FORT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
BROWARD COUNTY, FLORIDA

Technical Advisory Committee (TAC)
Briefing #2
July 10, 2017

(PRELIMINARY DRAFT) WORK IN PROGRESS - FOR DISCUSSION PURPOSES ONLY

BROWARD COUNTY FLORIDA

TAC Committee

Role:

To provide input on the master planning analysis from the technical and operational perspectives.

Agenda

- Master Plan Process
  - Introduction
  - Goals and Objectives
  - Sequence of Study Tasks; Key Questions Addressed by the Master Planning Process
- Baseline Conditions / Today's Environment
- Aviation Activity Forecasts
- Capacity & Operational Conditions
  - Airfield
  - Gates & Terminal Facilities
  - Landside
  - Cargo and General Aviation
- Short-Term Improvements
  - Landside
  - Terminal
- Master Plan Concepts for Serving Demand through 2035
  - Terminal
  - Landside
- Ongoing Analyses and Next Steps

Master Plan Process

Introduction, Goals, and Sequence of Study Tasks

Introduction

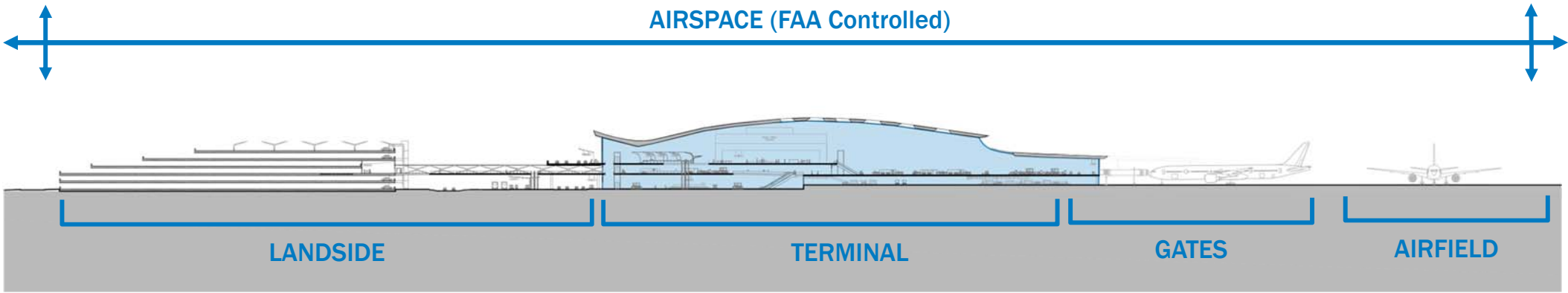
- "An airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet future aviation demand." – *FAA Advisory Circular 150/5070 – 6B Airport Master Plans*
- Plans focus on addressing long-term (20+ years) needs by establishing a *roadmap* for incremental development to meet future demand
- Planning methods vary depending on the size and complexity of the airport but include the following key elements: inventory of existing conditions forecasting, demand/capacity, alternatives, environmental/sustainability and financial
- Other considerations may include the highest and best use of existing infrastructure given long term development plans

FLL Master Plan Goals and Objectives

- BALANCE – Airfield/Terminal/Landside/Airspace
- RESPOND – to Immediate and Near Term Needs
- POSITION – for Future Growth and New Opportunities
- ENHANCE – Customer Experience and Connectivity
- OPTIMIZE –Land Assets and Recent Investments
- PRESERVE – FLL's Identity and Strengths
  - Broward County's Asset
  - Economic Engine
  - Easy In, Easy Out
  - Low Cost, High Efficiency

Master Planning Goal: Landside/Terminal/Gates/Airfield & Airspace Balance

Representative Airport Layout



Sequence of Master Planning Tasks

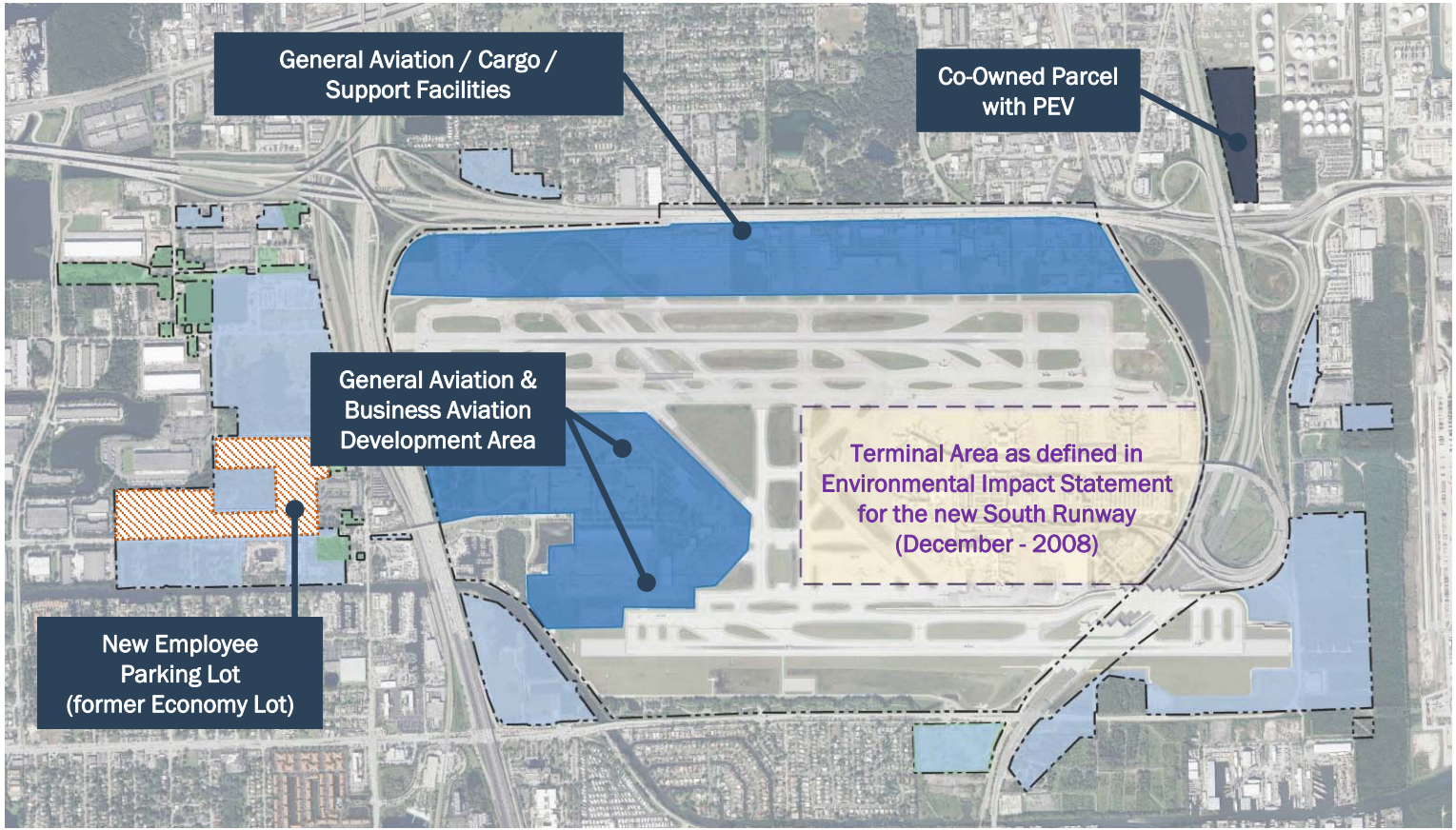
PUBLIC INVOLVEMENT

INVENTORY	COMPLETE	What are FLL's current facilities and infrastructure assets? What are the existing conditions?
FORECASTS	COMPLETE	What is the projected future growth for FLL's traffic and activity levels?
FAA APPROVAL ☑	January 13, 2017	
DEMAND/CAPACITY & REQUIREMENTS	MAY 2017 – JUNE 2017	How much capacity does FLL have? Are there capacity gaps in the future?
ALTERNATIVES ANALYSIS	JULY 2017 – AUG 2017	How should the capacity gaps be addressed? How can the Airport be improved?
MARKET ASSESSMENT	OCT 2017 – NOV 2017	What is the market potential for parcels not needed for aviation purposes?
ENVIRONMENTAL & SUSTAINABILITY	DEC 2017 – JAN 2018	Environmental implications of the proposed improvements?
CAPITAL IMPROVEMENT PROGRAM	DEC 2017 – JAN 2018	What projects are needed to fulfill FLL's future needs?
FINANCIAL FEASIBILITY	MAY 2018 – JUNE 2018	Is the proposed Capital Improvement Program affordable?
AIRPORT LAYOUT PLAN & AIRPORT GIS	JUNE 2018 – SEP 2018	What is the future vision for FLL based on the Master Plan recommendations?
FAA APPROVAL ☐	TBD	
FINAL REPORT	SEPT 2018 – DEC 2018	Successful Completion of the Master Planning Process

Baseline Conditions / Today's Environment

Baseline Conditions assume completion of the current Capital Improvement Program between now and early 2020

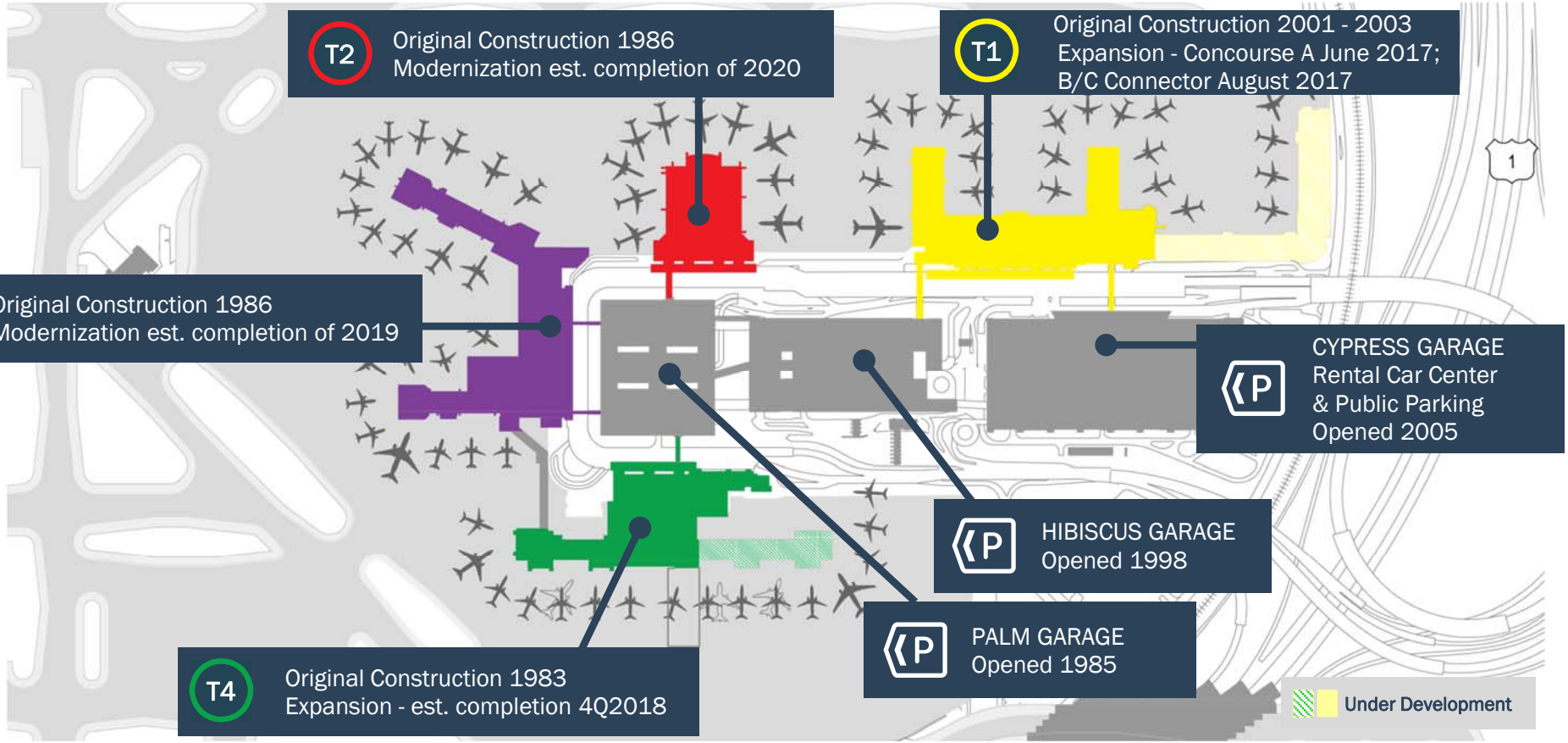
FLL Baseline Conditions – Land Assets & General Uses



