



Chapter 5 Alternative Development and Evaluation

This chapter outlines the alternatives developed to address the forecasted requirements for RSW to meet increased passenger, cargo, and aviation demand through the planning horizon. The alternatives outlined in this chapter are developed based on the facility requirements identified in the previous chapter as well as recent independent studies and experience gained from similar projects by the Master Plan Update team.

5.1 Recommended Airfield Development

The purpose of the airfield alternatives development and evaluation process is to identify and select a single proposed development alternative to meet the future needs of an airport. Establishing future development plans for the airfield is critical because the airfield configuration is the least flexible infrastructure at the airport since it is highly dictated by terrain, predominant meteorological conditions, aircraft performance requirements, and FAA design standards, guidance, and best practices.

There have been numerous airfield alternatives identified and evaluated for RSW over the past few decades as part of an effort to refine the implementation plan for the new runway. The subsequent sub-sections summarize the airfield development recommendations completed to-date. The following assessments and studies were used to prepare the summary of the recommended airfield alternative:

- Runway Close-out Report by AECOM, August 2017
- Engineer's Report for Runway 6R-24L Site Preparation Package prepared by RS&H, October 28, 2016
- Existing Airfield Geometry Evaluation Study prepared by Kimley-Horn and Associates, January 2018
- Pavement Condition Analysis and Recommendation prepared by Kimley-Horn and Associates, January 2018
- Airside Pavement Rehabilitation Recommendations Report prepared by Kimley-Horn and Associates, August 2015

Proposed Parallel Taxiways to Runway 6-24

Southern Parallel Taxiway to Runway 6-24

With increased airliner traffic in the Terminal area south of Taxiway F, the taxiway system serving the Terminal area will come under strain with an increased potential for head-to-head aircraft conflicts and increased waiting times for arriving aircraft taxiing to gate and for aircraft pushbacks. With the addition of Concourse E in the Terminal area, the western portion of Taxiway F (from the Runway 6 end to Taxiway L) will be under heavy traffic from both arriving and departing traffic. The addition of the first phase of Concourse E includes a portion of the new parallel taxiway between Taxiway G2 on the east and a new to be built taxiway connector west of the Concourse E development. The second phase of the Concourse E buildout would add additional gates which would compound congestion in the area. The buildout of the parallel taxiway to the Runway 6 end should occur between PAL 3 and PAL 4 to alleviate congestion in the area as traffic grows. With the addition of the additional gates on Concourse E, the taxiway should be extended to Taxiway L on the east. The design standards for the new taxiway should meet the critical aircraft design standards of ADG-V and TDG-5.

Northern Parallel Taxiway to Runway 6-24

A northern parallel taxiway to Runway 6-24 is envisioned as part of the North Area Development. This new taxiway would be located north and parallel to Taxiway A. As Taxiway A is sufficient to meet the current needs of the existing tenants on the north side of the airfield, this new parallel taxiway would be triggered by the North Area Development. While operators have not yet been defined, the proposed uses including cargo and maintenance, repair and overhaul activity would require a taxiway that meets ADG-V and TDG-6 aircraft standards.

Proposed New Parallel Runway

Runway 6R-24L and Associated Taxiways

A new runway is needed at RSW by the early 2040s to address the capacity shortfall identified based on the airfield demand/capacity analysis. Original plans for a second parallel runway to existing Runway 6-24 was for a general aviation runway northwest of Runway 6-24. However, as demand for commercial service continued at RSW, development plans evolved to instead provide a second runway to the southeast with capacity for larger commercial service aircraft operations. The second parallel runway configuration was identified, evaluated, and refined in several studies dating back to the 1990s.

The resulting future proposed Runway 6R-24L configuration, previously referred to as Alternative B-1, (as depicted in Figure 4-4, is for a 9,100-foot by 150-foot parallel runway with centerline separation of 5,465 feet from the existing Runway. The future proposed runway dimensions and configuration meet airfield requirements associated with the critical aircraft described in Chapter 4, *Demand Capacity and Facility Requirements*. Runway 6R-24L would connect to the existing airfield via Taxiway K and Taxiway L, which would both be extended to connect to the new taxiway(s) that would be aligned parallel to Runway 6R-24L. The proposed development alternative provides the Airport with an unconstrained runway for Airplane Design Group (ADG) V operations that will meet the forecast demand.

The 5,465-foot separation preserves a 600-foot separation between runway and parallel taxiway which allows for high-speed reverse turn taxiway exits. The separation also gives LCPA the flexibility to construct a full dual parallel taxiway at ADG-V separation standards. Dual parallel taxiways enhance flexibility for aircraft taxiing operations and maneuvering to support efficient airfield operations. The separation provides sufficient space between the Taxiway Object Free Area and the existing Terminal Access Road for a 25-foot perimeter road, 8-foot-wide jet blast fence, and 50- to 60-foot right-of-way for the Terminal Access Road to include roadway signage, landscaping, utilities, drainage, and security fencing.

Both runway ends would be equipped with a Category I (CAT I) precision instrument approach using either Instrument Landing System (ILS) or Global Positioning System (GPS) technology. Both runway ends would be equipped with a Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR).

Previous work to advance the implementation of the New Parallel Runway program includes 100% design plans for clearing, grading, and drainage to support the new airfield pavement infrastructure. This work was completed in 2017. Implementation efforts were subsequently suspended. The operational need for the New Parallel Runway program was delayed due to the reduced aviation demand at RSW associated with the Great Recession and resulting airline consolidation.

The design aircraft for the previously completed work on the Parallel Runway Program is the Boeing 747-400. The aircraft is classified as ADG-V, Taxiway Design Group (TDG) 5, and Aircraft Approach Category D. While the projected Critical Aircraft is projected to maintain TDG-5 characteristics, the parallel taxiway system serving the new Runway could be upgraded to TDG-6 specifications depending on commercial aviation development in the North Area. If cargo and maintenance, repair, and overhaul (MRO) activities grow considerably, there would be justification to improve the taxiways to the higher TDG-6 standard.

To validate its viability, the proposed Runway 6R-24L configuration was prepared and evaluated in previous studies with consideration of the following geometric design standards for the approach and departure:

- Runway Protection Zone (RPZ)
- Part 77 Surfaces
- One-Engine Inoperative (OEI) Obstacle Identification Surfaces (OIS)
- Approach Lighting System Surfaces
- Obstacle Free Zones
- Terminal Instrument Procedures (TERPS) Surfaces, including instrument departure and missed approach obstacle clearance surfaces

Several enabling projects need to be completed before the implementation of the New Parallel Runway program. The most significant enabling project is the relocation of high-voltage electrical transmission lines southeast of the existing airfield. The transmission lines are owned by Florida Power and Light (FPL) power utility company.

FPL Transmission Line Relocation Enabling Project

The existing FPL high-voltage transmission lines were evaluated to identify potential obstructions to air navigation and electromagnetic interference with NAVAIDs for the Runway 6R-24L alignment. The location of the existing transmission lines was surveyed and uploaded to FAA's Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) system. The FAA determination has since expired since the New Parallel Runway program was delayed so additional coordination with the FAA will be required again prior to proceeding. Since the completion of the previous OE/AAA study, FPL added towers within the aforementioned segment of the corridor; however, FPL worked closely with LCPA to ensure the new obstructions were evaluated and data about these obstructions should be available in the FAA database.

A 5,450-foot segment of transmission line corridor will need to be relocated because it will penetrate the Runway 6R-24L approach/departure surfaces. Several realignment routes were studied as part of previous studies to relocate the transmission line corridor outside the Runway 24L end approach/departure surfaces. The recommended route was

selected because it provided the shortest length required to relocate the power lines. The recommended alignment was approved by FPL in 2011/2012 as depicted in Figure 4-7.

An ILS modeling study was completed in 2008 to identify potential electromagnetic interferences with the proposed localizer array and glideslope equipment. The study concluded that the existing segment of FPL transmission lines that parallel the proposed runway can remain in-place with no measured interference with Category I ILS operations.

Major elements of the transmission lines relocation project include relocation of the transmission towers, construction of new patrol road, and construction of applicable fences/gates. These project components were previously included as a project component in discussions between LCPA and FPL. These costs were previously identified to be borne by LCPA based on previous discussions/negotiations. A non-binding construction cost estimate for relocation of the transmission lines was \$5.5 million as provided by FPL in 2023 dollars.

The recommended route for the FPL transmission lines runs through two private properties owned by the Jared F. Holes Trust and Lee County Conservation 20/20 Wild Turkey Strand (WTS) Preserve which requires obtaining easements. Approximately one-third of the new transmission line corridor is located within the Jared F. Holes Trust property, for which an easement was obtained from the Jared F. Holes Trust in June 2017.

The remaining two-thirds of the new transmission line corridor is located within the Wild Turkey Strand preserve. Obtaining an easement for the relocation of the transmission lines through this parcel remains an open item. Approval was obtained from the Conservation Land Acquisition and Stewardship Advisory Committee (CLASAC), the Lee County Board of County Commissioners, and the Lee County Board of Port Commissioners governing bodies in 2015. However, approval was not granted by the Florida Communities Trust (FCT) – the organization that provided the funds used to acquire the WTS preserve. Further coordination with FCT is required when the New Parallel Runway program is restarted to enable the relocation of the FPL transmission lines.

The future proposed Runway 6R-24L location is identified on the current Airport Layout Plan. The New Parallel Runway program underwent environmental review as part of an Environmental Assessment prepared in 1994. The future parallel runway was granted environmental entitlement in March 1994 with a Finding of No Significant Impact (FONSI). The FONSI was revalidated by the FAA in 2007.

Next Steps for New Parallel Runway Implementation

Plans for 100% design for site preparation for New Parallel Runway Program were completed in 2016. They were completed before implementation work was suspended in 2017 and are awaiting FAA-approval when the project implementation is restarted. The site preparation package includes general site clearing, grubbing, stormwater drainage, utility relocation (i.e., irrigation lines and overhead electric distribution lines – not to be confused with previously mentioned high-voltage transmission lines), wetland mitigation, and new perimeter fencing. Construction cost estimate prepared based on preliminary quantities associated with the 100% site preparation design plan was approximately \$143 million in 2023 dollars. All funding for site clearing for the parallel runway portion of the program expired in June 2017 and new funding sources will need to be identified when the project is restarted.

Construction of the site preparation package and the conceptual design of Runway 6R-24L and associated taxiways was permitted through South Florida Water Management District (SFWMD) and US Army Corps of Engineers. The permits were issued in 2017 with an original expiration date of 2022 so permit extension(s) will be required until the New Parallel Runway project is restarted. The permits only included site preparation so additional permits or permit modification will be required prior to construction of pavement and electrical.

The FPL Transmission Line Relocation enabling project will be permitted separately through Florida Department of Environmental Protection and the US Army Corp. of Engineers. That permitting effort will need to include the private property owner and Lee County as co-applicants because of the establishment of new easement corridor on the private properties.

Geotechnical investigation was completed for the area within the future boundary of the parallel runway and taxiways to support the site preparation package design effort. The approach included collection of soil borings which is consistent with FAA Advisory Circular recommendations. Additional geotechnical investigation was undertaken to obtain a more comprehensive understanding of the subsurface conditions of the study area given the history of wetlands, unsuitable soils, and subsurface anomalies at other locations on and around the Airport. The team used ground penetrating radar (GPR) and electrical resistance imaging (ERI) to supplement the topographical soil boring investigation. Soil boring and GPR investigation were completed for the full area for the future runway/taxiway complex. The ERI investigations were not completed due to budgetary and deadline constraints. It is recommended that the ERI investigations be conducted when the project is restarted to facilitate a comprehensive understanding of potential subsurface anomalies.

Previous design efforts did not finalize key project elements such as pavement, electrical, or NAVAID design. Conceptual design was completed to support the site preparation design and permitting but follow-on design work is required upon project restart. Similarly, coordination with off-airport entities will need to be restarted to finalize the planning, permitting, and programming to enable the FPL transmission line relocation project upon project restart.

Recommended NAVAID Improvements

While RSW operates in VFR and IFR CAT I conditions a majority of the time, an upgrade of one of the approaches to CAT II would be beneficial to ensure continuity and resiliency of operations. Existing Runway 6-24 can be upgraded to a CAT-II approach with some minor modifications subject to a feasibility analysis. As mentioned earlier the proposed new parallel runway to the south can be operated with a CAT-I ILS without impacting the FPL transmission line. While the installation of a CAT-II ILS is feasible on the south runway, it would require the relocation of a sizeable portion of the FPL line located parallel and south of the proposed runway, beyond what is already recommended to mitigate the approach surfaces on the east side.

Due to the longer length of the existing runway (12,000 feet versus 9,100 feet) than the proposed future runway, the location in proximity to the terminal, cargo and general aviation areas, as well as the need for the new parallel runway to relocate the FPL transmission lines along the length of the runway; it is recommended to implement, pending further study, a CAT-II approach to Runway 6.

The airport rotating beacon (or airport beacon) is currently located in between Taxiways J and H adjacent to the terminal ramp area. With potential development in this area to meet terminal expansion needs, the airport beacon may need to be relocated. The Airport Layout Plan (ALP) identifies a new location in the vicinity of the new air traffic control tower. The selection of this site is conceptual as a site selection study should be undertaken to determine an optimal site that will be compatible with future airport development, tower operations, airspace restrictions etc.

Recommended Airfield Safety Modifications

Modifications to airfield geometry were considered to enhance airfield safety by reducing pilot confusion through infrastructure changes. The recommendations were identified in the Existing Airfield Geometry Evaluation Study prepared by Kimley-Horn and Associates in 2018. The analysis included review of airfield usage, modeling aircraft movements, and review of existing geometry based on FAA AC 150/5300-13A, Change 1. Recommendations were

identified based on input from LCPA and FAA staff. An update analysis by ESA conducted as part of this Master Plan Update reaffirmed those findings based on FAA AC 150/5300-13B with additional recommendations.

Generally, the Study recommended relocation of Taxiway G1 to the west to eliminate the direct taxi access from the passenger terminal apron to Runway 6-24. The reconfiguration would force pilots to make a turn when taxiing from the passenger terminal towards Taxiway F. The Study also recommended the installation of in-pavement or aboveground runway guard lights at all runway-taxiway intersections to reduce the likelihood of incursion. However, installation of runway guard lights was recommended at five specific locations because they were designated as possible areas for runway incursion by the Airport as part of the Existing Airfield Geometry Evaluation Study. Those locations are as follows:

- Taxiway F1 and Runway 6
- Taxiway A4 and Runway 6-24
- Taxiway A5 and Runway 6-24
- Taxiway A7 and Runway 6-24
- Taxiway F9 and Runway 24

The ESA Airfield Geometry Study also recommended removing the following direct runway access from an aircraft parking apron located north of Taxiway A.

- Taxiway A4 between Taxiway A and the Cargo Ramp
- Taxiway A5 between Taxiway A and the General Aviation Ramp
- Taxiways A6 and A7 between Taxiway A and the North Ramp

Recommended Airfield Rehabilitation

The airfield pavement condition was evaluated as part of the Airside Pavement Rehabilitation Recommendations Report prepared by Kimley-Horn and Associates in August 2015. The analysis included visual condition surveys of the airfield pavements, non-destructive testing to evaluate the structural sufficiency of existing pavement, and surface borings. GPR surveys were also used to aid in identifying significant anomalies and depressions of the underlying subsoils. The analysis included a traffic analysis of the aircraft fleet to determine the pavement remaining life, structural analysis to evaluate the pavements structural integrity, and an electrical assessment to determine if/what electrical improvements should be included in a rehabilitation program.

The pavement rehabilitation recommendations were identified based on guidance provided from a combination of general airport planning criteria, site specific conditions at the Airport, and feedback from LCPA. This section summarizes the pavement rehabilitation recommendations identified as part of that study.

Taxiway A

Analysis associated with the Pavement Condition Study of Taxiway A pavement conditions found blistering observed on the pavement concerning as water could penetrate the surface through cracks in the ruptured blisters. The total pavement thickness is adequate to protect against subgrade failure. The proposed solution is to regularly inspect and monitor the severity of the blistering.

It is recommended that LED taxiway edge and centerline lights be installed the entire length of Taxiway A. Taxiway A edge and centerline circuits are proposed to be split into East and West segments with new cable and isolation transformers. New sign panels and a new parallel duct bank between Taxiway A and Runway 6-24 with crossings for future expansion are recommended to be installed in collaboration with an airfield rehabilitation program.

Taxiways A3/A4

Taxiways A3 and A4 are subject to air cargo carrier loading, which presents more stress on the pavement than usual. Analysis associated with the Pavement Condition Study found blistering observed on the pavement between the cargo apron and Taxiway A concerning as water could penetrate the surface through cracks in the ruptured blisters. To provide extra strength for cargo loads and for long-term performance a 2-inch asphalt concrete (AC) overlay is recommended. A minimum of 0.5-inch mill of the existing asphalt is recommended to remove surface cracking and weathered pavements. Installation of LED taxiway edge lights and sign panels is also recommended. The proposed changes to Taxiways A3 and A4 are shown in **Figure 5-1**.

Taxiway A5

Taxiway A5 is intended for use by smaller, lighter corporate and general aviation aircraft, but is much older than Taxiways A3 and A4. Analysis associated with the Pavement Condition Study for Taxiway A5 (between the FBO apron and Taxiway A) found raveling, longitudinal and block cracking. Concrete surrounding the trench drains is severely cracked and the overall pavement condition appears to have deteriorated to a "poor" condition. The recommended rehabilitation for this area is to mill the existing asphalt surface a minimum of ½" to remove damage and replace with a 2.5-inch asphalt overlay. The overlay would bring the asphalt surface thickness to a minimum of 4 inches and within current recommended pavement design guidelines. Removal and replacement of damaged trench drainage should be included in a rehabilitation program.

Installation of LED taxiway edge lights and sign panels is also recommended. The proposed changes to Taxiway A5 are shown in **Figure 5-2**. An opinion of cost for Taxiways A3, A4, and A5 design and construction in the amount of \$119,000 was provided for a portion of the recommended work in 2015.¹

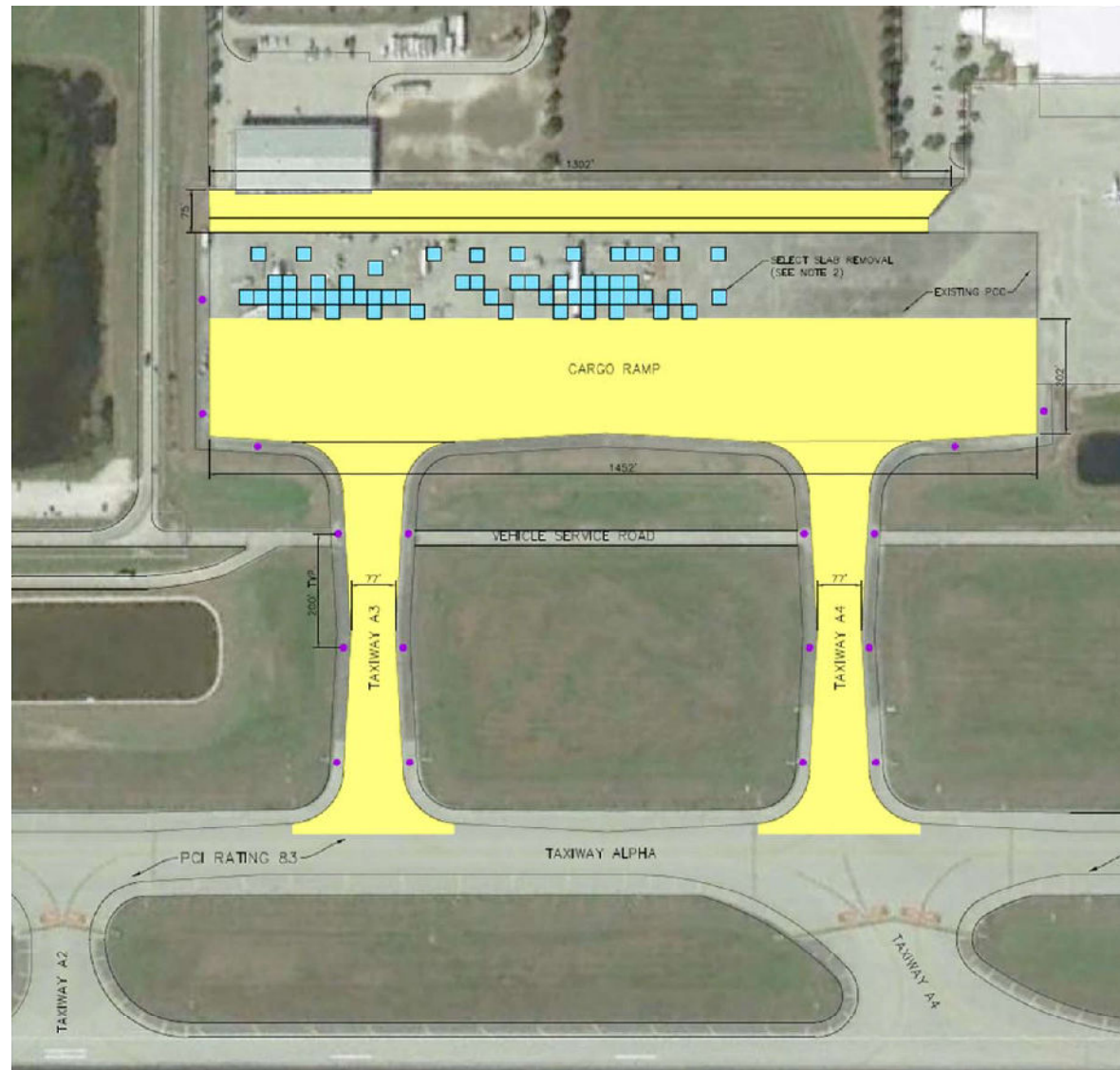
Taxiways A6/A7/A8

Taxiway sections north of Taxiway A leading to the North Ramp and sections between Taxiway A and Runway 6-24 have not received much traffic since the old terminal was decommissioned and no air carriers operate north of the runway. Analysis associated with the Pavement Condition Study for Taxiways A6, A7, and A8 pavement conditions found to be in generally "satisfactory" condition with some swelling and depression observed. The taxiways are calculated to have more than 10 years of remaining life due to their minimal usage. The recommended rehabilitation improvements include ½" mill and a 1.5-inch hot mix asphalt (HMA) overlay.

It is recommended that in-pavement runway guard lights and LED taxiway edge lights be installed. New cable and isolation transformers should be installed. New sign panels are also recommended to be installed in collaboration with an airfield rehabilitation program. The proposed changes to Taxiways A6, A7, and A8 are shown in **Figure 5-3**. An opinion of cost for design and construction in the amount of \$394,000 was provided for a portion of the recommended work in 2015.²

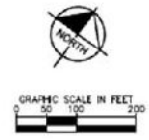
¹ SOURCE: *Airside Pavement Rehabilitation Recommendations Report* (August 2015) was developed from visual inspections and available construction history data. Opinion of costs does not include recommendations proposed after 2015.

² SOURCE: *Airside Pavement Rehabilitation Recommendations Report* (August 2015) was developed from visual inspections and available construction history data. Opinion of costs does not include recommendations proposed after 2015.



LEGEND

- FULL DEPTH CONCRETE
- HMA MILL AND OVERLAY
- APRON EDGE/TAXIWAY LIGHT

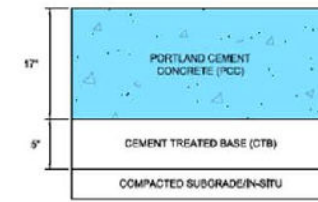


NOTES

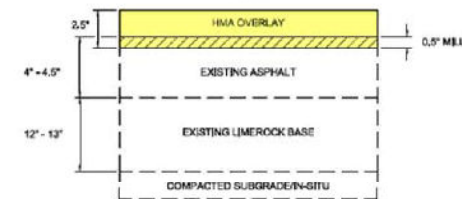
1. MANY DETAILS NOT SHOWN FOR CLARITY, FOR ILLUSTRATIVE PURPOSES ONLY.
2. SELECT PCC PANEL REMOVAL AND REPLACEMENT WILL BE INVENTORIED DURING DESIGN PROCESS, FOR PLANNING PURPOSES 20% OF SLABS ARE SHOWN TO BE REPLACED.

WORK ELEMENTS

1. 62,200 SY ASPHALT PAVEMENT (MILL AND OVERLAY)
2. 4,800 SY CONCRETE PAVEMENT (SELECTIVE SLAB REPLACEMENT)
3. PAVEMENT MARKING
4. UPGRADE TO LED FIXTURES AND GUIDANCE SIGNS,
5. REPLACE LIGHTING, CABLES AND TRANSFORMERS WITHIN THE WORK AREA.



TYPICAL PCC SECTION
N.T.S.



TYPICAL HMA SECTION
N.T.S.

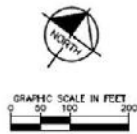
SOURCE: Pavement Condition Analysis and Recommendation, Kimley-Horn and Associates, 2018

Figure 5-1 Rehabilitation Recommendations Taxiways A3 and A4



LEGEND

- HMA MILL AND OVERLAY
- APRON EDGE/TAXIWAY LIGHT



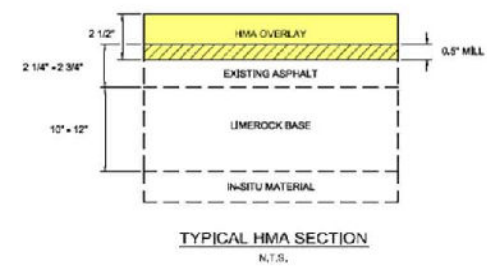
NOTES

1. MANY DETAILS NOT SHOWN FOR CLARITY, FOR ILLUSTRATIVE PURPOSES ONLY.
2. DEPTH OF MILLING MAY VARY WITH ADDITIONAL TESTING.

WORK ELEMENTS

1. TAXIWAY A5: 3,200 SY ASPHALT PAVEMENT (MILL AND OVERLAY) 1,600 SY FULL DEPTH ASPHALT CONSTRUCTION FOR WIDENING OF A5
2. UPGRADE TO LED FIXTURES AND GUIDANCE SIGNS,
3. REPLACE LIGHTING, CABLES AND TRANSFORMERS WITHIN THE WORK AREA.
4. PAVEMENT MARKINGS.

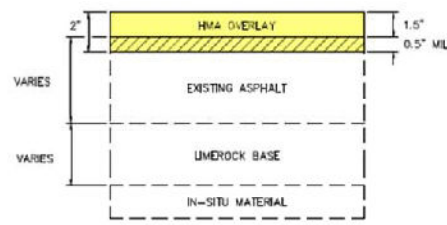
2015 PCI RATING	
RAMP	= 57
TAXIWAY A5	= 69
RECOMMENDED MINIMUM SERVICE LEVEL	
RAMP	= 65
TAXIWAY A5	= 70



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-2 Rehabilitation Recommendations Taxiway A5

2015 PCI RATING	
A6 NORTH OF ALPHA	80
A6 SOUTH OF ALPHA	81
A7 NORTH OF ALPHA	72
A7 SOUTH OF ALPHA	74
A8 NORTH OF ALPHA	78
A8 SOUTH OF ALPHA	76
RECOMMENDED MINIMUM SERVICE LEVEL = 70	



LEGEND

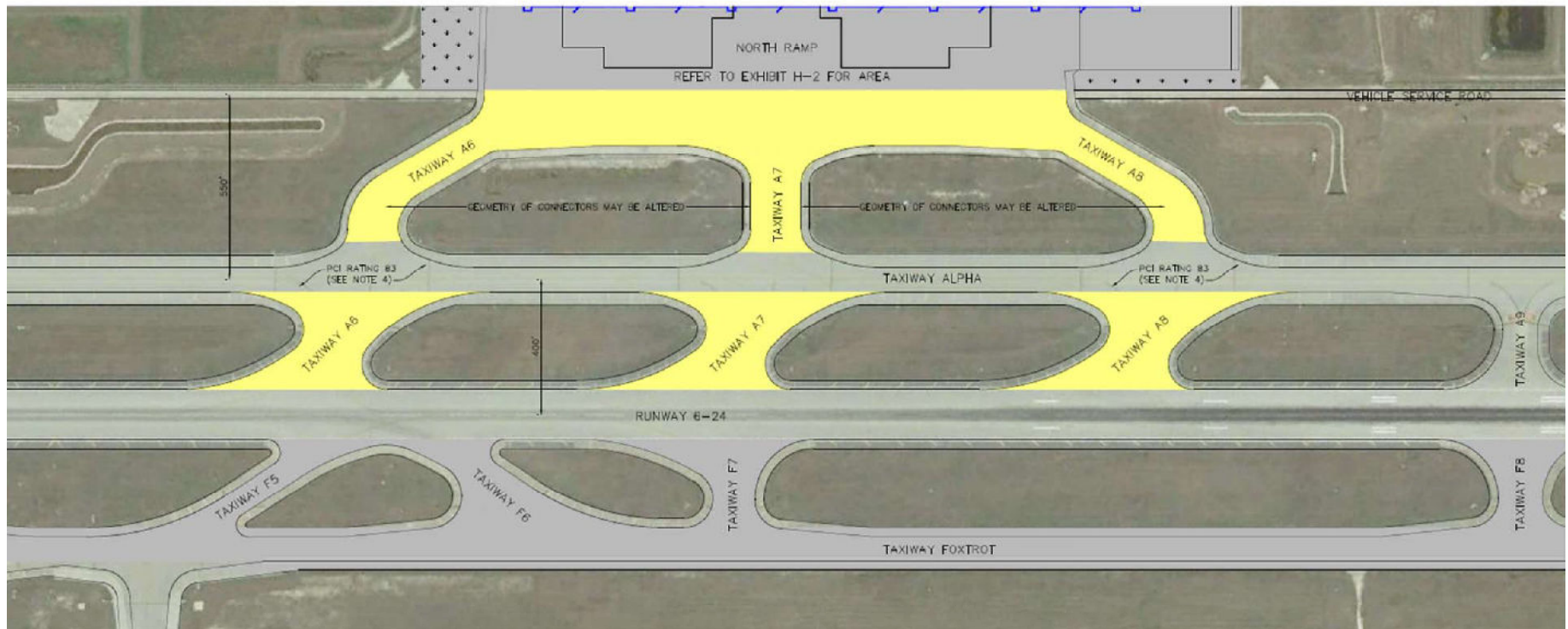
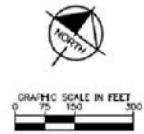
- HMA MILL AND OVERLAY
- SEE OTHER SHEETS FOR RECOMMENDATIONS

NOTES

1. MANY DETAILS NOT SHOWN FOR CLARITY, FOR ILLUSTRATIVE PURPOSES ONLY.
2. RAMP USAGE MAY DICTATE FINAL TAXIWAY ALIGNMENT.
3. MILL AND OVERLAY RECOMMENDED IN 2015 FOOT SAMPLING, WORK BEGINNING IN 2021.
4. NO RECOMMENDED IMPROVEMENT THRU 2024 IN 2015 FOOT SAMPLING.

