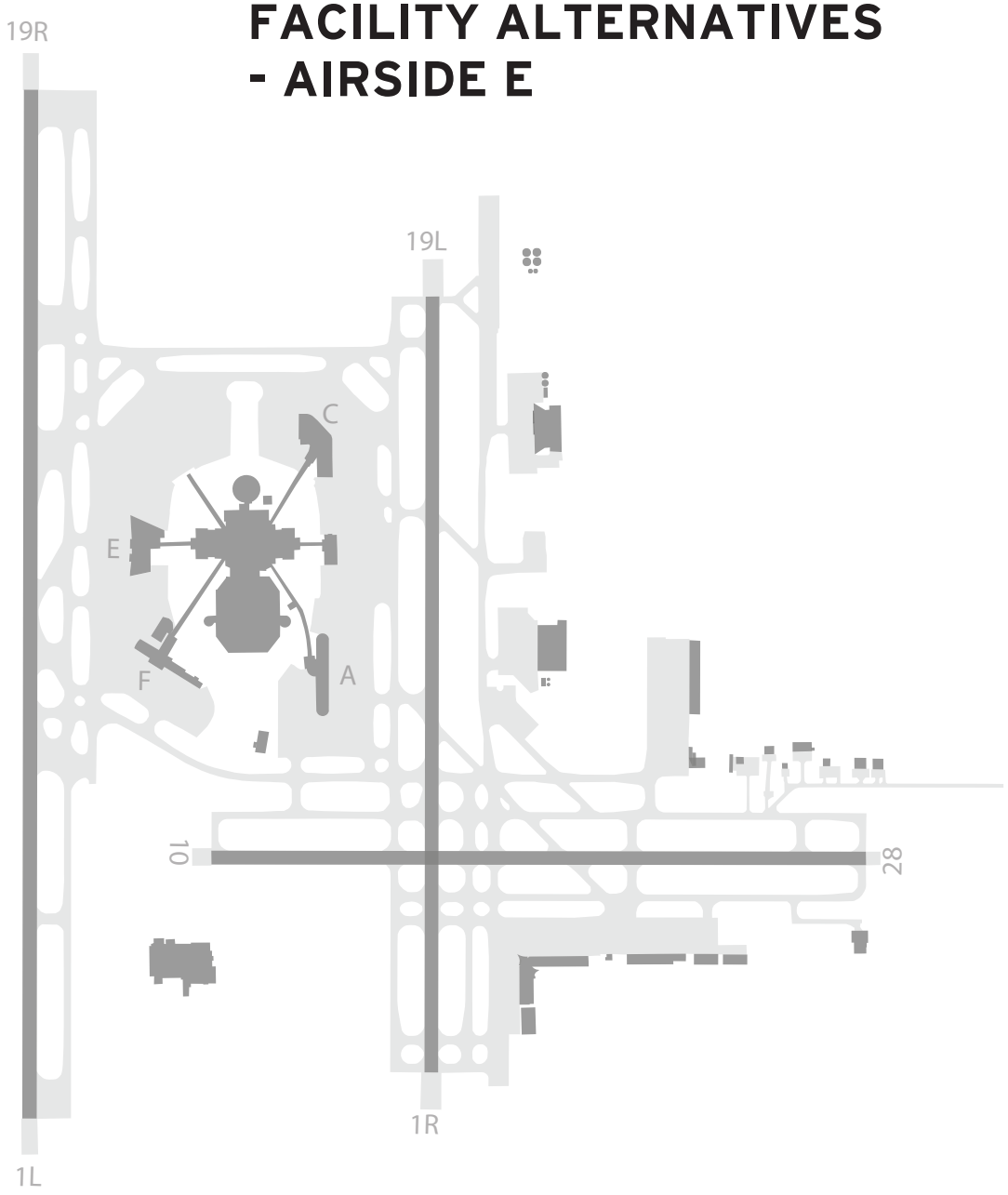
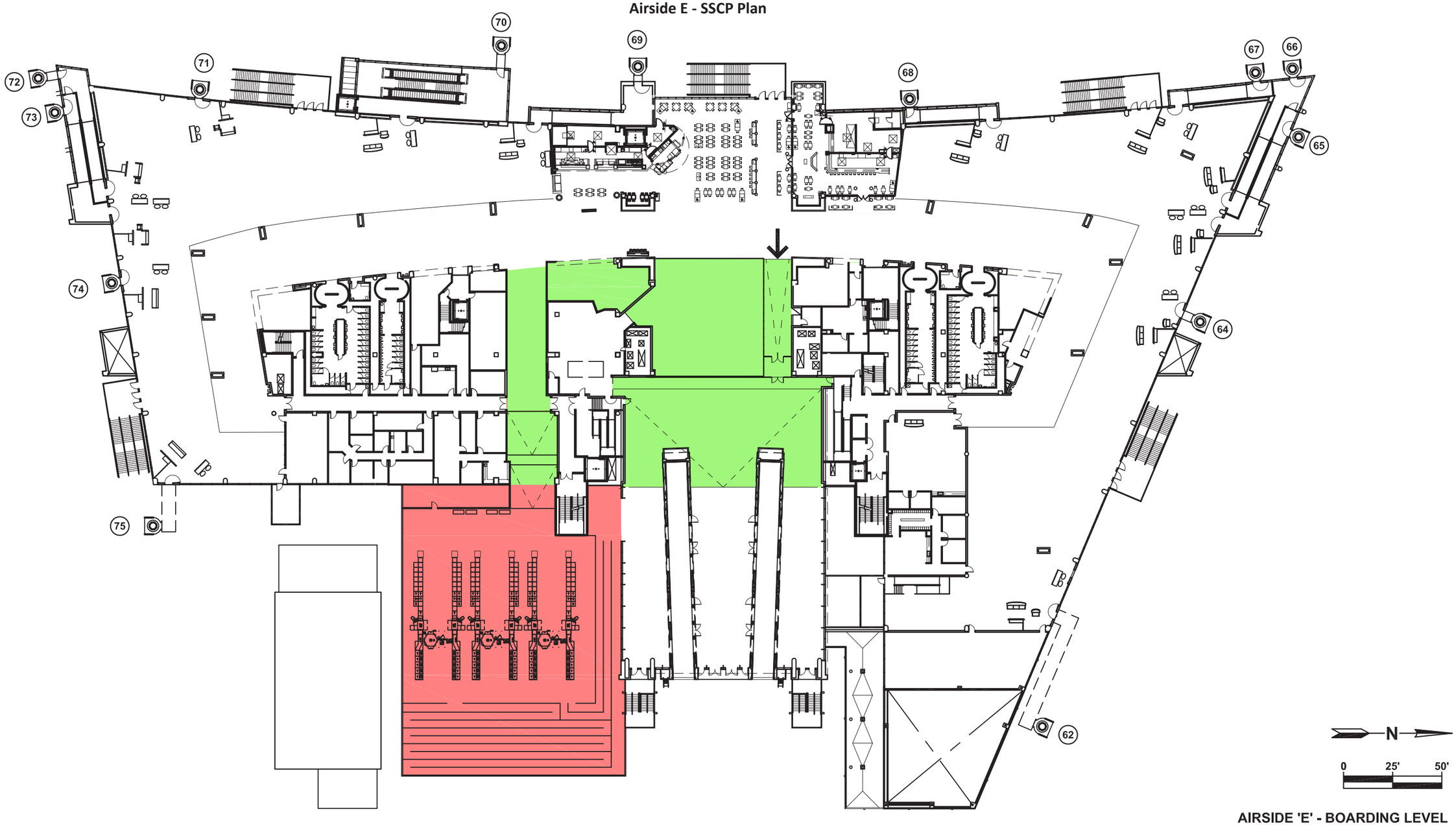