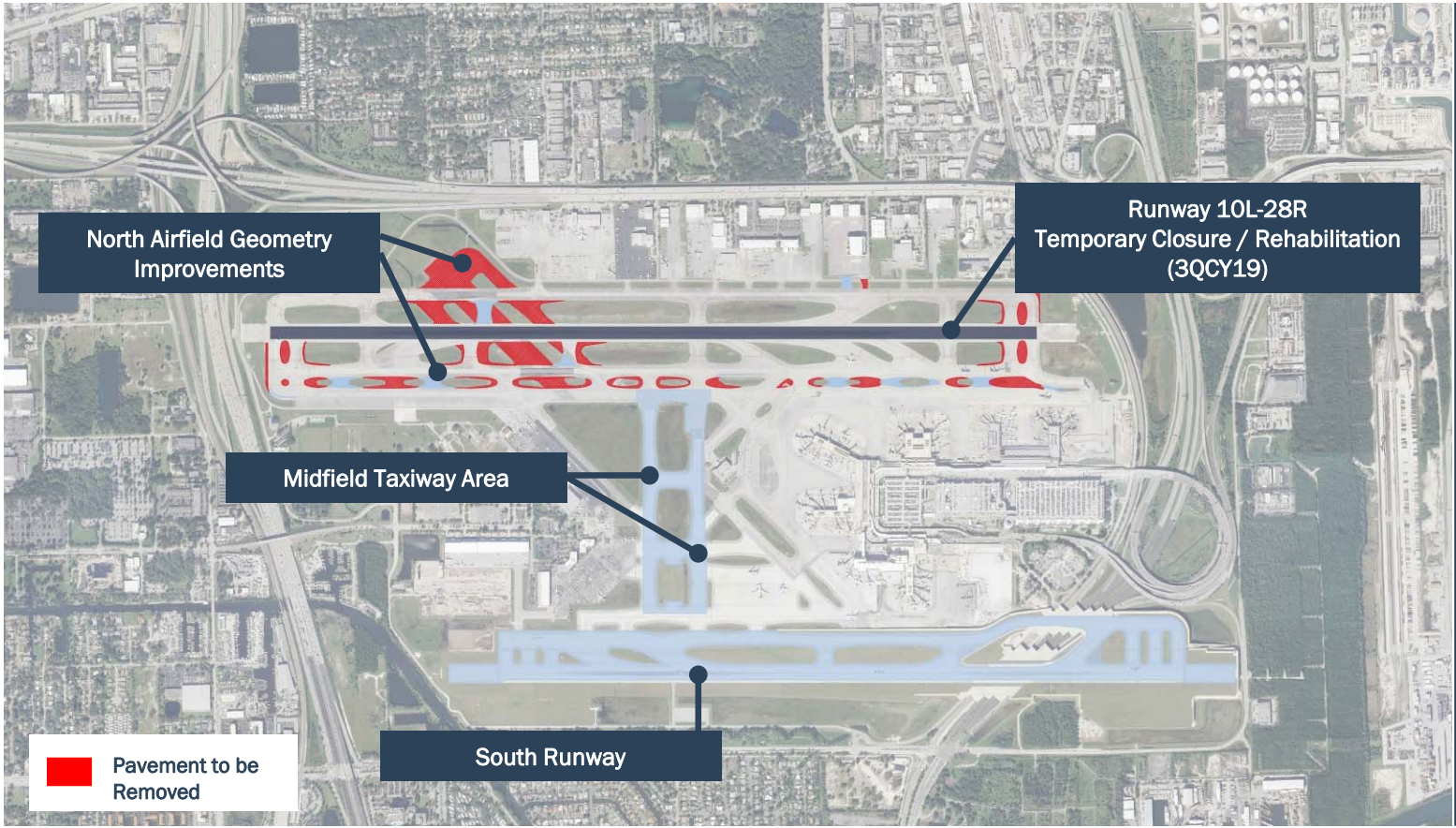
Legend:

- Airport Owned Property with limited/restricted development opportunity
- On-Airport Parcels serving Aviation Uses
- Co-Owned Airport Parcel with Development Opportunity
- New Employee Parking Lot (Former Economy Lot)
- Parcels subject to sale or transfer per interlocal agreements

FLL Baseline Conditions - Terminal Area



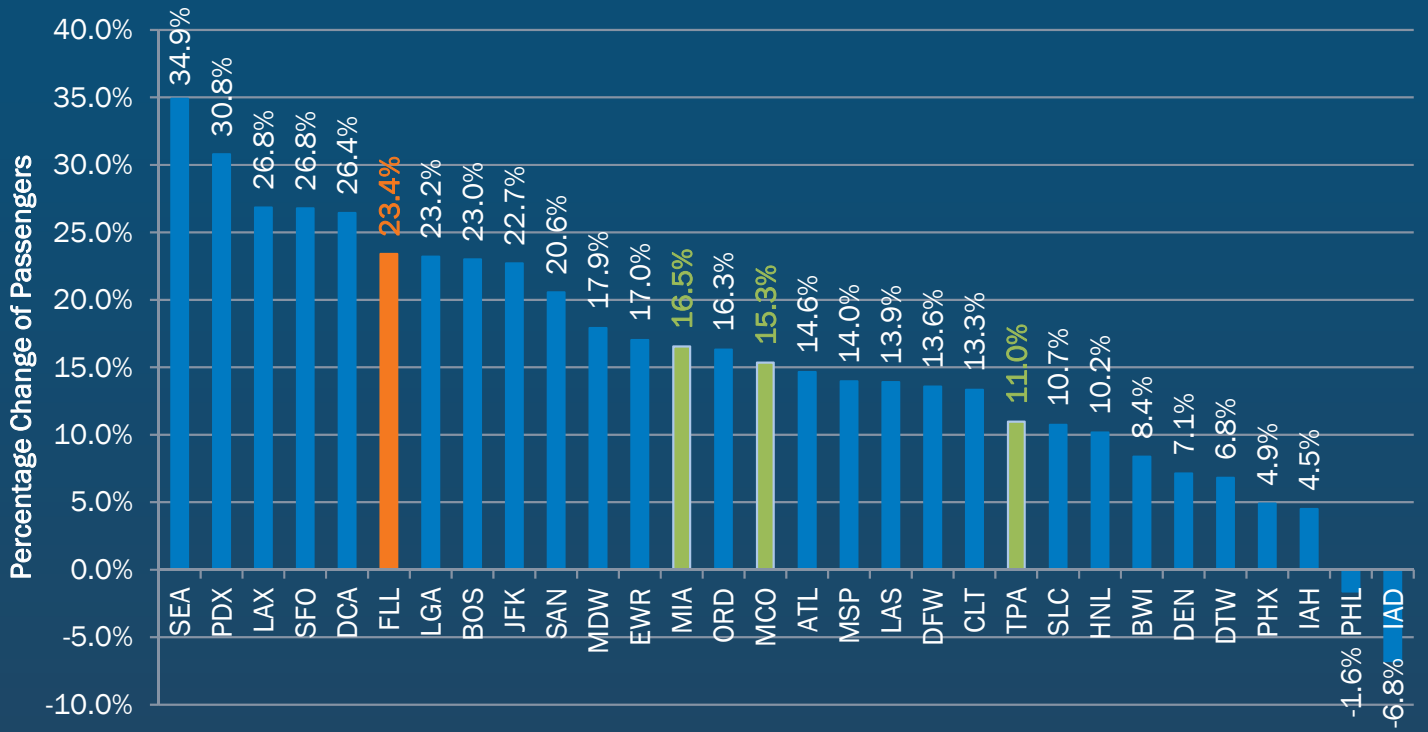
FLL Baseline Conditions – Airfield Improvements



Baseline Conditions assume:

1) Runway 10L-28R improvements included as part of the North Airfield Pavement Geometry Evaluation

FLL Baseline Conditions
Passenger Growth FY11 – FY16



NOTES: Data represents total passengers (enplaned & deplaned) at the U.S. Large Hub Airports.

SOURCES: Broward County Aviation Department; US DOT T100; Ricondo & Associates, Inc.

FLL Baseline Conditions
Growth Since Completion of South Runway Program (Sept. 2014)

		Total Passengers	Total Operations
Fiscal Year 2015	FLL	10%	8%
	Combined Average Growth of All other Large Hubs	4.5%	0.5%
Fiscal Year 2016	FLL	9%	5%
	Combined Average Growth of All other Large Hubs	4.3%	1.6%

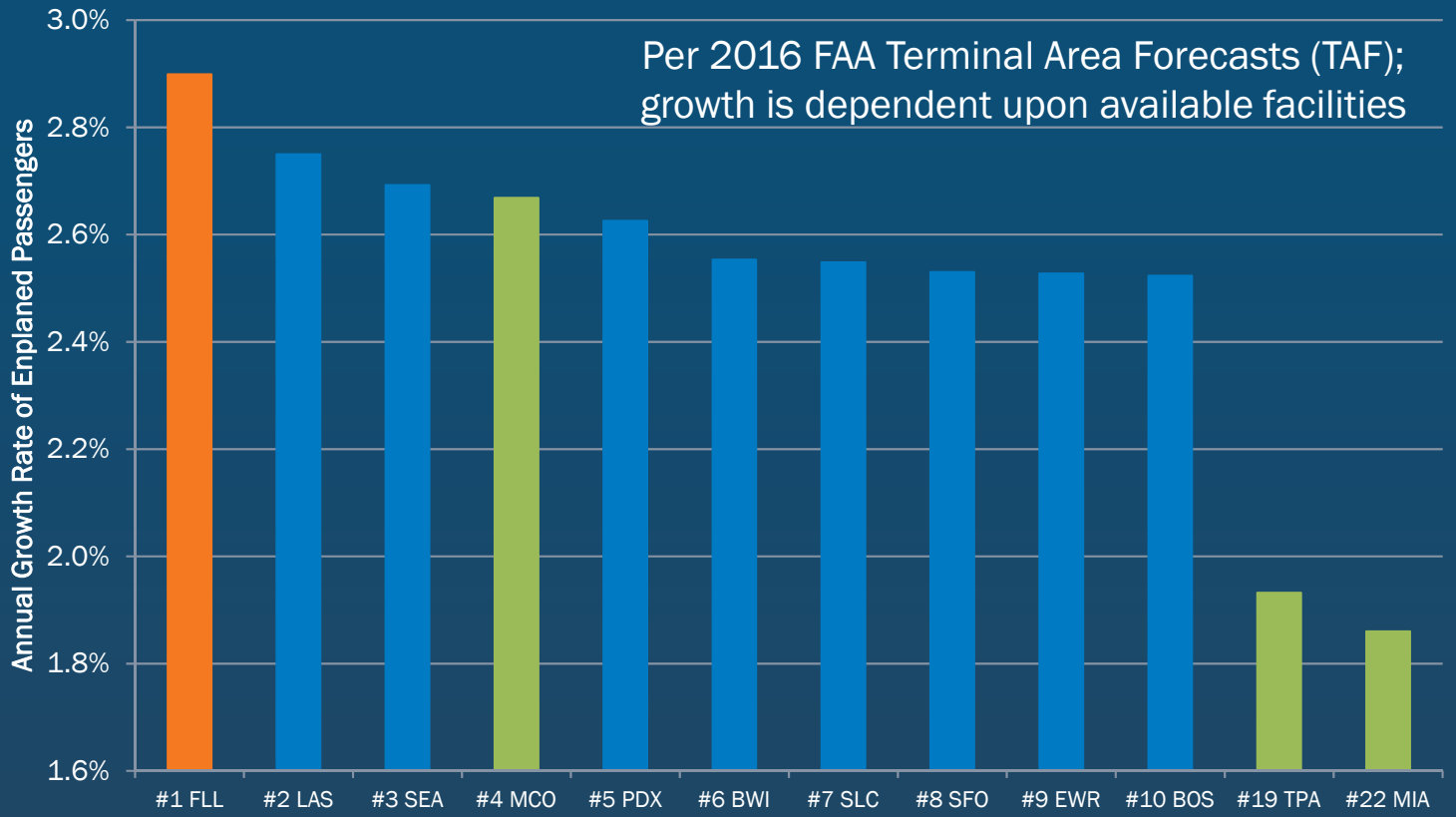
Fiscal Year (FY) represents October 1st – September 30th