WORK ELEMENTS

1. 84,000 SY ASPHALT PAVEMENT (MILL AND OVERLAY)
2. UPDATE TO LED FIXTURES AND GUIDANCE SIGNS.
3. REPLACE LIGHTING FIXTURES AND TRANSFORMERS WITHIN WORK AREA
4. PAVEMENT MARKING



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-3 Rehabilitation Recommendations Taxiways A6/A7/A8

Other Taxiway A Connectors

Taxiways A1 and A10 are in "good" condition having completed pavement rehabilitation in 2020-2021.

Analysis associated with the Pavement Condition Study for Taxiways A2 and A9 found to have a "Satisfactory" condition rating. Taxiways A2 and A9 pavement are not in consideration for rehabilitation.

Taxiway F

The taxiway is the primary air carrier taxiway to the Airport's only runway, Therefore, Taxiway F experiences more traffic than Taxiway A. Investigation associated with the Pavement Condition Study identified issues with original construction quality and subsurface conditions. The Pavement Condition Study found Taxiway F to have noticeable depressions, pavement weathering, longitudinal and alligator cracking with a weak structural base in its center portion. The blistering observed on the pavement concerning as water could penetrate the surface through cracks in the ruptured blisters. The west end has found have a remaining life of less than five years.

Based on the analysis, the two recommended rehabilitation improvements include a minimum of 2-inch mill of the existing asphalt to remove cracking and weathered pavements and a 9-inch HMA overlay. The second option entails a full depth replacement of approximately 12 inches of AC.

Installation of LED taxiway edge and centerline lights is also recommended for the entire length of Taxiway F. Taxiway F edge and centerline circuits are proposed to be split into East and West segments with new cable and isolation transformers. New sign panels and a new parallel duct banks between Taxiway F and Runway 6-24 with crossings for future expansion are recommended to be installed. The proposed changes to Taxiway F are shown in **Figure 5-4** and **Figure 5-5**. An opinion of cost for design and construction in the amount of \$178,000 was provided for a portion of the recommended work in 2015.³

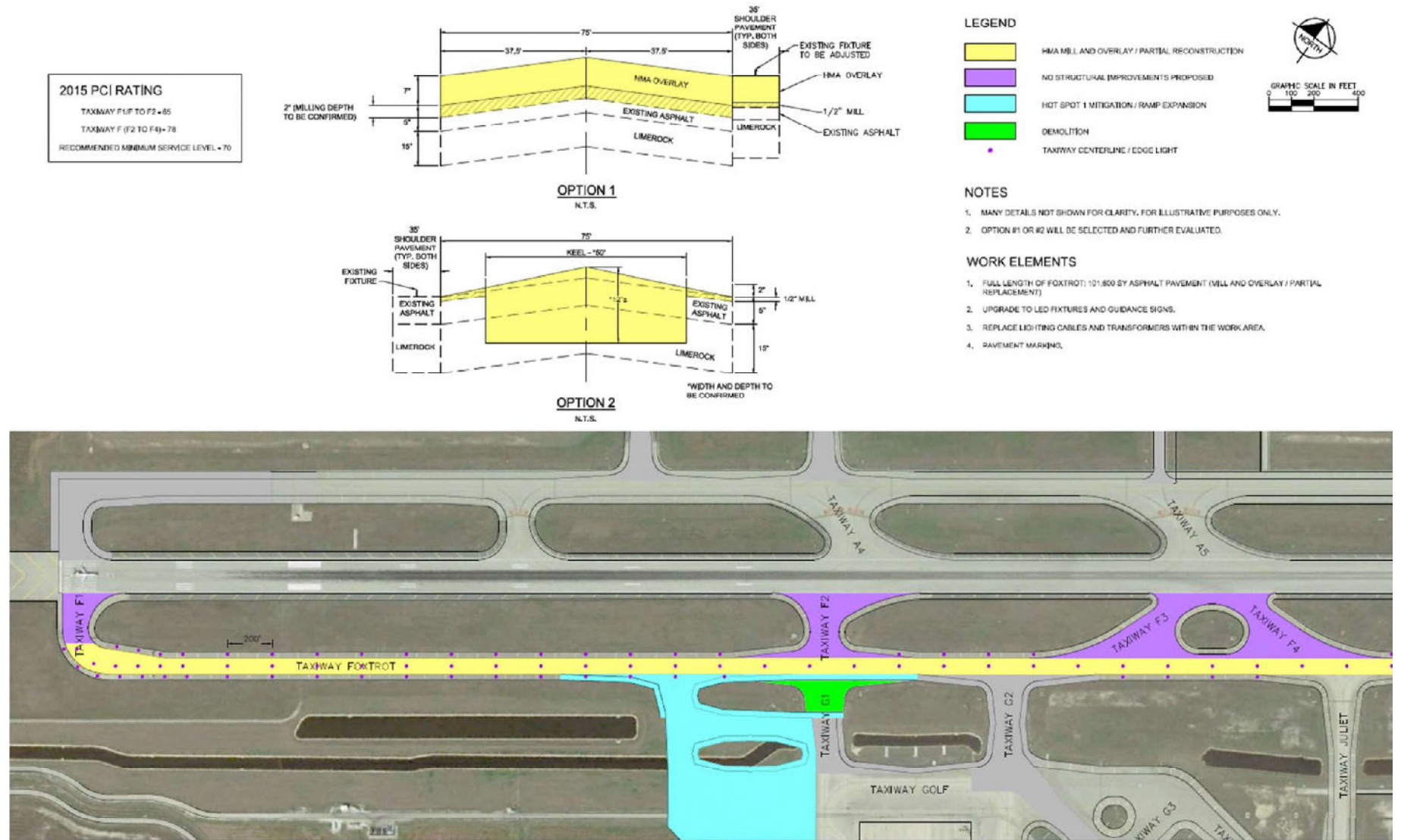
Taxiways F1 through F9

Taxiways F1 through F9 pavement conditions were analyzed as part of the Pavement Condition Study. The analysis found longitudinal cracking with some signs of stress. The general pavement condition rating was "fair" to "satisfactory" which resulted in no structural improvements recommended for the taxiway connectors.

However, it is recommended that in-pavement runway guard lights be installed on Taxiways F1 through F9 with ducts parallel to Runway 6-24. New sign panels are also recommended to be installed. The proposed changes to Taxiways F1 through F9 are shown in Figure 5-4 and Figure 5-5. An opinion of cost for design and construction in the amount of \$46,000 was provided for a portion of the recommended work in 2015.⁴

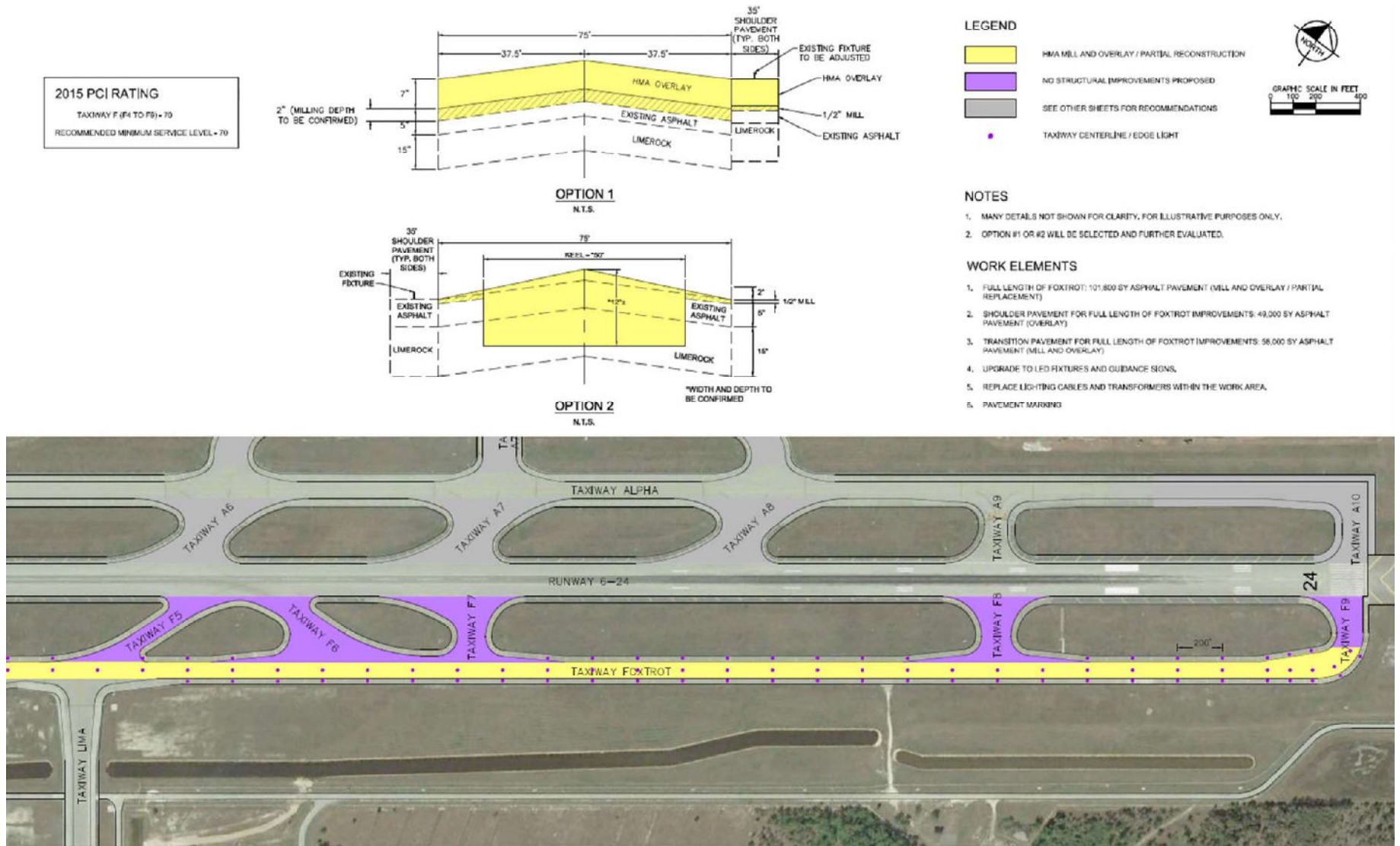
³ SOURCE: *Airside Pavement Rehabilitation Recommendations Report* (August 2015) was developed from visual inspections and available construction history data. Opinion of costs does not include recommendations proposed after 2015.

⁴ SOURCE: *Airside Pavement Rehabilitation Recommendations Report* (August 2015) was developed from visual inspections and available construction history data. Opinion of costs does not include recommendations proposed after 2015.



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-4 Rehabilitation Recommendations Taxiway F West End



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-5 Rehabilitation Recommendations Taxiway F East End

Taxiway G

Taxiway G and its connectors are some of the most used pavements on the Airport as they provide access to Terminal Concourses C and D. Analysis in the Pavement Condition Study of Taxiway G surface found minor cracking. The analysis reflects the taxiway has more than 10 years of remaining life with a condition rating of “fair”. The recommended rehabilitation improvements include a 2-inch mill and HMA overlay to remove surface cracking and deterioration.

Installation of LED taxiway and centerline lights in areas that have not been upgraded to LED is recommended. The proposed changes to Taxiway G are shown in **Figure 5-6**.

Taxiways G1/G2

Analysis associated with the Pavement Condition Study of Taxiways G1 and G2 found the taxiways are deteriorating rapidly with Taxiway G2 estimated to have less than 5 years of remaining life. Analysis of Taxiway G1 does indicate more than 10 years of remaining life but the pavement does have depressions from what appears to be related to drainage pipe irregularities.

Each taxiway connector is recommended for substantial rehabilitation with two improvement options. The southern section of Taxiway G1 is recommended for a 4-inch AC overlay or a full depth removal and replacement. During design of a rehabilitation program, a video survey of the drainage pipes should be conducted to determine a resolution for the drainage pipe issue. Airfield hot spot 1 is located at the Taxiway G1 and Taxiway F2 intersection. Taxiway G1 is aligned with Taxiway F2 allowing direct access to Runway 6-24 from the terminal apron which causes increased risk to surface operations. The recommended rehabilitation improvement to mitigate the risk entails removal of the northern portion of Taxiway G1 and installing a new connector to the west of the removed pavement.

The proposed rehabilitation improvements for Taxiway G2 entails a 7-inch AC overlay or a full depth removal and replacement. It is recommended that LED taxiway edge lights and sign panels be installed on each taxiway. The proposed changes to Taxiways G1 and G2 are shown in Figure 5-6. An opinion of cost for pipe inspection and subgrade in the amount of \$46,000 was provided in 2015.⁵

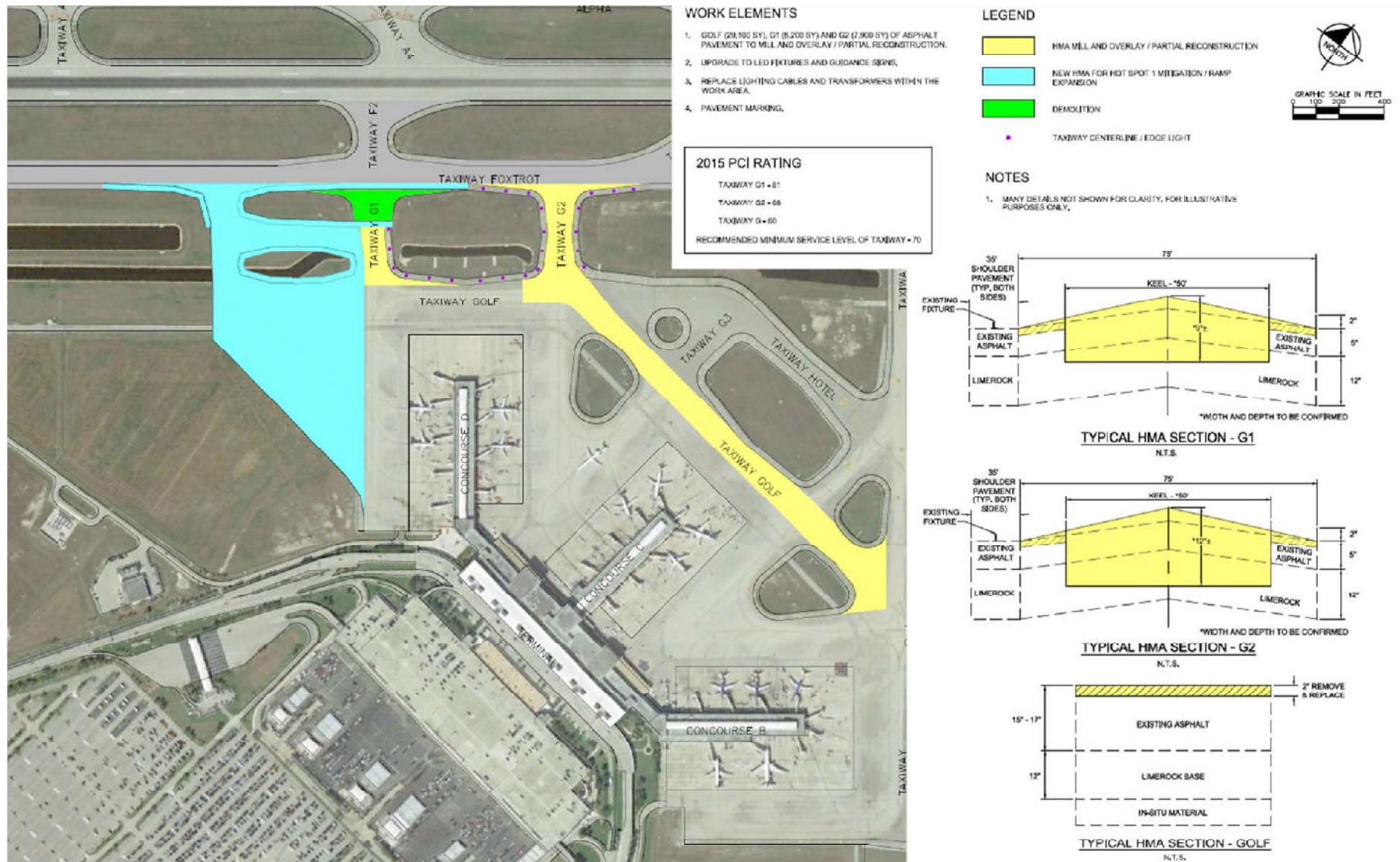
5.2 Support Facilities

North Area Planning

This section provides an overview of the development alternatives that were prepared for the North Area. These alternatives were developed based on the feedback received during the visioning session that took place at the Airport on November 30, 2021, as well as follow-up conversations with LCPA staff.

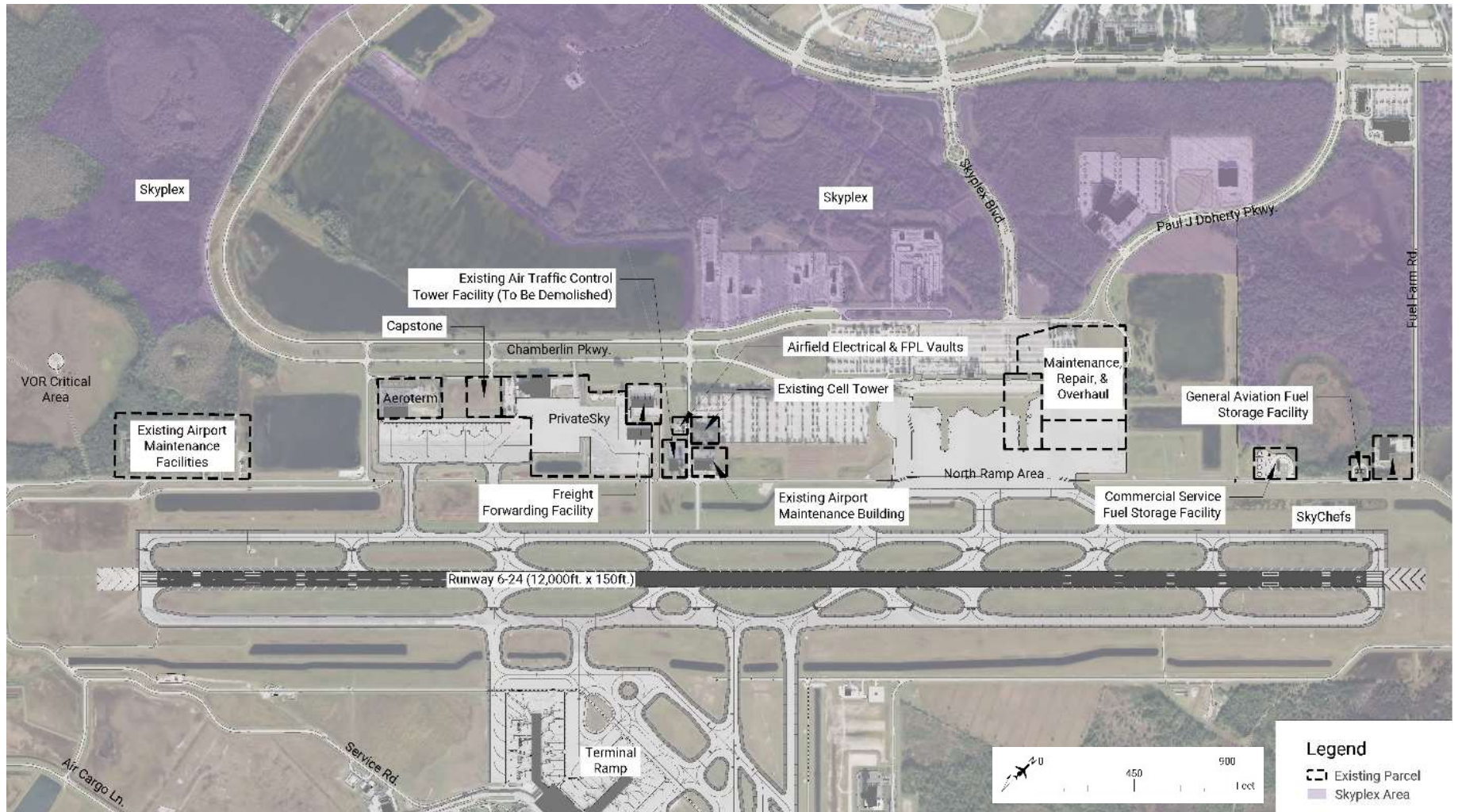
The proposed development alternatives assume the preservation of several existing facilities including the Aeroterm cargo facilities, PrivateSky Aviation general aviation facilities, the airfield and FPL electrical vaults, the cell tower, the Airport maintenance buildings, the freight forwarding facility, and the commercial service and general aviation fuel storage facilities. These facilities are depicted on **Figure 5-7**. The development alternatives also account for the Intrepid Aerospace, Inc. and CapStone Holdings Inc. leaseholds and the future demolition of the former Air Traffic Control Tower facility.

⁵ SOURCE: *Airside Pavement Rehabilitation Recommendations Report* (August 2015) was developed from visual inspections and available construction history data. Opinion of costs does not include recommendations proposed after 2015.



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-6 Rehabilitation Recommendations Taxiways G, G1, and G2



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-7 North Area Existing

Based on the benchmarking analyses that were completed as part of the demand/capacity and facility requirements analyses, the following land use planning targets were established:

- Cargo/logistics area: 70 acres
- GA/FBO area: 50 acres
- MRO area: 40 acres
- E-commerce area: 36 acres

The aforementioned land use targets provided the framework for the development of three land use plan alternatives, illustrated on **Figure 5-8** through **Figure 5-10**. The land use designations included in these figures include:

- Cargo: Includes air cargo buildings, aircraft apron areas, and support facilities including ground support equipment storage areas.
- General Aviation: General Aviation describes those facilities and operational activity by all aviation users other than scheduled commercial flights, military aviation, and cargo operations
- Electronic Commerce: Includes sorting facility, aircraft apron areas, and support facilities to accommodate logistics and freight transport operations associated with electronic commerce.
- Aircraft Maintenance, Repair, and Overhaul Facility: Includes workshops, hangars, and apron areas used for aircraft maintenance, repair, and overhaul
- Commercial Service Fuel Storage Facility: Includes existing facilities and equipment for the handling and storage of Jet-A aviation fuel
- Other Aviation Development: Includes aviation related uses not included in the other land use category such as airline catering and electric vertical takeoff and landing (EVTOL) aircraft facility
- Skyplex: refers to the aviation and non-aviation development area along Daniels Parkway on the north side of the Airport. This area will be discussed in further detail in Section 5.5 of this chapter.

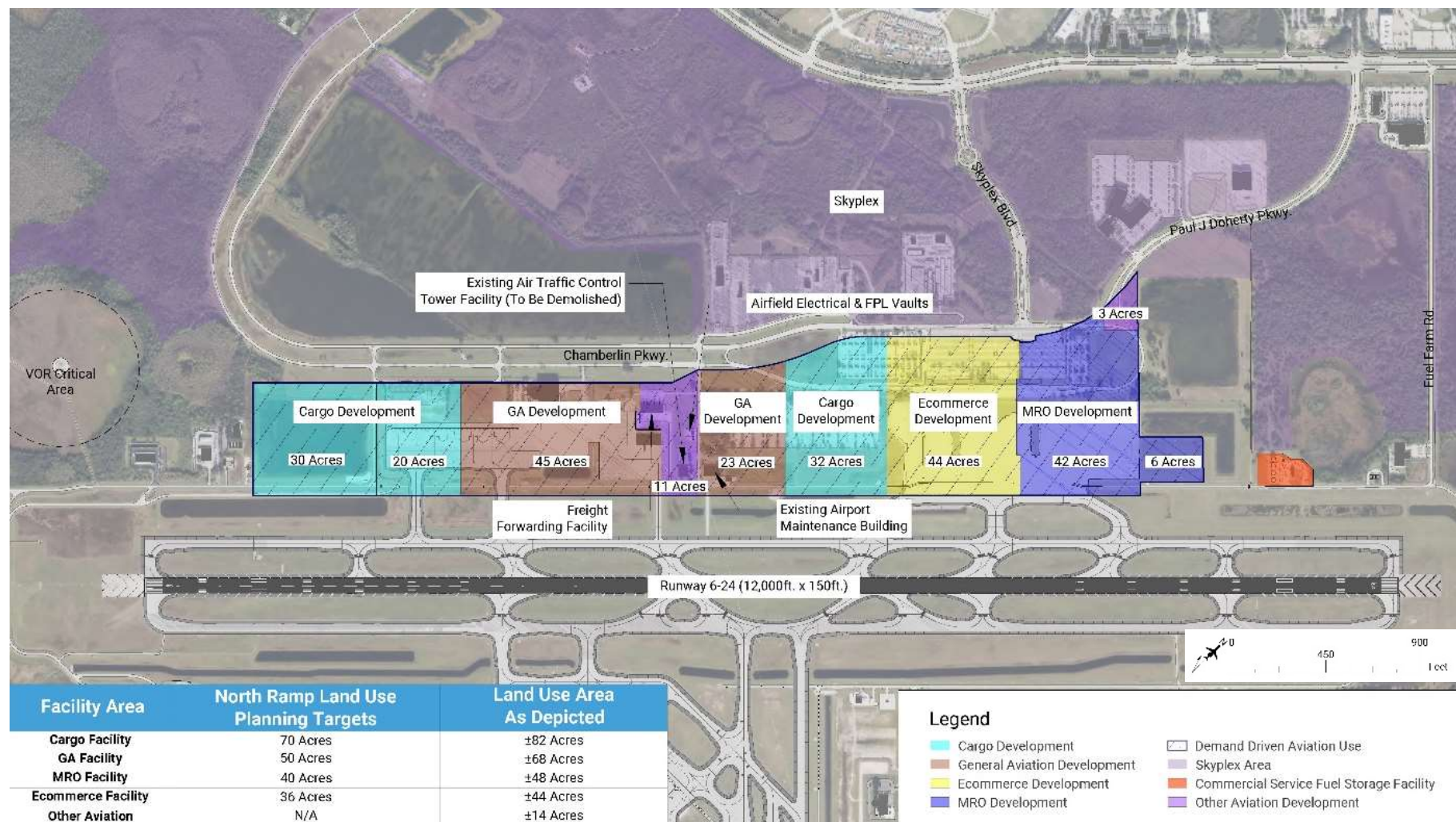
Land Use Plan Alternative 1 assumes the elimination and/or relocation of the stormwater retention/detention basin southwest of the existing cargo facilities to accommodate future cargo development. Future general aviation and cargo development would be accommodated where the existing rental car overflow automobile parking lots are located and the former terminal site would accommodate 44 acres for electronic commerce and 42 acres for MRO development, respectively.

Land Use Plan Alternative 2 is similar to Alternative 1 but assumes the stormwater retention/detention basin north and northwest of the former terminal ramp will be eliminated and/or relocated to accommodate future cargo development. As a result, this alternative provides additional areas for MRO development between the general aviation and ecommerce parcels.

Land Use Plan Alternative 3 assumes that both the stormwater retention/detention basin southwest of the existing cargo facilities and north/northwest of the former terminal ramp would be eliminated and/or relocated to accommodate future cargo development.