Figure 5.158
Airside E - SSCP Plan



SECTION 5 - AIRPORT FACILITY ALTERNATIVES - AIRSIDE F

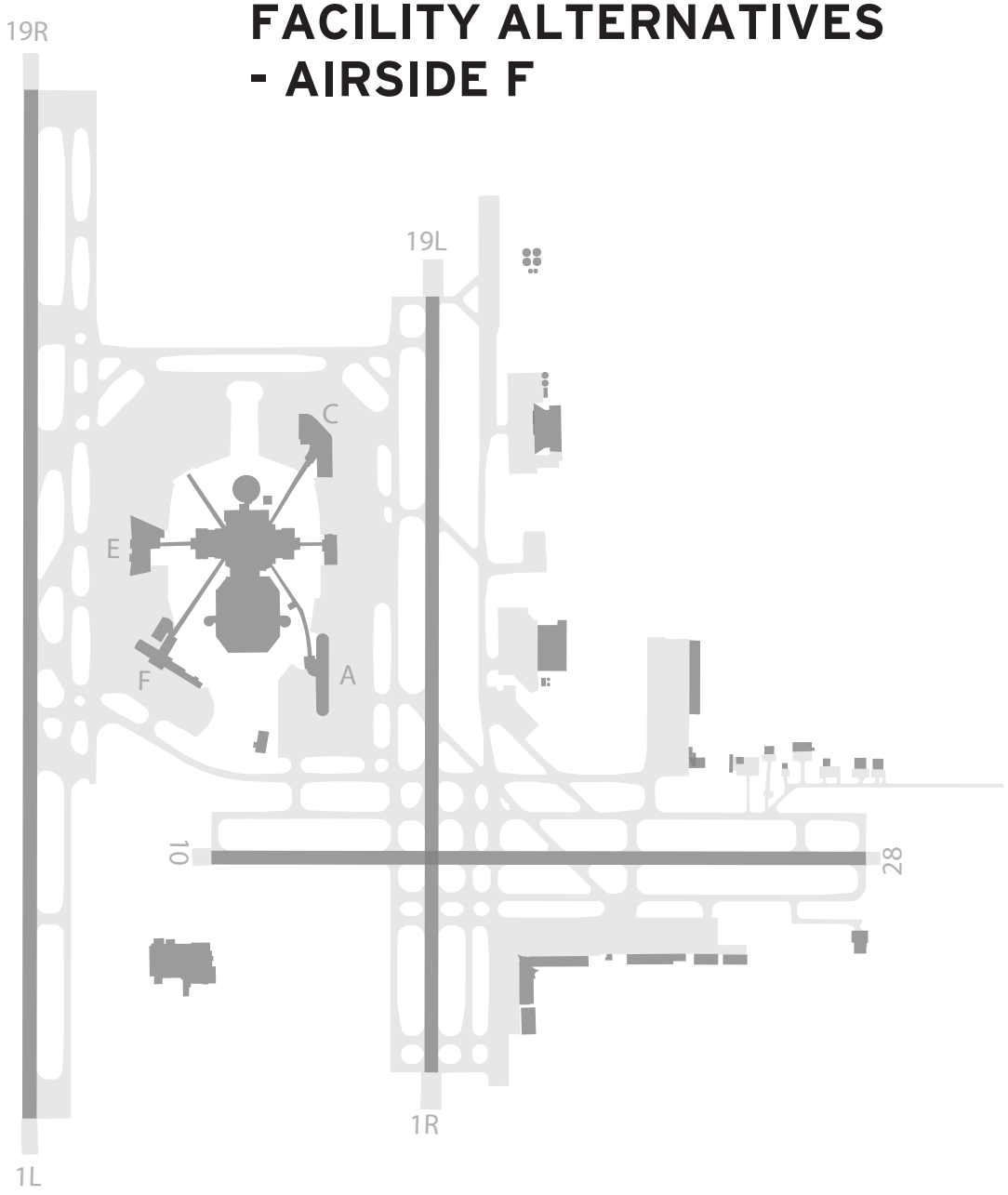


Figure 5.159
Airside F RON Layout

Figure 5.160
New Roads - Level 1

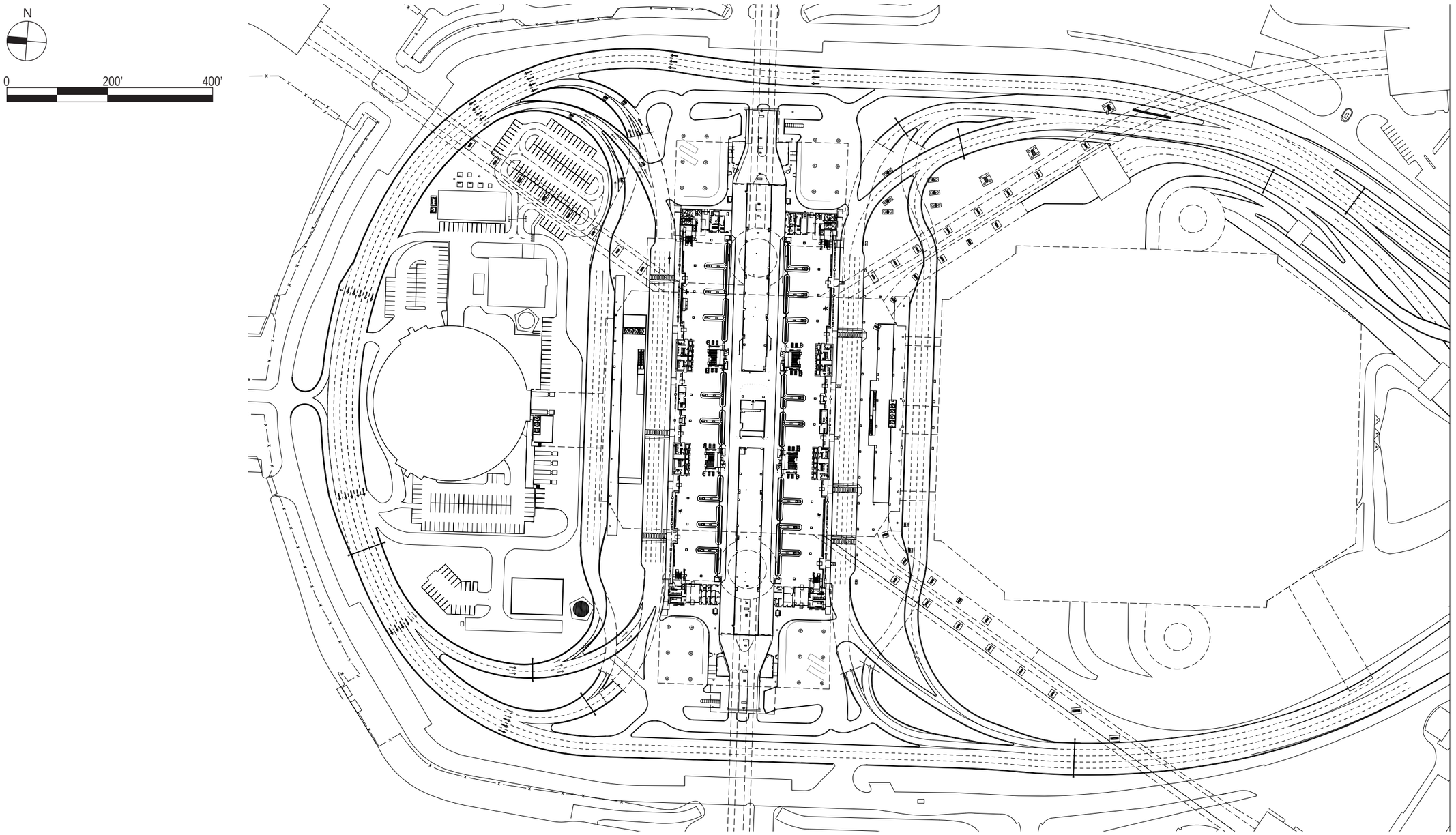


Figure 5.161
New Roads - Level 2