Aviation Activity Forecasts

Approved by FAA: January 13, 2017

Activity Forecasts

Projected Growth – FY2016 - 2035

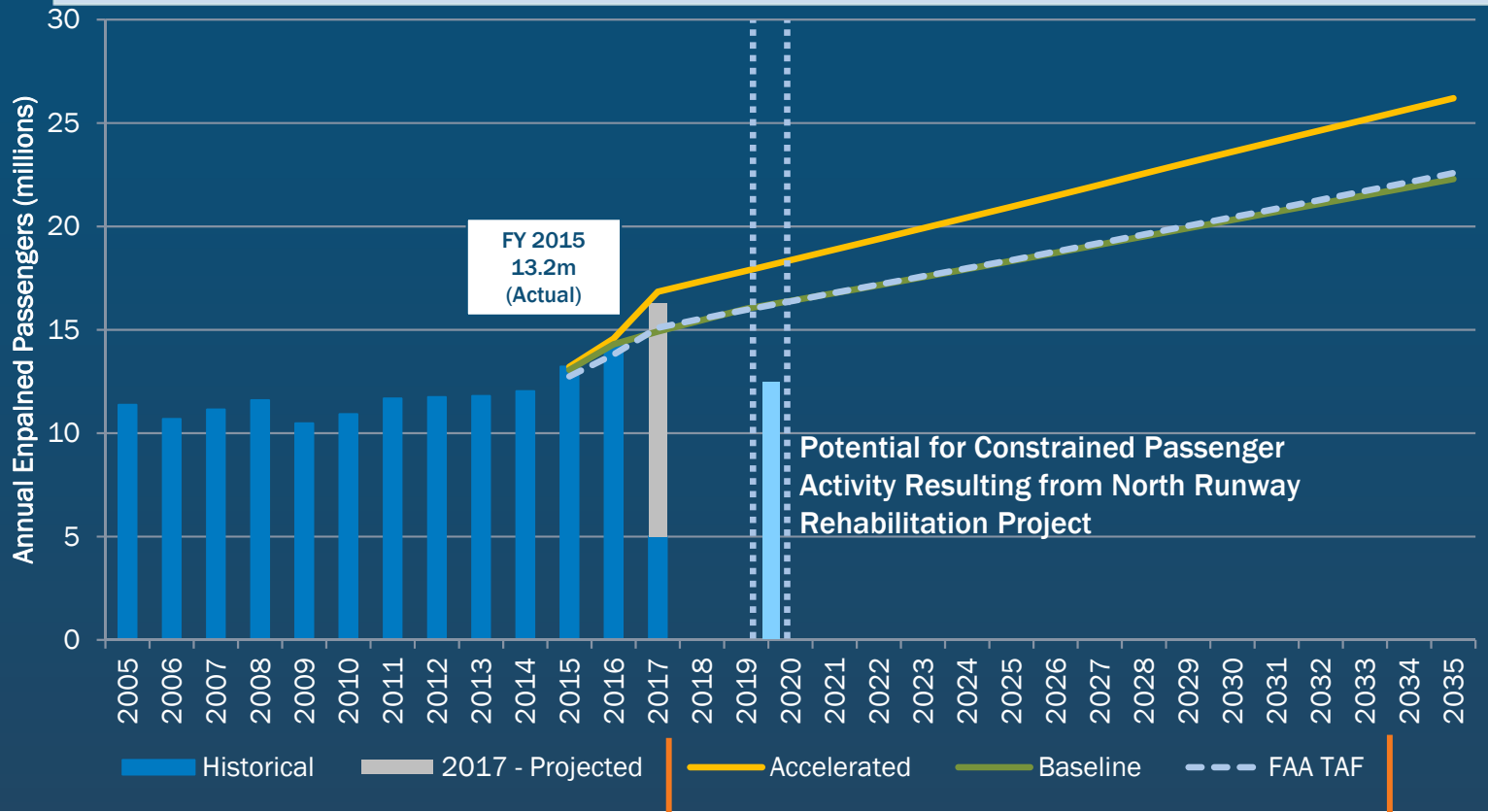


NOTES: Data represents revenue enplaned passengers at U.S. Large Hub Airports and is sorted (largest to smallest) based on compound annual growth rates for the period noted. The top 10 airports (as well as MIA and TPA) are shown.

SOURCES: Federal Aviation Administration, 2016 Terminal Area Forecast, Published January 2017; Ricondo & Associates, Inc.

Activity Forecasts – Enplaned Passengers
Baseline, Accelerated Baseline, and FAA 2016 TAF

NOTE: Accelerated growth is dependent upon available facilities (specifically gates).



Accelerated
26.2 m
3.5% CAGR

Baseline
22.3m
2.7% CAGR

FAA 2016 TAF
22.6m
2.9% CAGR

NOTES: CAGR = Compound Annual Growth Rate. Total passengers equals two times enplaned passengers. FY 2017 is based on four months of actual data and eight months of projected data.

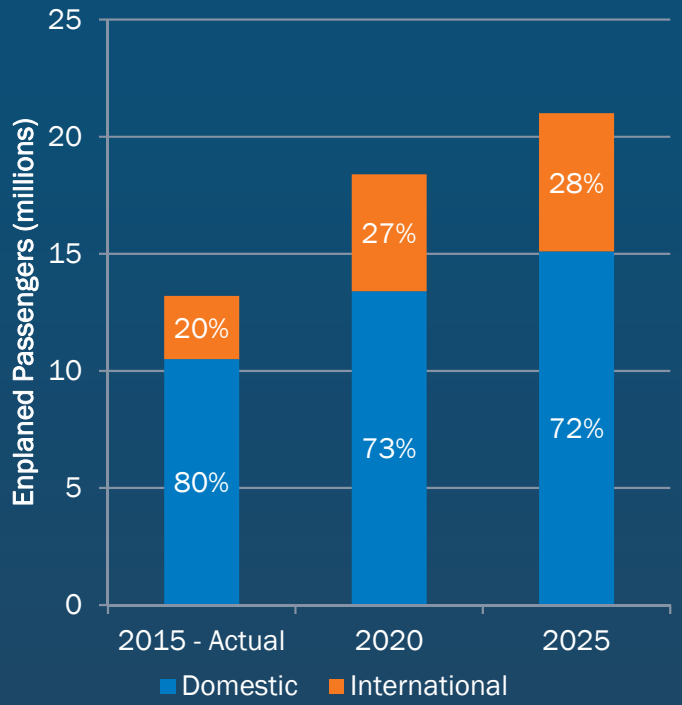
Baseline forecasts estimate future airport activity predominantly based on trend analysis of historical activity, consideration of FLL's existing share of South Florida's demand for air service, socioeconomic data, and local/national trends.

The Accelerated Baseline forecasts reflect higher growth at the Airport, particularly in the short-term based on discussions with several airlines operating at FLL regarding their growth plans, and the potential for FLL securing a larger share of South Florida's demand for air service.

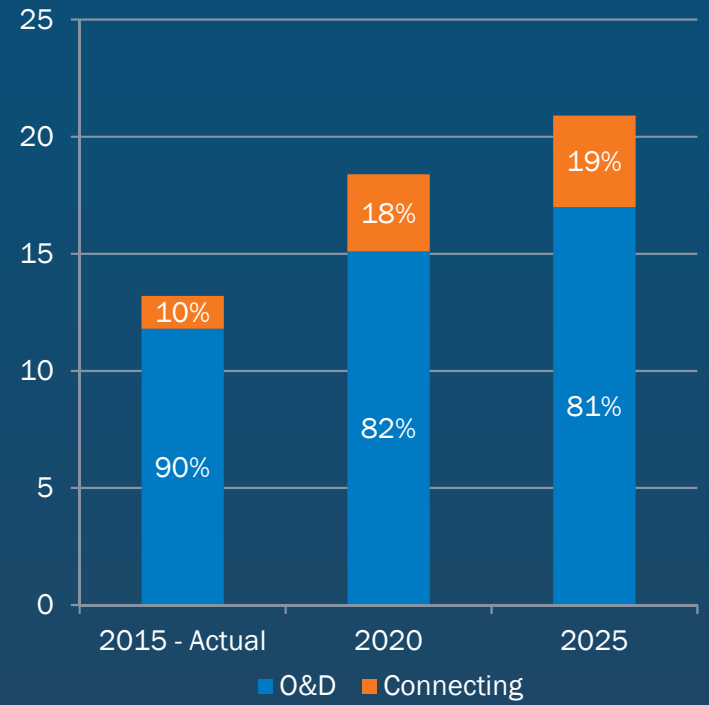
SOURCES: Broward County Aviation Department (Historical); US DOT T100; Innovata; FAA Terminal Area Forecasts; Ricondo & Associates, Inc.