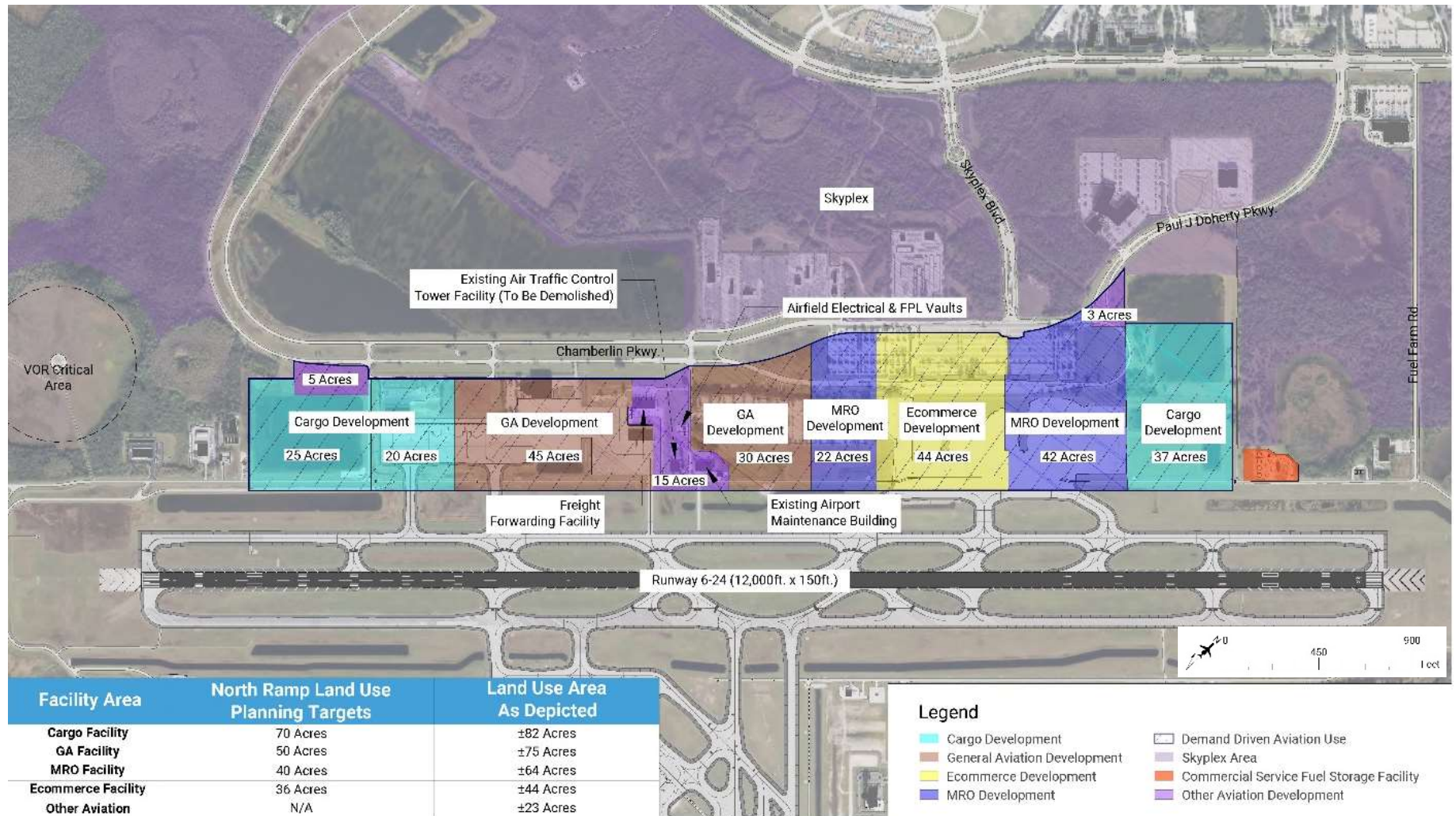
The preferred land use plan is illustrated on **Figure 5-11**.

A conceptual development plan for the North Area, which seeks to locate and size various aviation uses based on the preferred land use plan, is included on **Figure 5-12**. Key aviation facilities depicted in the concept plans include buildings and aircraft hangars and apron areas. Supporting ground access and parking systems are also illustrated.



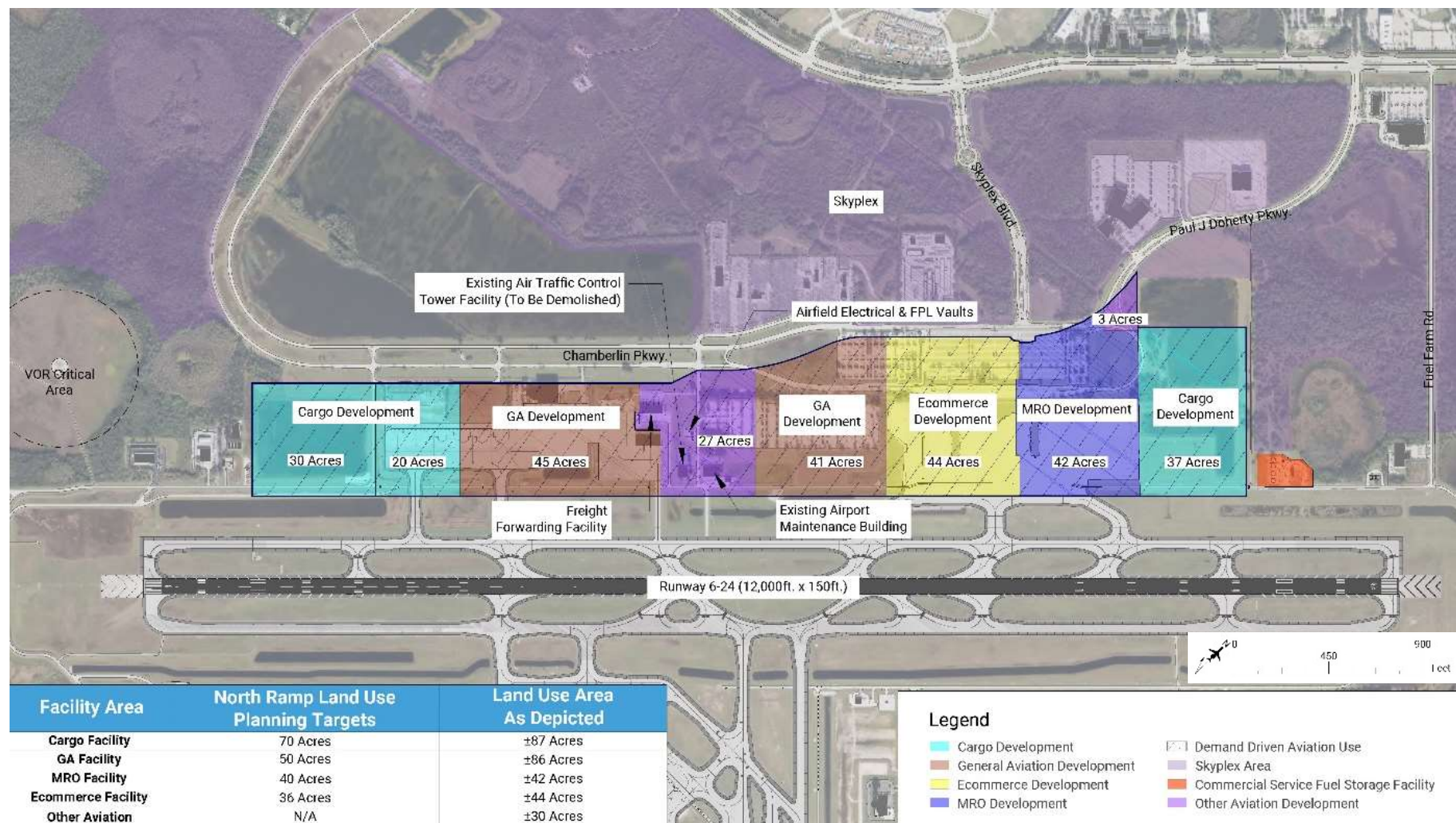
SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-8 Alternative 1



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-9 Alternative 2



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-10 Alternative 3



SOURCE: Kimley-Horn and Associates, *Pavement Condition Analysis and Recommendation*, 2018

Figure 5-11 Preferred Alternative

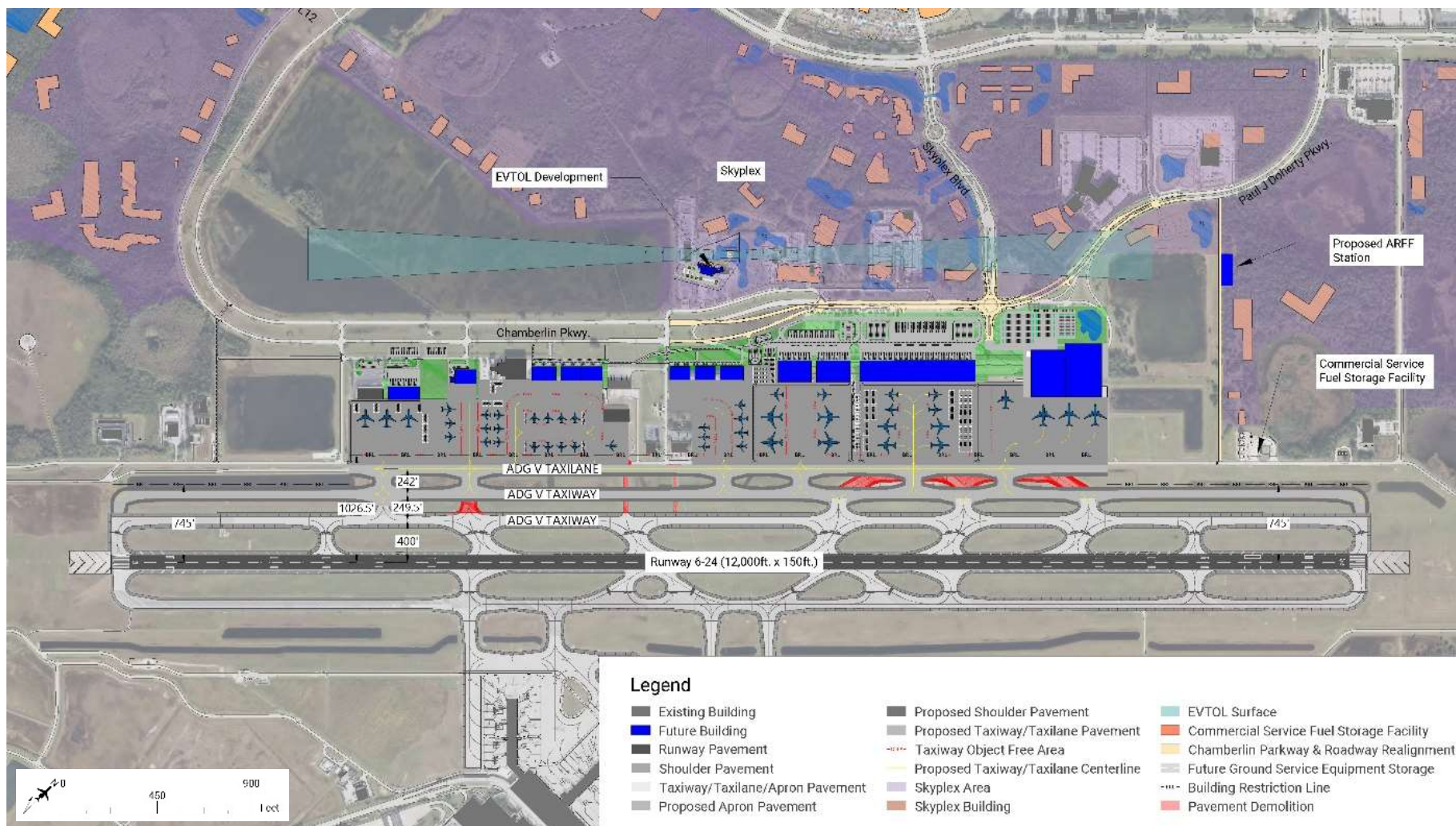


Figure 5-12 Conceptual Development Plan

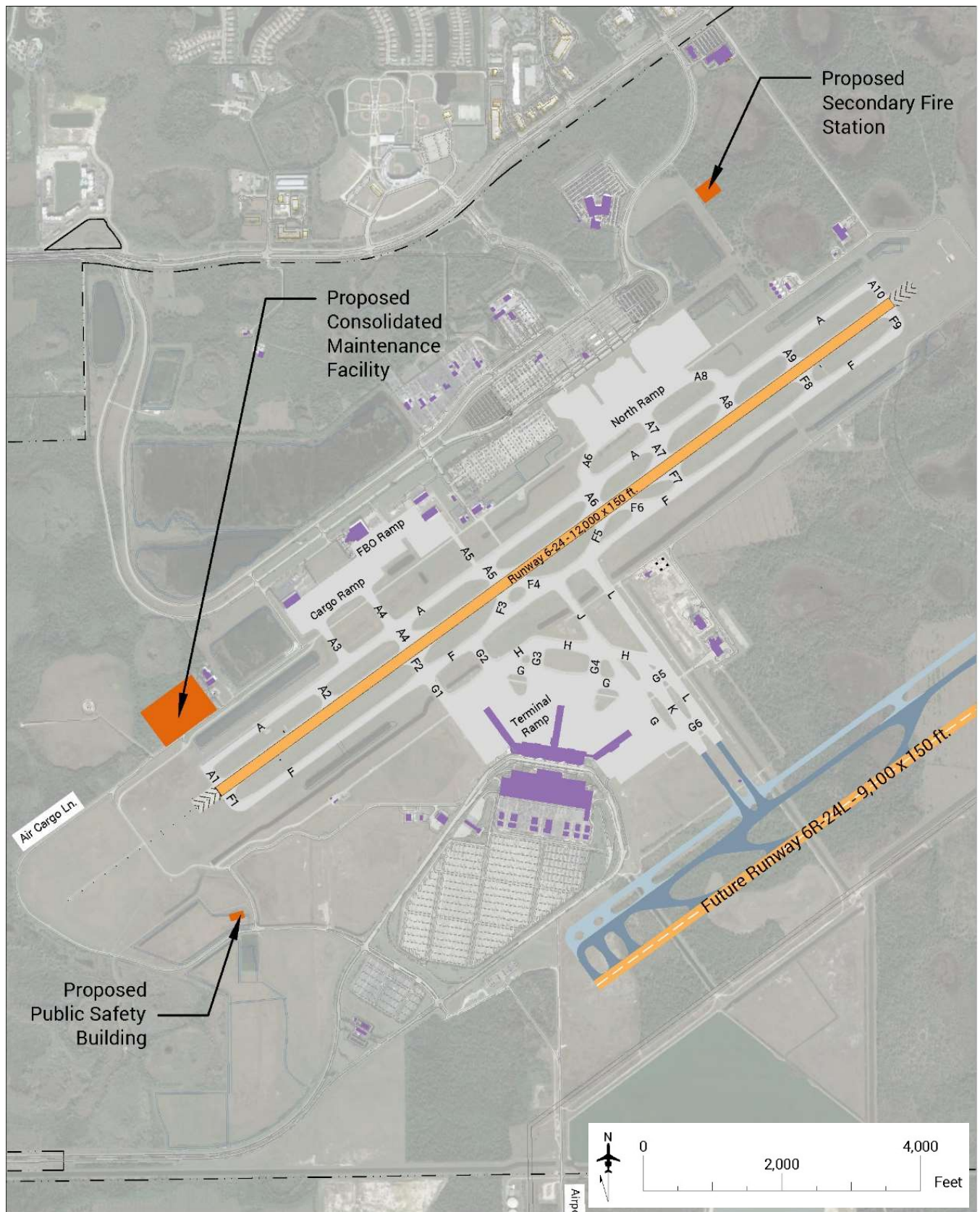
Fuel Farm

Based on the Fuel Farm requirements determined in Chapter 4, *Demand Capacity and Facility Requirements*, an expansion of the existing Fuel Farm facility is the more efficient and economical than locating and building on a new site at the airport. The existing site has ample room to expand and meet the requirements for fuel storage through the planning horizon with room to grow further if needed. The addition of three tanks with a capacity of 25,000 BBL each, two in 2027 and one in 2042, will ensure that fueling needs are met. **Figure 5-13** shows the proposed expansion.



SOURCE: FSM Group, 2022

Figure 5-13 Proposed Fuel Farm Expansion Plan



SOURCE: ESA Analysis

Figure 5-14 Other Support Facilities

Other Support Facilities

The proposed locations for the secondary fire station, public safety building, and consolidated maintenance facility are illustrated in **Figure 5-14**.

Consolidated Maintenance Facility

The consolidated maintenance facility, which would support the majority of the maintenance staff and functions of the department, is proposed to be located between the existing vehicle maintenance and field shop facilities. The proposed facility would include offices, kitchen, breakrooms, locker room facilities, showers, warehouse space, conference rooms, training room, tool room, sign shop, lock shop, systems shop, systems testing lab, carpentry shop, powder coat shop, photometric testing lab, and paint and chemical storage areas. LCPA staff indicated the existing field shop could be repurposed to store equipment. Ultimately, the existing field shop could be demolished to accommodate a facility to shelter large vehicles (e.g., tractors and mowers) and equipment and to provide additional bulk storage capacity for mulch, rocks, pallets, etc. This facility would also accommodate a wash system for large equipment and vehicles.

Public Safety Building

As noted in **Figure 5-15**, nine site locations were identified and evaluated as part of the RSW Public Safety Building Site Selection that was completed in 2021.

Site 3A is identified as the recommended site to accommodate the Public Safety Building because it achieves a primary goal of avoiding impact to future revenue generating nonaeronautical development areas while also providing good public visibility of the building. Site 3A also provides adequate landside (i.e., public) and airside access.

The Public Safety Building will group the majority of LCPA police functions in a consolidated facility that will allow the Police Department to have better team synergies as well as room to grow as security and safety needs increase. The facility will also have the ability to host the AirCom (communications center) and other command and control functions as needed.

Secondary Fire Station

The location for the proposed secondary fire station is illustrated on **Figure 5-16**. A two-lane access roadway to the site will be required to allow for easy access to/from Paul J. Doherty Parkway. The proposed landside access road will extend approximately 500 feet from Paul J. Doherty Parkway. The access roadway to the site will be utilized primarily by employees and passenger cars but will also need to accommodate the equipment fleet mix of the fire station. Ultimately, the access road will be extended to connect to Perimeter Road.

The location of the secondary Fire Station will allow the airport to meet non-ARFF fire service requirements for areas on the northern area of the airport property including on airfield. This fire station can provide support to ARFF units if necessary.



SOURCE: RS&H RSW Public Safety Building Site Selection Memorandum, September 21, 2021

Figure 5-15 Public Safety Building Site Selection Study



SOURCE: LCPA, April 2022

Figure 5-16 Secondary Fire Station Proposed Location

5.3 Passenger Terminal Alternative Analysis

Goals and Evaluation Criteria

The alternatives analysis outlined in this section of the MPU identifies passenger terminal development options to meet planning year 2035 or planning activity level three (PAL 3) requirements as outlined in Chapter 4, *Demand Capacity and Facility Requirements*. As previously mentioned, the Airport provides 27 operational aircraft gates plus one ground boarding position for regional jets and will need an additional 14 aircraft gates to meet forecasted aircraft demand levels. Six potential passenger terminal development scenarios and four subsequent alternatives were evaluated as a part of this alternatives analysis. The capabilities of each existing gate to accommodate international flights, widebody aircraft, and current airline assignments are described in Table 4-10. All gates accommodate narrow-body (ADG-III) aircraft unless otherwise noted.

Alternative Analysis Considerations

Factors considered to determine the feasibility of each potential passenger terminal development area include:

- Land available for aviation related development
 - Layout of existing passenger terminal infrastructure
 - Future planned aviation related projects
- Restrictions to airspace surfaces
- Number of required parking positions by planning year 2035
- Proximity to existing aviation facilities and airfield infrastructure
- Construction
 - Impacts to existing facilities
 - Development Cost

Alternative Terminal Development Scenarios

As illustrated in **Figure 5-17** through **Figure 5-22**, six passenger terminal development scenarios at the existing passenger terminal were analyzed as a part of this analysis:

- Scenario 1: Existing Concourse B Extension
- Scenario 2: Existing Concourse C Extension
- Scenario 3: Existing Concourse D Extension
- Scenario 4: Existing Concourse B, C, and D Collective Extension
- Scenario 5: Construction of Future Concourse A
- Scenario 6: Construction of Future Concourse E



SOURCE: Atkins

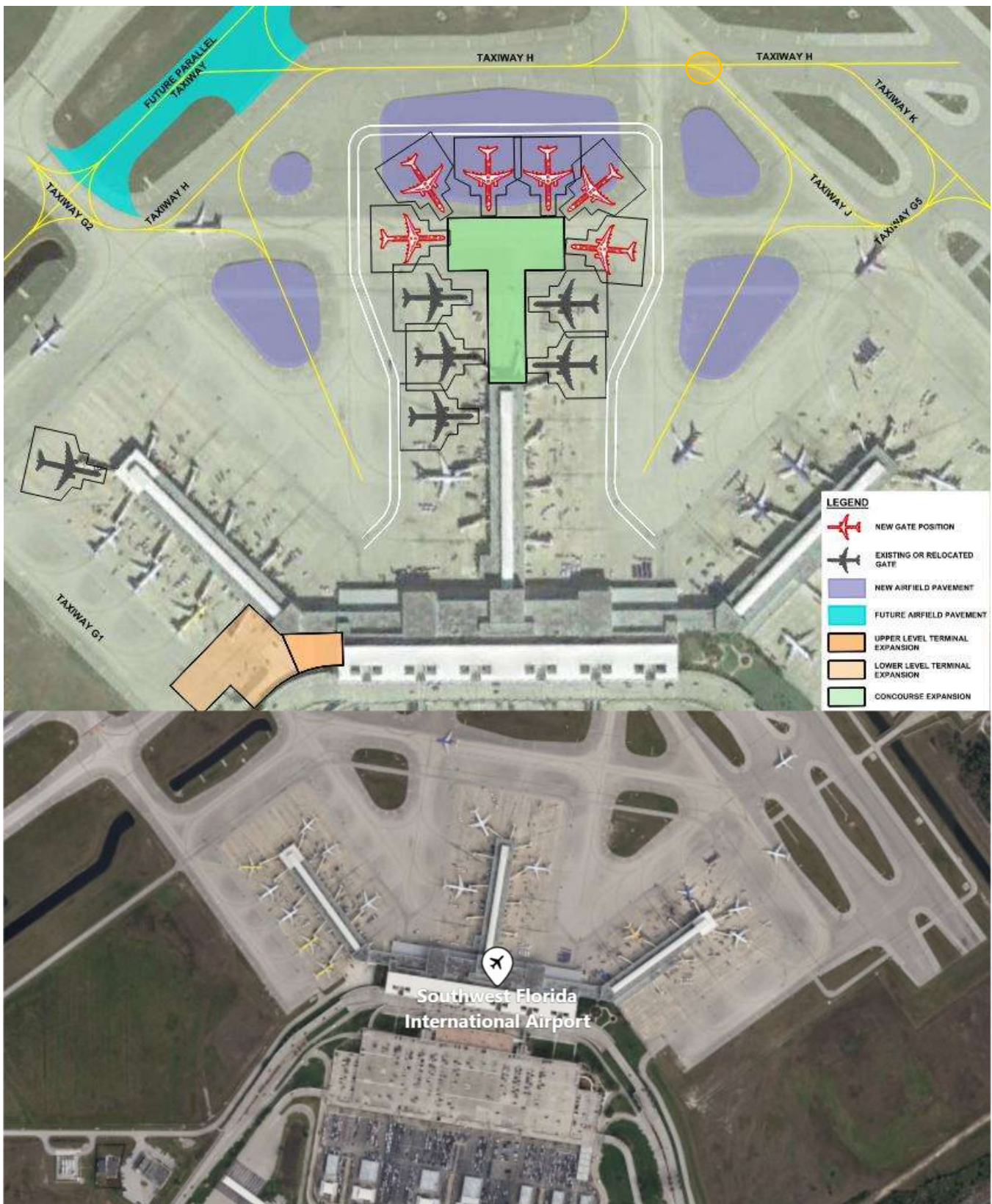
Figure 5-17 Terminal Development Scenario 1: Concourse B Extension

As highlighted in **Figure 5-18**, extending existing Concourse C would require additional main terminal area support space and would require approximately 42,000 square yards of additional apron pavement. Additionally, Taxiway G would become inactive upon extending the existing Concourse C terminal north, requiring future aircraft to push back onto existing Taxiway H. This alternative development area of approximately 76,100 square feet (per level) would assume the relocation of existing aircraft Gate C2 to the end of existing Concourse D. Up to six additional aircraft gates could be provided within this development area, with five of the adjacent existing aircraft gate positions having to be reconfigured. Extending the terminal at the end of Concourse C would require three existing aircraft gates to be temporarily offline during construction and phasing. The land available for future terminal development is restricted in this scenario and eight additional aircraft gates would still be required in this scenario. As a result, this alternative development scenario is not deemed viable.

As highlighted in **Figure 5-19**, extending existing Concourse D would require additional main terminal area support space and would require approximately 26,300 square yards of additional apron pavement. Additionally, Taxiway G would become inactive upon extending the existing Concourse D terminal northeast, requiring future aircraft to push back onto the adjacent future taxiway. This potential development area of approximately 67,100 square feet (per level) would provide enough space to add four additional aircraft gates, with three of the adjacent existing aircraft gate positions having to be reconfigured. Extending the terminal at the end of Concourse D would require two existing aircraft gates to be temporarily offline during construction and phasing. Final development would require existing Gate D2 to remain permanently offline. The land available for future terminal development is restricted in this scenario and ten additional aircraft gates would still be required in this scenario. As a result, this alternative development scenario is not deemed viable.

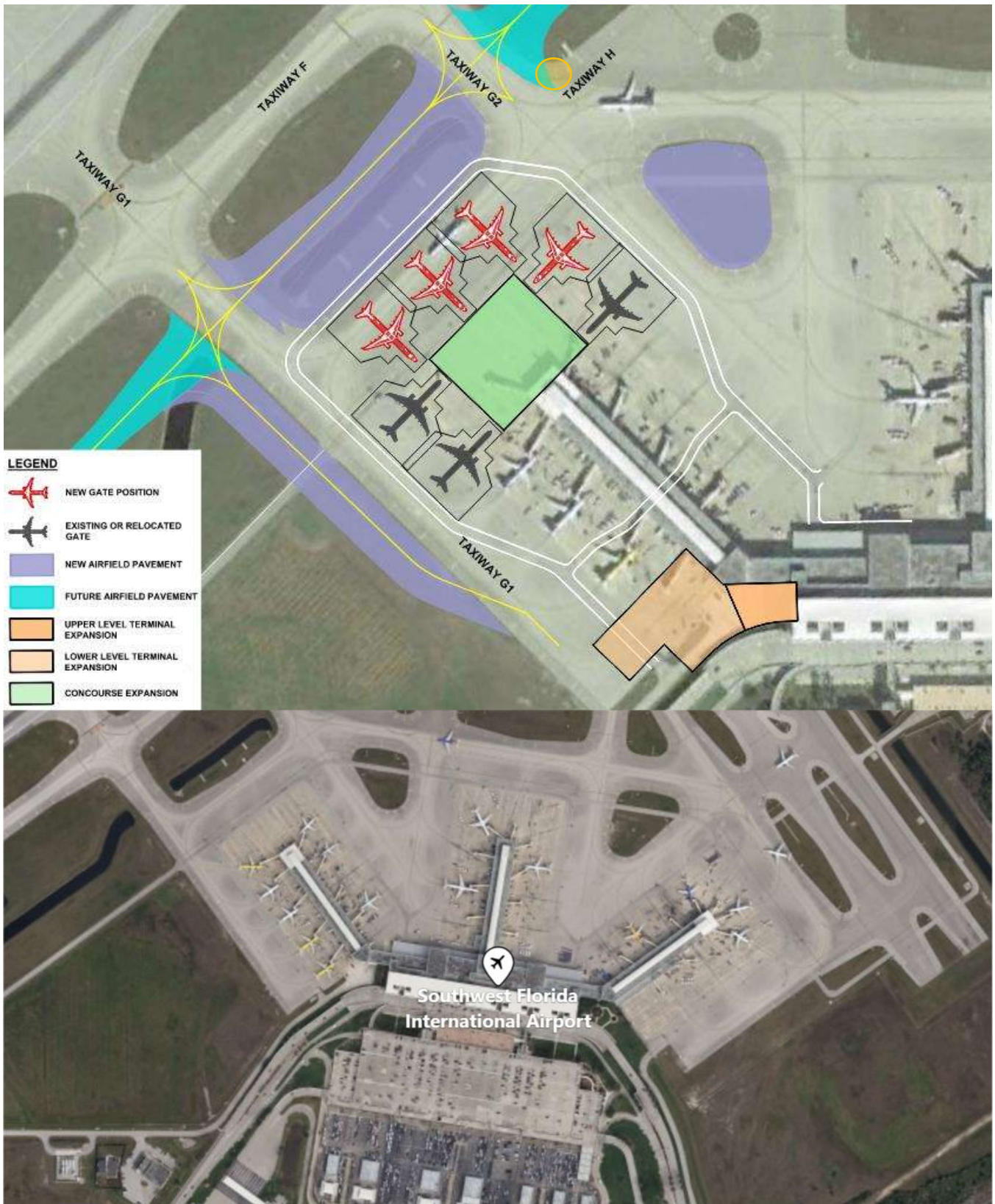
As highlighted in **Figure 5-20**, extending existing Concourses B, C, and D collectively would require additional main terminal area support space and would require approximately 96,800 square yards of additional apron pavement. Additionally, Taxiway G would become inactive upon extending each of the ends of three existing concourses. Aircraft departing from the future Concourse B and C extensions would push back onto existing Taxiways K and H, respectively. Additionally, aircraft departing from the future Concourse D extension would push back onto the adjacent future taxiway. Extending the ends of each of the three existing concourses collectively would provide enough space to add twelve additional aircraft gates, with another twelve of the adjacent existing aircraft gate positions needing to be reconfigured. It is important to note, this scenario would have to be completed in multiple phases at each concourse before fully integrated and operational. Extending the three existing terminals would require nine existing aircraft gates to be temporarily offline during construction and phasing. Final development may have short and/or long-term impacts to the usability of existing international Gate B1 and would also require existing Gate D2 to remain permanently offline. The land available for future terminal development is restricted in this scenario and two additional aircraft gates would still be required in this scenario. As a result, this alternative development scenario is not deemed viable.