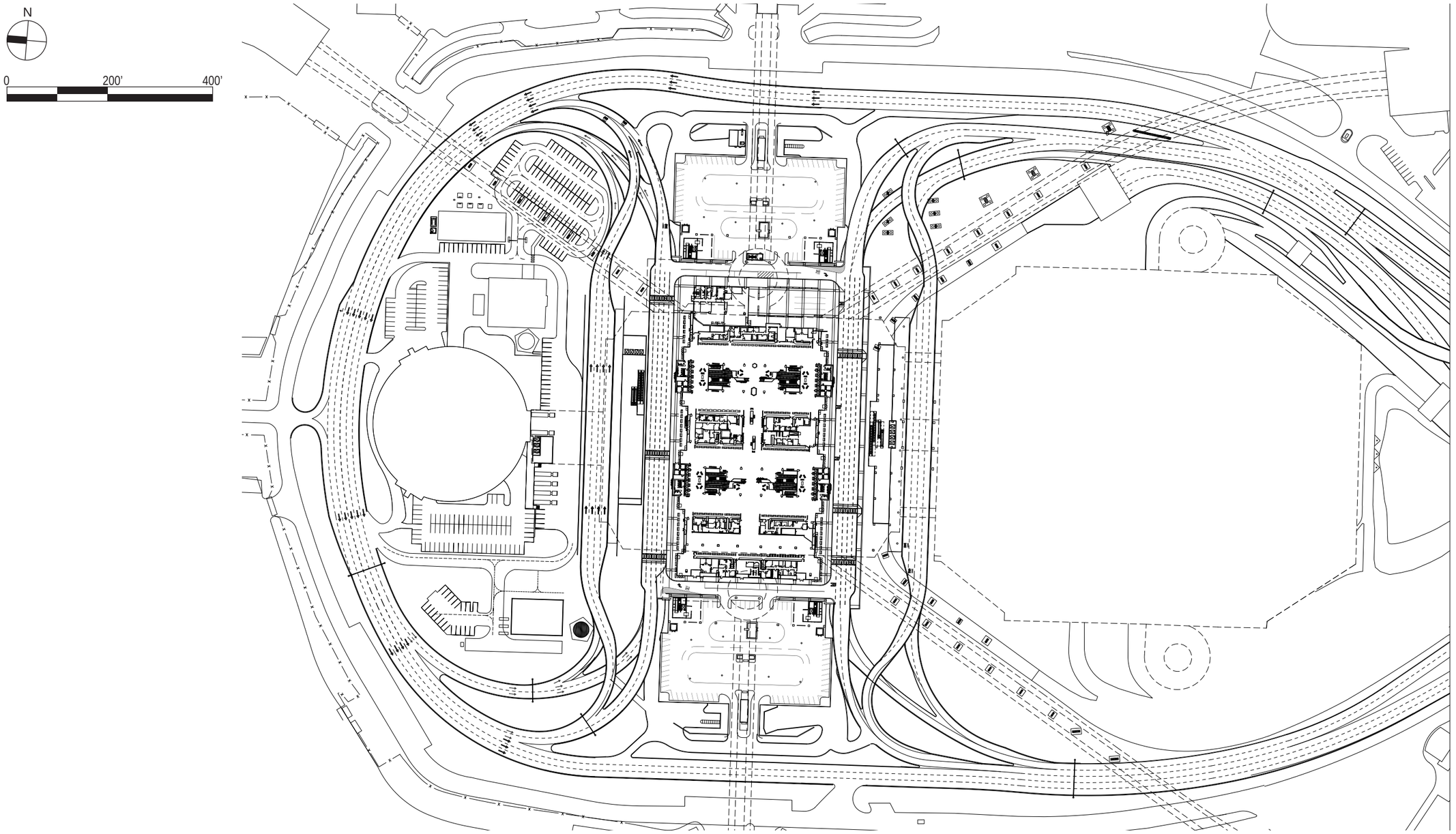


Figure 5.162
New Roads - Level 3

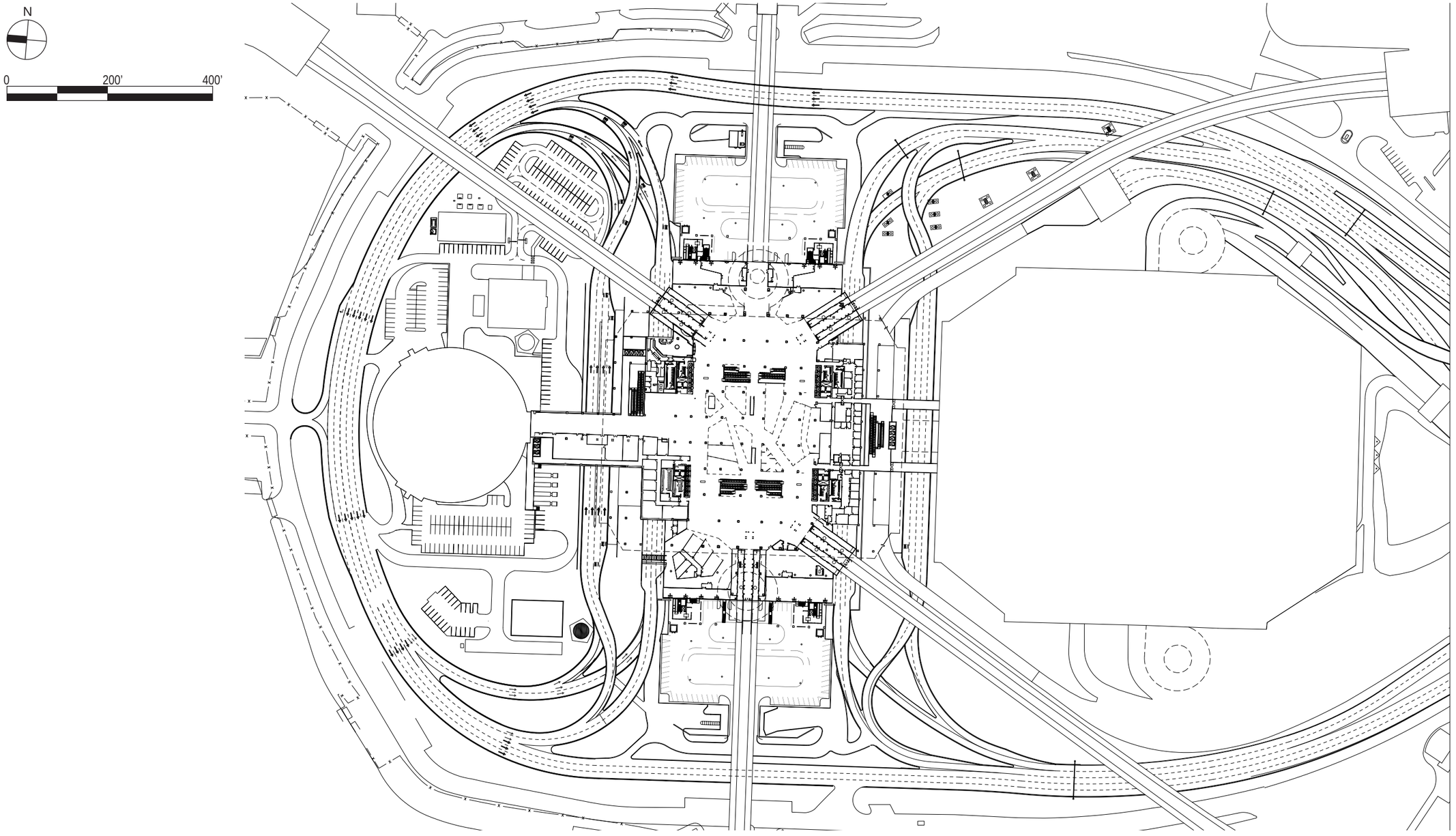


Figure 5.163
Red Side - Curb Expansion View

Figure 5.164
Red Side - FAA Parking Lot - Option 1

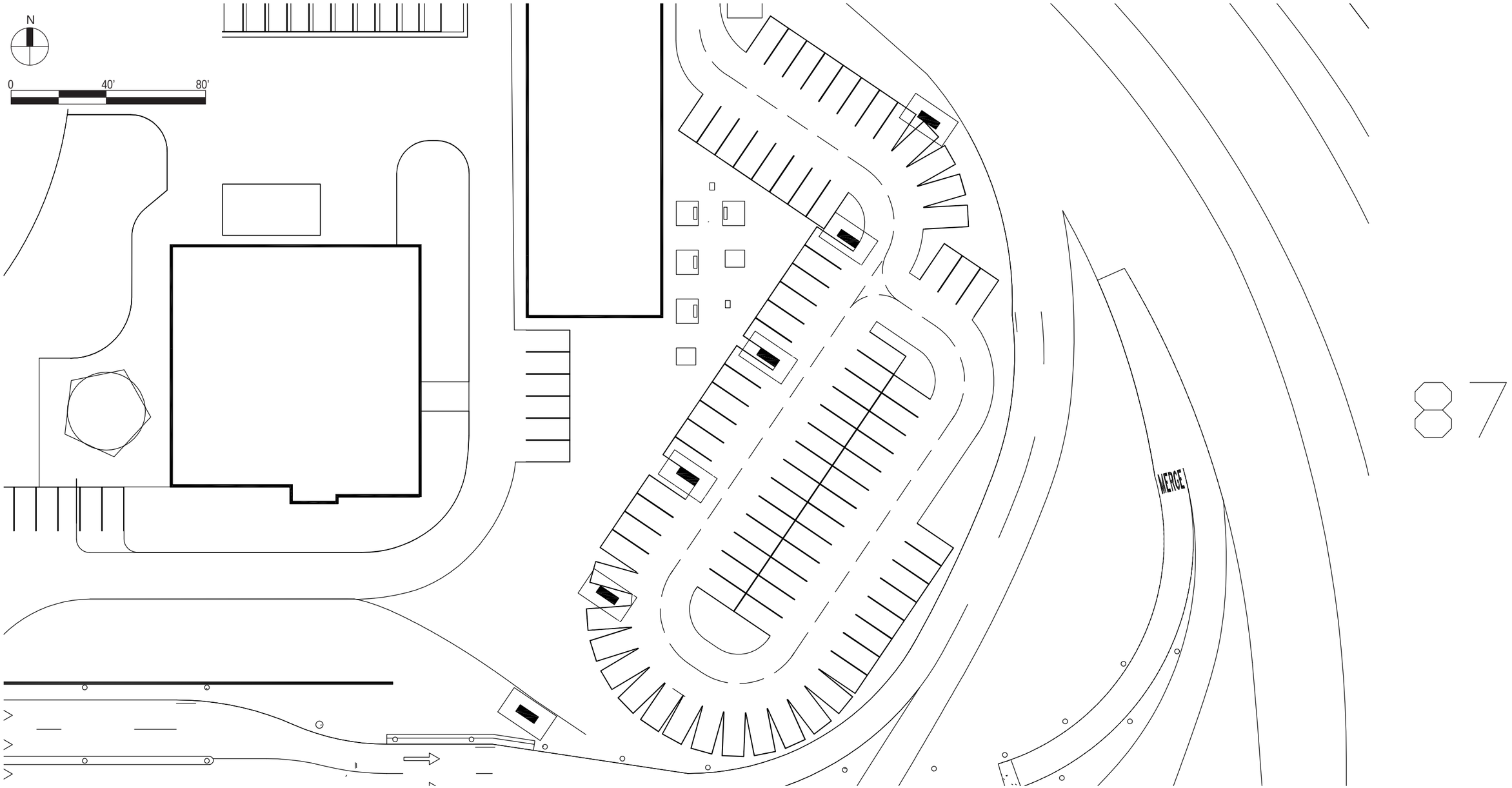