Activity Forecasts – Changing Passenger Demographic

Domestic vs. International



Originating vs. Connecting

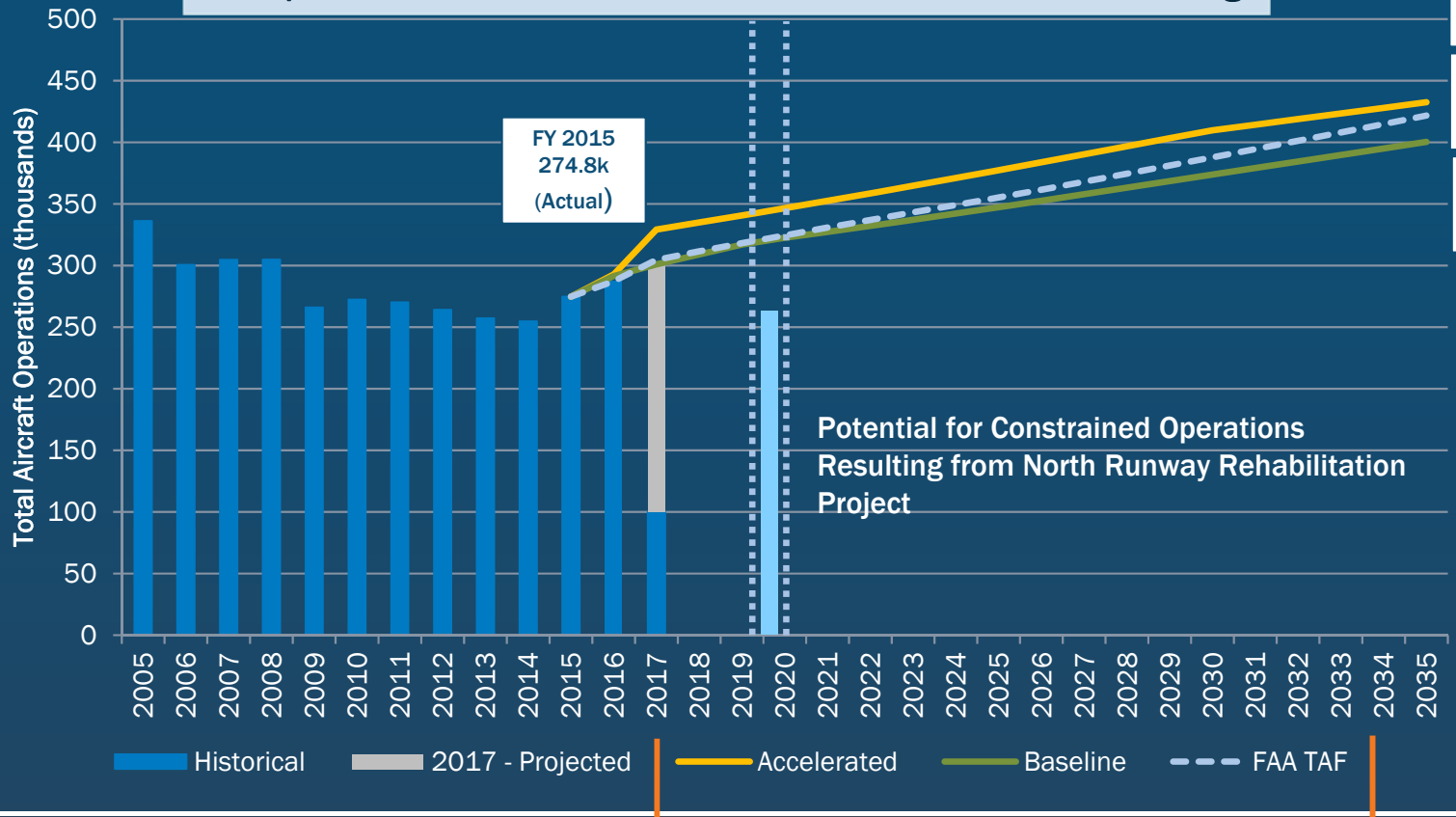


NOTE: Percentages for 2015 represent actual data.

SOURCES: Broward County Aviation Department (historical); Innovata; US DOT O&D Survey (DB1B); Ricondo & Associates, Inc.

Activity Forecasts
Aircraft Operations - As Approved by FAA on January 13, 2017

An operation is defined as either an aircraft takeoff or landing



Accelerated
432.6k
2.3% CAGR

FAA 2016 TAF
421.8k
2.2% CAGR

Baseline
400.3k
1.9% CAGR

NOTES: CAGR = Compound Annual Growth Rate. FY 2017 is based on four months of actual data and eight months of projected data.

Baseline forecasts estimate future airport activity predominantly based on trend analysis of historical activity, consideration of FLL's existing share of South Florida's demand for air service, socioeconomic data, and local/national trends.

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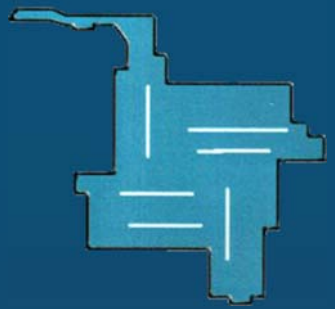
SOURCES: Broward County Aviation Department (historical); Innovata; FAA Air Traffic Activity Systems; FAA Terminal Area Forecasts; Ricondo & Associates, Inc.

Capacity & Operational Conditions

Airfield, Terminal and Landside Systems

Airfield

FLL operates on a very small footprint compared to other large hubs



DEN 33,920 acres
566,035 operations
17 operations per acre

DFW 18,076 acres
676,890 operations
37 operations per acre

IAH 10,000 acres
479,778 operations
48 operations per acre

ORD 7,700 acres
872,332 operations
113 operations per acre

ATL 4,700 acres
899,040 operations
191 operations per acre

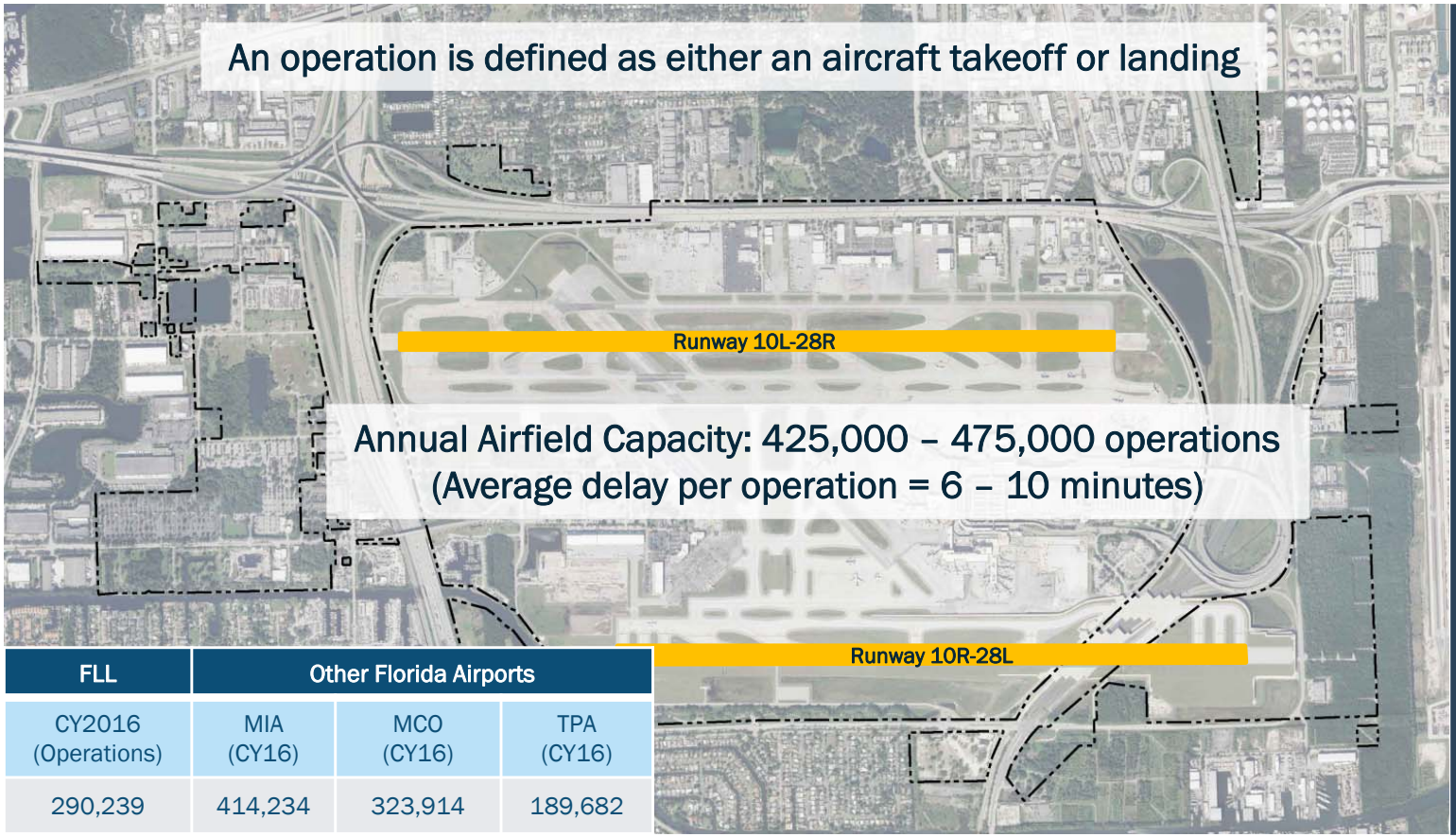
LAX 3,586 acres
685,889 operations
191 operations per acre

LAS 2,853 acres
532,979 operations
187 operations per acre

FLL 1,400 acres
287,264 operations
205 operations per acre

SOURCES: FAA Air Traffic Activity System (ATADS), FFY2016 Operations Data

Airfield Capacity Review



FLL	Other Florida Airports		
CY2016 (Operations)	MIA (CY16)	MCO (CY16)	TPA (CY16)
290,239	414,234	323,914	189,682

Future Demand

10-year baseline demand (Projected 2025 per forecast):

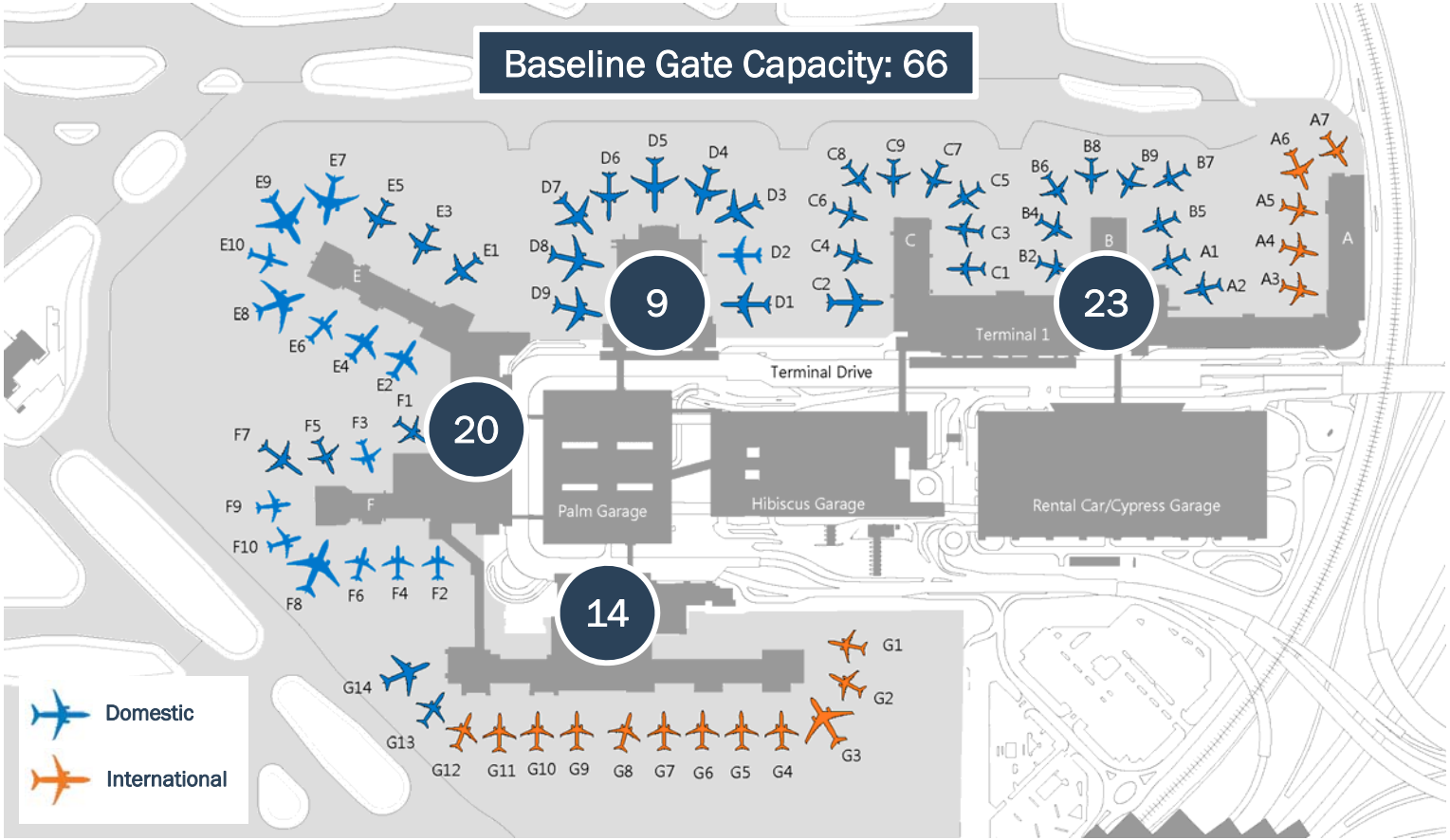
- 347,000 annual operations

20-year baseline demand (Projected 2035 per forecast):