As highlighted in **Figure 5-21**, constructing future Concourse A would provide additional terminal area support space and would require approximately 141,000 square yards of additional apron pavement. Minimal modifications to existing Concourse B would be required. Constructing future Concourse A of approximately 99,000 square feet (per level) would provide enough space to add twelve additional aircraft gates and would potentially have short and/or long-term impacts to the usability of existing international Gate B1. All other existing aircraft gates would not be impacted by this scenario. Development of future Concourse A would not impact the existing or future taxiway system. Final development would also require existing Gate D2 to remain permanently offline. It is important to note the aircraft taxiing distance to the existing Runway 6 and 24 ends are approximately 11,000 and 11,800 feet, respectively. These taxiing distances combined are some of the longest of the six scenarios. Additionally, between the three existing concourses and the two future proposed concourses, the location of future Concourse A is the furthest distance from the Chiller Plant and utility buildings/infrastructure, which are located southwest of existing Concourse D. The land available for future terminal development is not restricted in this scenario. As such, the terminal layout and shape could potentially be altered to accommodate two additional aircraft gates. As a result, this alternative development scenario is deemed viable.



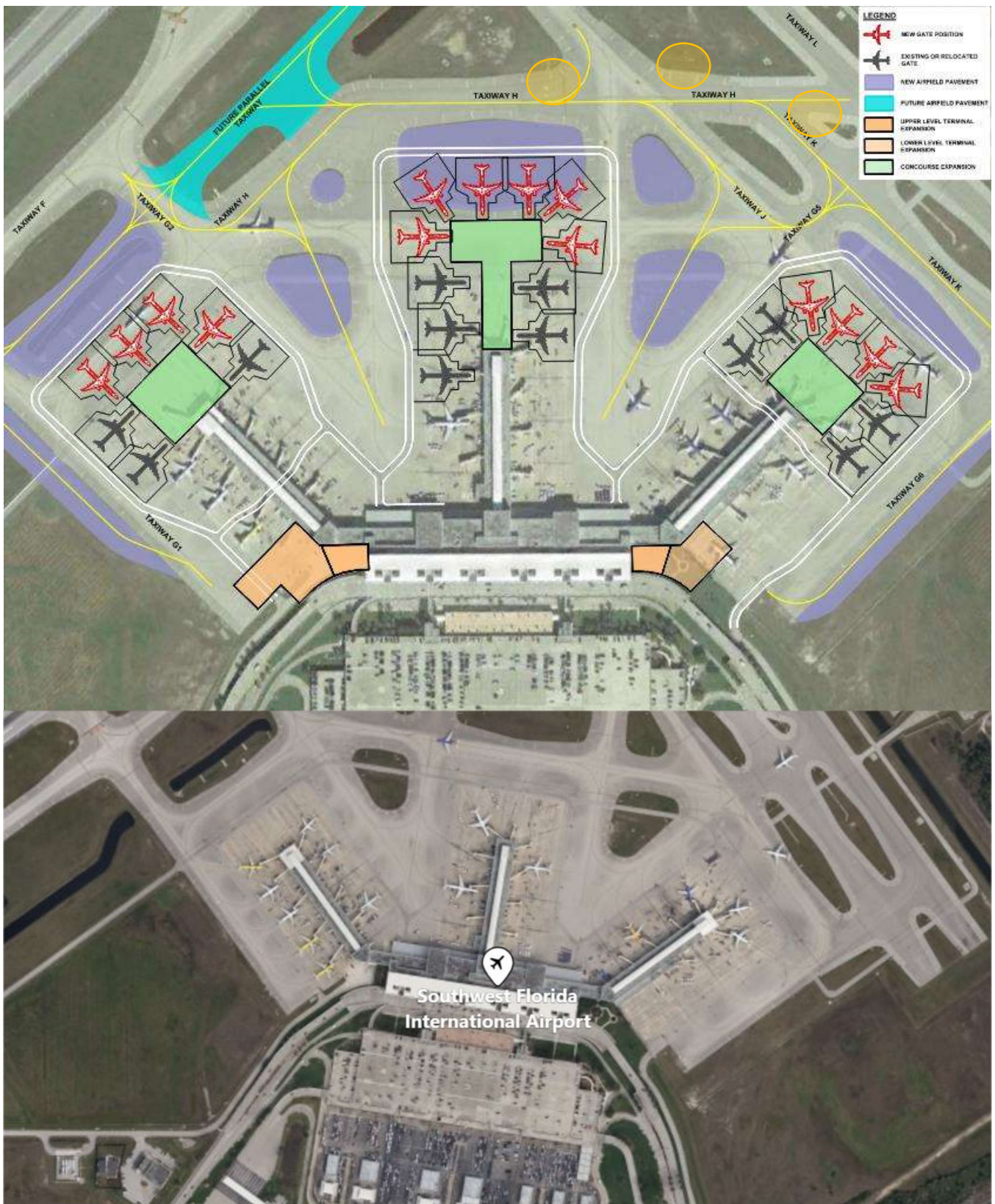
SOURCE: Atkins

Figure 5-18 Terminal Development Scenario 2: Concourse C Extension



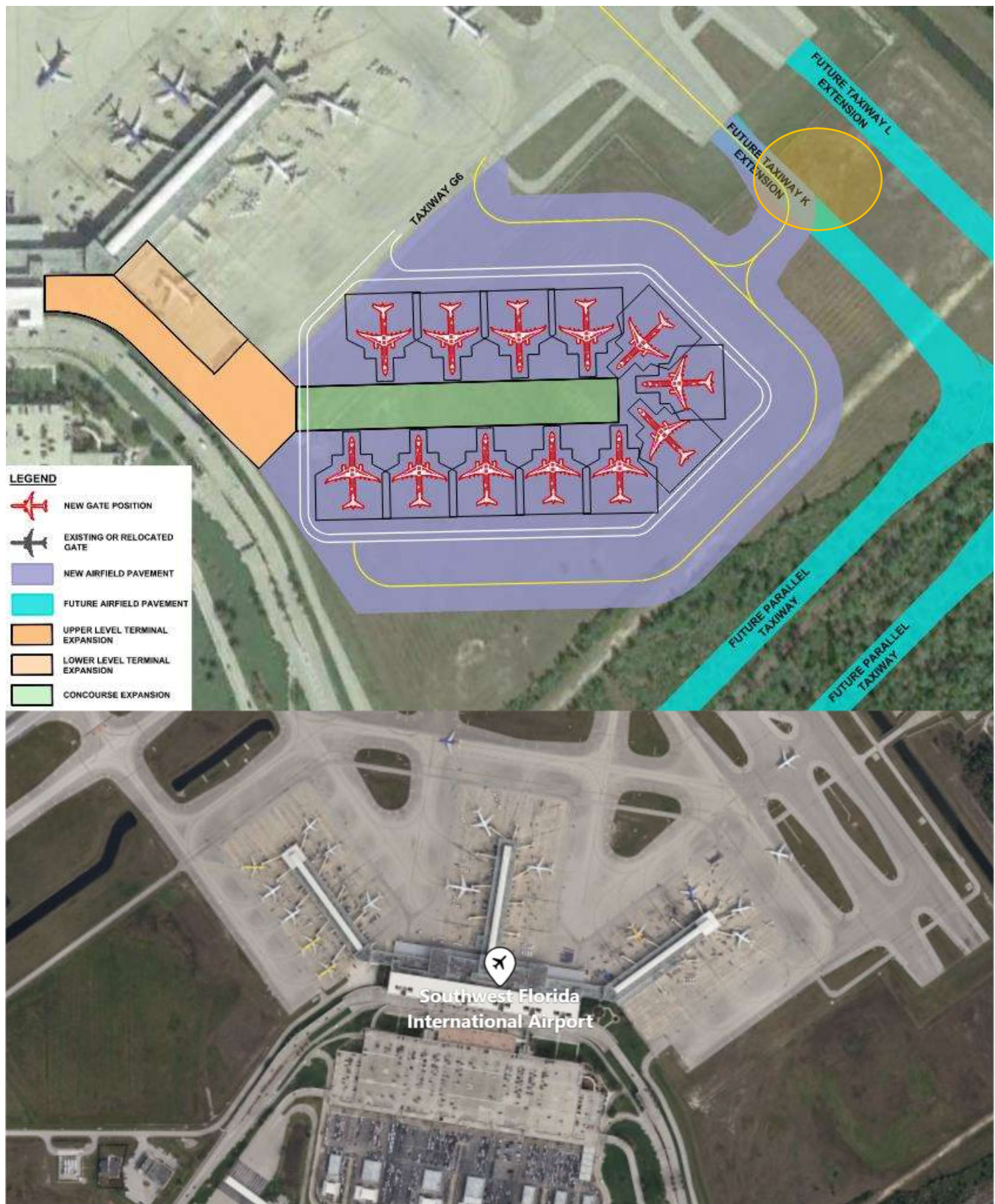
SOURCE: Atkins

Figure 5-19 Terminal Development Scenario 3: Concourse D Extension



SOURCE: Atkins

Figure 5-20 Terminal Development Scenario 4: Concourse B, C, and D Collective Extensions



SOURCE: Atkins

Figure 5-21 Terminal Development Scenario 5: Construction of Concourse A

As highlighted in **Figure 5-22**, constructing future Concourse E would provide additional terminal area support space and would require approximately 171,000 square yards of additional apron pavement. Minimal modifications to existing Concourse D would be required. Constructing future Concourse E of approximately 99,000 square feet (per level) would provide enough space to add twelve additional aircraft gates and would require existing Gates D2 and D4 to be relocated to the end of existing Concourse D. All other existing aircraft gates would not be impacted by this scenario, including international Gate B1. Development of future Concourse E would not result in any impacts to existing taxiway system other than it would require tie in. The construction of the concourse would require some additional taxiway capacity built adjacent to existing system. It is important to note the aircraft taxiing distance to the existing Runway 6 and 24 ends are approximately 4,700 and 11,300 feet, respectively. These taxiing distances combined are some of the shortest of the six scenarios. Additionally, between the three existing concourses and the two future proposed concourses, the location of future Concourse A is the shortest distance from the Chiller Plant and utility buildings/infrastructure, which are located southwest of existing Concourse D. The land available for future terminal development is not restricted in this scenario. As such, the terminal layout and shape could potentially be altered to accommodate two additional aircraft gates. As a result, this alternative development scenario is deemed viable.

Evaluation Criteria

Each scenario was evaluated based on impacts to four factors including, building, airside, landside, and then summarized by the overall impacts. Each of these four factors includes various subfactors that have been assigned a specific rating from one being the most negative impact to five being the most positive impacts. Additionally, the level of importance of each subfactor is weighted on a scale with one being the least important and five being the most important. Outlined in **Table 5-1** through **Table 5-4** are the detailed scoring and evaluation matrices developed to rationalize the selection criteria for each of the development scenarios presented in **Figure 5-23** through **Figure 5-26**.

Evaluation Results

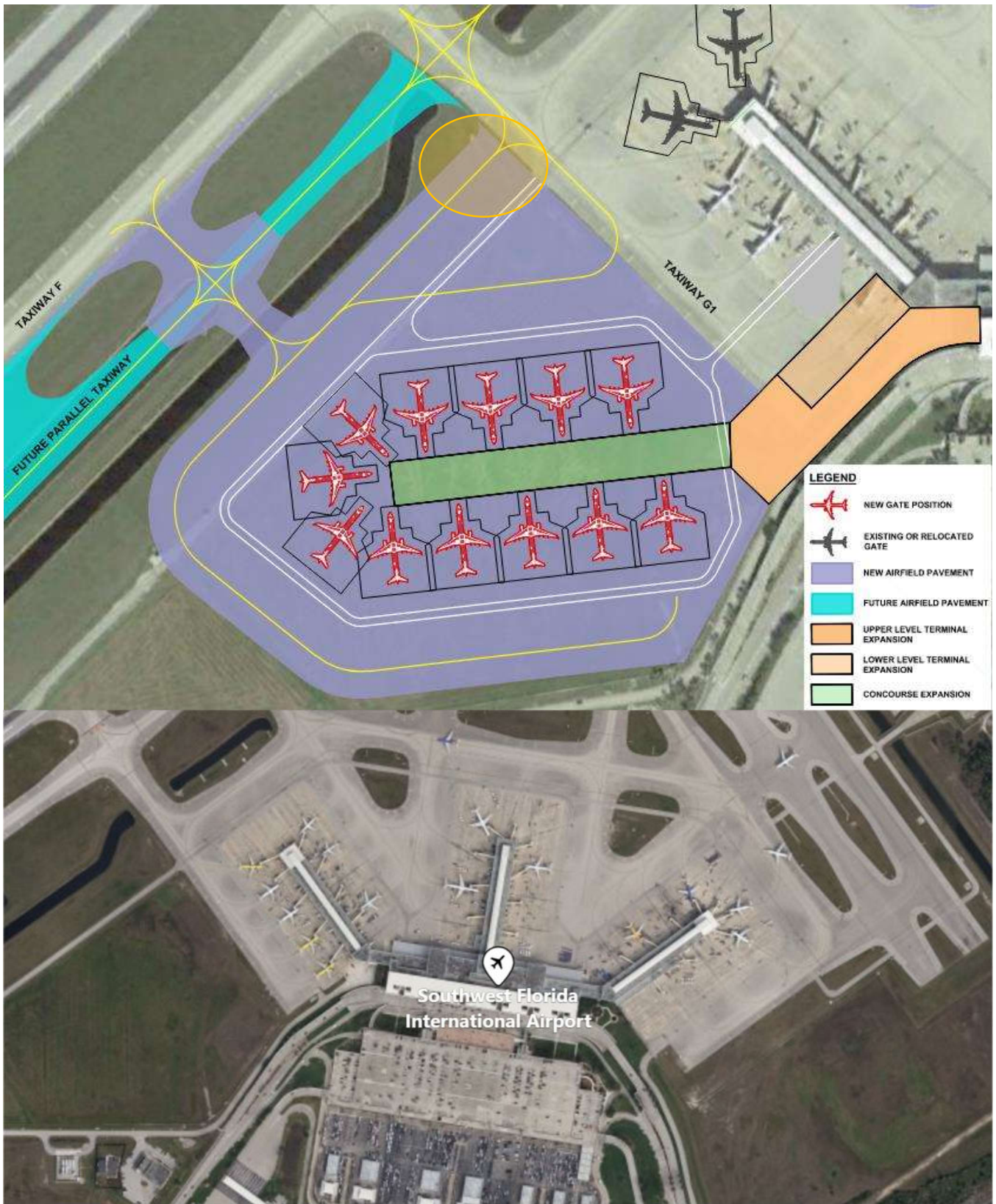
As previously mentioned, future Concourses A and E are determined to be the two only viable options. Future Concourses A and E share many similar characteristics. However, construction of future Concourse E is the overall preferred scenario with a few differentiating factors including:

- Provides a shorter aircraft taxiing distance existing Runway 6/24
- Would be located closer proximity to the Chiller Plant and utility buildings/infrastructure
- Does not impact International Gate B1

In summary, construction of future Concourse E is the final preferred scenario to proceed with developing passenger terminal alternatives as a part of this MPU.

Concourse E Alternative Concept Refinement

The Concourse E passenger terminal alternatives are limited to the area available aviation related development. The project area for the construction of Concourse E is defined by the airfield geometry of the existing apron and taxilanes to the north/northeast, the proposed taxiway to the west/northwest, the vehicular service/exit road and remote loading dock facility to the south.



SOURCE: Atkins

Figure 5-22 Alternative Terminal Development Scenario 6: Construction of Concourse E

Table 5-1 Building Evaluation Matrix

Evaluation Factors	Weighted Multiplier 1 to 5	Ranking 1 to 5	Concourse B Expansion Total Score	Ranking 1 to 5	Concourse C Expansion Total Score	Ranking 1 to 5	Concourse D Expansion Total Score	Ranking 1 to 5	Concourse B + C + D Expansion Total Score	Ranking 1 to 5	New Concourse A Total Score	Ranking 1 to 5	New Concourse E Total Score
Concessions Square Footage	4	3	12	3	12	3	12	3	12	5	20	5	20
Public Space, Seating, Restroom	4	4	16	4	16	4	16	4	16	5	20	5	20
Adequate Security Lanes	3	4	12	4	12	4	12	3	9	5	15	5	15
Adequate Ticketing	2	4	8	4	8	4	8	3	6	5	10	5	10
Outbound Baggage	3	4	12	3	9	4	12	4	12	5	15	5	15
Impacts to Existing Int. Gates	3	2	6	5	15	5	15	2	6	2	6	5	15
Passenger Walking Distance	4	2	8	3	12	2	8	2	8	5	20	5	20
Number of Baggage Claim devices	2	3	6	3	6	3	6	3	6	5	10	5	10
PAX Level of Services Impacts	4	2	8	2	8	2	8	2	8	4	16	5	20
Concessions Square Footage	4	3	12	3	12	3	12	3	12	5	20	5	20
Building Subtotal Score	—		88	—	98	—	97	—	83	—	132	—	145

SOURCE: Atkins

Table 5-2 Airside Evaluation Matrix

Evaluation Factors	Weighted Multiplier 1 to 5	Ranking 1 to 5	Concourse B Expansion Total Score	Ranking 1 to 5	Concourse C Expansion Total Score	Ranking 1 to 5	Concourse D Expansion Total Score	Ranking 1 to 5	Concourse B + C + D Expansion Total Score	Ranking 1 to 5	New Concourse A Total Score	Ranking 1 to 5	New Concourse E Total Score
Net Gain in Gates	4	3	12	3	12	3	12	3	12	5	20	5	20
Airfield Operational Impacts	4	4	16	4	16	4	16	4	16	5	20	5	20
Drainage Impacts	3	4	12	4	12	4	12	3	9	5	15	5	15
Utilities Impacts	2	4	8	4	8	4	8	3	6	5	10	5	10
Proximity to Runway 6-24	3	4	12	3	9	4	12	4	12	5	15	5	15
Additional Pavement Required	3	2	6	5	15	5	15	2	6	2	6	5	15
Construction Phasing Loss of Gates	4	2	8	3	12	2	8	2	8	5	20	5	20
Construction Phasing Apron Impacts to Aircraft Traffic	2	3	6	3	6	3	6	3	6	5	10	5	10
Impacts to Construction Deliveries & Access	4	2	8	2	8	2	8	2	8	4	16	5	20
ATCT Line of Sight Impacts	4	3	12	3	12	3	12	3	12	5	20	5	20
Airside Subtotal Score	—	—	76	—	71	—	81	—	56	—	129	—	137

SOURCE: Atkins

Table 5-3 Landside Evaluation Matrix

Evaluation Factors	Weighted Multiplier 1 to 5	Ranking 1 to 5	Concourse B Expansion Total Score	Ranking 1 to 5	Concourse C Expansion Total Score	Ranking 1 to 5	Concourse D Expansion Total Score	Ranking 1 to 5	Concourse B + C + D Expansion Total Score	Ranking 1 to 5	New Concourse A Total Score	Ranking 1 to 5	New Concourse E Total Score
Departure Curbside Level of Service	5	1	5	1	5	1	5	4	20	5	25	5	25
Arrival Curbside Level of Service	5	1	5	1	5	1	5	5	25	4	20	4	20
Construction Phasing Landside Traffic Impacts	3	4	12	4	12	4	12	2	6	2	6	2	6
Utilities Impacts	1	5	5	5	5	5	5	1	1	1	1	1	1
Landside Subtotal Score	—		27	—	27	—	27	—	52	—	52	—	52

SOURCE: Atkins

Table 5-4 Overall Scenario Evaluation

Evaluation Factors	Weighted Multiplier 1 to 5	Ranking 1 to 5	Concourse B Expansion Total Score	Ranking 1 to 5	Concourse C Expansion Total Score	Ranking 1 to 5	Concourse D Expansion Total Score	Ranking 1 to 5	Concourse B + C + D Expansion Total Score	Ranking 1 to 5	New Concourse A Total Score	Ranking 1 to 5	New Concourse E Total Score
Permitting & Environmental Factors	1	5	5	5	5	5	5	3	3	1	1	1	1
Ultimate Expansion Capability	5	1	5	1	5	1	5	2	10	4	20	5	25
Proximity to Existing Infrastructure	3	3	9	3	9	3	9	1	3	1	3	5	15
Construction Schedule	2	5	10	5	10	5	10	1	2	3	6	3	6
Costs	5	5	25	5	25	5	25	3	15	5	25	5	25
Overall Subtotal Score	—		54	—	54	—	54	—	33	—	55	—	72
Overall Total Score	—		245	—	250	—	259	—	224	—	368	—	406
Meets PAL 3 Demand	—		NO	—	NO	—	NO	—	NO	—	YES	—	YES

SOURCE: Atkins

Four passenger terminal alternatives were developed and evaluated for the construction of Concourse E:

- **Alternative 1: "Linear A" Option** – as depicted in **Figure 5-23**, similar to the existing Concourses B, C, and D, this option represents a modern layout of the linear terminal concept where the building configuration emphasizes aircraft movement efficiency.
- **Alternative 2: "Knuckle" Option** – as depicted in **Figure 5-24**, slightly different than the "Linear" option, this alternative also emphasizes an efficient linear aircraft layout and provides additional area with an angled concourse extension for possible use as concessions. For the purposes of this analysis, the angled section of the terminal is referred to as the "knuckle." This option maximizes passenger movements, sight lines, and potential concession area.
- **Alternative 3: "Y" Option** – as depicted in **Figure 5-25**, this alternative is configured to reduce the passenger walking distances to the ends of the terminal building. However, the overall building and apron footprint utilizes a larger portion of the airfield.
- **Alternative 4: "Linear B" Option** – as depicted in **Figure 5-26**, similar to the existing Concourses B, C, D, and the "Linear A" option, this alternative represents a more traditional linear terminal concept where the building layout emphasizes aircraft movement efficiency.

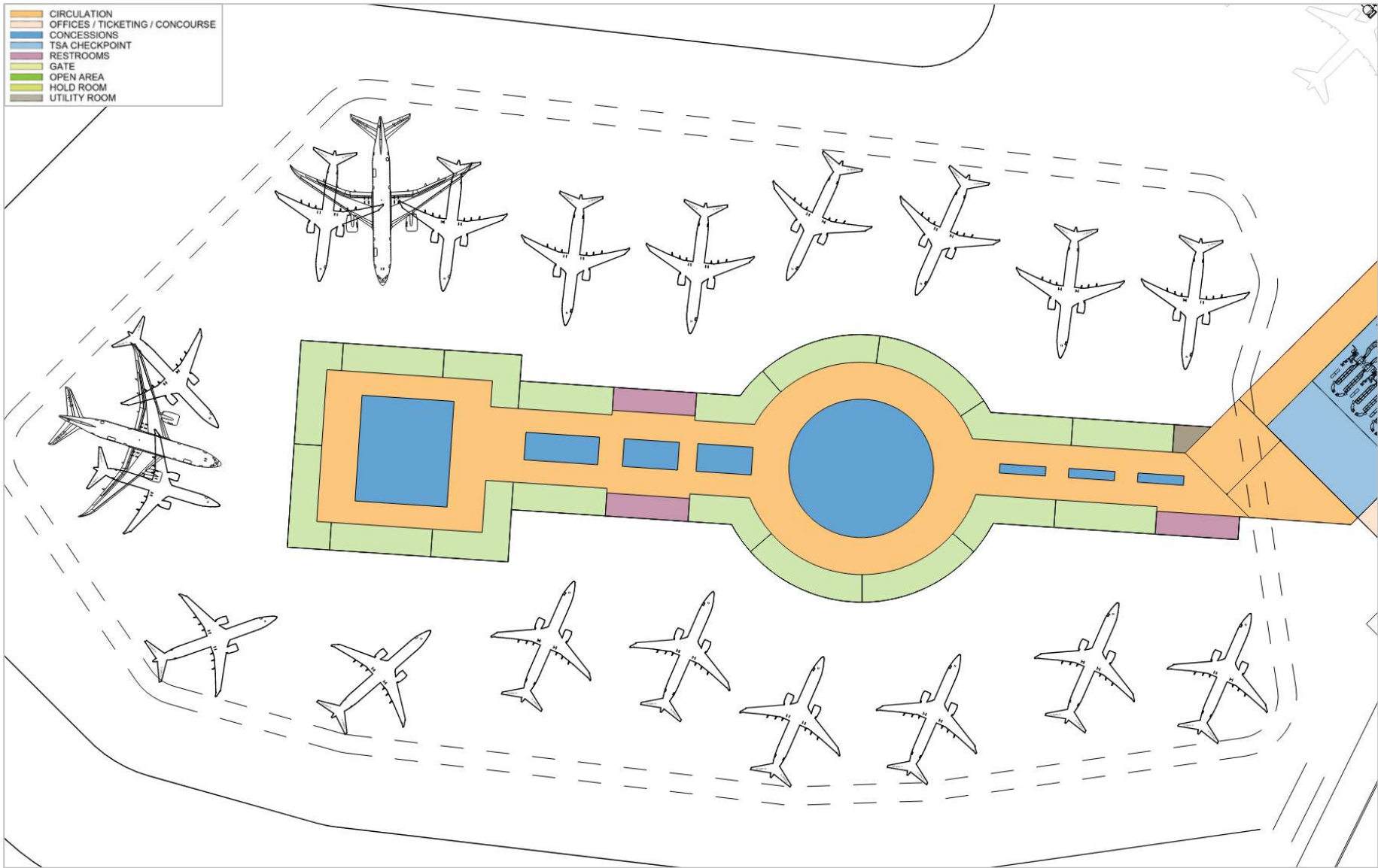
Although 14 gates are required to meet PAL 3 demand requirements, the Concourse E alternatives were developed to account for the ultimate condition through PAL 4, which includes 18 to 19 aircraft gates. As such, the three passenger terminal alternatives include between 18 and 19 gates. For the purposes of this study, it is assumed the four to five additional gates would not be constructed until PAL 4 demand levels have been reached.

As depicted in **Figure 5-23**, Alternative 1 can accommodate up to 18 ADG-III aircraft gates through PAL 4, including two Multiple Apron Ramp System (MARS) gates capable of accommodating up to two ADG-V aircraft. In the ultimate condition, this configuration would require approximately 162,000 square yards of apron pavement. This approximately 196,000-square-foot Concourse E option would provide approximately 3,200 square feet of hold room area per gate. This alternative would allow for approximately 37,000 square feet of concession space.

As depicted in **Figure 5-24**, Alternative 2 can accommodate up to 19 ADG-III aircraft gates through PAL 4, including three MARS gates capable of accommodating up to three ADG-V aircraft. In the ultimate condition, this configuration would require 180,000 square yards of apron pavement. This approximately 183,000-square-foot Concourse E option would provide approximately 3,200 square feet of hold room area per gate. This alternative would also provide an additional 29,000 square feet of concession space.

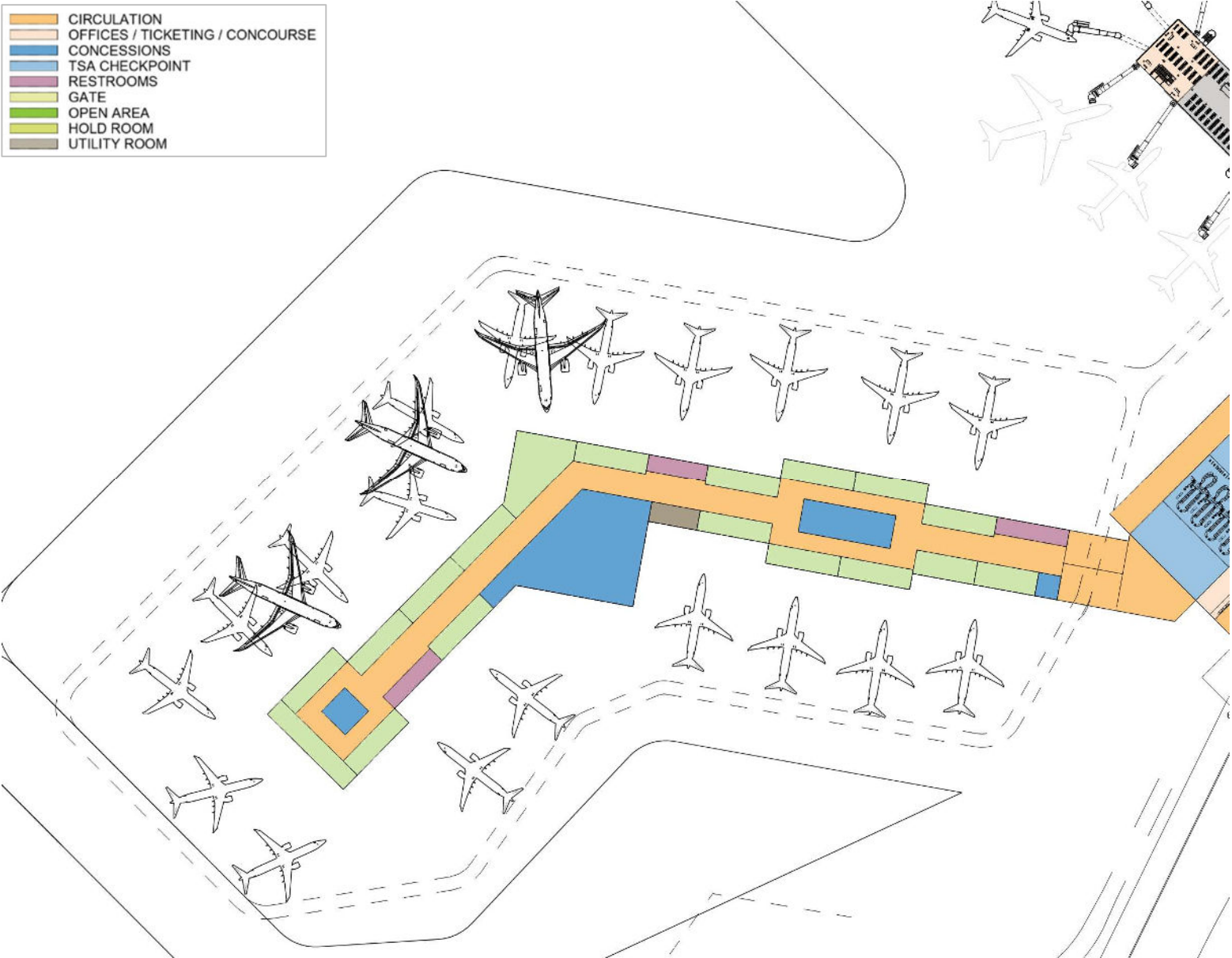
As depicted in **Figure 5-25**, Alternative 3 can accommodate up to 18 ADG-III aircraft gates through PAL 4, including two MARS gates capable of accommodating up to two ADG-V aircraft. In the ultimate condition, this configuration would require approximately 185,095 square yards of apron pavement. This approximately 208,112-square-foot Concourse E option would provide approximately 3,200 square feet of hold room area per gate. This alternative would also provide an additional 37,500 square feet of concession space.