Figure 5.165
Red Side - FAA Parking Lot - Option 2

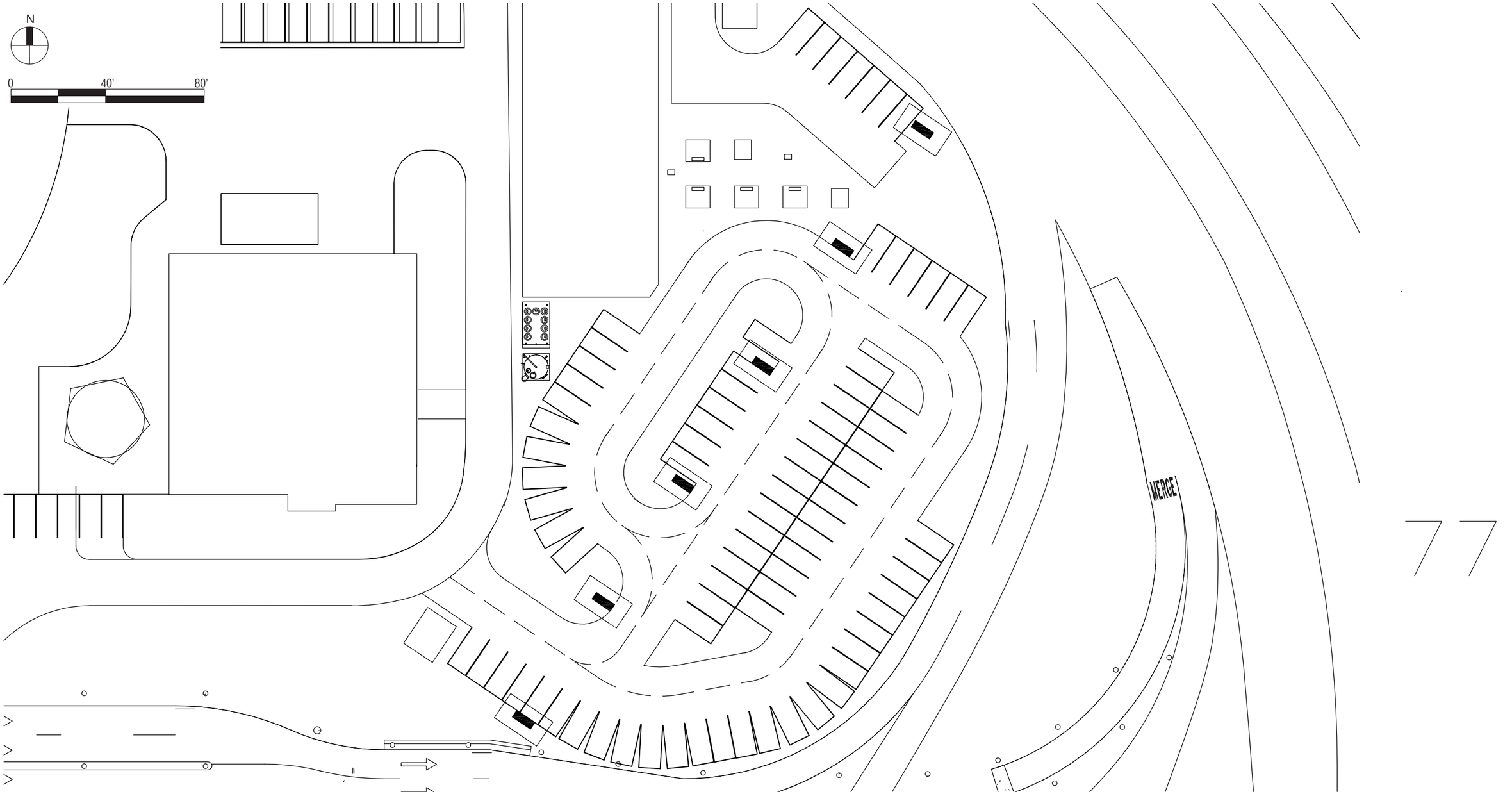


Figure 5.166
Red Side - FAA Parking Lot - Option 3

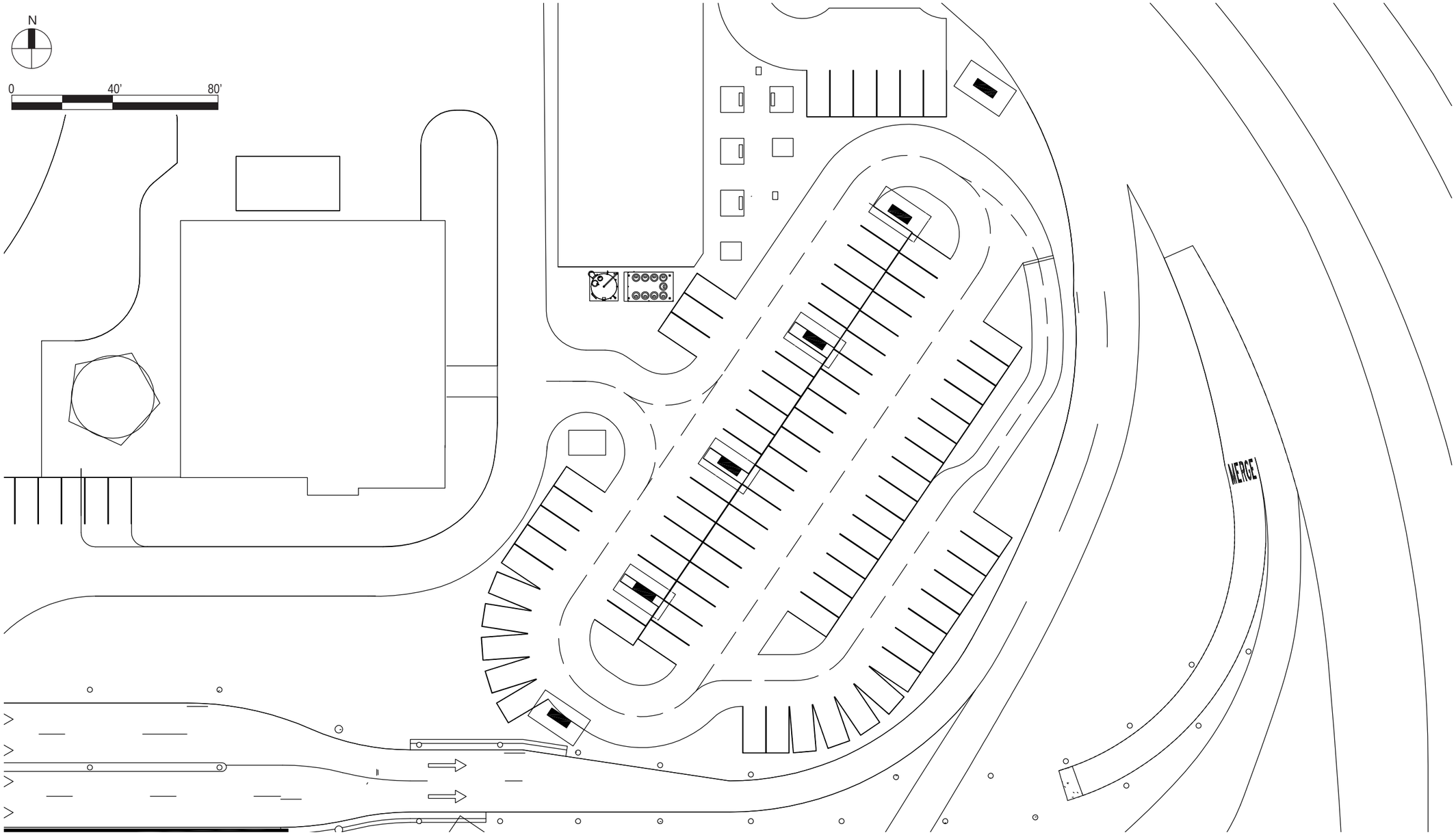


Figure 5.167
Red Side - FAA Parking Lot - Option 4

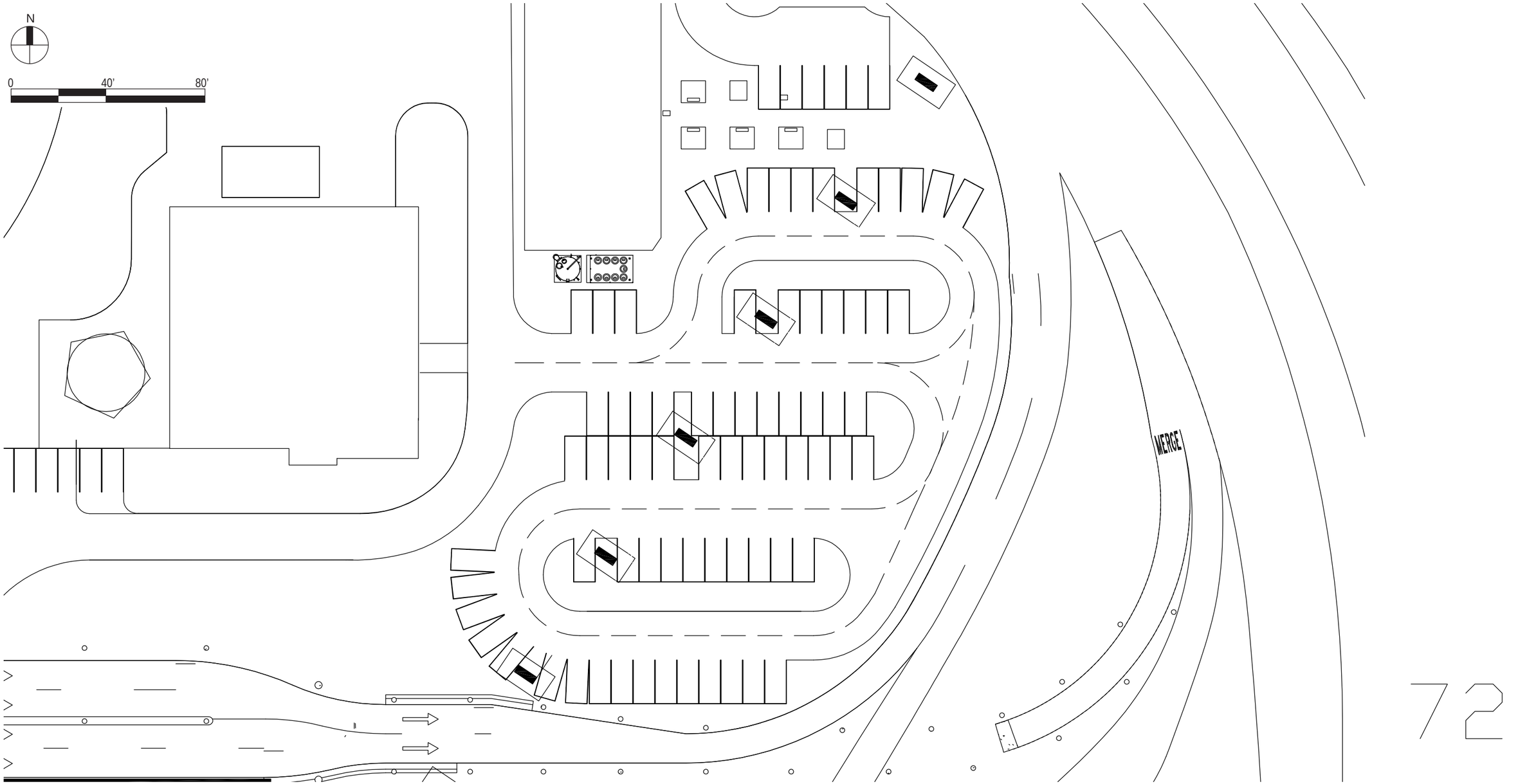