- 400,000 annual operations
- An airfield is considered to be reaching its capacity when the average annual delay per operation reaches 6-10 minutes

Gates & Terminal Facilities

Gate Capacity & Future Needs



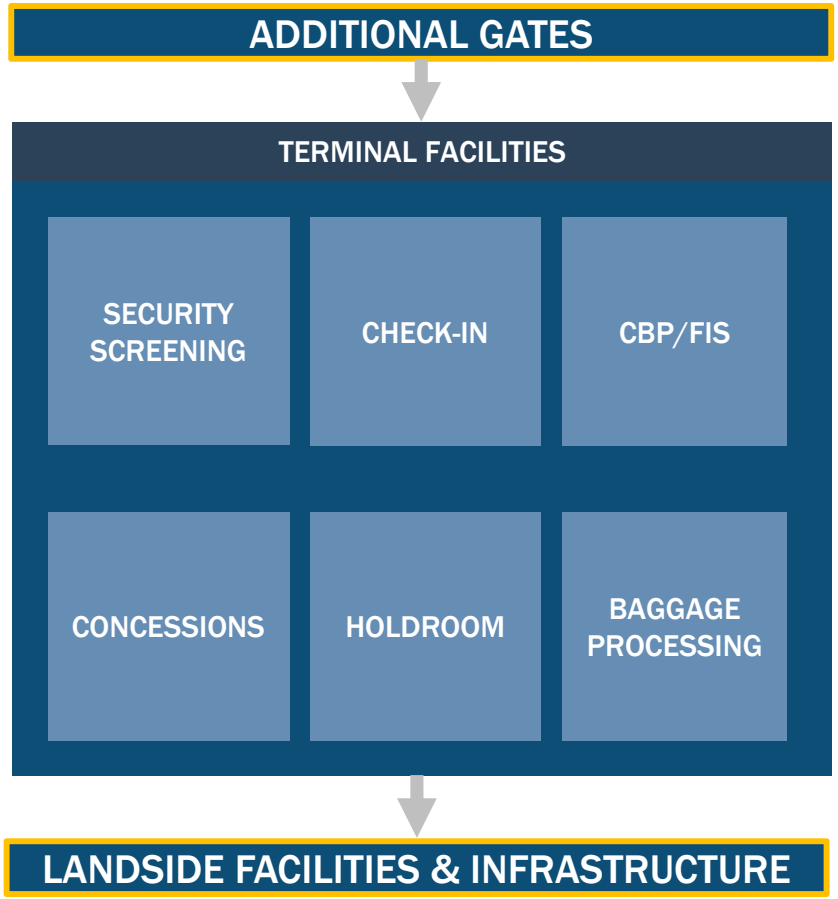
FY2016: 28.7 MAP
CY2016: 29.2 MAP

Future gate requirements:

- 37 MAP (On or before 2020)
  - 70 - 72 gates
- 42 MAP (On or before 2025)
  - 75 – 77 gates
- 53 MAP (On or before 2035)
  - 83 – 85 gates

Notes:
MAP: Million Annual Passengers

New Gates Require Terminal Processing Support Functions



Summary of Terminal Requirements

	Units	Terminal 1 Requirements 2025[1/]	Terminal 1 Requirements 2035[2/]	Terminal 2 Requirements 2025[1/]	Terminal 2 Requirements 2035[2/]	Terminal 3 Requirements 2025[1/]	Terminal 3 Requirements 2035[2/]	Terminal 4 Requirements 2025[1/]	Terminal 4 Requirements 2035[2/]
Check-In									
In Line Bag Drop Positions	positions	31	35	10	12	24	28	30	38
Lobby Depth		56'	56'	56'	56'	56'	56'	56'	56'
Screening Checkpoint									
Total Lanes	lanes	9	10	4	5	8	9	6	9
Holdrooms									
Total Area	sq ft	66,444	71,796	28,360	28,519	63,875	83,068	59,724	74,560
Outbound Make-up									
Peak Carts Staged in Make-up by Airline	carts	133	146	38	45	92	100	85	112
Domestic Bag Claim									
Claim Devices	devices	6	6	3	3	4	5	6	6
EDS									
TSA Baggage Screening	units	4	5	2	3	3	4	3	3
CBP FIS									
APC Kiosks	kiosks	22	26	-	-	-	-	34	44
APC Queue Area	sq ft	4,070	4,785	-	-	-	-	6,325	8,140
Bag Claim Active Capacity (sq ft)	sq ft	5,430	7,740	-	-	-	-	9,560	13,210
Officer Inspection	positions	18	20	-	-	-	-	23	28
Officer Inspection Queue Area	sq ft	2,370	2,610	-	-	-	-	3,680	4,480

Notes:

Green shading: indicates baseline inventory/adjusted capacity (check-in) exceeds requirements,

Red shading: indicates requirements exceed baseline inventory/adjusted capacity (check-in)

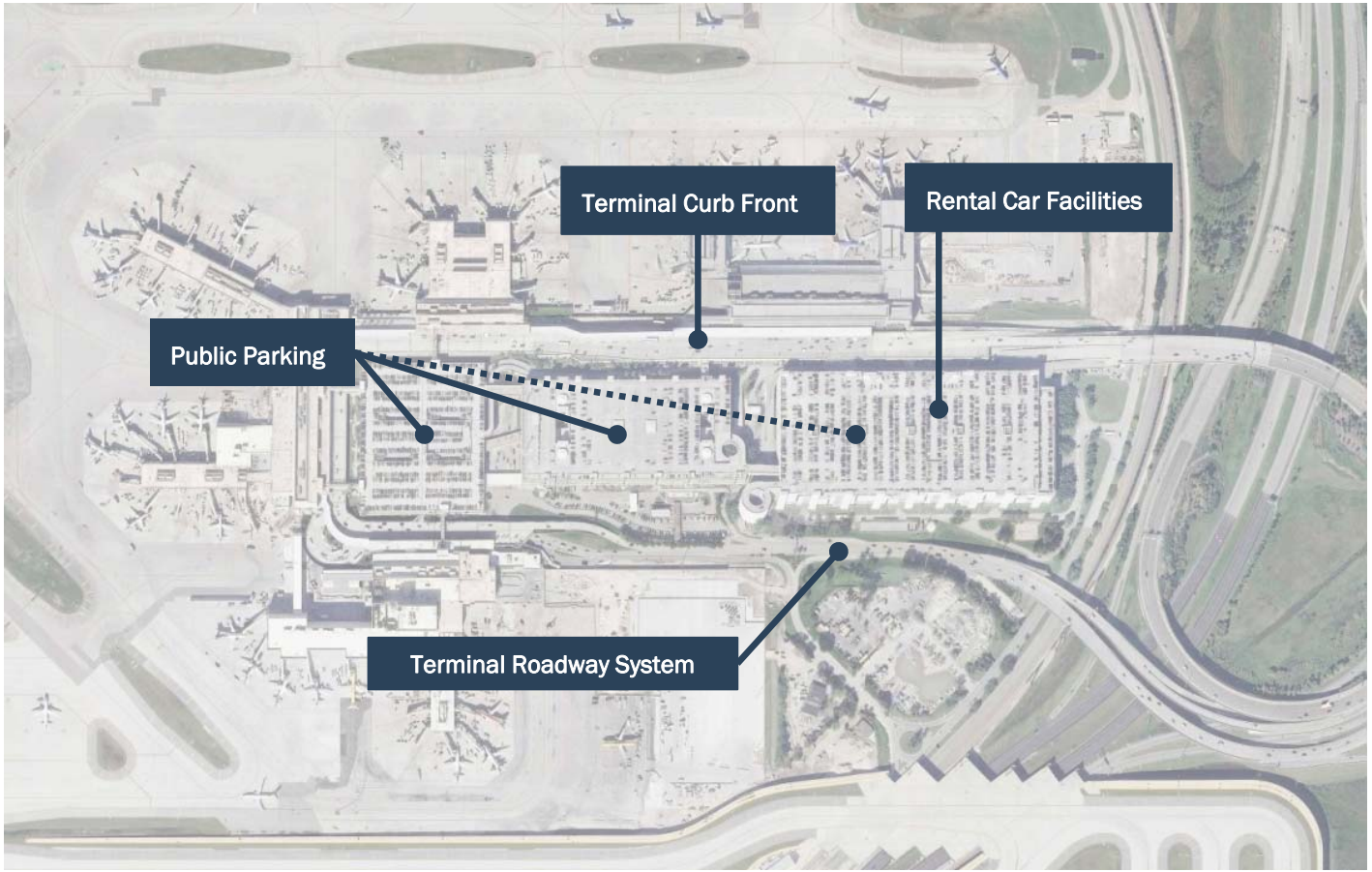
Yellow shading: indicates requirements are approaching capacity or could be met with little investment

Planning Activity Levels = Million Annual Passengers (MAP):

- 1/ 42 MAP (On or before 2025)
- 2/ 53 MAP (On or before 2035)

Landside

Landside Facilities & Infrastructure



Terminal Curbfront

Level of Service (LOS) Characteristics (Illustrative)

Free flow – no interference

Relatively free flow – some double parking

Double & sometimes triple parking – Planning Conditions

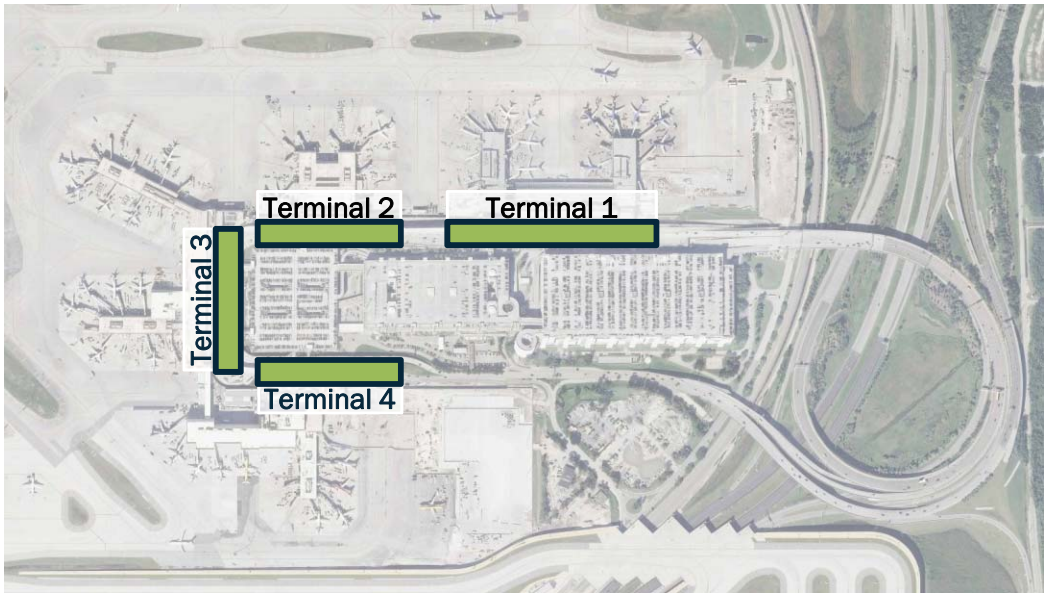
Triple parking – Through lanes capacity impacted/reduced