As depicted in **Figure 5-26**, Alternative 4 can accommodate up to 19 ADG-III aircraft gates through PAL 4, including two MARS gates capable of accommodating up to two ADG-V aircraft. In the ultimate condition, this configuration would require approximately 231,000 square yards of apron pavement and 57,000 square yards of taxiway pavement. This approximately 120,000-square-foot Concourse E option would provide approximately 3,200 square feet of hold room area per gate. This alternative would also provide an additional 21,000 square feet of concession space.



SOURCE: Atkins

Figure 5-23 Alternative 1: Linear Concourse E Alternative



SOURCE: Atkins

Figure 5-24 Alternative 2: Knuckle Concourse E Alternative

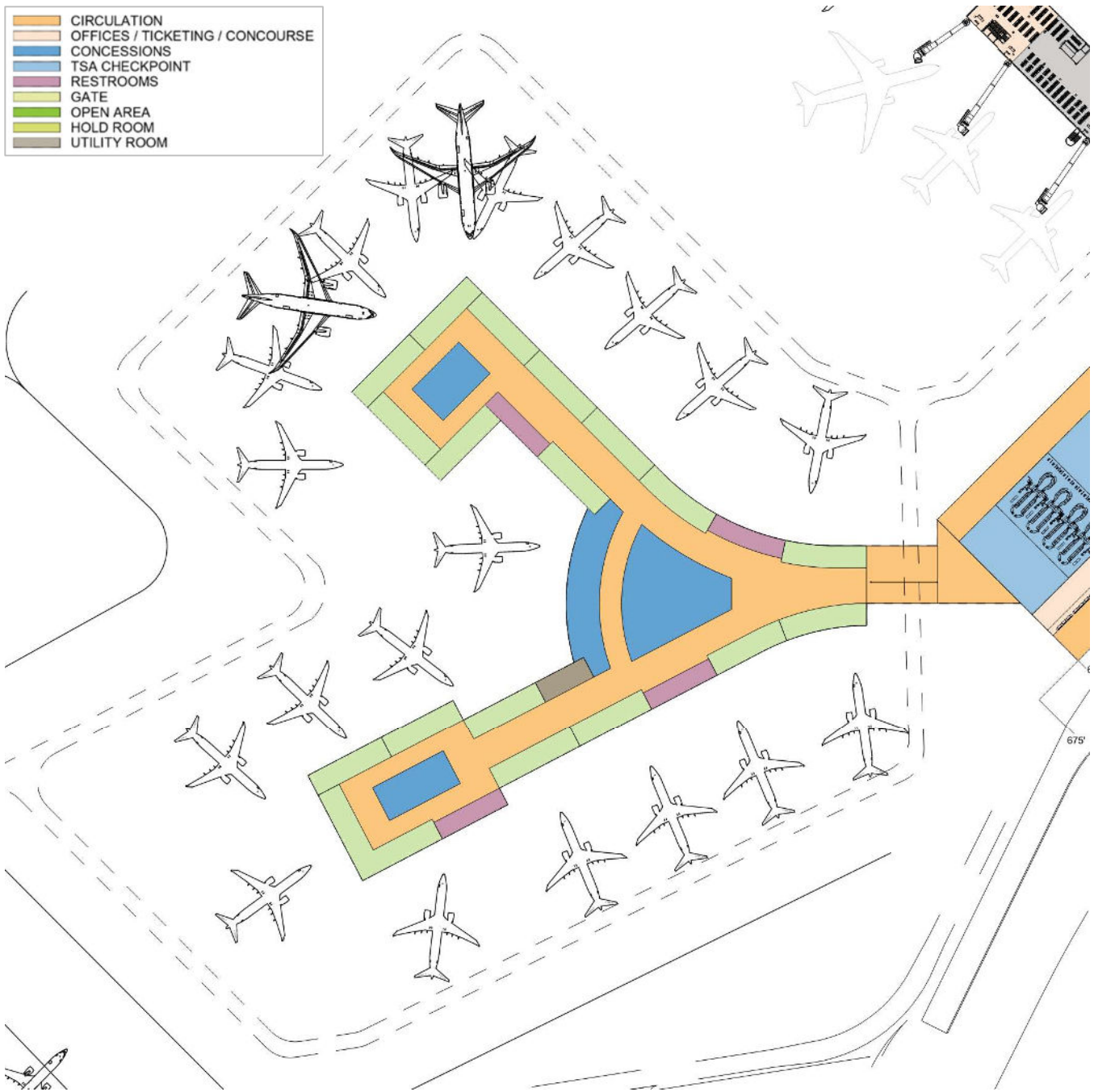


Figure 5-25 Alternative 3: "Y" Concourse E option



SOURCE: Atkins

Figure 5-26 Alternative 3: "Linear B" Concourse E Option

Passenger Terminal Alternatives Summary

To conclude, implementation cost and the ability for the Airport to recover costs through terminal operations is the determining factor for selecting the preferred passenger terminal alternative. As PAL 3 and PAL 4 demand levels are reached in the future, it is recommended a financial feasibility assessment be made to ultimately determine if implementing the preferred alternative would be practicable.

As previously mentioned, the preferred passenger terminal alternative was determined based primarily on ROM construction costs. While Alternatives 1 through 3 were feasible options, Alternative 4 (Linear B) resulted in the lowest overall construction costs while still meeting PAL 3 and PAL 4 demand level requirements. As illustrated in Figure 5-26, Alternative 4 is the preferred terminal option through PAL 4.

The selected alternative would provide 18 to 19 aircraft gates and approximately 120,000 square feet of concourse space that meet facility requirements. The modern and streamlined architectural layout provide a substantial increase to level of passenger service compared to the three existing concourses while still minimizing costs. As such, Alternative 4 is recommended as the preferred option when demand levels are met to trigger discussions on formal terminal design and construction phasing.

5.4 Landside – Access, Circulation, and Parking

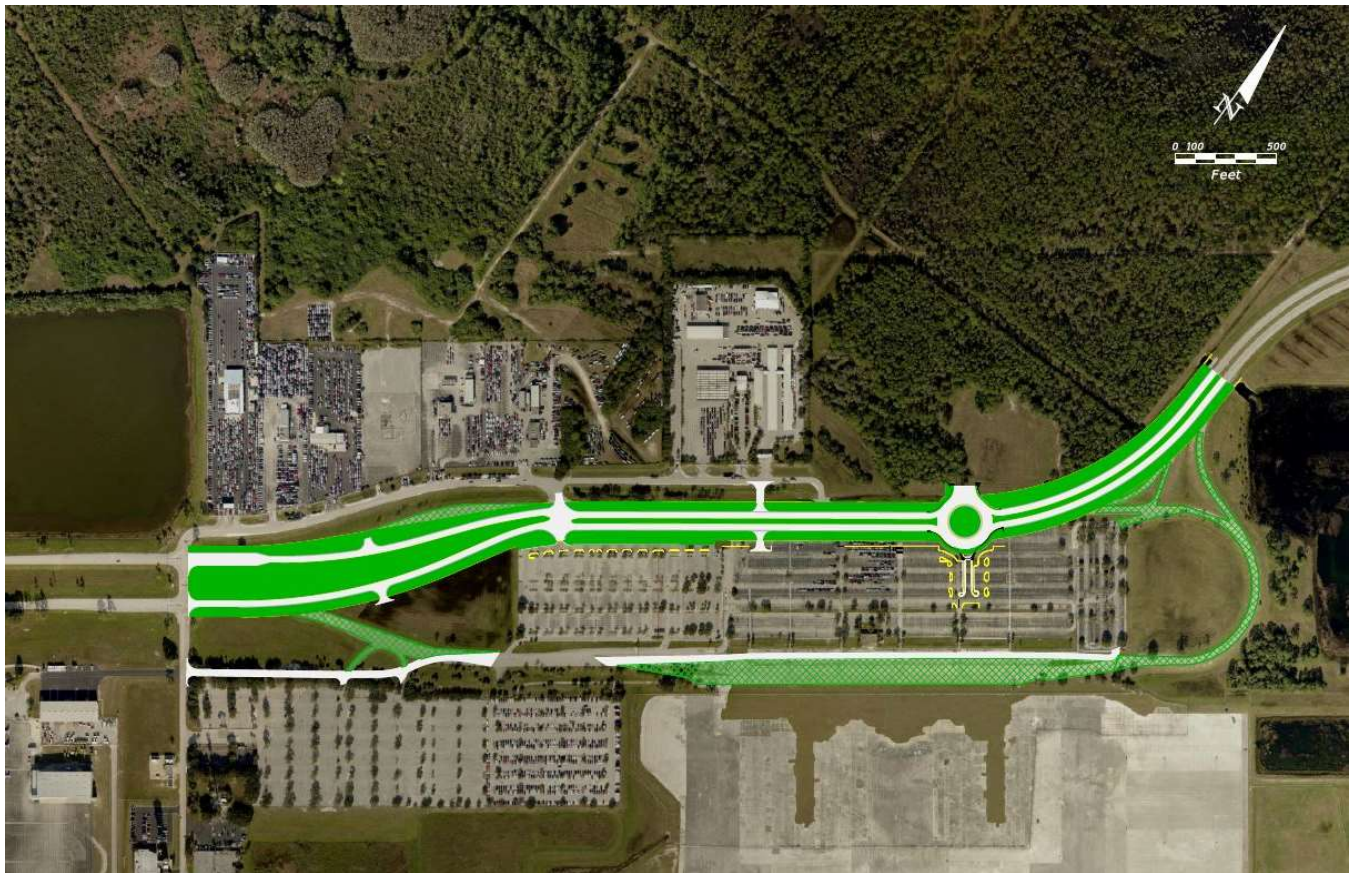
Previous studies have been completed to analyze the demand generated by aviation activity that will be placed on RSW internal roadway network and curbsfronts over various horizons (5-year, 10-year, etc.). These studies have been reviewed as part of this Master Plan Update and the recommended alternatives for the roadway network and curbsfronts are summarized in the sections that follow. Rough order of magnitude cost estimates that were developed for these recommendations are also included. The recommendations from the previous studies have been validated by the demand-to-capacity assessment and are still recommended.

Chamberlin Parkway

The 2017 *Chamberlin Parkway Alignment Study* evaluated three alternative realignments for improving the safety and function of Chamberlin Parkway. The Study recommended that the North Alignment be selected for the Chamberlin Parkway realignment due to this scenario providing the greatest long-term benefit to the LCPA. This study determined that the North Alignment affords the greatest flexibility of future development within the Chamberlin Loop Site and proposes minimal immediate impacts to the existing parking facilities while not requiring significant modifications to maintain access to the existing rental car facilities.

The North Alignment begins just east of Private Sky Way and generally follows the existing westbound Chamberlin Parkway lanes. The existing eastbound lanes transition to the north reducing the width of the existing median from 150 feet to 22 feet. The 22-foot median is achieved just west of Regional Lane. The alignment continues east until a reverse crown superelevated curve ties the corridor into the existing Paul J. Doherty Parkway. To minimize anticipated permitting efforts and reduce project costs, the alignment terminates just south of the existing box culvert located on Paul J. Doherty Parkway. **Figure 5-27** illustrates the alignment of this alternative.

Design and bidding for this alternative was completed in 2022, and construction is anticipated to be complete during the PAL 1 period. Components of this project also under consideration are Perimeter Road resurfacing, Chamberlin Road curve rehabilitation, and demolition of portions of the old terminal parking area for redevelopment purposes.



SOURCE: Johnson Engineering, *Chamberlin Parkway Alignment Study*, 2017 (Appendix M)

Figure 5-27 Chamberlin Parkway North Alignment Alternative

Daniels Parkway and Paul J. Doherty

The 2019 *Daniels Parkway and Paul J. Doherty Parkway Assessment* developed by Kimley-Horn presented a traffic assessment which analyzed existing traffic conditions at the intersection of Daniels Parkway/CR 876 at Paul J. Doherty Parkway/Gateway Boulevard and adjacent intersections. Geometric and signal timing improvements were developed to improve delays and vehicle queues at the intersection of the study intersection. Three potential improvements were developed and intended to be constructed sequentially. The improvements consist of the following:

- Option 1:

Re-configure the northbound approach to include one left-turn lane, one shared through/left-turn lane, and one shared through/right-turn lane.

Add lane line extensions (guidelines) for the northbound left-turn lanes to improve left-turn paths through the intersection.

- Option 2:

Re-configure the northbound approach to include two left-turn lanes and one shared through/right-turn lane.

Re-configure the southbound approach to include one exclusive left-turn lane, and one through lane, and two right-turn lanes.

Modify the existing signal timing to allow for protected northbound left-turns and modify signal heads to account for protected/permitted northbound and southbound phasing.

- Option 3:

Re-configure the northbound approach to include two left-turn lanes, one through lane, and one exclusive right-turn lane.

Re-configure the southbound approach to include one exclusive left-turn lane, and one through lane, and two right-turn lanes.

Modify the existing signal timing to allow for protected northbound left-turns and modify signal heads to account for protected/permitted northbound and southbound phasing.

An intersection capacity analysis determined that Option 1 improvements are expected to reduce delays by up to 11.7 seconds while Option 2 and Option 3 improvements are expected to improve delays at the intersection of Daniels Parkway/CR 876 and Paul J. Doherty Parkway by up to 31.2 seconds. Furthermore, a 95th percentile queue analysis determined that Option 1, Option 2, and Option 3 improvements are expected to improve queues at all approaches at the intersection of Daniels Parkway/CR 876 and Paul J. Doherty Parkway. Note that Option 3 improvements do not improve operations during the A.M. peak hour and result in minimal improvements during the P.M. peak hour when compared to Option 2 improvements.

Terminal Access Road

The 2016 *RSW Terminal Curb Front Roadway Assessment* developed by Kimley-Horn conducted a demand-to-capacity and LOS assessment for the terminal curb front roadways. The objective of the study was to develop improvements and an implementation forecast year in order to mitigate future congestion at the identified points and problem areas. The short-term improvements were developed for implementation immediately or within the next three years. These improvements are non-structural, will not require a long planning phase, and are focused on improving the efficiency and quality of passenger service of the existing curb fronts. The following is the list of short-term improvements for each curb front level.

Lower-Level Short-Term Improvements

Proposed Pavement Markings

- Two 12-foot Inner Curbing Lanes – Hashed
- Two travel lanes
- Remove 'Exit' lane pavement markings from the outer lane

Improve Enforcement

- Improve enforcement with additional staff to create faster turnover and shorter dwell times at curb front

Removal of Pedestrian Crosswalk

- Removal of the pedestrian crosswalk at Exit Door 6.
- This is the last crosswalk before exiting the terminal curb front and is underutilized compared to the other five crosswalks. The removal is necessary to improve flow of traffic exiting the terminal. Additional wayfinding will be necessary to guide pedestrians to remaining crosswalks/access points.

Relocation of Large Vehicles to GTA

- Move large capacity vehicles to limited access GTA; coordination with tour buses, limo companies, private van companies, etc. is needed
- Transponder/permitting policy changes would be necessary

Short-Term Improvements for Both Levels

Implement Dynamic Message Signs (DMS)

- Use of DMS to redistribute traffic by changing airline signage along the curb fronts to balance demand (directs vehicles to curb evenly)
- When peaking is isolated to one curb front only, DMS can be used to communicate available capacity and travel times along strategic positions on the in-bound roadways in order to re-direct passengers to non-peaking level. These DMSs will encourage the use of underutilized levels as drivers are alerted to increased travel times or curb front congestion.

The long-term improvements were developed to be planned and implemented from year 2020 to year 2030, depending on airport growth. The proposed upper-level improvement, illustrated in **Figure 5-28**, is suggested to be combined with the recommended lower-level alternative.

Upper-Level Long-Term Improvements

The Upper-Level long-term improvements will maintain an acceptable level of service for airport users and includes:

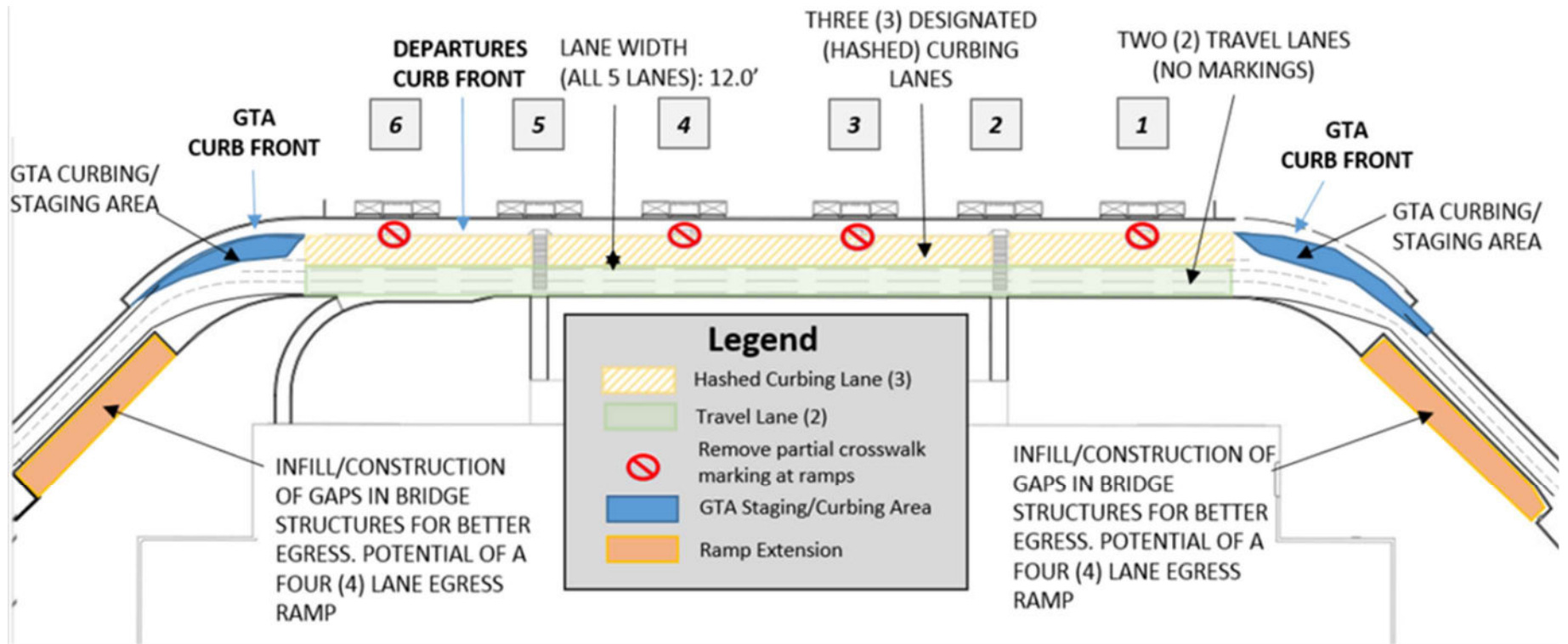
- Create Two GTAs at the Entrance and Exit of the Terminal
 - Use existing 'No Parking' zones at entry and exit locations of terminal to create a drop off location for shuttles and large vehicles
 - Infill/construct the existing gaps in the bridge structures to allow for roadway widening that can accommodate the proposed GTA area along with a total of three additional approach/exit lanes
- Additional Curbing Lane
 - Change in pavement markings only if demand continues to show the need for it at the time
 - Change pavement markings to assign three, 12' curbing lanes (hashed) instead of two
 - Change pavement markings to assign two travel lanes instead of three

The improvements are summarized in Figure 5-28.

Lower-Level Long-Term Improvements

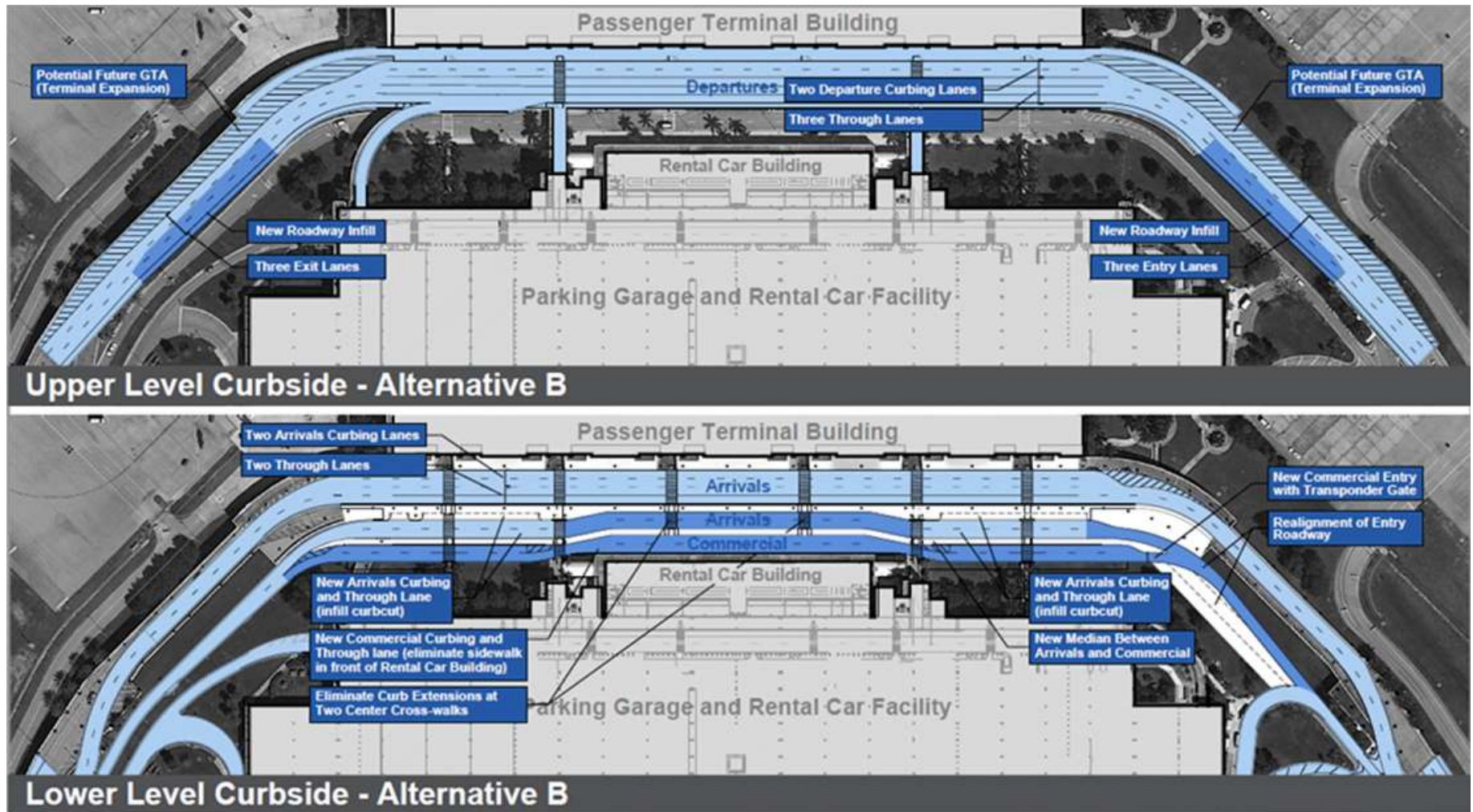
The proposed alternative, Alternative B, proposes changes to the GTA curb front area only; no changes to the existing lower-level curb front are proposed assuming the short-term improvements were implemented. **Figure 5-29** depicts the proposed improvement. The following explains the lane assignments proposed in this alternative from the lane at the GTA closest to the terminal side and is shown in the following exhibit:

- Median – used at GTA for loading/unloading to be converted for private vehicle curbing use
- Private Vehicle Curbing – Existing lane width (one lane)



SOURCE: Kimley-Horn, *RSW Terminal Curb Front Roadway Assessment*, 2016 (Appendix P)

Figure 5-28 Long-Term Upper-Level Improvements



LEGEND:

- Existing Roadways
- Proposed New Roadways

SOURCE: Kimley-Horn, *RSW Terminal Curb Front Roadway Assessment*, 2016 (Appendix P)

Figure 5-29 Alternative B Curbside Analysis

- Private Vehicle Travel Lane – Existing lane width (one lane)
- New median for loading/unloading GTA passengers
- GTA Curbing – Existing lane width (one lane)
- GTA Vehicle Travel Lane – Reduction of existing sidewalk between sheltered crosswalks '2' and '5' to allow for addition of GTA travel lane

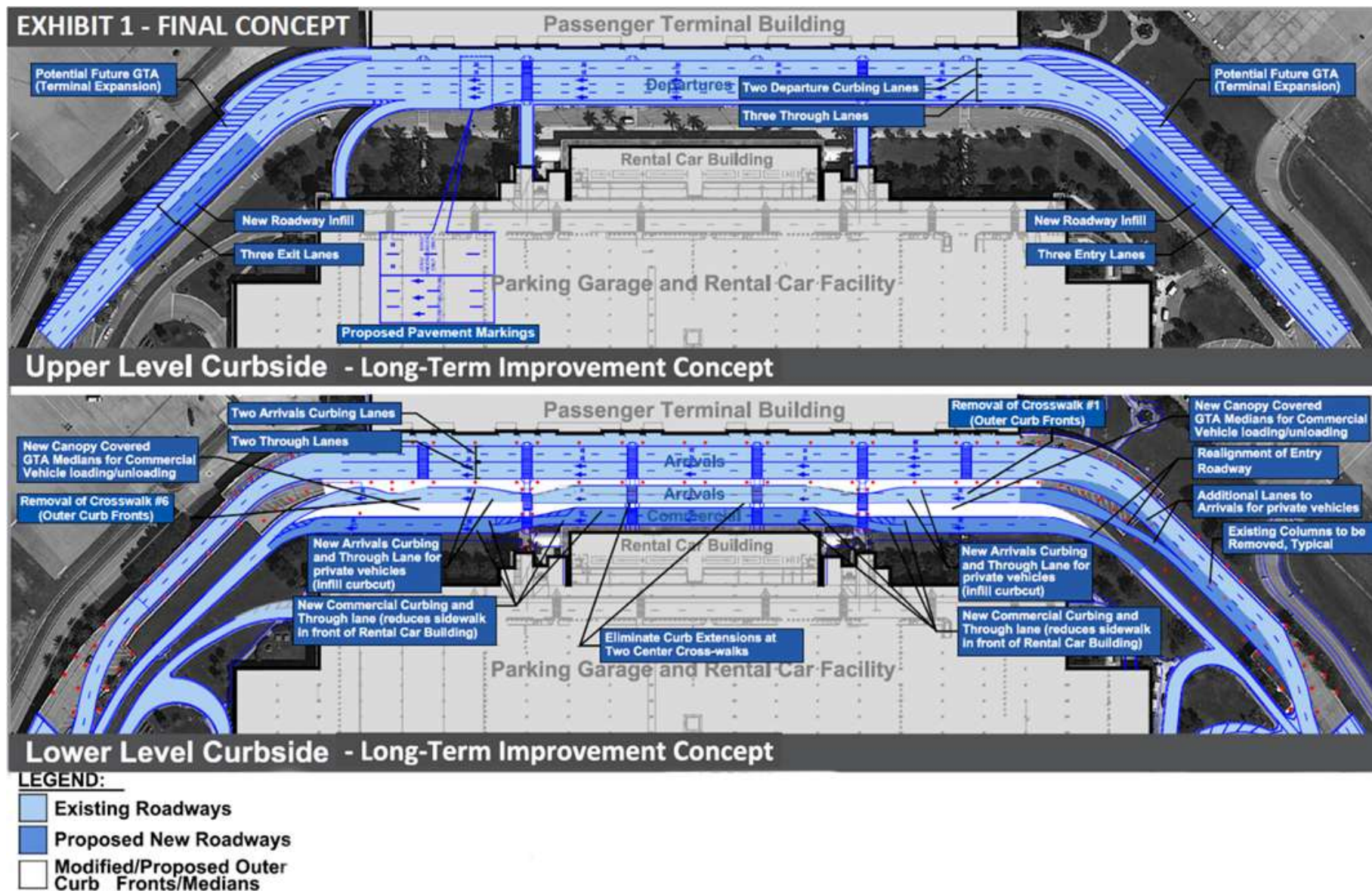
It should be noted that with this alternative the private vehicles would curb on the median that the GTA currently uses for staging/curbing. With the addition of the new median in the middle of the GTA, the commercial vehicles will continue to onload/offload through their right-hand side doors. For this alternative, the entrance gate for permitted vehicles would need to be relocated and additional wayfinding would be required in order to indicate to the private vehicle drivers that additional curbing space is available at the inner lane of the GTA. Follow up on Alternative B was advised by LCPA as an additional evaluation effort so that more detailed measurements, logistics and graphics of Alternative B are provided in Figure 5-29.

Final Long-Term Improvement Concept

In response to the LCPA request for a refined analysis to be performed on the preferred alternative, Kimley-Horn completed the 2017 *RSW Terminal Curb Front Roadway Assessment*. This study presented the structural analysis performed on the upper-level ramps and of a final concept combining Alternative B with Alternative D, concepts from the 2016 *RSW Terminal Curb Front Roadway Assessment*.