Figure 5.168
Red Side - FAA Parking Lot - Option 5

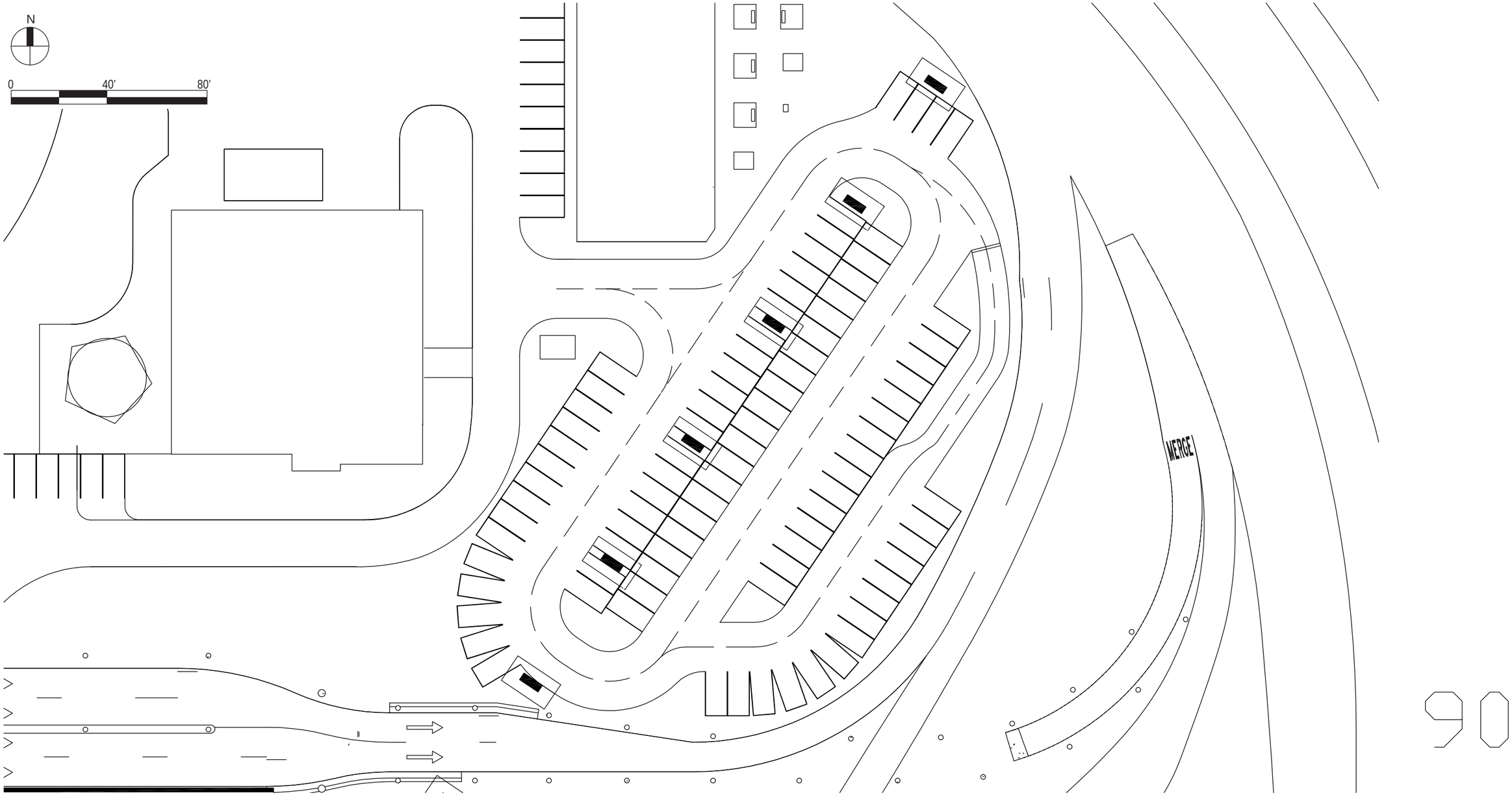


Figure 5.169
Airside E - New Floorplate Diagram

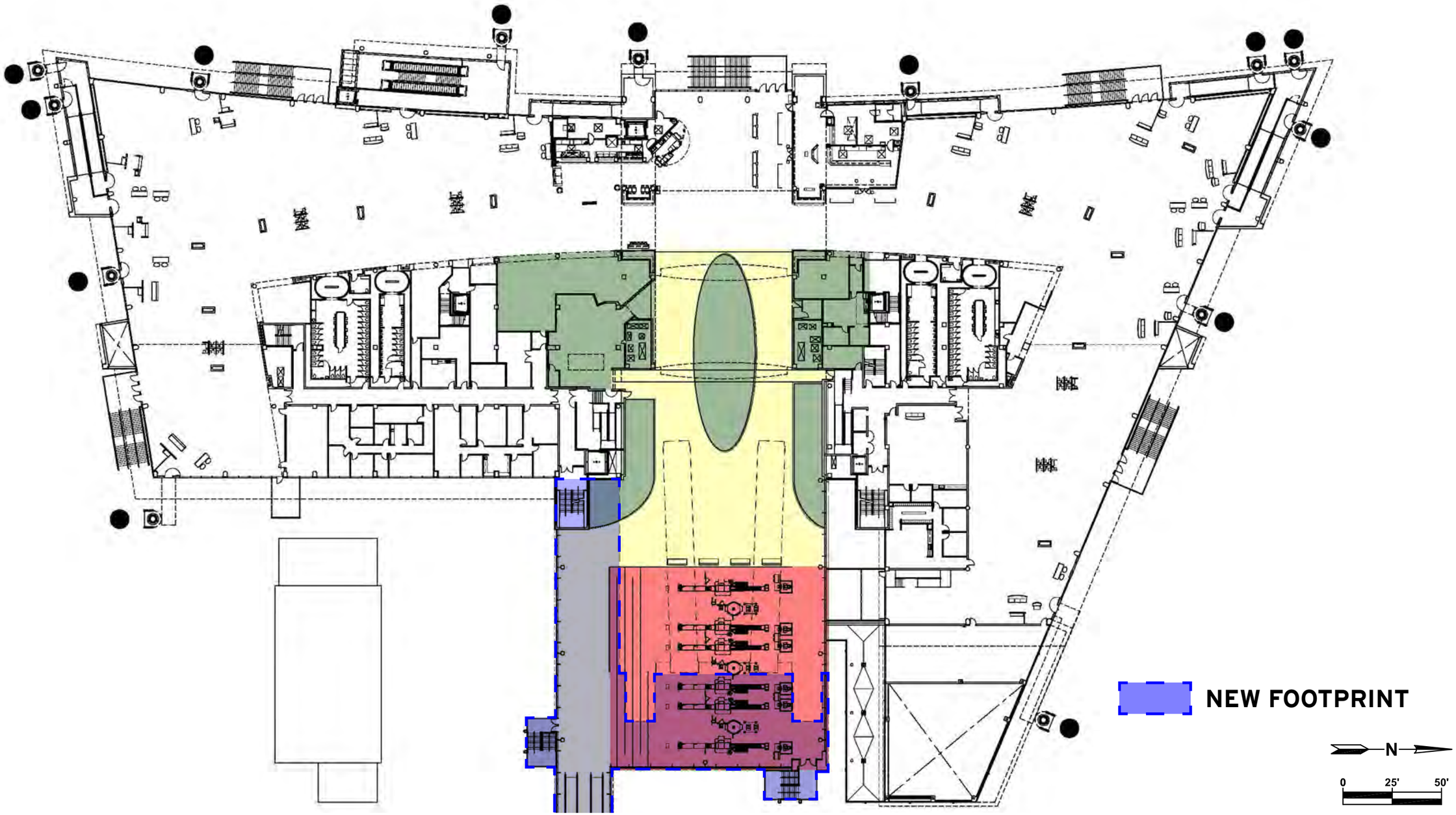


Figure 5.170
TPA Improvements Overview

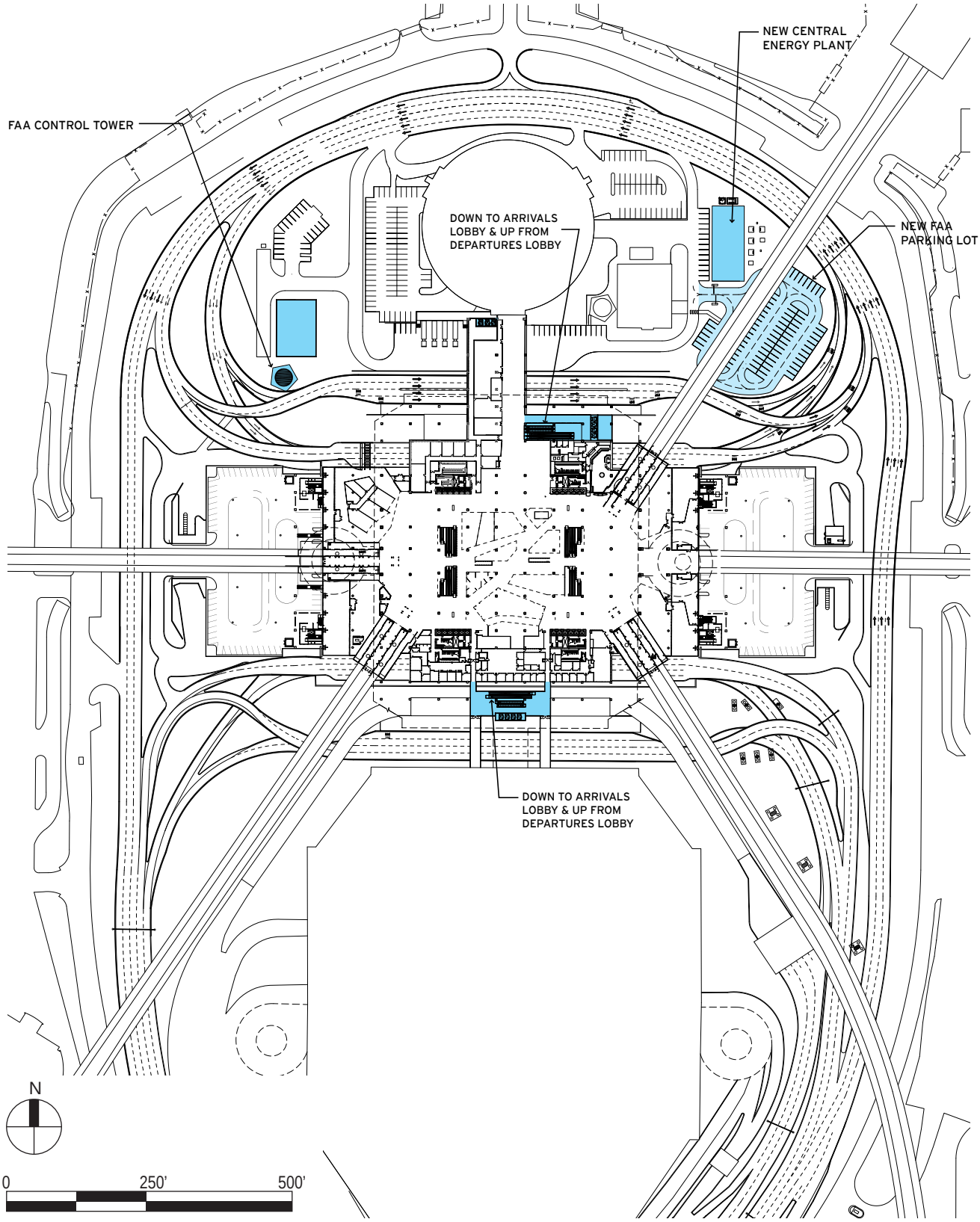