Gridlock – Consistent congestion & delay

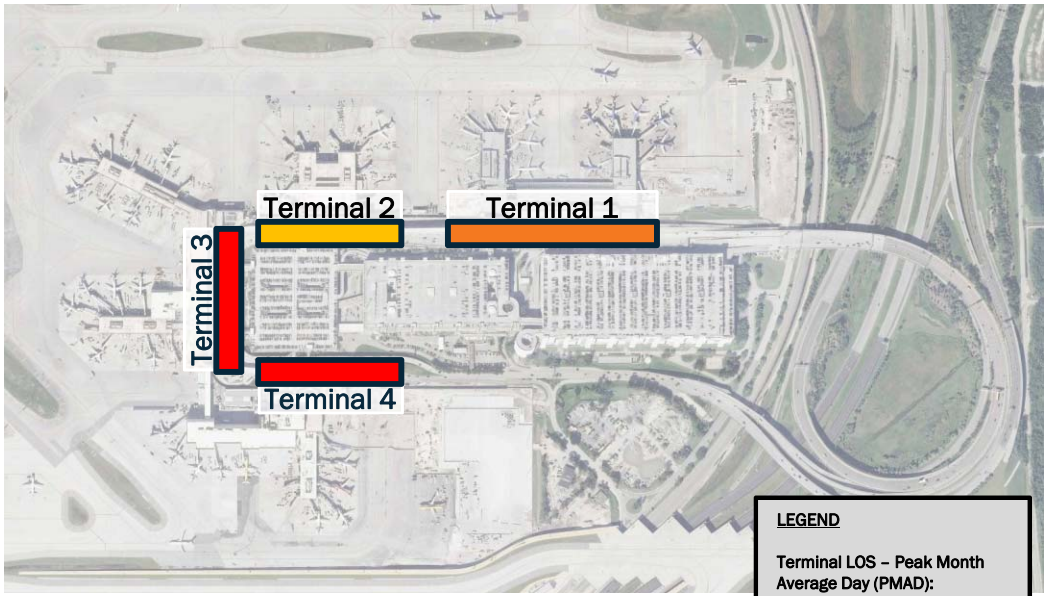
SOURCES: ACRP Report 25, *Airport Passenger Terminal Planning and Design*

Terminal Curbside LOS – Existing Conditions

Departures Curb (Upper Level Roadway)

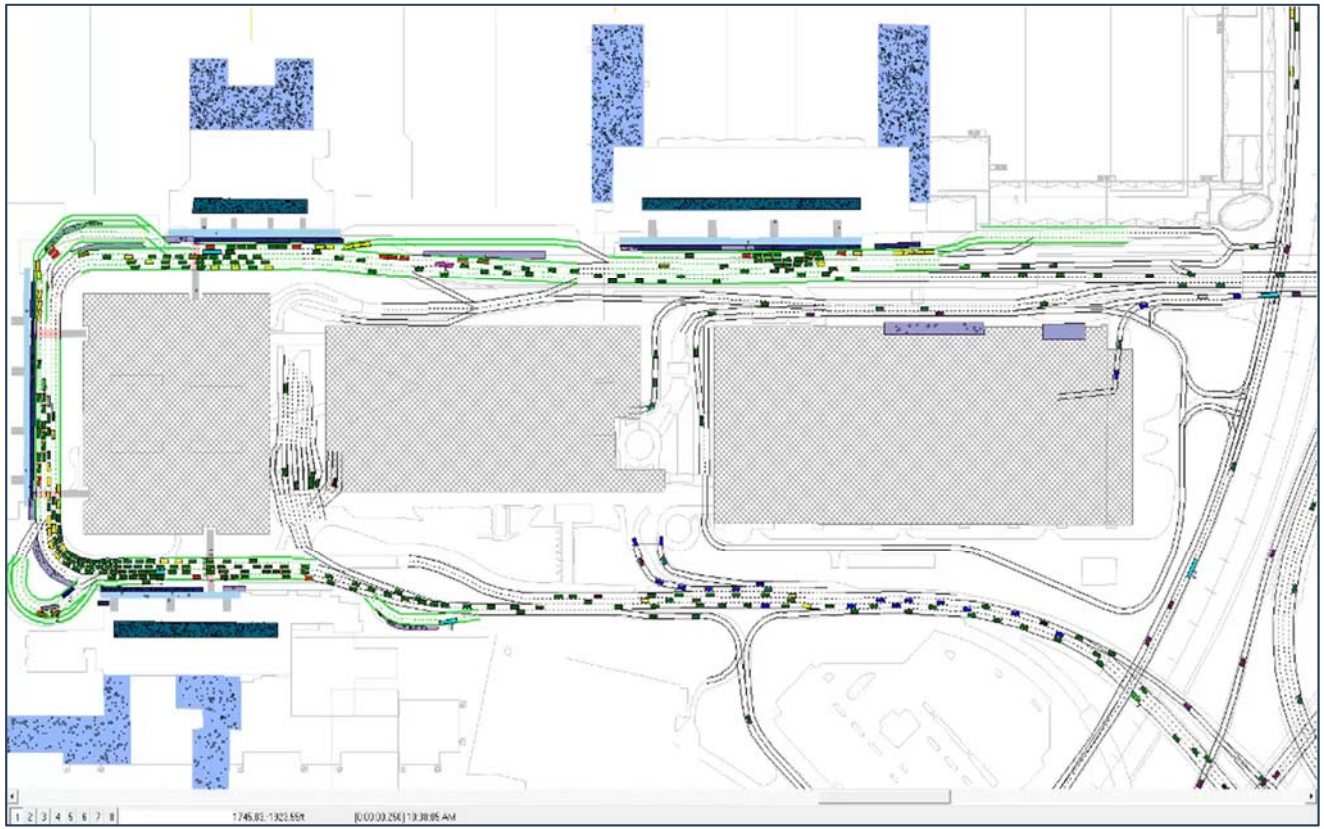


Arrivals Curb (Lower Level Roadway)

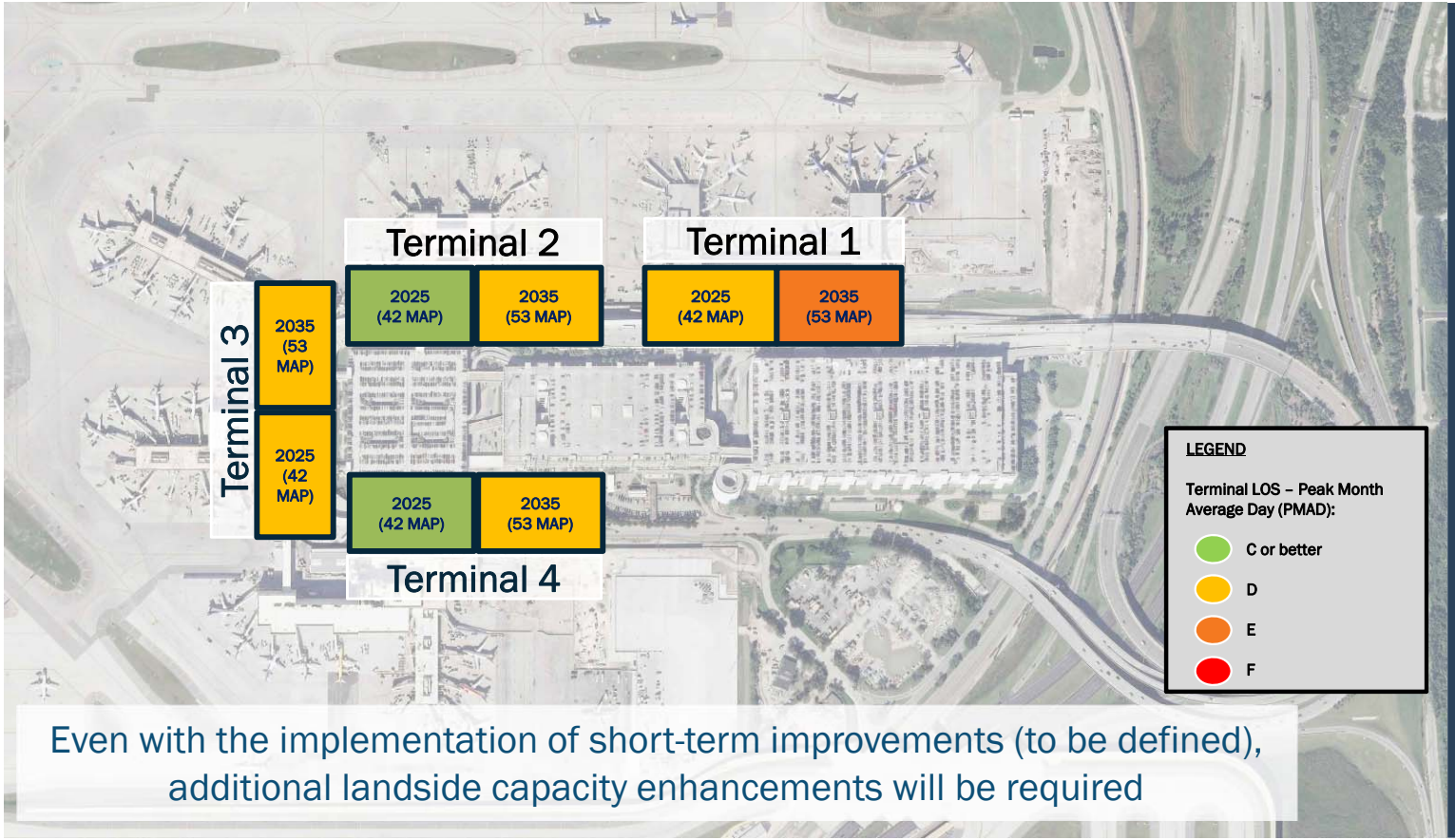


Immediate/short-term improvements are necessary to address existing conditions

Existing Roadway Conditions (2015)