As previously mentioned, LCPA selected Alternative B as the preferred long-term improvement concept and requested for additional details to be developed that included the integration of Alternative D, allowing for the expansion of upper and lower levels, along with curbing for private vehicles on an inner and outer curb front. A final improvement concept was developed and is depicted in **Figure 5-30**. The long-term improvement concept includes the following:

- Pavement markings indicating "thru" lanes and "Load/Unload Only" lanes added to all lanes
- A transformation of the existing commercial curb front median into an outer curb front for private vehicles.
 - One travel lane and one curbing lane (three separate curbing bays)
- Construction of the gaps on the entering/exiting upper-level ramps to allow for expansion of lower level and a potential commercial curbing capacity on the upper level. After reconstruction of lower-level travel lanes, private vehicles would have the option to curb at the inner or outer proposed curb front. This requires the existing columns to be relocated after the ramp expansions as seen in Figure 5-30. One additional lane on the upper-level entry/exit
 - Enough space for potential future upper-level commercial curbing area
 - One additional lane on the lower level entering/exiting to the inner curb front
 - One additional lane on the lower level entering exiting to the outer curb front
- Removal of the two bulb out curb extensions from the median in front of crosswalk #3 and #4 to allow for a larger and continuous outer curbing lane for private vehicles.
- Smoother angle cutouts for existing and remaining bulb out curb extensions on outer curbing lane for private vehicles
- Construction of canopy-covered commercial curbing areas consisting of a wide median (20-foot) for passengers and employees to wait for pick-up.



SOURCE: Kimley-Horn, RSW Terminal Curb Front Roadway Assessment, 2016 (Appendix P)

Figure 5-30 Long-Term Improvement Concept

- New outer curb front would include:

- Maintaining current entry lane

- One travel lane

- One curbing lane (three separate curbing bays with designated staging curbing for each individual ground transportation mode)

- Hatching and delineators proposed to avoid curbing on undesirable areas

- Taxi booth location with covered access and wide passenger staging

- Increased capacity for taxi staging

- Removal of crosswalks #1 and #6 on the outer curb front

Designated Curbing Areas and Details

Details for staging and curbing locations of the multiple commercial vehicle modes are depicted **Figure 5-31** and indicate the curbing space assigned for each mode in different colors. Additional details such as dimensions for the lanes, medians, canopy covered commercial curbs fronts, and taxi booth are depicted in **Figure 5-32** through **Figure 5-34**. As part of the expansion, additional space proposed for passengers to queue while waiting for taxis as shown in **Figure 5-33**. Also, a police/LCPA staging area was also assigned and is depicted on **Figure 5-32**.

The proposed lower level through lane access road provides a secondary connection to the lower-level arrivals curb front. The proposed lane creates an opportunity for private vehicles picking up passengers on the west end of the terminal to bypass the congestion experienced on the east end of the curb front as demonstrated in **Figure 5-35**.

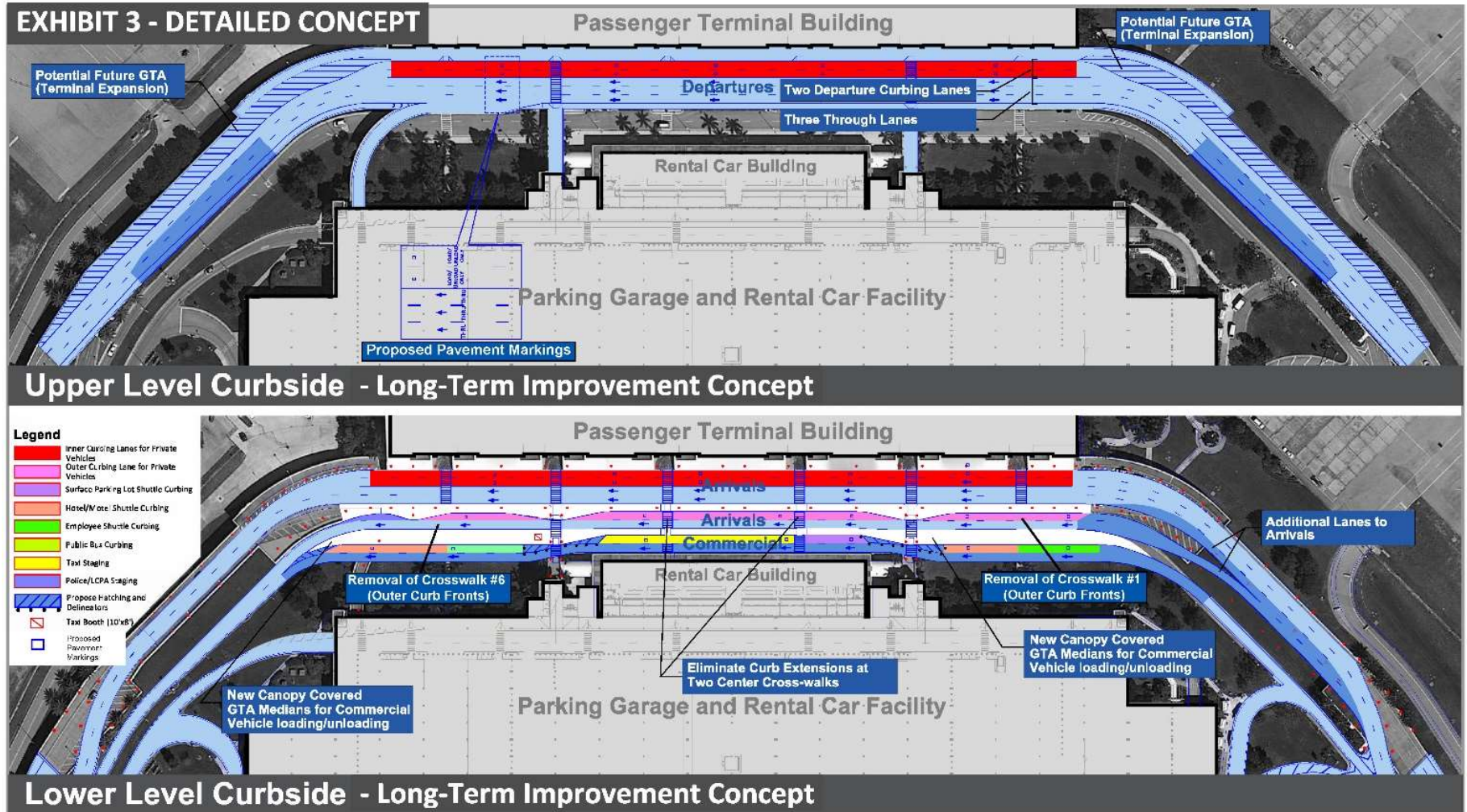
Parking and Rental Cars

Cell Phone Lot

To be able to meet current and future demand, it is recommended that either the existing cell phone lot be expanded or that a new cell phone lot location be explored. Expansion of the lot provides more supply for those wishing to use the lot while retaining the convenient location, next to the gas station. The first expansion alternative is to expand the cell phone lot to the southeast, adding an additional 80 stalls to bring the total amount of cell phone lot stalls to 164. This alternative is illustrated in **Figure 5-36**. A second expansion alternative is to relocate the cell phone lot to the north of the gas station, providing ~150 stalls. This alternative is illustrated in **Figure 5-37**. The third expansion alternative would relocate the cell phone lot to within the footprint of the existing employee parking lot. The cell phone lot would have approximately 160 stalls whereas the employee lot would lose a similar amount and can be seen in **Figure 5-38**. A fourth alternative is to expand the existing cell phone lot to the south. This alternative would increase the number of spaces available to ~280 and can be seen in **Figure 5-39**.

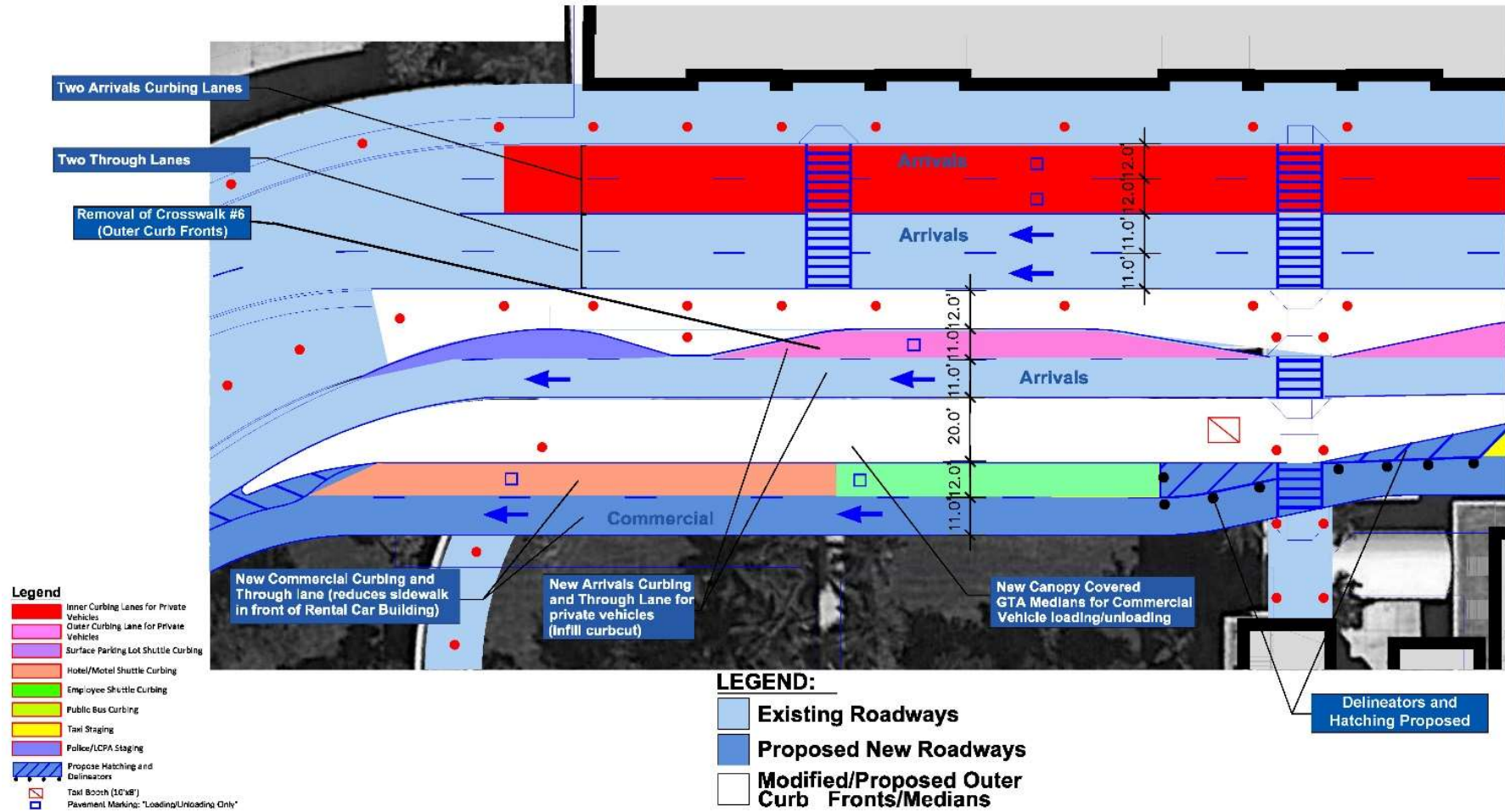
A fifth alternative for the cell phone lot would be to relocate it along Terminal Access Road to the southeast. The existing cell phone lot would remain the same in size and could be dedicated for alternate uses, such as a staging area for Transportation Network Companies (TNCs) such as Uber or Lyft. This alternative is depicted in **Figure 5-40**.

A no-build alternative is to keep existing facilities as they are and to put emphasis on advertising the grace period within the short-term garage. Large and legible signs within the cell phone lot could be utilized to inform cell phone lot users that the short-term garage is a possible place to wait. Currently, customers may leave the short-term garage 20 minutes after they enter and not be charged upon exiting.



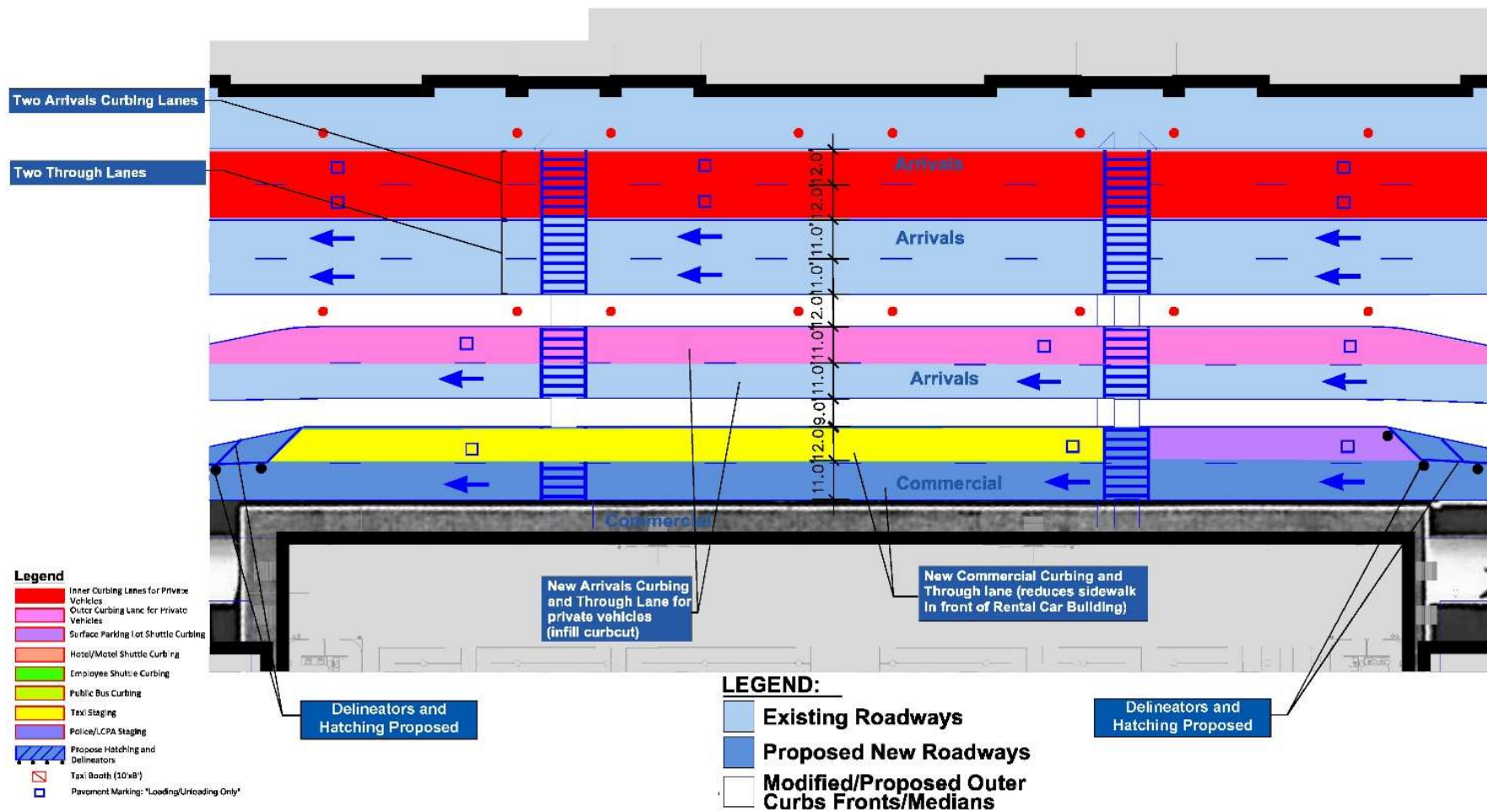
SOURCE: Kimley-Horn, *RSW Terminal Curb Front Roadway Assessment*, 2016 (Appendix P)

Figure 5-31 Long-Term Improvement Concept Designated Curbing Areas



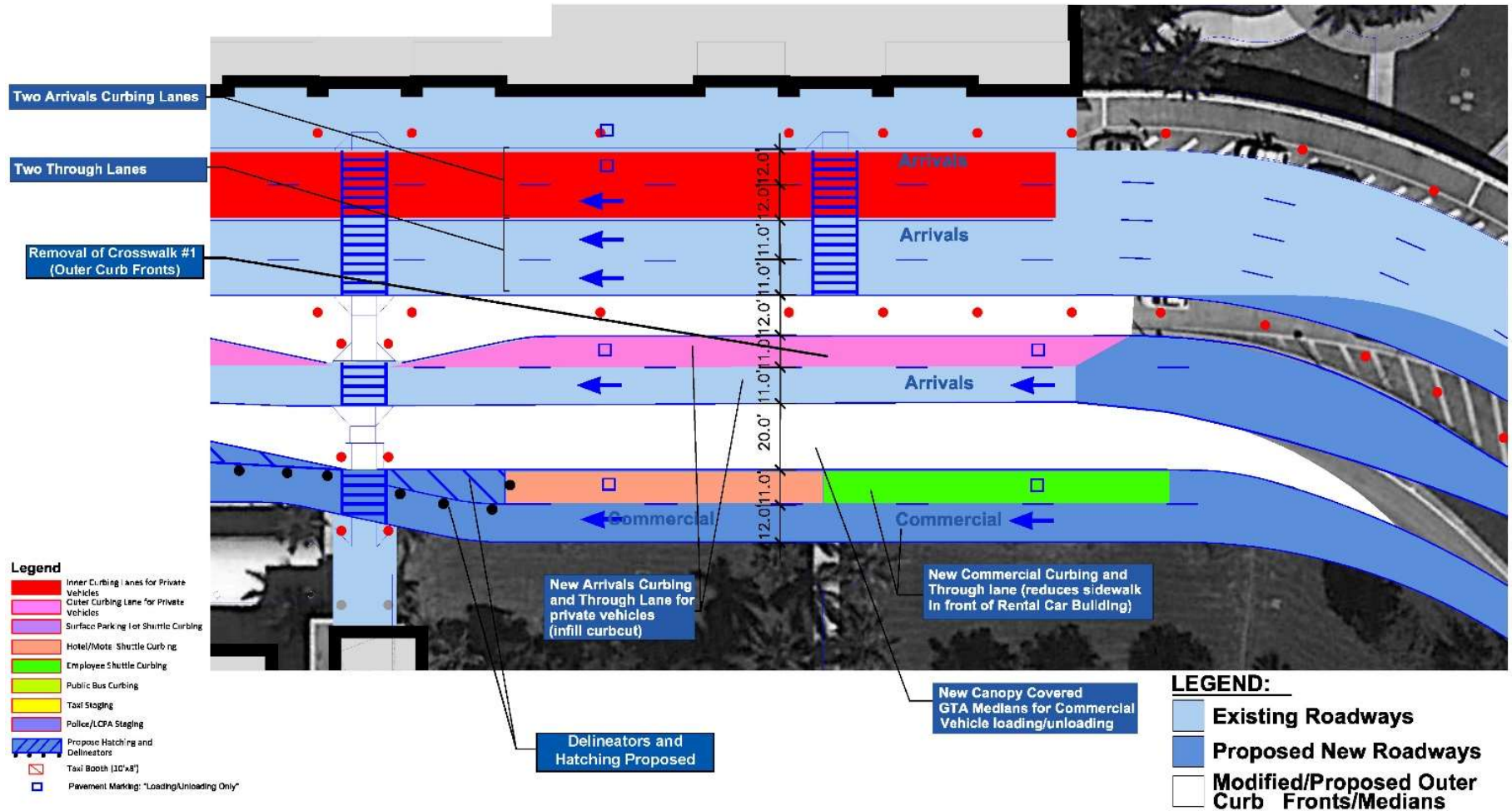
SOURCE: Kimley-Horn, *RSW Terminal Curb Front Roadway Assessment*, 2016 (Appendix P)

Figure 5-32 West Designated Curbing Areas



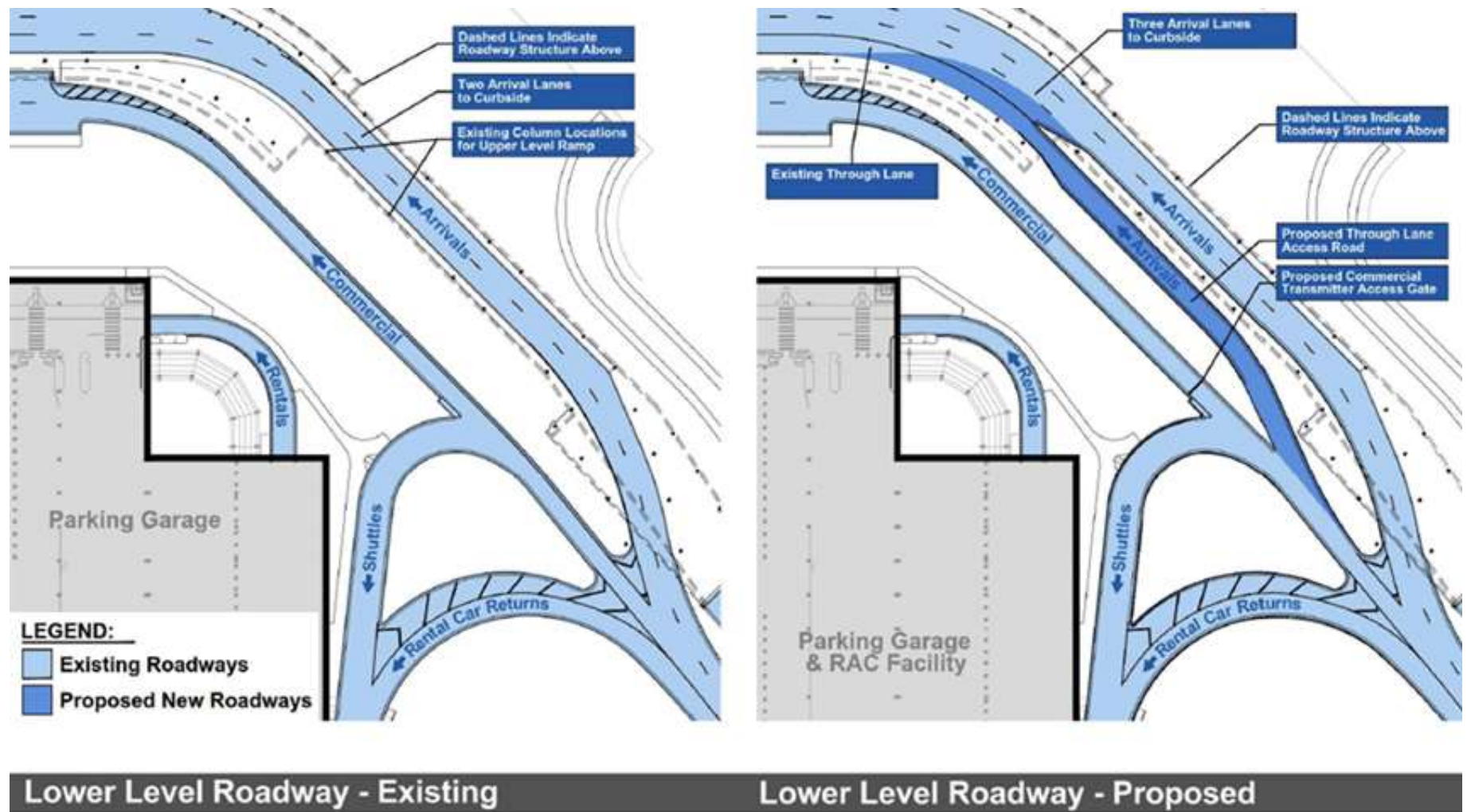
SOURCE: Kimley-Horn, *RSW Terminal Curb Front Roadway Assessment*, 2016 (Appendix P)

Figure 5-33 Center Designated Curbing Areas



SOURCE: Kimley-Horn, *RSW Terminal Curb Front Roadway Assessment*, 2016 (Appendix P)

Figure 5-34 East Designated Curbing Areas



SOURCE: Kimley-Horn, *RSW Arrivals Access Lane Memo*, 2018

Figure 5-35 Proposed Lower-Level Through-Lane Access Road



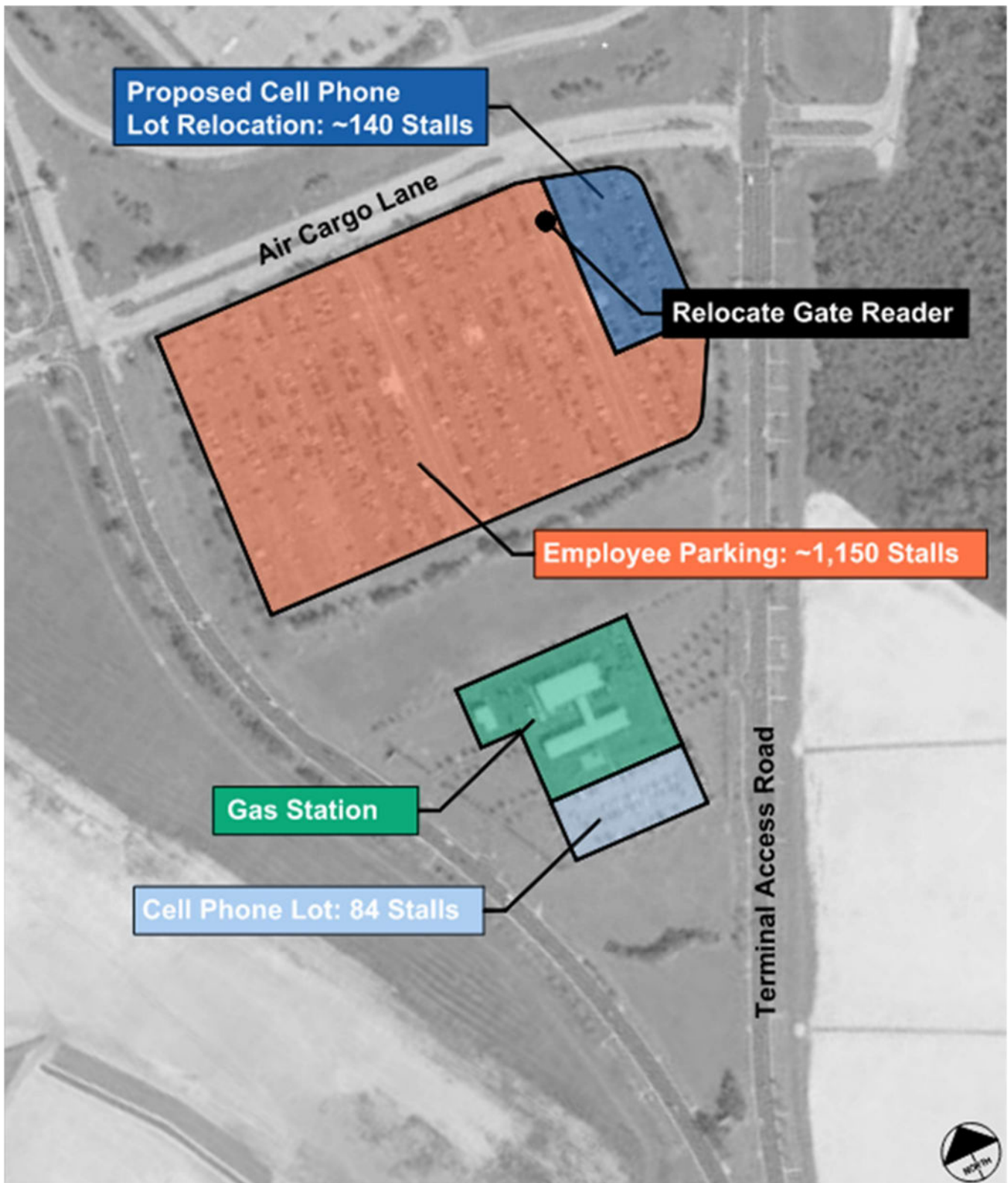
SOURCE: Kimley-Horn

Figure 5-36 Cell Phone Lot Alternative 1



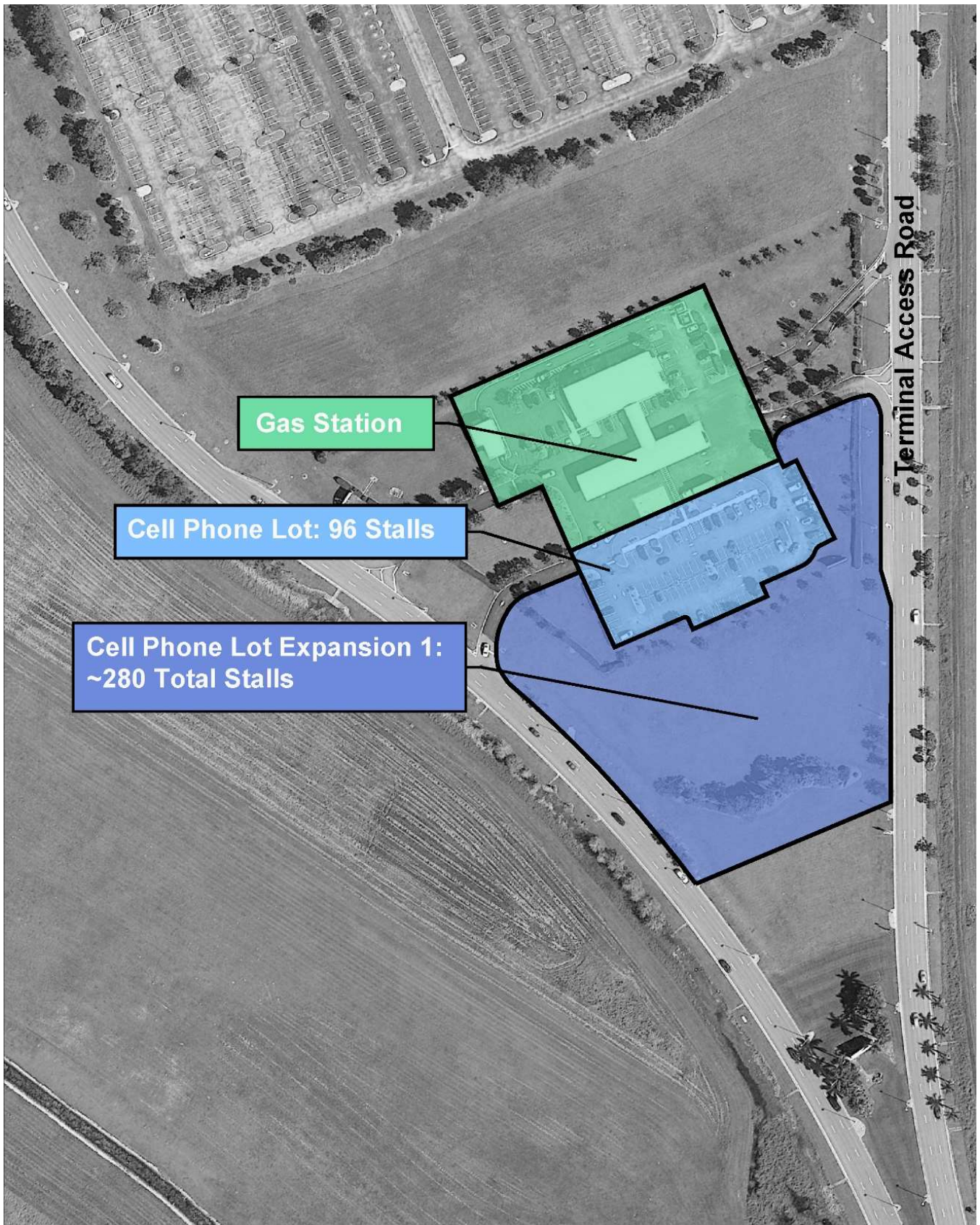
SOURCE: Kimley-Horn

Figure 5-37 Cell Phone Lot Alternative 2



SOURCE: Kimley-Horn

Figure 5-38 Cell Phone Lot Alternative 3



SOURCE: LCPA

Figure 5-39 Cell Phone Lot Alternative 4



SOURCE: LCPA

Figure 5-40 Cell Phone Lot Alternative 5

Construction on this new lot in 2030 would satisfy anticipated demand through PAL 4.