Figure 5.171
Main Terminal Improvements Overview

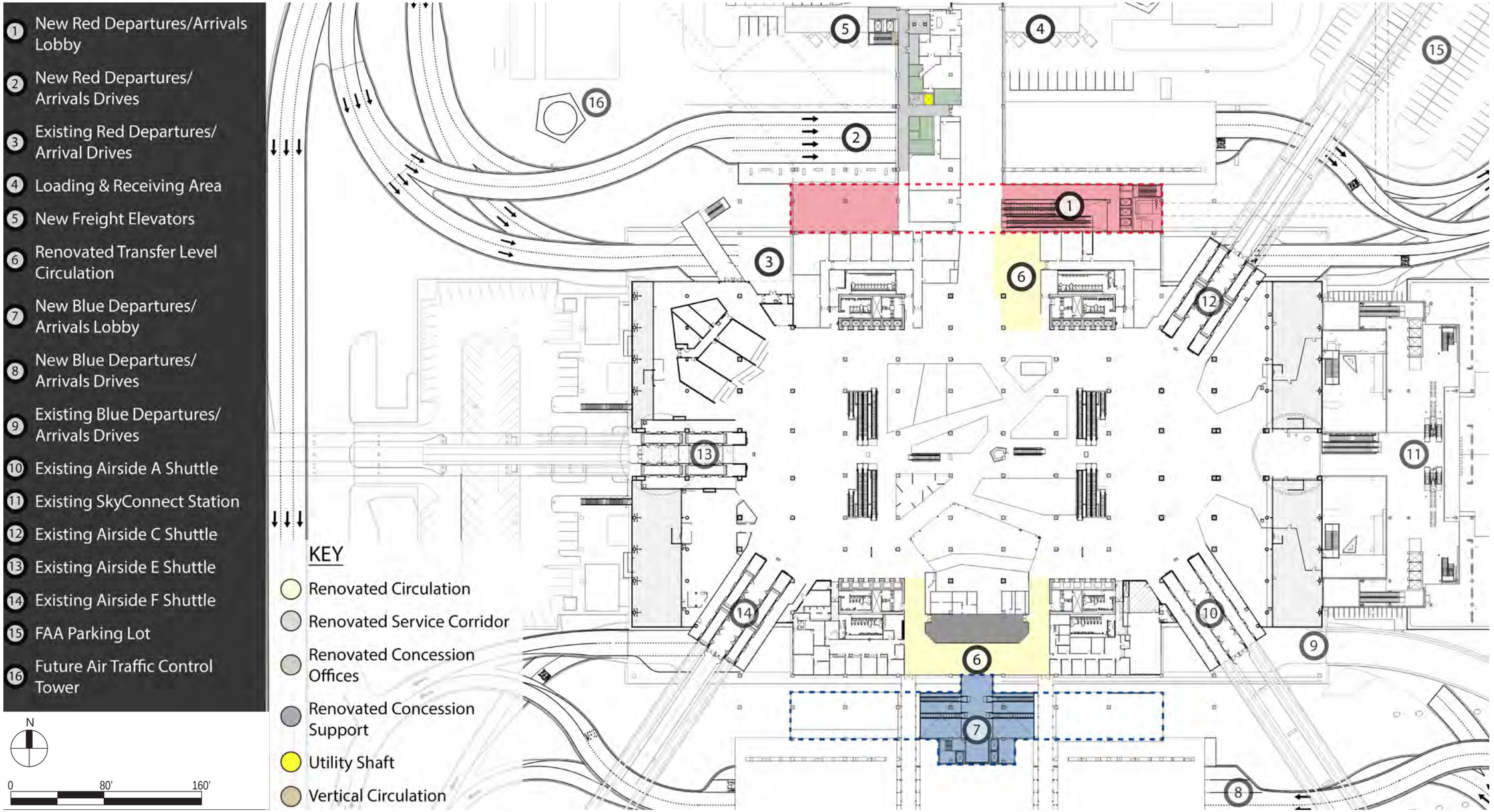


Figure 5.172
Red Side - Level 02 - Overview

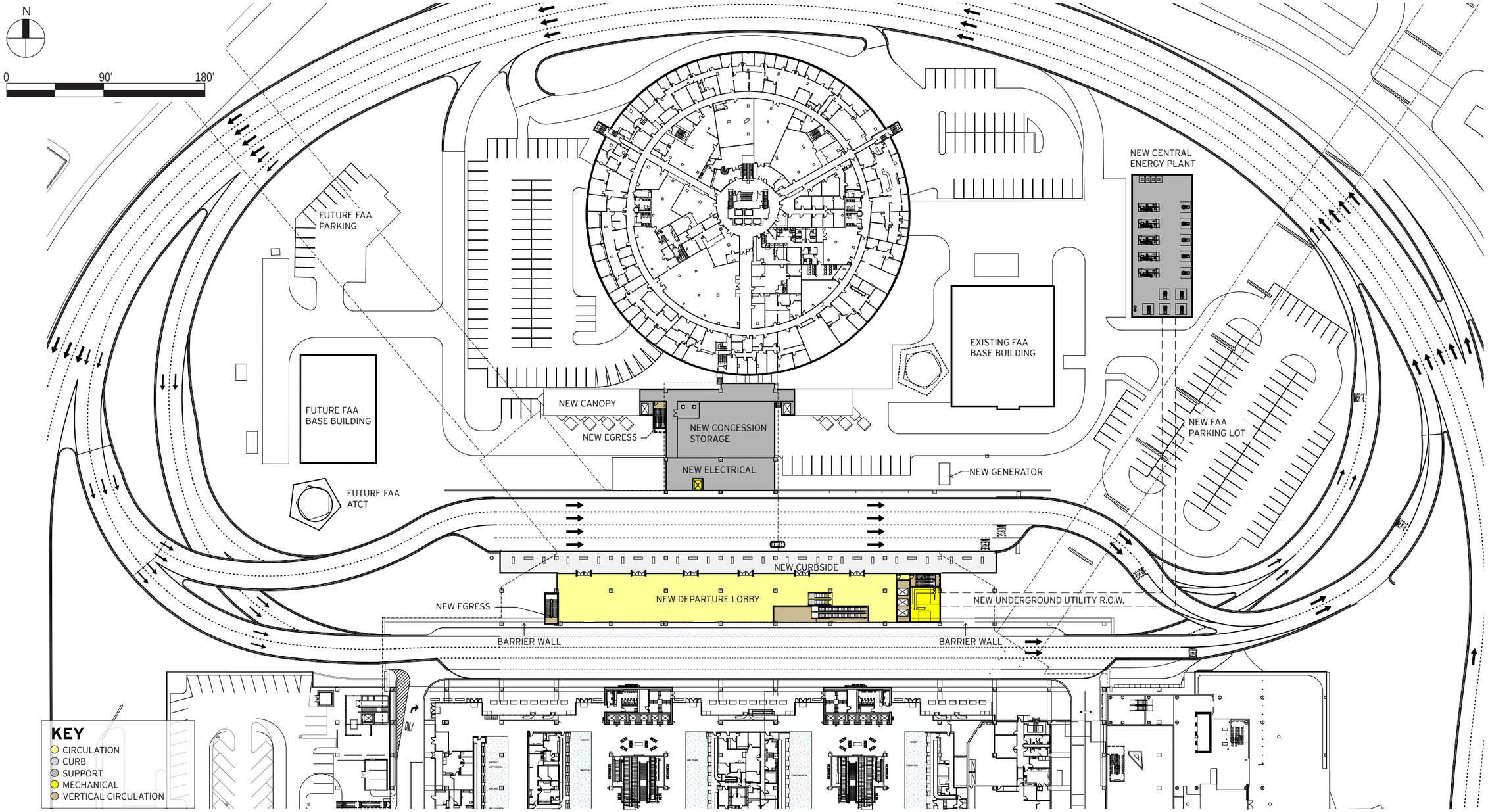
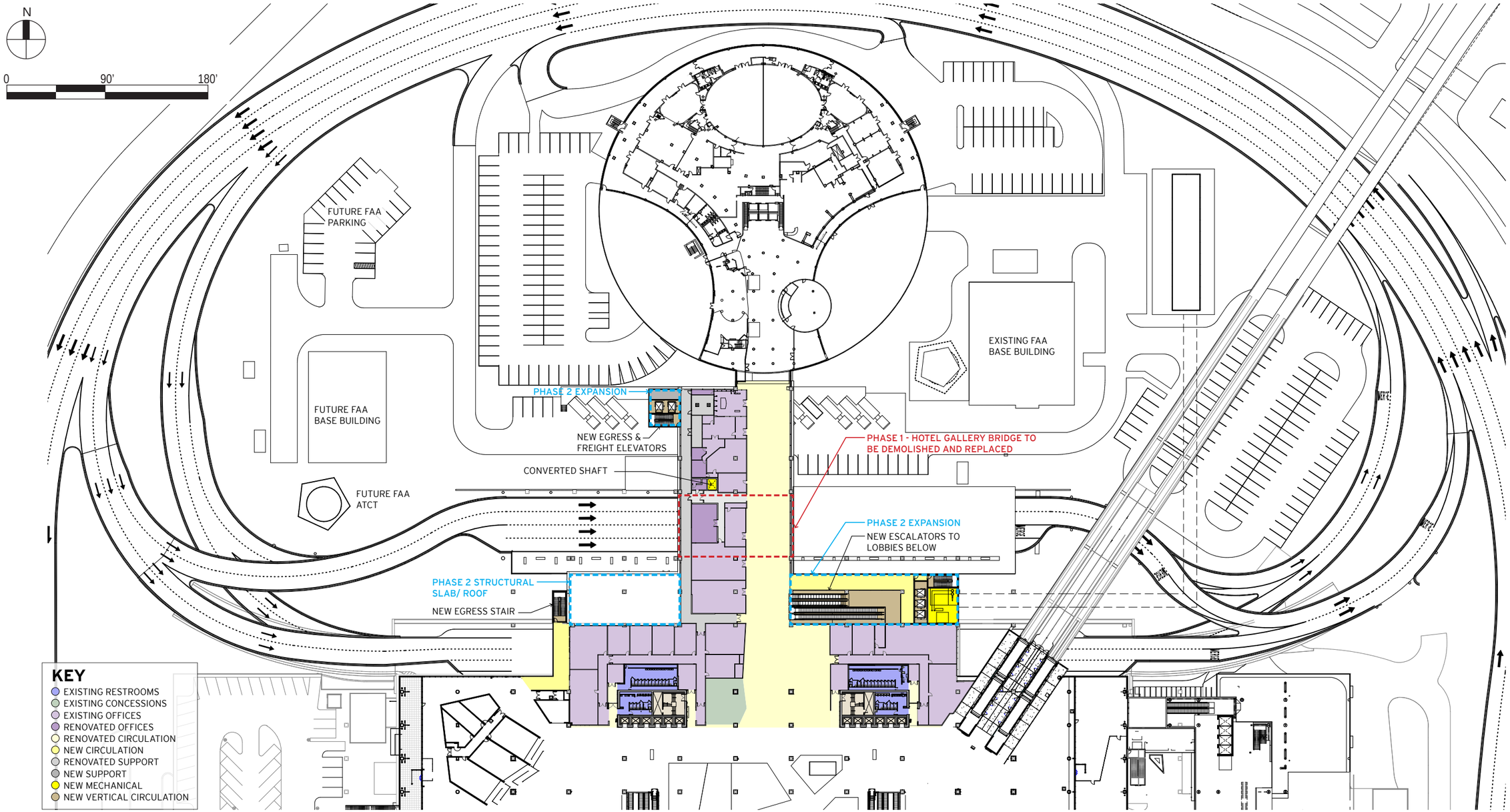
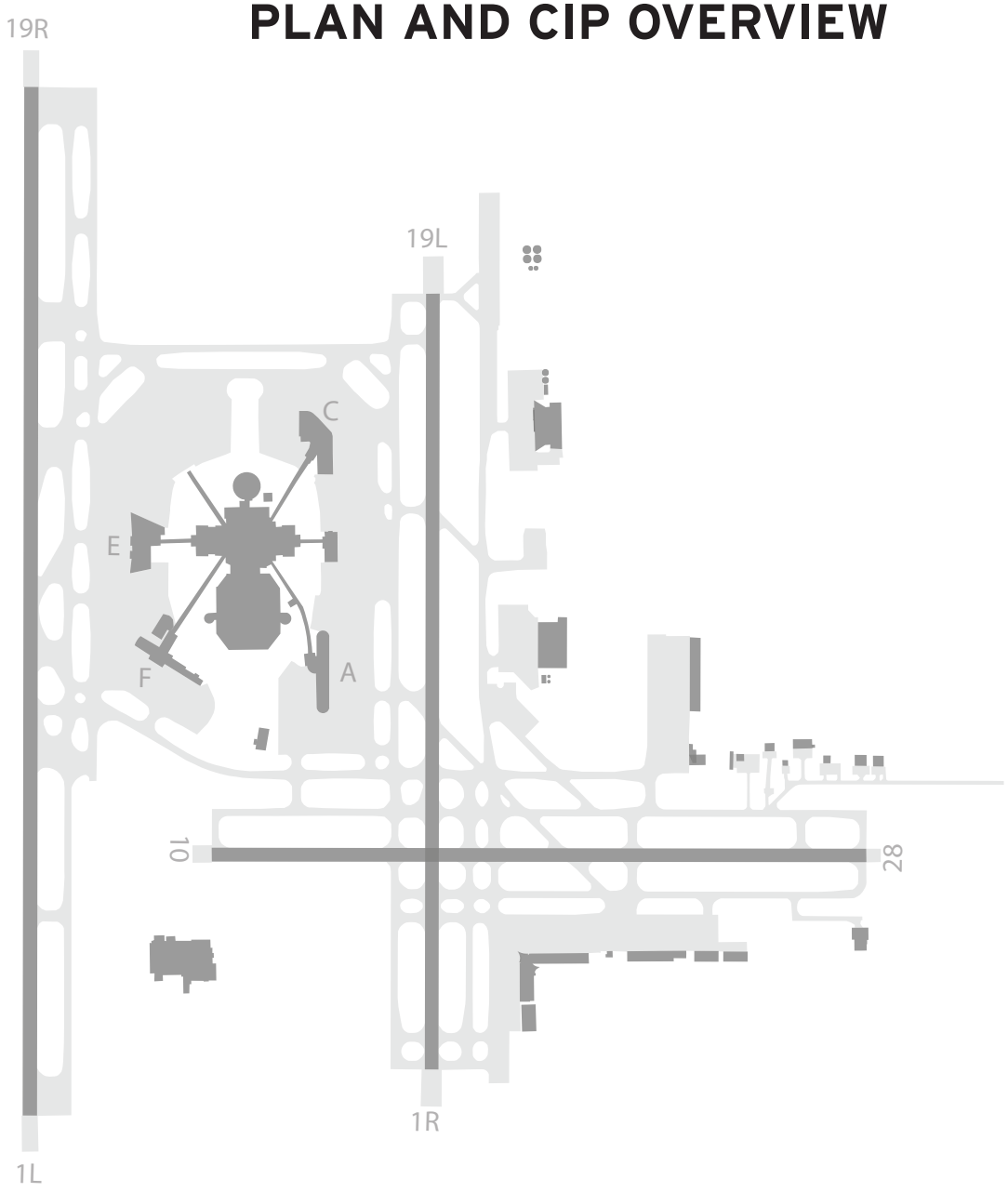