Departures Level Terminal Curbside LOS - Forecast

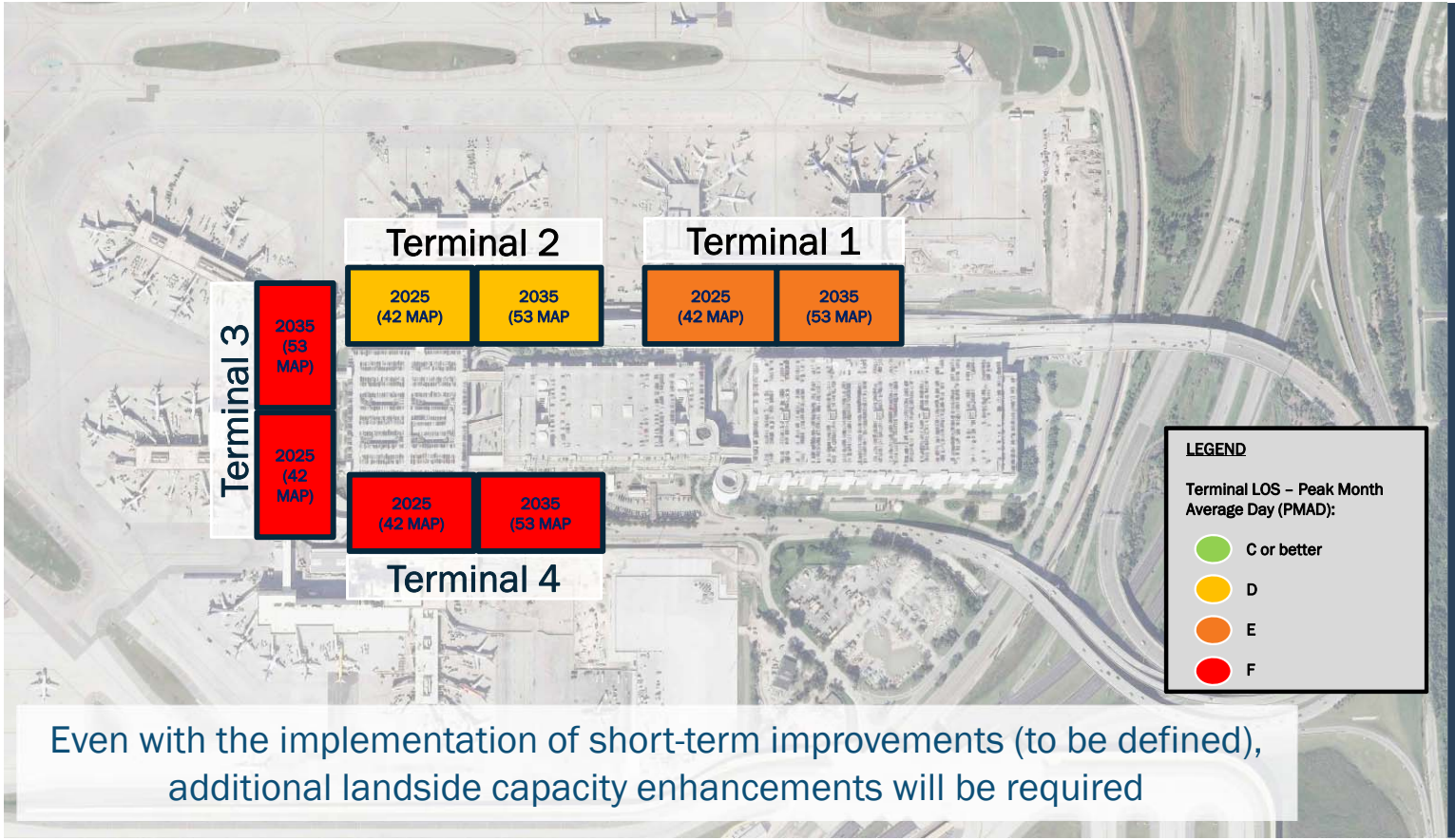


Even with the implementation of short-term improvements (to be defined), additional landside capacity enhancements will be required

MAP: Million Annual Passengers

Note: 20-year horizon, per forecast, 42 MAP estimated to be on or before 2025 and 53 MAP estimated to be on or before 2035

Arrivals Level Terminal Curbside LOS - Forecast



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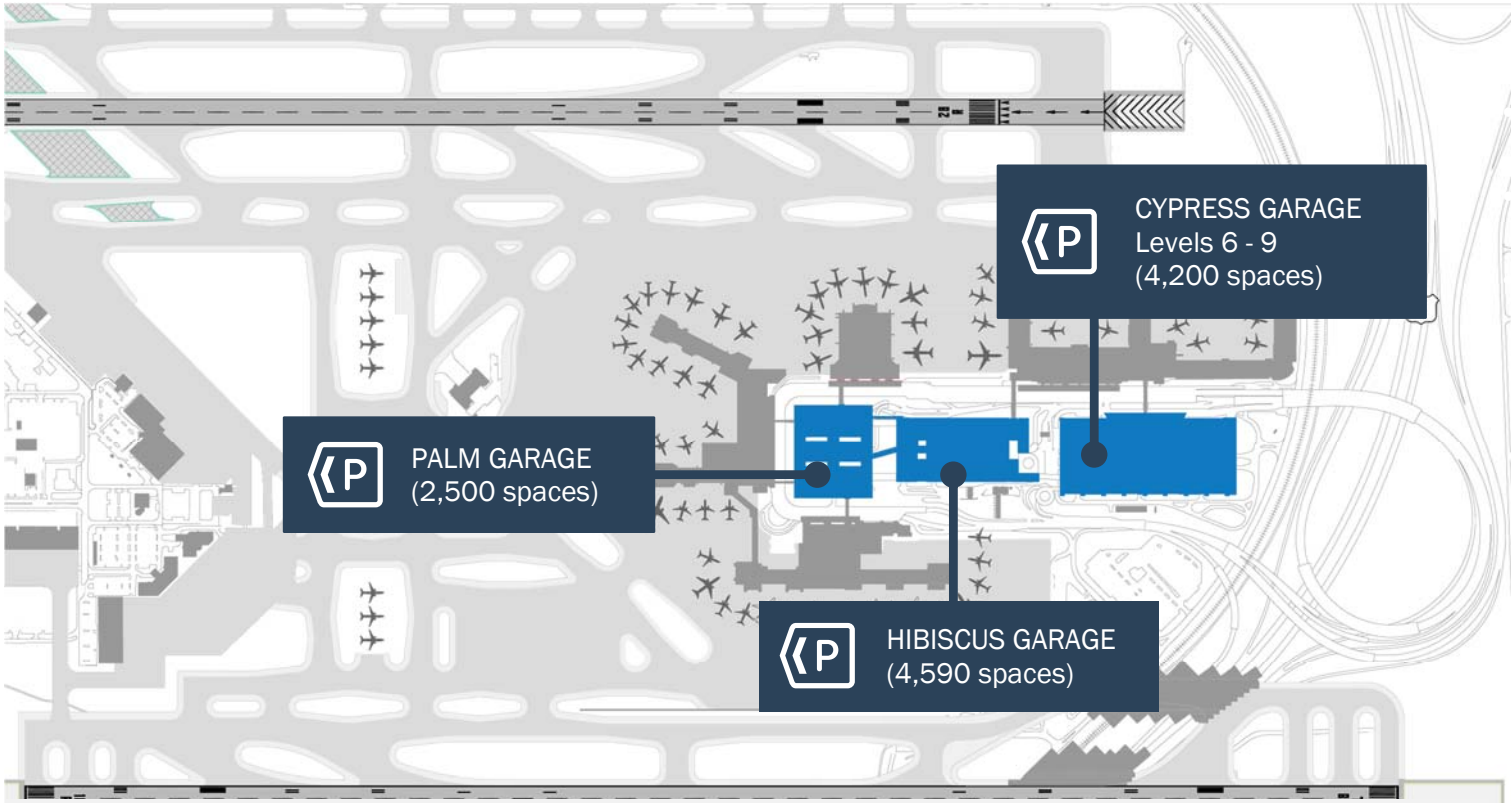
Public Parking Summary



FY 2016 MAP: 28.7
CY 2016 MAP: 29.2

(Total Spaces as of May 2017: 11,290)

Future public parking requirements (including valet):

- 37 MAP (On or before 2020)
  - 9,440 hourly/daily spaces
  - 3,430 long-term spaces
  - 12,870 total spaces
- 42 MAP (On or before 2025)
  - 10,640 hourly/daily spaces
  - 3,870 long-term spaces
  - 14,510 total spaces
- 53 MAP (On or before 2035)
  - 13,020 hourly/daily spaces
  - 4,740 long-term spaces
  - 17,760 total spaces

Notes: MAP: Million Annual Passengers and Parking requirements include spaces for long-term parking, historically served through the economy parking product. Assumes accelerated forecast

Landside Summary Requirements

	Capacity	Future Requirements			
	FY2015	FY2020	FY2025	FY2030	FY2035
Originating Passengers (millions)	11.8	15.1	17.0	19.0	20.8
Public Parking (R&A MPU Design Day Requirements)					
Daily/Hourly Parking (spaces)	6,410	7,860	8,850	9,870	10,840
Economy Parking (spaces) 1/	4,010	3,430	3,870	4,310	4,740
Subtotal: Public Parking (spaces)	*10,420*	*11,290*	*12,720*	*14,180*	*15,580*
Valet Parking (spaces)	1,385	1,580	1,790	1,990	2,180
Employee Parking (spaces)	3,200 1/	4,920	5,530	6,150	6,680
Rental Car (from 2015 LeighFisher Study, linearly adjusted to MPU Accelerated Baseline schedule)					
Rental Car QTA (ft^2) 2/	327,000	348,100	383,900	432,900	472,300
Rental Car Ready/Return (ft^2) 2/	814,100	1,086,100	1,200,200	1,350,800	1,475,200
Rental Car Staging/Storage (ft^2) 3/	280,200	453,600	514,900	577,500	633,200

Notes:

1/ Employee parking is currently occupying Levels 7-9 of the Cypress Garage, but is expected to moved to the current 4,010 space Economy Lot in early 2017. Economy Parking requirements assume BCAD continues to provide an Economy product.

2/ Rental car requirements are based on a modification to the LeighFisher report to replace the 2013 TAF with the accelerated baseline schedule, thus projecting accelerated growth in requirements. The requirements are intended as approximate working planning-level numbers, not as formal master plan requirements. The expected requirements are expected to be a point of discussion in the rental car renegotiations for 2018.

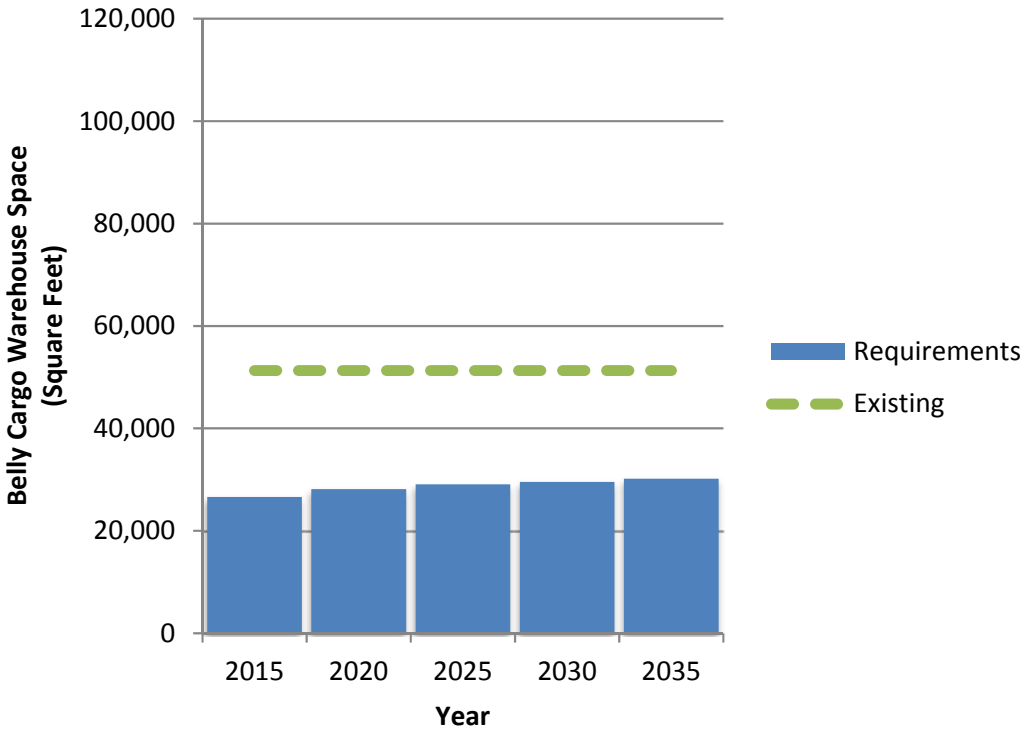
3/ Usage of the Cypress Level 5 staging/storage area varies by company. It is dependent upon leasing rates and whether the company operates a "pass-through" QTA flow or a "reverse-staging" QTA flow. Many companies also utilize off-site storage. The storage/staging requirements presented here and accounted for in the preliminary concepts are dependent on how the rental car companies will wish to use the space and what they're willing to pay for storage proximity. Please refer to the LeighFisher report for full details. The expected requirements are expected to be a point of discussion in the rental car renegotiations for 2018.

Sources: BCAD, July 2015; LeighFisher, *Rental Car Center Operations and Capacity Study*, January 2015.