Employee Lot

With strong passenger demand, the need for more airport employees for airlines, concessions, and LCPA staff will require more employee parking capacity. The current employee lot can accommodate 1,297 employee vehicles which will be sufficient to meet PAL 1 requirements. An expansion to the employee lot should be completed at that point or within a year as the excess capacity at PAL 1 will only be 22 spaces. It is anticipated that by PAL 4, there will be a need for an additional 420 spaces to meet employee parking requirements. A summary of demand requirements and proposed capacity improvements are located in **Table 5-5**.

To best meet the expanded employee parking requirements, a new expansion to the south of the existing lot would add the required 420 spaces and can be seen in **Figure 5-41**.

Table 5-5 Employee Parking Demand

PAL Level – Year	Demand	Employee Spaces
	Capacity	(March)
Existing – 2022	—	1,297
PAL 1 – 2026	Demand	1,275
	Capacity	+22
2030 420-SPACE NEW EMPLOYEE LOT OPENS		
New Totals		1,717
PAL 2 – 2031	Demand	1,408
	Capacity	+309
PAL 3 – 2036	Demand	1,555
	Capacity	+162
PAL 4 – 2041	Demand	1,717
	Capacity	0

SOURCE: Kimley Horn & Associates



SOURCE: LCPA

Figure 5-41 Employee Parking Lot Expansion

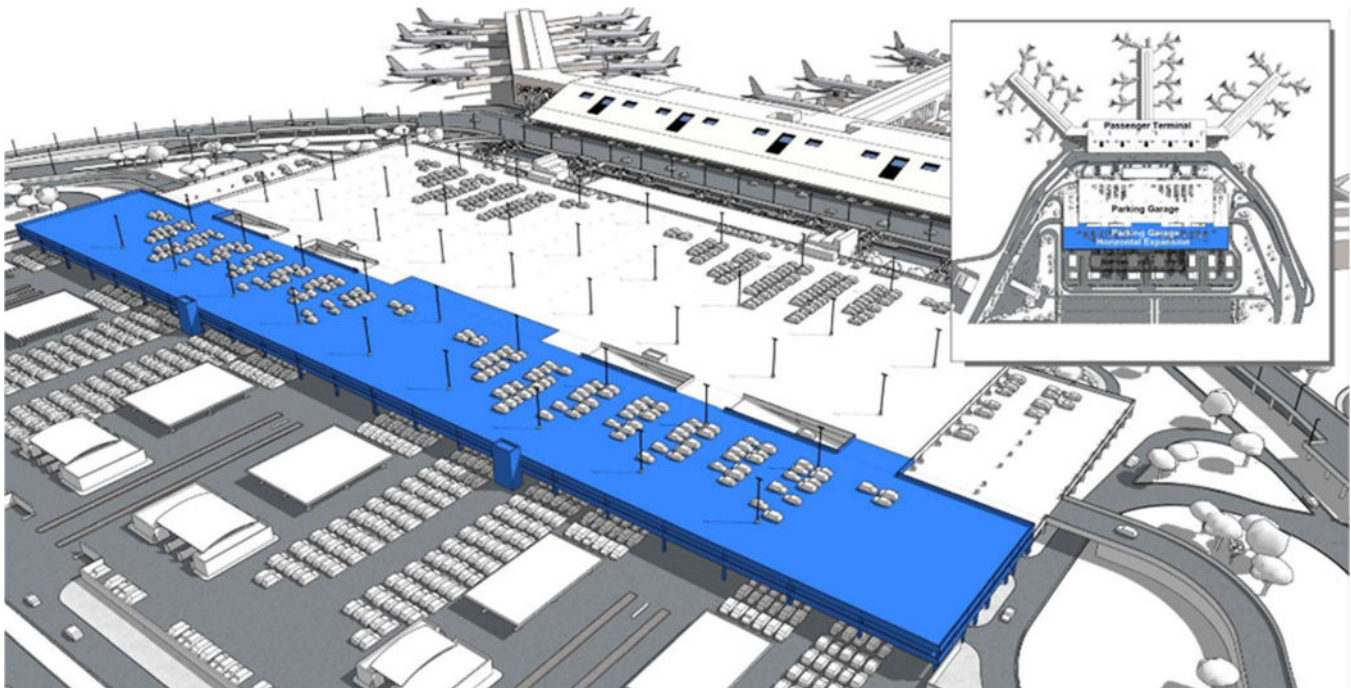
Public Parking, Short-Term and Long-Term

While the current total parking supply of 11,194 spaces is adequate to meet non-holiday demands (90% of the year) through PAL 4, additional surface parking is recommended to satisfy parking demand on the absolute peak day (Christmas). The parking system will need to be expanded in the near term to satisfy parking demand on the absolute peak day. The parking system could be expanded by either providing an additional surface parking facility or by expanding the parking garage vertically or horizontally.

Garage expansion options are proposed in order to increase public parking supply and to accommodate a rental car ready/return expansion. Due to the increased ready/return area, the QTA area will be pushed out into the public parking surface lot and will take up 150 public parking spaces. The three options are as follows:

1. The **first option** expands the two elevated parking garage levels horizontally to accommodate more stalls. Each expanded level can accommodate 575 more stalls each. The horizontal expansion also adds additional covered RAC space. This option results in the lowest net increase in total parking (+546). Stall tabulation for the parking is shown in **Table 5-6**. **Figure 5-42** shows this option.

Stall Tabulation – Parking	Stalls
Garage Parking	2,432
Garage Expansion	1,150
Surface Parking	8,158
Total	11,740

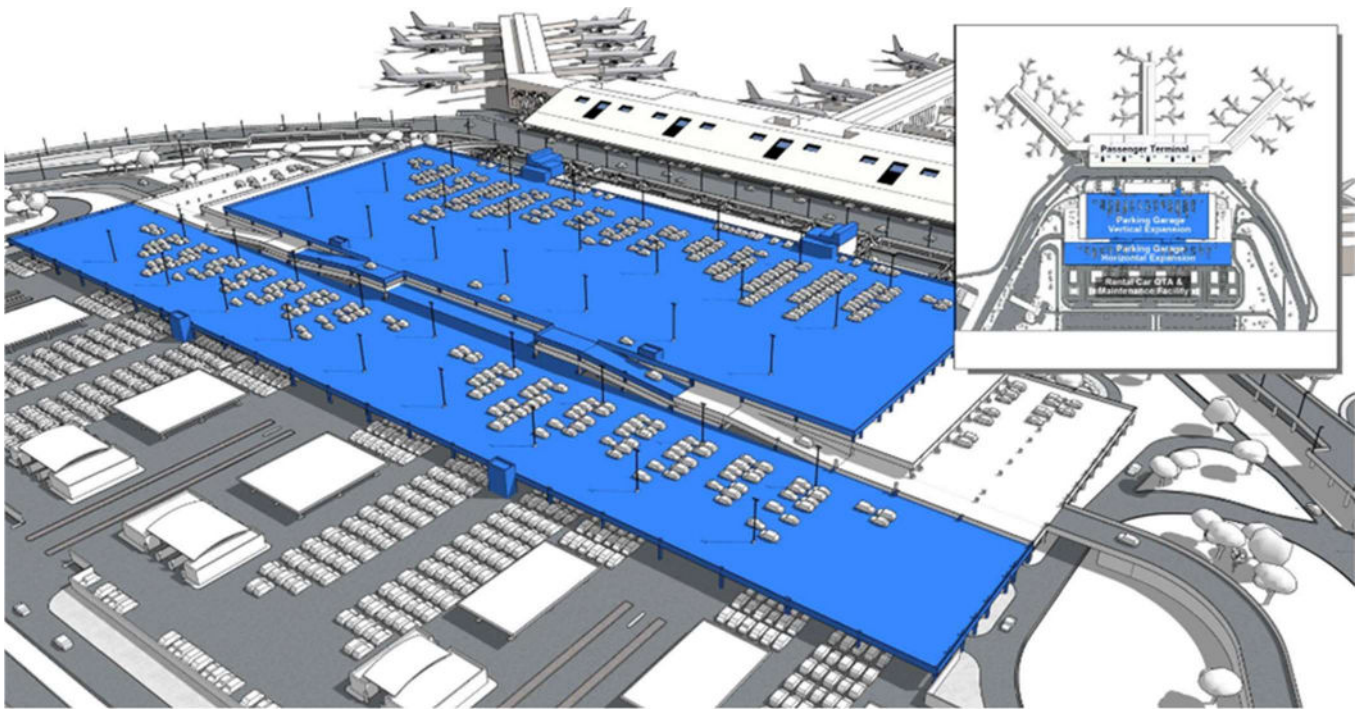


SOURCE: Kimley Horn, Rental Car Facility Sizing Analysis and Expansion Options, August 2019

Figure 5-42 Option A1.1 – View Looking Northwest Horizontal Expansion No Canopy

2. The **second option** expands the parking garage structure vertically by one level to accommodate 1,000 more stalls and expands the second level horizontally to accommodate 575 more stalls. The horizontal expansion also adds additional covered RAC space. This option results in a net increase in total parking (+971). Stall tabulation for the parking is shown in **Table 5-7**. **Figure 5-43** shows this option.

Stall Tabulation - Parking	Stalls
Garage Parking	2,432
Garage Expansion	1,575
Surface Parking	8,158
Total	12,165

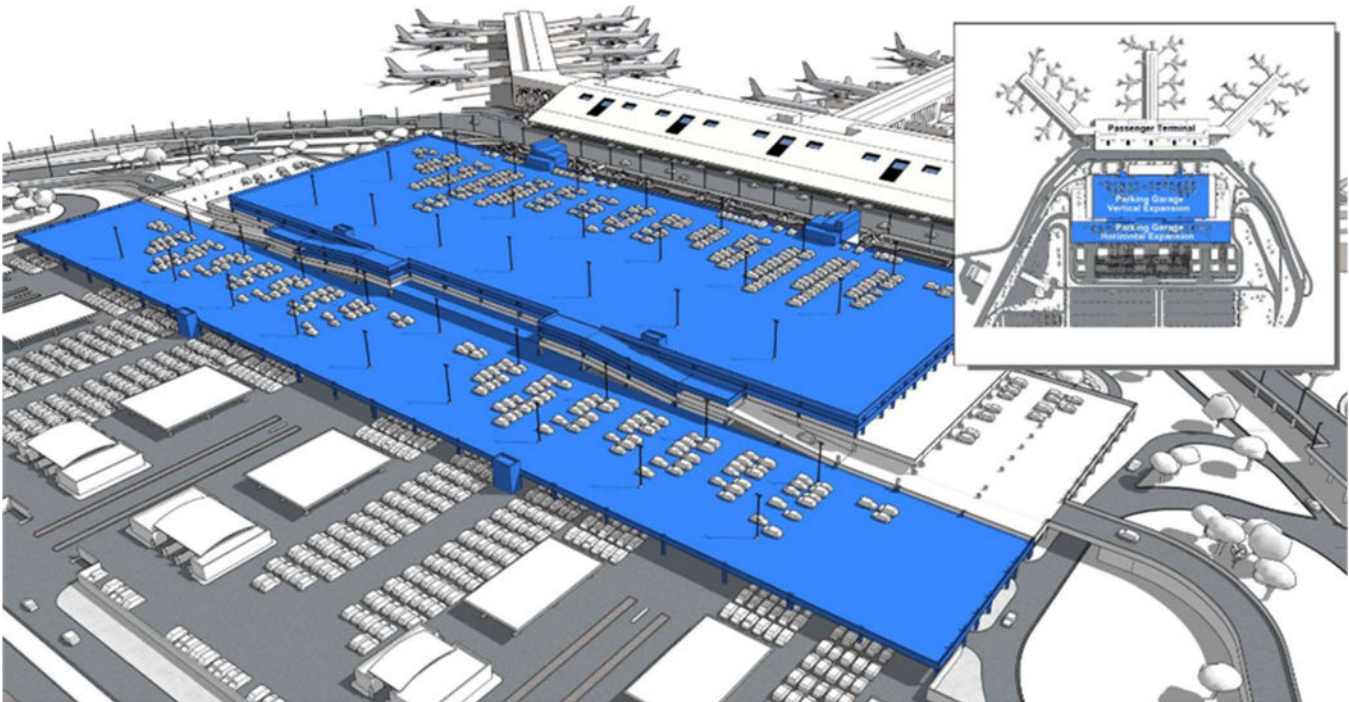


SOURCE Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-43 Option A3.1 – View Looking Northwest Vertical Structure Expansion (One Level) with Horizontal Parking Canopy

- The **third option** expands the parking garage structure vertically two levels to accommodate 2,000 more stalls and also expands the second level horizontally to accommodate 575 more stalls. The horizontal expansion also adds additional covered RAC space. This option results in the greatest net increase in total parking (+1,971). Stall tabulation for the parking is shown in **Table 5-8**. **Figure 5-44** shows this option.

Table 5-8 Garage Option 3 – Stall Tabulation Parking	
Stall Tabulation – Parking	Stalls
Garage Parking	2,432
Garage Expansion	2,575
Surface Parking	8,158
Total	13,165



SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-44 Option A3.2 – View Looking Northwest Vertical Structure Expansion with Horizontal Parking Canopy

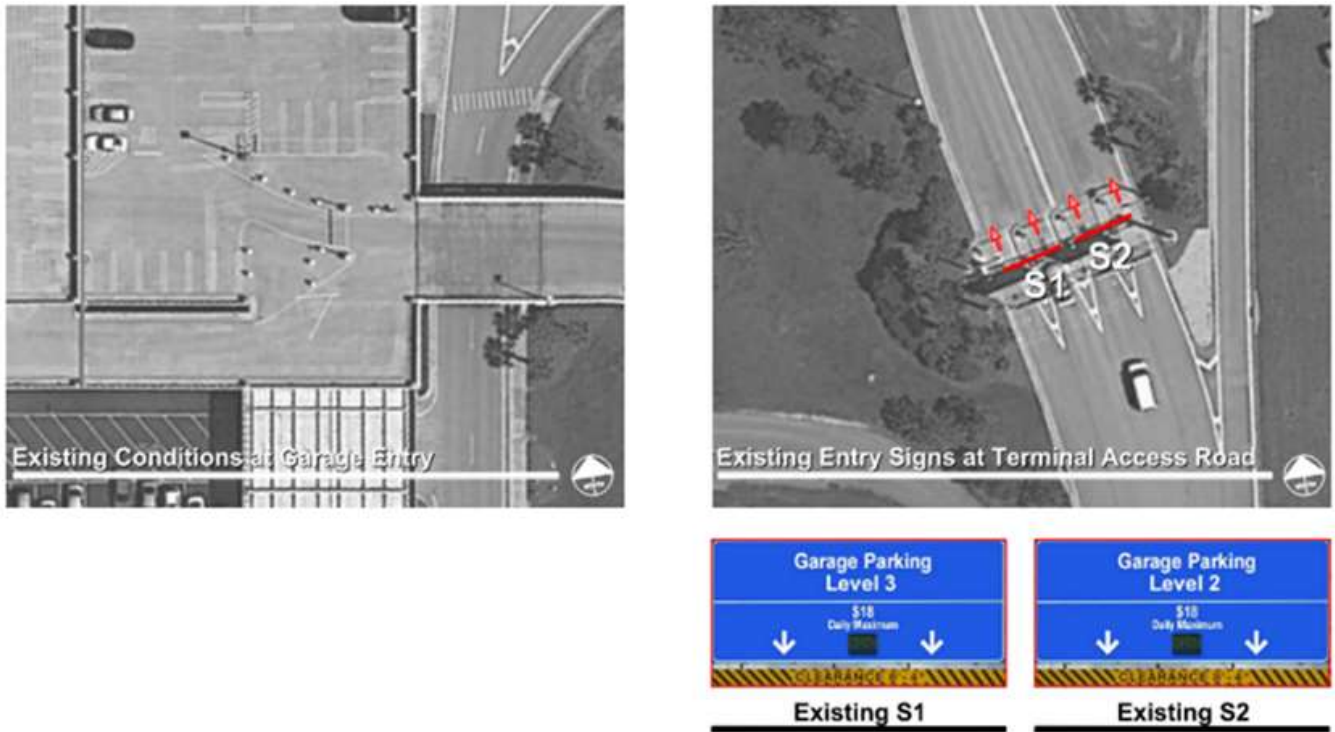
Short-Term Parking Garage

If no parking expansion to the garage occurs, options exist to improve efficiency and customer experience within the short-term parking garage. The following operational management strategies could be utilized:

1. The implementation of a separate pricing product on level three of the short-term garage could also address one of the existing observed operational constraints potentially impacting the customer experience and efficiencies within the short-term garage. The introduction of a second daily pricing products for the third level of the garage could encourage daily/overnight short-term parkers to still park where they prefer but incentivize to in the underutilized, uncovered areas on the third level of the parking garage at a reduced rate. Implementation of a reduced rate in the short-term garage could impact project revenue for both the short-term parking facility and the long-term parking facility.

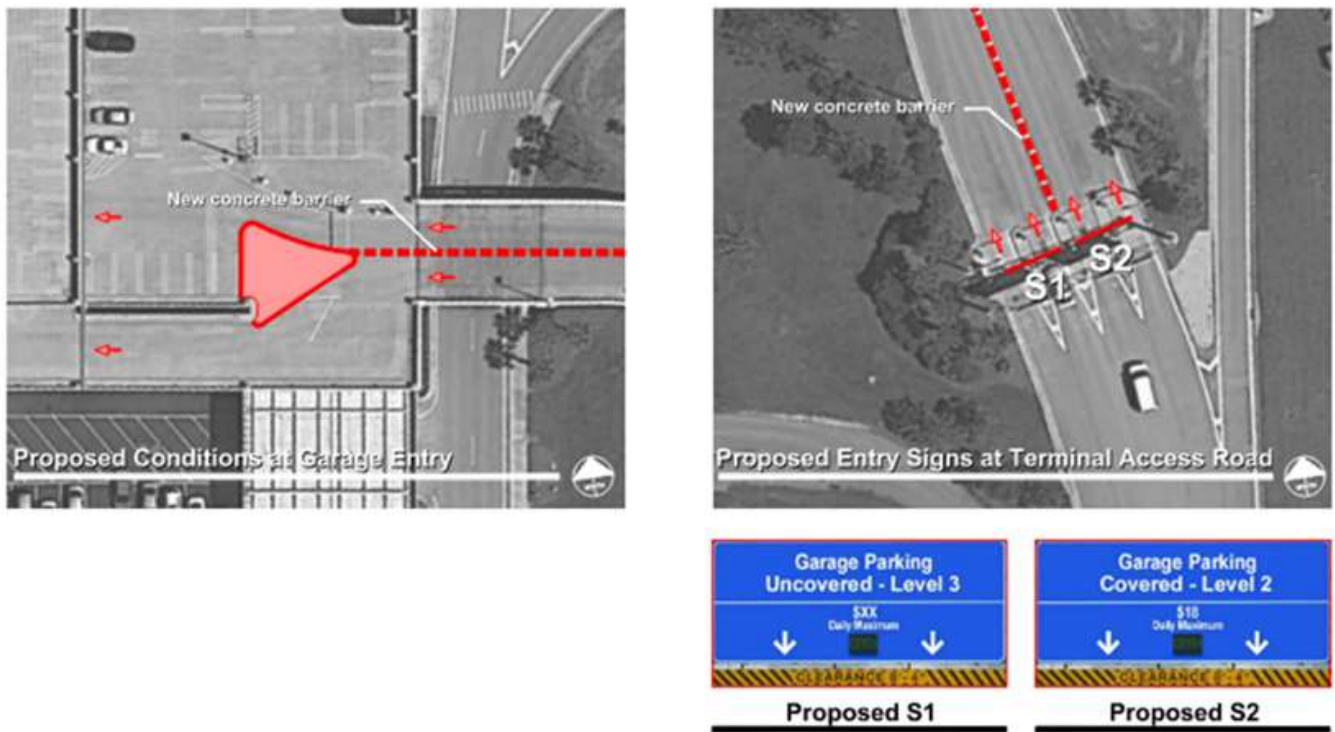
The existing entry signs for the short-term garage are shown in **Figure 5-45** and the proposed entry signs and concrete barrier are shown in **Figure 5-46**.

2. To improve high-frequency turnover in high demand areas of the garage, it is suggested that the parking spaces closest to the elevators/terminals on the second level be designated to short-term parking only, and overnight parking be prohibited in these spaces. Implementation would restrict daily/overnight parkers to parking in spaces furthest from the elevators on the second level and to the third level only. Enforcement would be required to ticket overnight vehicles parked in designated hourly spaces. Installation of meters could also be added.



SOURCE: Kimley Horn, *RSW Existing Parking Facility Capacity Evaluation*, March 2018

Figure 5-45 Parking Garage Entry – Existing Conditions



SOURCE: Kimley Horn, *RSW Existing Parking Facility Capacity Evaluation*, March 2018

Figure 5-46 Parking Garage Entry – Proposed Conditions

Long-Term Public Parking Lots

In order to address long-term parking needs, two areas have been identified for surface parking lot expansion in the PAL 2 and then the PAL 3 timeframes (Figure 5-47). The addition of a long-term surface lot to the west of the existing long-term lot is proposed to open add approximately 3,000 spaces due to open in 2035 or the PAL 2 timeframe allowing peak holiday parking requirements to be met. Likewise, a new long-term lot is proposed to open south of the employee-lot and existing cell phone lot adjacent to Terminal Road. This new lot will add approximately 3,000 spaces in 2035 allowing PAL 3 peak holiday long-term parking requirements to be met.



SOURCE: LCPA

Figure 5-47 Long-Term Surface Parking Alternatives

Rental Car Facilities

Option A1.1 – Horizontal Structure Expansion

Option A1.1 expands the two elevated parking garage levels horizontally to accommodate more stalls. Each expanded level can accommodate 575 more stalls each. The horizontal expansion also adds additional covered RAC space. Stall tabulation for the RAC facilities is shown in **Table 5-9**. **Figure 5-48** is a rendering of this option.

Table 5-9 RAC Option A1.1 – Stall Tabulation

	Stalls
Ready Return	1,707
QTA Stacking/Storage	1,980
Remote Storage	3,700
Total	7,387



SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

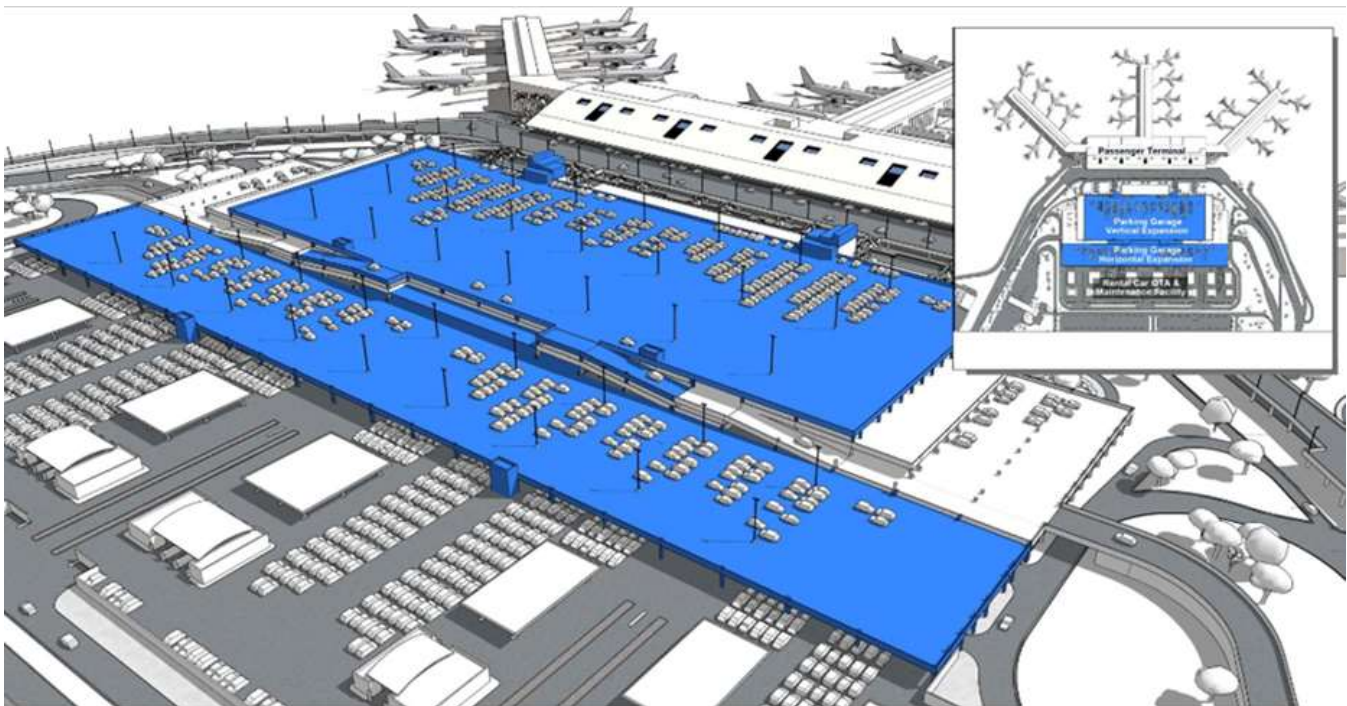
**Figure 5-48 Option A1.1 – View Looking Northwest Horizontal Structure Expansion
No Canopy**

Option A3.1 – Vertical Structure Expansion with Canopy

Option A3.1 expands the parking garage structure vertically one level to accommodate 1,000 more stalls and expands the second level horizontally to accommodate 575 more stalls. The horizontal expansion also adds additional covered RAC space. Stall tabulation for the RAC facilities is shown in **Table 5-10**. **Figure 5-49** is a rendering of this option.