Figure 5.173
Red Side - Level 03 - Overview



SECTION 6 - RECOMMENDED PLAN AND CIP OVERVIEW



6 RECOMMENDED CAPITAL IMPROVEMENT PROGRAM

The purpose of this section is to describe the recommended revised AMPU Capital Improvement Program (CIP). This CIP is distinct from the HCAA's CIP which also includes renovation and replacement projects, and projects related to other airports under its authority. Included in this section are descriptions of the AMPU recommended projects along with estimated costs and phasing.

With the development of the revised preferred alternative in the 2016 Addendum, the overall CIP was also updated to reflect the new plan for both Phases II and III and the enabling projects required for their construction. Table 6.1 illustrates the differences in the 2012 vs 2016 Addendum alternatives.

Table 6.1

2012 vs 2016 Comparison

Phase 2	2012 Update	2016 Refresh	Notes
Demolish red side garage	Yes	Yes	
Office Building	Yes	Yes	
Widen George Bean Parkway	Yes	Yes	Previously in Phase 2 and 3
Central Energy Plant	Yes	Yes	
Demolish airport admin bldg	Yes	Yes	
Curbside expansions	Yes	Yes	Previously in Phase 3
Taxiway A (formerly Taxiway M)	Yes	Yes	Previously in Phase 3
Consolidated checkpoint	Yes	No	
Demolish hotel	Yes	No	
Relocate ATC	Yes	No	
Phase 3			
Airside D	Yes	Yes	
Internat'l processing in Airside D	No	Yes	
Airside C expansion	Yes	No	

Over the next few pages, the projects described in Chapter 5 will be summarized by project identified in the CIP.

6.1 Phase 1 AMPU Projects

During development of the 2016 Addendum, the Phase 1 projects were in construction or near completion. Upon completion, these projects will help to decongest the airport campus by eliminating vehicular traffic from the roadway and allowing for demolition of the rental car functions in the Main Terminal area. The below represents a list of the Phase 1 projects. Refer to the 2012 MPU document for additional information regarding these programs.

- **Main Terminal APM Station**
- **SkyConnect APM Infrastructure & Operating System**
  - 4 minute trip time from Main Terminal to Rental Car Facility
  - Eliminate 2.7M annual vehicles trips from the roadways
  - Designed to accommodate future expansion
- **Construct Access from Quad Decks into Terminal**
- **CONRAC Projects**
  - Travel time from bag claim to vehicle in only 10-15 minutes
  - One level customer service lobby with all available brands and room for expansion
  - Baggage check-in facilities with direct connection to future transit
- **Terminal Transfer Level Expansion and Concessions Redevelopment**
  - Reconfiguration of the transfer level central concessions area to increase circulation to meet 20 year demand and maintain high level of service. Expand concessions to meet demand and increase revenue
  - Reconfiguration of the Airside A, E, and F APM stations at the transfer level;
  - Expansion of the Transfer Level over the Plaza Decks; and
  - Expansion of Concessions on Airsides A, C, E, and F.
- **Taxiway J Bridge**
- **New Concessions Consolidated Warehouse**
- **Implementation of Phase 1 of SUPPS / CUSS**
- **Site Preparation Perimeter Parcel (Area 1)**
- **ATCT Siting Re-evaluation**
- **Site Preparation Perimeter Parcel (Area 7)**
- **Reclaim Long Term Parking from former RAC Areas in Garage**
- **Construct Additional Airport Maintenance Equipment Storage Space**
- **Reconfigure Fuel Farm Access Roadway**

6.2 Phase 2 AMPU Projects

Figure 6.1 lists the Master Plan capital projects recommended for the Phase 2 (2017-2021) period. The total construction costs of these projects is estimated at approximately $544.0 million in 2016 prices, and approximately $668.0 million if all other potential near-term capacity projects are taken.

Figure 6.1

Phase 2 Capital Project Recommendations and Cost

Phase 2 Projects – Cost Estimates

Master Plan Phase II Projects		Total Project Cost
• Demolish Red Side Garage	$	10,631,000
• Gateway Development Area	$	121,769,000
• Parkway Expansion	$	23,836,000
• Gateway Development Area - Exit Lane South of Post Office	$	25,985,000
• Taxiway A	$	57,840,000
• Central Energy Plant	$	90,477,000
• Demolish Airport Administration Building	$	5,334,000
• Blue Side Curb Expansion	$	74,040,000
• Red Side Curb Expansion	$	119,789,000
• Loading Dock Building	$	9,515,000
• FAA Parking Lot	$	4,570,000
Total Phase II	**$**	**543,786,000**

Other Potential Near-Term Capacity Projects		Total Project Cost
• Airside C Restroom Expansion	$	15,000,000
• Airside A SSCP Expansion	$	24,444,000
• Airside F RON Parking	$	24,333,000
• Airside F Expansion	$	30,346,000
• Airline / Airside Rebalancing	$	29,662,000
Total Other Potential Near Term Capacity	**$**	**123,785,000**
Grand Total	**$**	**667,571,000**

6.2.1 Demolish Red Side Garage

The Red Side Garage would be demolished to provide space for the additional Red Side roadways and the future Airside D APM guideway. Additionally, the demolition of this garage allows for the future site of the FAA ATCT and TRACON and support facilities to be constructed when necessary. The demolition would involve 372,752 square feet and the total cost of the demolition is estimated at $10.6 million dollar

6.2.2 Gateway Development Area

The Gateway Development Area includes new development immediately adjacent to the new Phase 1 CONRAC and APM station. A new Administration Tenant Building will be required to replace the current Service Building that will be demolished to free up space for the new Red Side Curbfront expansion. The new facility will be located in the South Development Area and accessible via the new Phase I APM. It will be 240,000 square feet, 8-story office building and will include site grading and preparation, site improvements and site utilities. A portion of the office building will be leased back to the Aviation Authority for administration and operations facilities. Although the 2016 Addendum does not require the demolition of the existing Marriott Hotel, a new hotel is still envisioned as part of the development. An atrium will be located between the new office building and hotel and include a new pedestrian bridge connecting back to the new APM station from Phase I.

Other expansion at the Gateway Development include a new remote commercial curb that will allow for additional capacity for ground transportation that can be dropped off further away from the Main Terminal and relieve vehicular congestion. The new curb will be 700 feet long and 5 lanes wide. Another hotel, convenience store/gas station and other retail are included to create a mixed use development at the site.

Figure 6.2 represents the summary of projects and cost included in the Gateway Development Area.

Figure 6.2

Gateway Development Area

Aviation Authority projects:

- Site preparation for 17 +/- acres: $13.5M
- Remote commercial curb: $12.1M
  - 700 feet long / 5 lanes wide
- Atrium and Pedestrian Bridge: $53.6M
- Build-out of Aviation Authority facilities and operations centers: $42.5M

Developer projects:

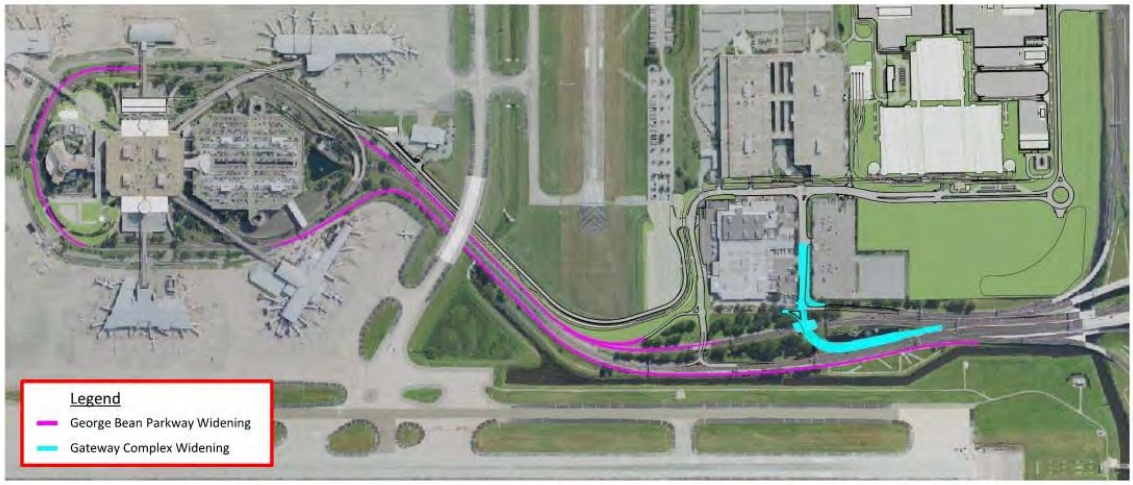
- 240,000-square-foot, 8-story office building
- Convenience store/gas station: +/- 6,000 square feet
- Two hotels
- Other retail: +/- 20,000 square feet

6.2.3 Parkway Expansion

This project includes widening of George Bean Parkway to accommodate additional capacity. The area noted in purple on **Figure 6.3** represents the extents of widening anticipated. This work is estimated at a cost of $23.8 million dollars.

Figure 6.3

Parkway Development Plan



6.2.4 Gateway Development Area – Exit lane South of Post Office

Due to additional traffic in the Gateway Development Area, a larger and more efficient access point to the area is required off George Bean Parkway. **Figure 6.3** depicts this new area in cyan color. The estimated cost for this work is $25.9 million dollars.

6.2.5 Taxiway A

This new Taxiway located north of the existing Main Terminal Area is required for better cross airfield circulation and provide 2 way simultaneous aircraft movement in the east-west direction on the north side of the campus. This new taxiway would be built to accommodate future traffic and not be an obstacle for the potential new north terminal facilities. In the 2012 MPU, this was identified as Taxiway M and was part of Phase III. This is now moved to Phase II work. **Figure 6.4** represents this location in blue and the cost is estimated at $57.8 million dollars.

Figure 6.4

Taxiway A

6.2.6 Central Energy Plant

The existing Central Energy Plant is located adjacent to the existing HCAA Administration building. When the office building is demolished the existing Central Energy Plant must also be demolished. The Central Energy Plant (**Figure 6.5)** is developed as a 3-story structure located directly west of the Airside C APM and east of the Marriott hotel. It will accommodate the required heating, cooling and power for the Main Terminal. The cost for the new Central Energy Plant and associated utility rework is estimated at $90.4 million dollars.

Figure 6.5

Central Energy Plant and FAA Parking Lot

6.2.7 Demolish Airport Administration Building

The existing Airport Administration building must be demolished to clear the site for the new Red Side arrivals/departures lanes and lobby connection building. The building can be demolished once the new office building is completed at the Gateway Development area. The cost of work for this demolition is estimated at $5.3 million dollars.

6.2.8 Blue Side Curb Expansion

Once the new CONRAC is open, the existing Blue Side rental car center is no longer required. This will clear the area for the new Blue Side curb expansion. This includes a new 2 level roadway with 4 lanes each. A new 3 story building will be constructed to bring passengers vertically up/down to/from the curbfronts directly to the Main Terminal Transfer level above. The new lobby building includes stairs, vertical circulation (escalators and elevators) and other support spaces. The existing pedestrian bridges to the Long-Term Parking Garage will be demolished and a new consolidated bridge will be built as part of this development. The estimate cost for this work is $74.0 million dollars and graphically depicted in **Figure 6.6.**

Figure 6.6

Blue Side Curb Expansion

6.2.9 Red Side Curb Expansion

Once the existing HCAA Administration building is demolished, it will clear the area for the new Red Side curb expansion. This includes a new 2 level roadway with 4 lanes each. A new 3 story building will be constructed to bring passengers vertically up/down to/from the curbfronts directly to the Main Terminal Transfer level above. The new lobby building includes stairs, vertical circulation (escalators and elevators) and other support spaces. As part of this work, two structural bays of the existing Marriott Hotel gallery bridge will be demolished and reconstructed in place as one structural span. This will allow for the 4 lanes of roadways to be free of structural columns and ultimately flexibility for vehicular traffic. The estimated cost for this work is $119.7 million dollars and graphically depicted in **Figure 6.7.**

Figure 6.7

Red Side Curb Expansion

6.2.10 Loading Dock Building

The existing loading dock will be demolished when the HCAA Administration building is demolished. A new loading dock will be constructed immediately north of the existing docks. It will be connected to the Main Terminal via new freight elevators to the Transfer Level. This development also includes a new concession commissary and storage on the second level with connectivity to the same elevators. The existing Marriott Hotel loading and trash area will not be impacted by the new loading dock configuration. The estimated cost for this work is $9.5 million dollars.

6.2.11 FAA Parking Lot

With the relocation of the Central Plant to the site, some rework is required to accommodate the FAA parking lot. The lot will be completely demolished and rebuilt at an estimated cost of $4.5 million dollars.

6.2.12 Other Potential Near-Term Capacity Projects

Airside improvements across the airport are required to maintain proper Level of Service for passengers and operations for the Airport. These projects are needed as required at various timeframes and shown on the Stoplight charts in Chapter 4. Table 6.2 below shows the projects identified in the 2016 Addendum as required in the near term.

Table 6.2

Airside Near-Term Capacity Projects

Other Potential Near-Term Capacity Projects	Total Project Cost
• Airside C Restroom Expansion	$ 15,000,000
• Airside A SSCP Expansion	$ 24,444,000
• Airside F RON Parking	$ 24,333,000
• Airside F Expansion	$ 30,346,000
• Airline / Airside Rebalancing	$ 29,662,000
Total Other Potential Near Term Capacity	**$ 123,785,000**
Grand Total	**$ 667,571,000**

6.3 Phase 3 AMPU Projects

Upon completion of the Phase 2 projects, the major Phase 3 projects can begin. This timeframe is anticipated for the 2021-2025 duration.

6.3.1 New Airside D

The recommended concept for Airside D maximizes the number of gates that can be developed in the South Terminal area and will provide 16 domestic/international swing gates. All 16 gates will have access to vertical circulation cores connecting international arriving passengers to a mezzanine level sterile corridor system. The Airside D building includes a new CBP located on the upper sterile level and accommodates two airline clubs on its mezzanine level. The new Airside D will be connected to the Main Terminal via a new APM and station at the Departures level. A new 8 lane Security Screening Checkpoint is located on the Departure level. The ramp level will contain baggage make-up devices, inbound baggage drop-off belts, airline operations areas, and loading dock.

Construction elements will include the construction of the substructure, floors, and roof, exterior walls, skylights, the APM enclosure, interior walls, finishes and furnishings, elevators and escalators, baggage handling system, passenger boarding bridges, and mechanical systems.

6.3.2 Airside D Ramp Reconfiguration and Expansion

The Airside D Ramp will be reconfigured and expanded to accommodate the 16 new Airside D gates (see Section 6.3.1). The project will include site grading, pavement construction, utilities, lighting, and a new fuel hydrant system. When complete, the improved ramp area will consist of twenty acres.

6.3.3 Develop New APM Alignment to Airside D

The new and expanded Airside D facilities (see Section 6.3.1) will require a new APM alignment to provide access. This four-car APM system will be non-secure and connect the terminal to and from Airside D. The project includes site preparation and improvement, steel piles, columns, concrete guideway decks, the APM system, utilities, and landscape restoration.

6.3.4 Additional Phase 3 Projects

Additional projects are anticipated as part of Phase 3, however, these were not developed further in the 2016 Addendum. Refer to the 2012 MPU document for these projects.

6.3.5 North Terminal

The previous 2005 TPA AMPU identified a need for a new North Terminal Complex to accommodate growing passenger demand. As a result of the more conservative passenger forecasts in this AMPU, the need for the North Terminal is no longer expected to occur within the twenty-year master planning horizon. The North Terminal complex has been retained in the ALP to potentially accommodate passenger growth post – 2032. However, since the timing and exact configuration are uncertain, no attempt was made to update the estimated capital costs.

6.4 Phasing Summary

Appendix Q includes a summary of the anticipated phasing for the Phase 2 and 3 projects.