Table 5-10 RAC Option A3.1 – Stall Tabulation

	Stalls
Ready Return	1,707
QTA Stacking/ Storage	1,980
Remote Storage	3,700
Total	7,387



SOURCE: Kimley Horn, Rental Car Facility Sizing Analysis and Expansion Options, August 2019

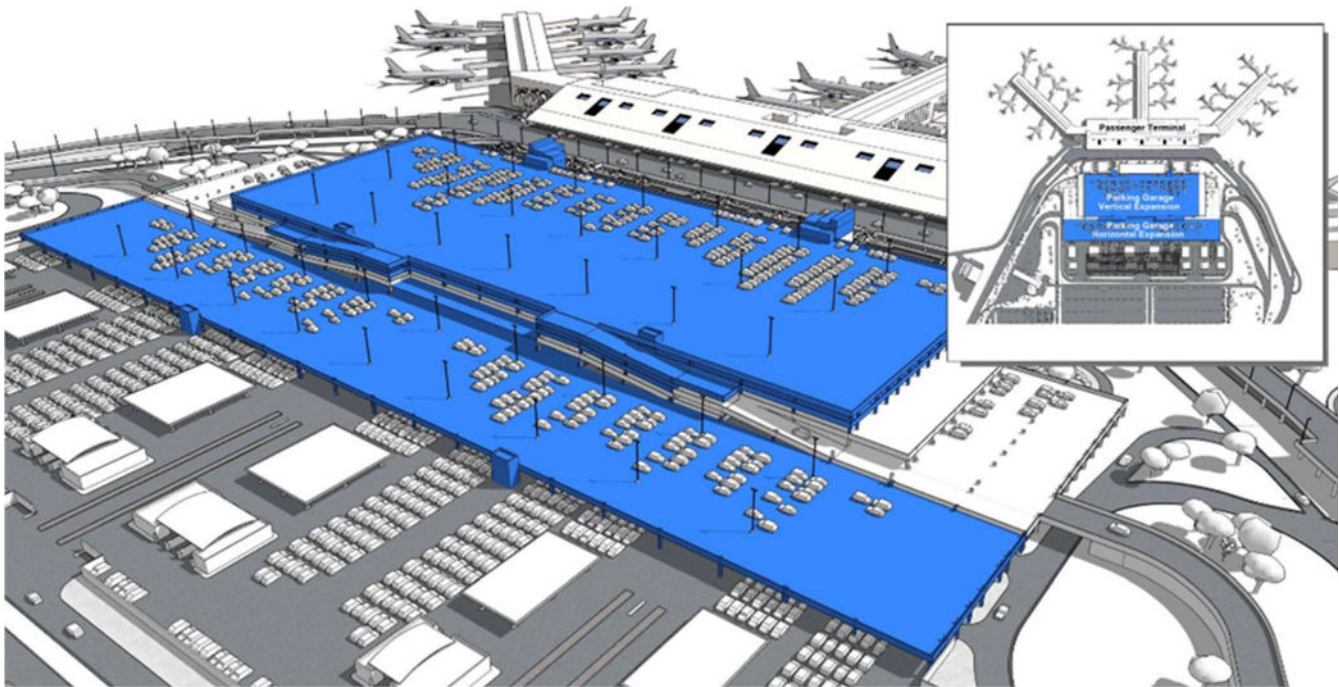
Figure 5-49 Option A3.1 – View Looking Northwest Vertical Structure Expansion (One Level) with Horizontal Parking Canopy

Option A3.2 – Vertical Structure Expansion with Horizontal Parking Canopy

Option A3.1 expands the parking garage structure vertically by two levels to accommodate 2,000 more stalls and expands the second level horizontally to accommodate 575 more stalls. The horizontal expansion also adds additional covered RAC space. Stall tabulation for the RAC facilities is shown in **Table 5-11**. **Figure 5-50** is a rendering of this option.

Table 5-11 RAC Option A3.2 – Stall Tabulation

	Stalls
Ready Return	1,707
QTA Stacking/ Storage	1,980
Remote Storage	3,700
Total	7,387



SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-50 Option A3.2 – View Looking Northwest Vertical Structure Expansion (Two Levels) with Horizontal Parking Canopy

Customer Service Building

The customer service building currently becomes crowded during peak times. To deal with this issue, two alternatives are proposed. Alternative 1 expands the lobby by 20 feet, thus adding 7,200 square feet to the lobby. This allows for more room to customers. Alternative 2 relocates the restrooms and uses the additional space for more counters, allowing the customers to be serviced quicker. These alternatives are shown below in **Figure 5-51** and **Figure 5-52**, respectively.

Ready/Return Expansion/QTA Reconfiguration

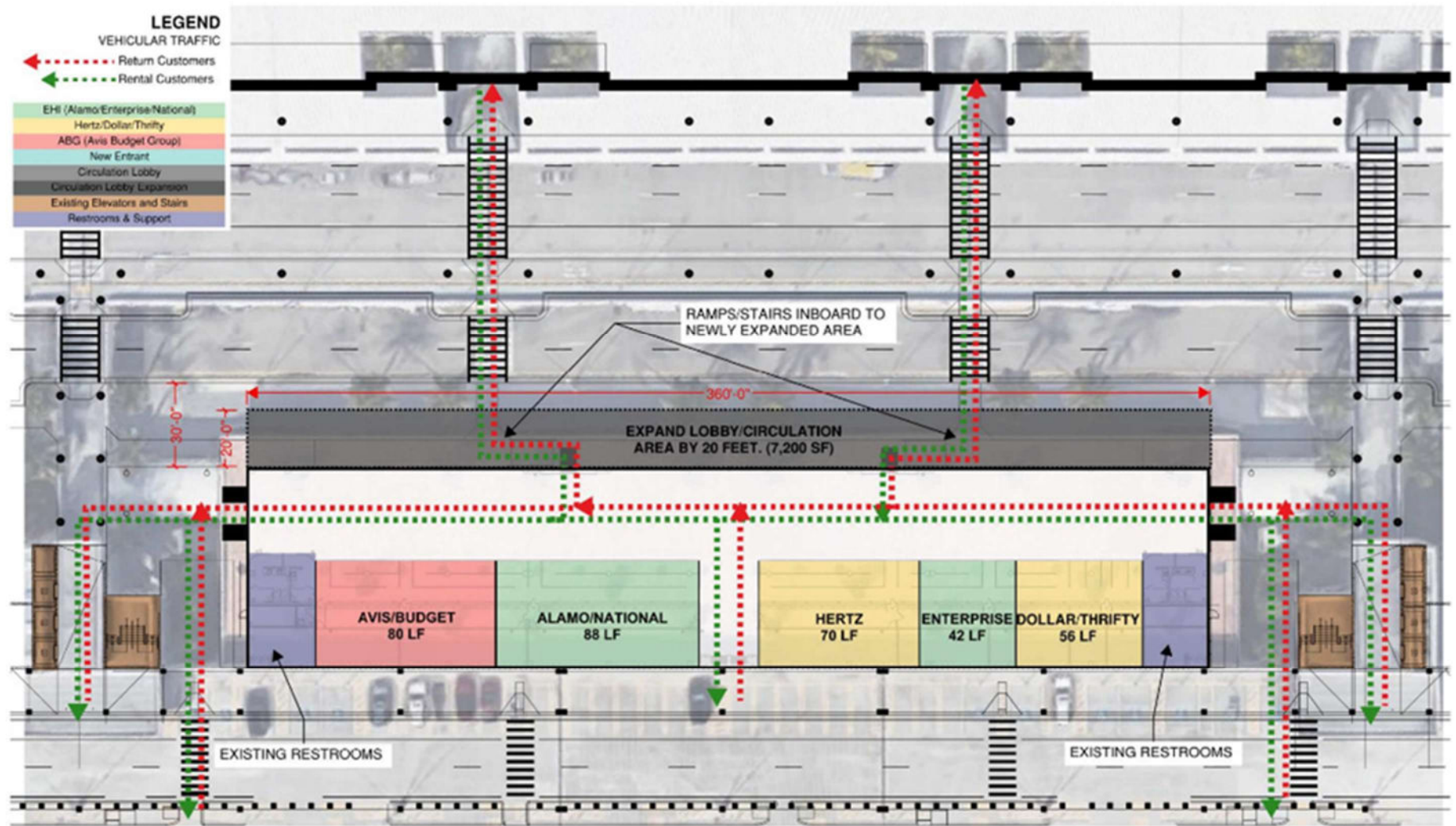
An improvement that can be made to the ready/return facility is to expand its footprint into the QTA area. This will allow the facility to close the gap between the 1,600-stall demand and the 1,200-stall supply.

A parallel improvement that can be made to the QTA facility is to relocate the existing footprint to make room for the ready/return expansion. This relocation will move the footprint into the long-term parking lot, taking 150 public parking spaces. In addition to relocating the QTA facility, it is also recommended that the operations be flipped 180 degrees to optimize the facilities' efficiency. **Figure 5-53** demonstrates the reconfiguration.

Maintenance Facility Options

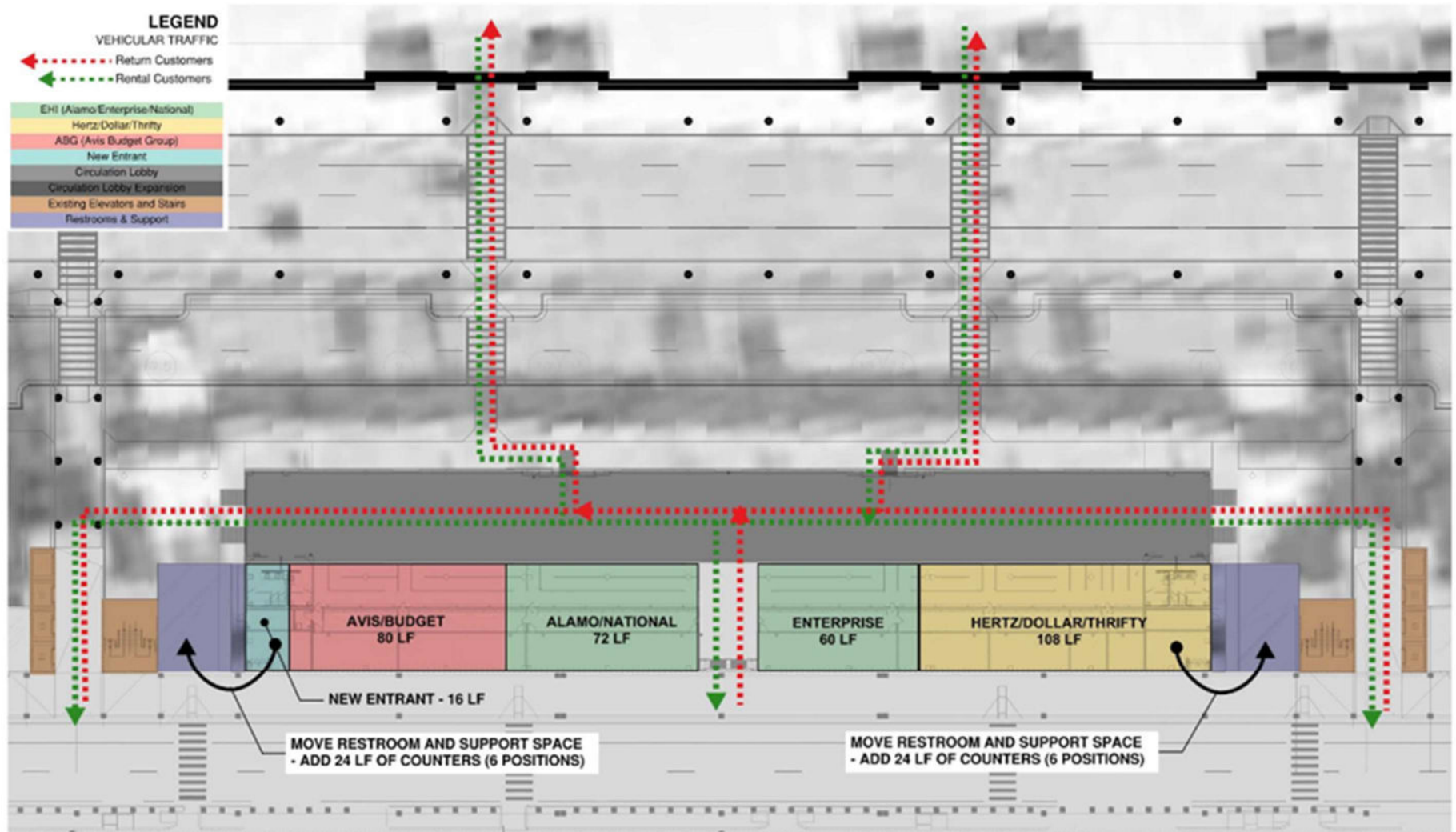
To accommodate the demands of today and to reserve space for future growth, different configuration options of the relocated maintenance facility have been developed. The relocation of which, is shown in **Figure 5-54**. Option 1, shown in **Figure 5-55** is 40 acres and can house up to four rental car agencies with 40 maintenance bays, 20 fueling positions, seven car wash bays, 19,000 square feet of admin space, and +/- 4,800 stalls. Option 2, shown in **Figure 5-56** has similar characteristics except for a slightly less stall capacity at +/- 4,550 stalls.

Option 2 has been identified by the LCPA as the preferred option. It allows for greater airport flexibility for future developments and provides for improved traffic movements. Vehicular ingress/egress of the site occurs off of Air Cargo Lane with this option.



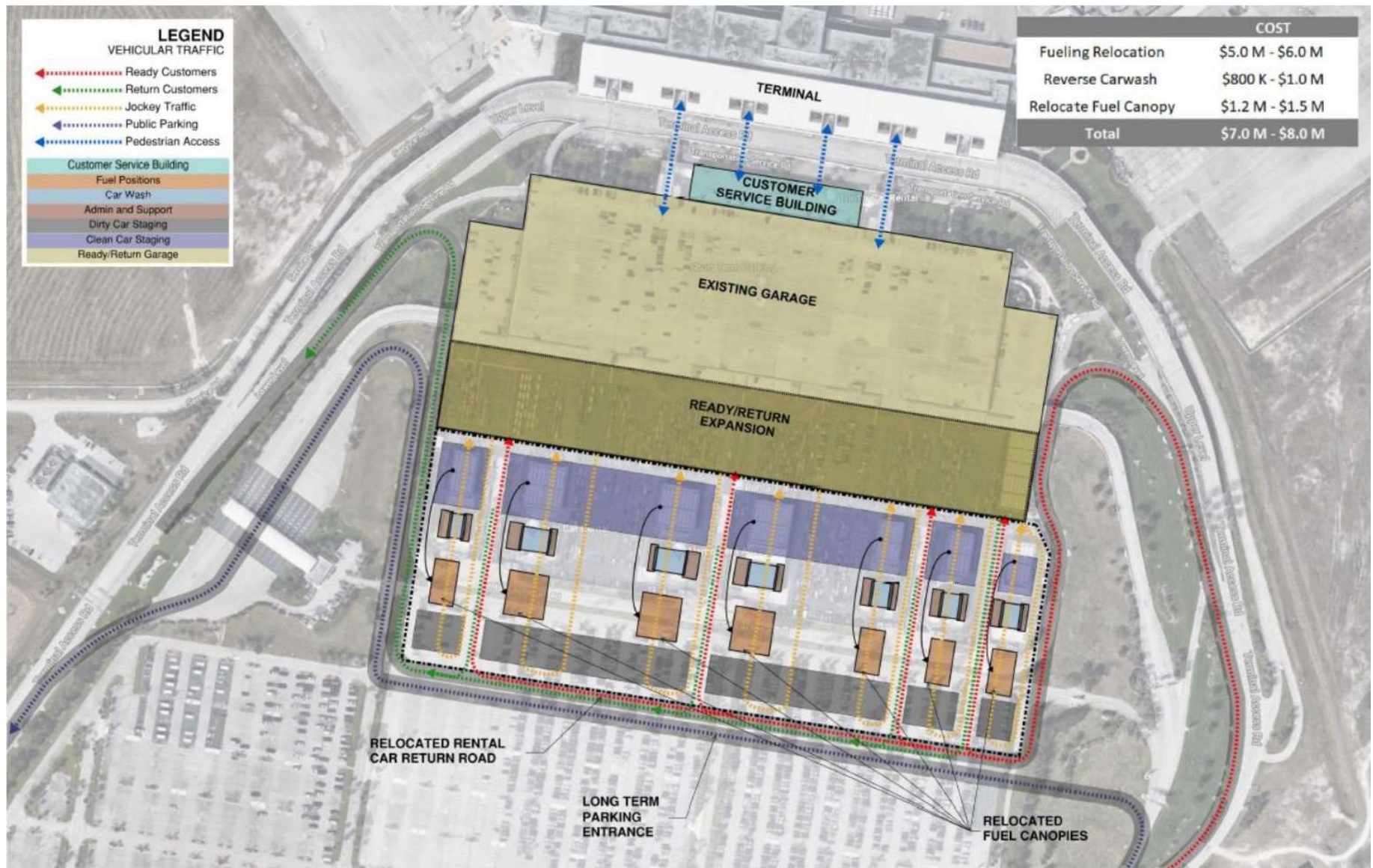
SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-51 CSB Reconfiguration: Expansion Options – Lobby Expansion



SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-52 CSB Reconfiguration: Expansion Options – Counter Expansion



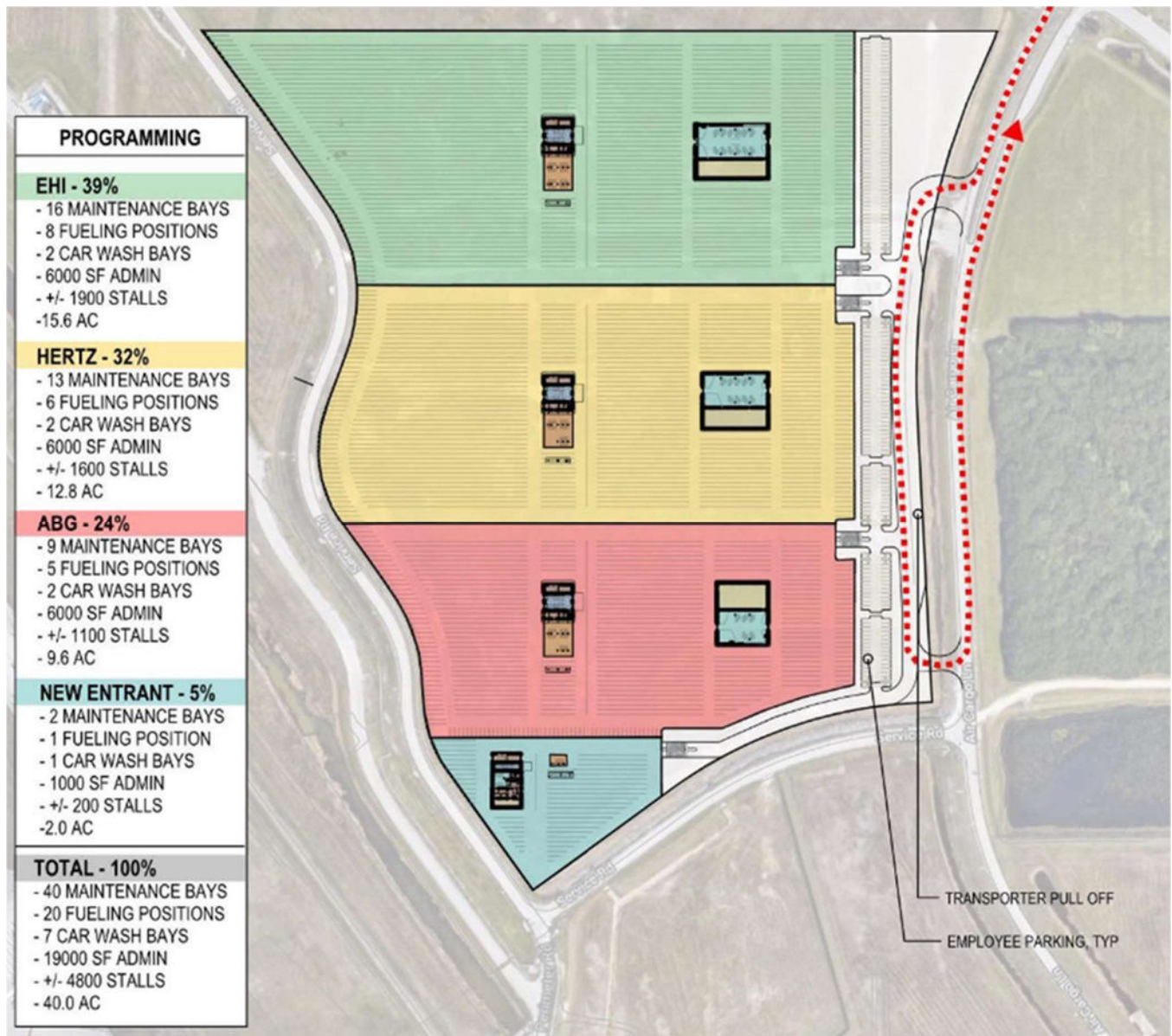
SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-53 QTA Reconfiguration: Relocate Fueling and Stacking



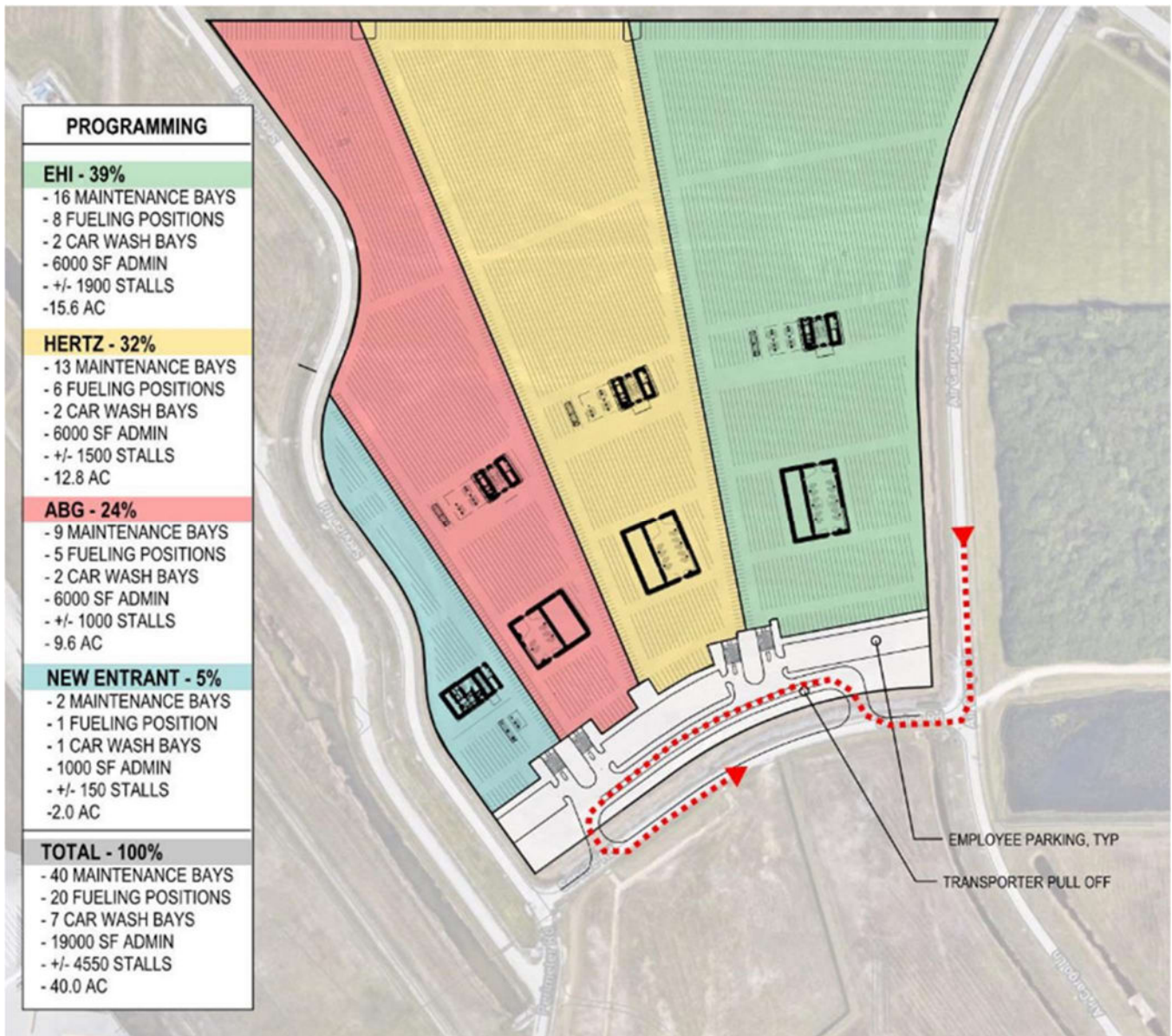
SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-54 Maintenance Facility Relocation Area



SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-55 Maintenance Facility Option 1



SOURCE: Kimley Horn, *Rental Car Facility Sizing Analysis and Expansion Options*, August 2019

Figure 5-56 Maintenance Facility Option 2

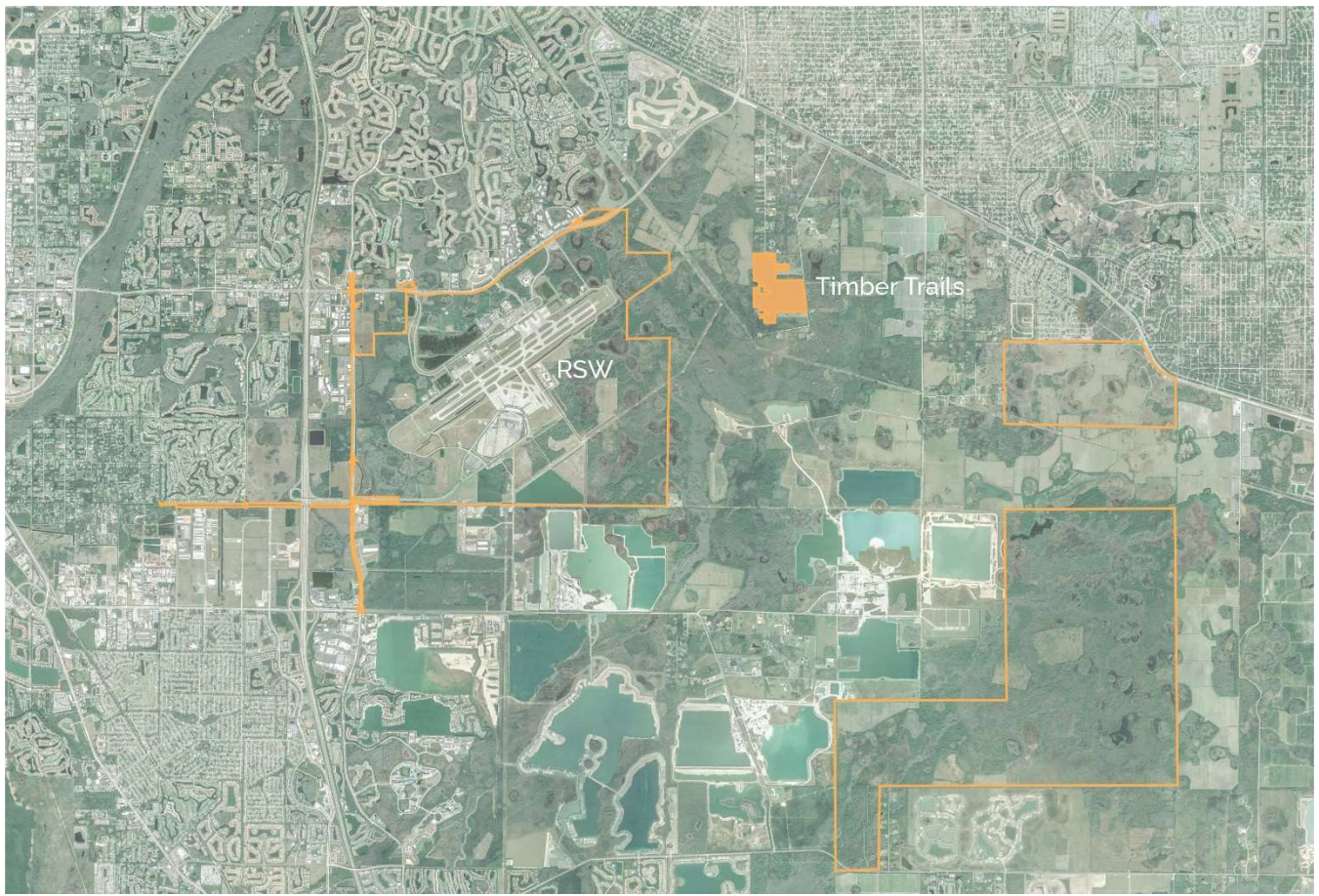
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5.5 Non-Aviation Lands and Future Areas

The LCPA has an opportunity to diversify its airport revenues by designating land to meet the area's non-aviation development demand. To the north of Runway 6-24 is an area with opportunity to fulfill these needs, commonly referred to as Skyplex. Two additional areas (in the Midfield and in the southeast quadrant of the airport) have also been identified for this purpose. These areas have significance to operation of the airport because both the Aviation and Non-Aviation use of airport lands provide long-term revenue opportunities that will help offset the costs of RSW airline business partners and the LCPA's dependency on grants.

Skyplex features both Aviation and Non-Aviation related land uses. The Aviation related land uses are located south of Chamberlin Parkway directly adjacent to Runway 6-24 and are described herein as the North Area Plan of Skyplex. The lands of Skyplex planned for Non-Aviation uses will develop over time subject to local comprehensive plan and zoning regulations. The timing (short-term, long-term, or ultimate) of the development of Skyplex is uncertain at this time. The Non-Aviation Skyplex development areas are expected to take decades and will be greatly dependent on market conditions, the economy, surrounding developments, the Southwest Florida real estate market, and a number of other variables. Development could occur by single land leases or by a grouping of development opportunities into a larger lease agreement. Even though the ideal development of the Skyplex area would focus on high-end corporate offices, it may also include a small entertainment/retail area, as well as some industrial/warehouse areas. The timing and specifics of the actual development that is anticipated to occur over the next 30+ years is unknown at this time. Therefore, this area is shown on the Airport Layout Plan as "Non-Aviation Support." Individual developments for the Skyplex area, the Midfield non-aviation designated area, and the future development area in the southeast quadrant of the airport will continue to be analyzed (i.e., compatibility, airport revenues, airspace, environmental, etc.) and addressed if and when development is proposed to occur.

The 2004 Master Plan Update recommended the acquisition of lands known as the "Timber Trails". The purpose of the acquisition was to ensure compatible land-use with airport activity from a safety and noise perspective. The "Timber Trails" lands were then acquired by the LCPA (Figure 5-57). Based on the existing and potential future noise contour maps as well as the proposed layout of the future parallel runway, there will be no parts of the Timber Trails that will be incompatible with airport use based on existing zoning for that area. No areas within the Timber Trails will require noise mitigation or aviation easements. It is proposed, consistent with FAA policy, to dispose of the Timber Trail lands.



SOURCE: LCPA, December 2021

Figure 5-57 Timber Trails