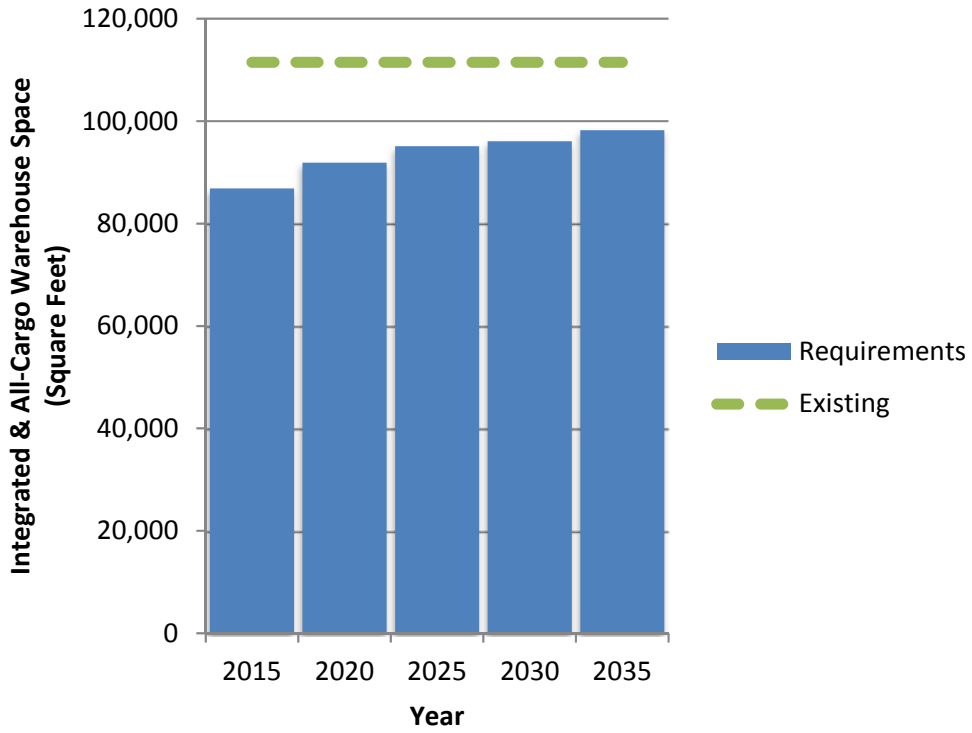
Cargo and General Aviation

Cargo Warehouse Requirements

Belly Cargo



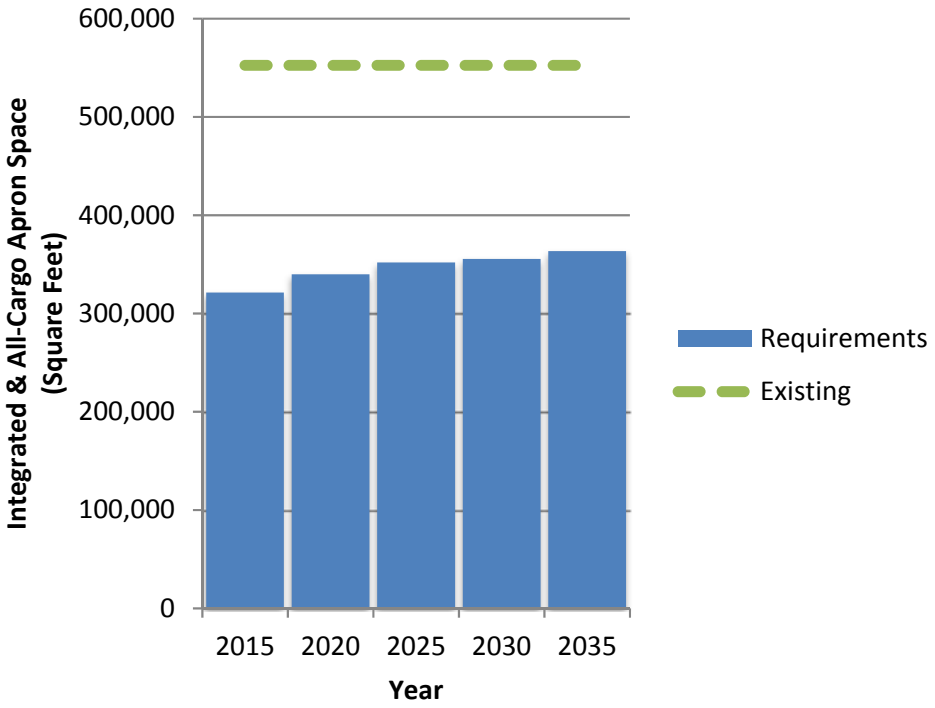
Integrated & All-Cargo Carrier



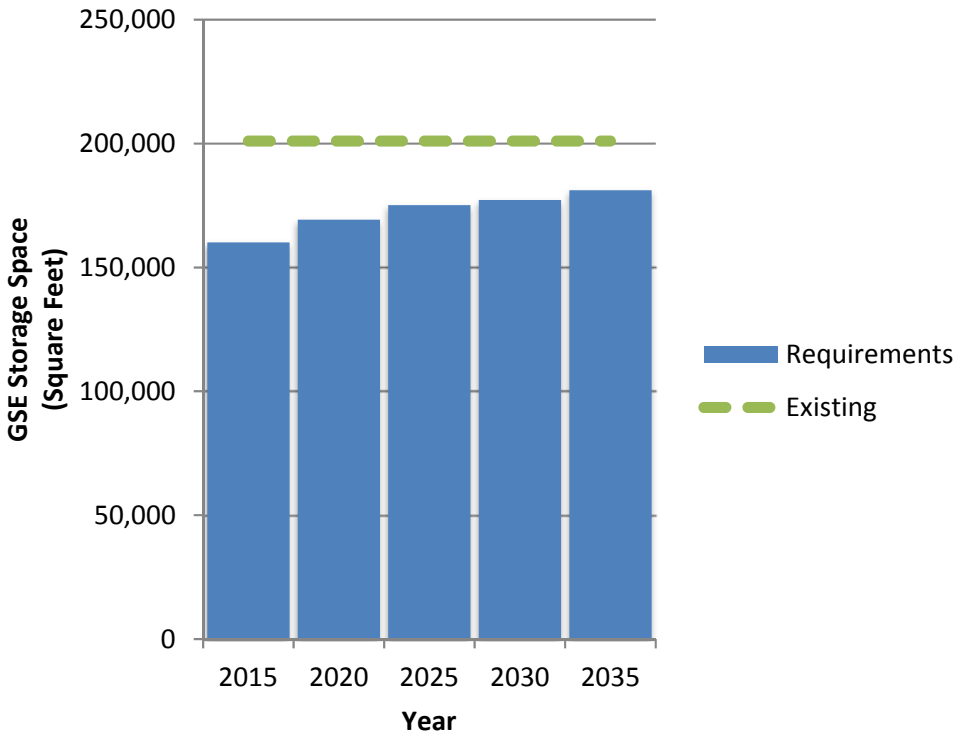
Sources: Ricondo & Associates, Inc., FLL Baseline Activity Forecasts, June 2016; Kimley Horn & Associates, Inc., Demand/Capacity Analysis, September 2016.

Requirements for Integrated and All-Cargo Apron and Cargo Ground Support Equipment Storage Space

Aircraft Parking Apron

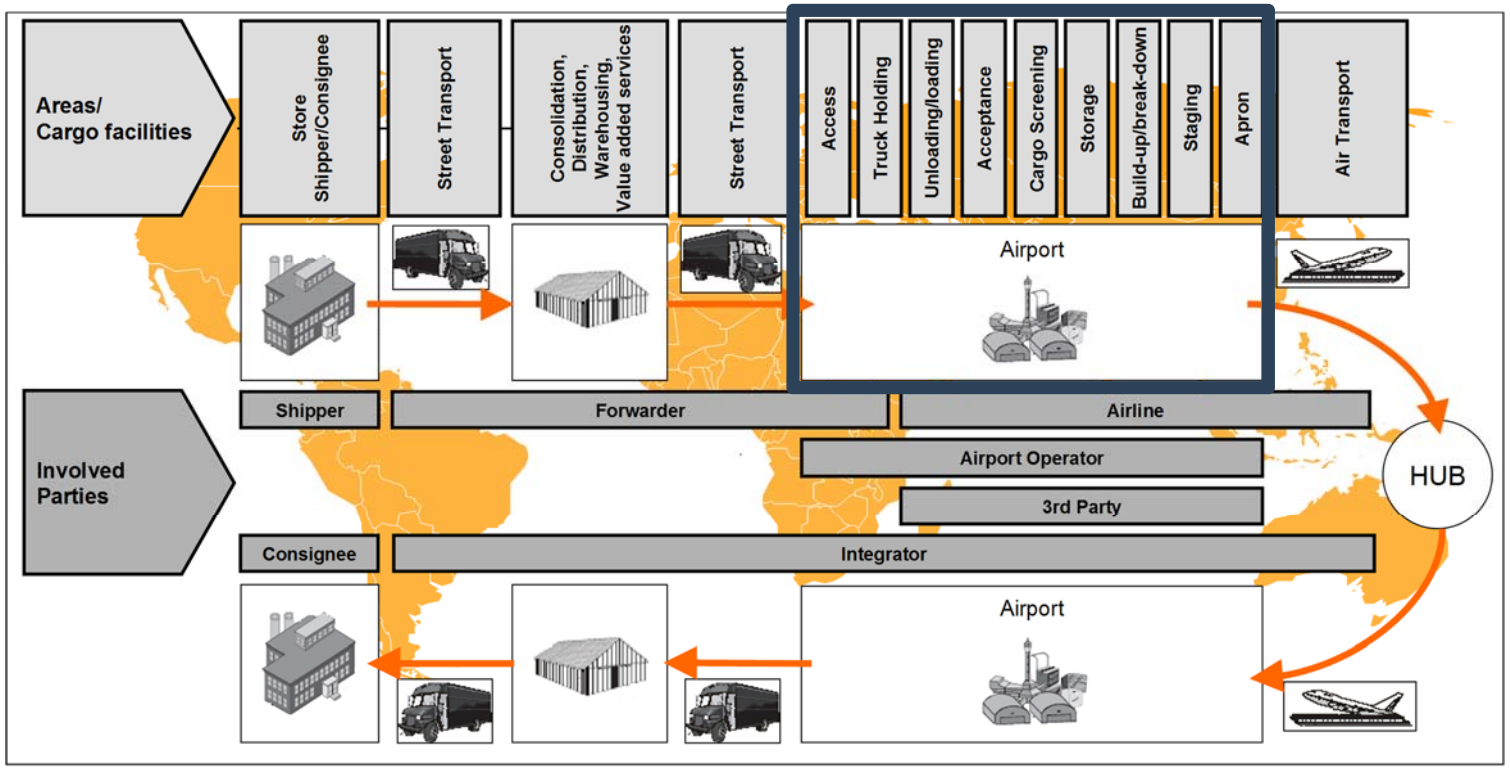


GSE Storage Area



Sources: Ricondo & Associates, Inc., FLL Baseline Activity Forecasts, June 2016; Kimley Horn & Associates, Inc., Demand/Capacity Analysis, September 2016.

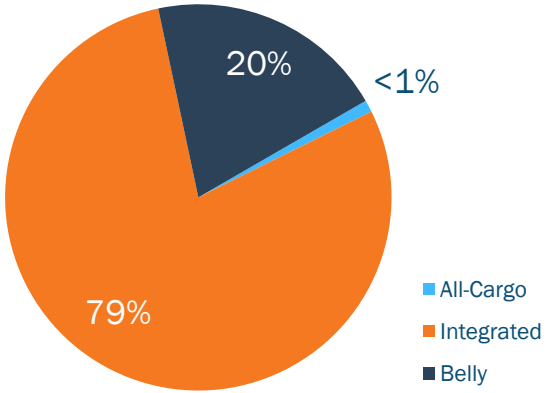
All-cargo Logistics Network



- **Freight forwarder and 3rd party logistics** providers are responsible for the routing decisions and operations of all-cargo freight volumes
- **Special cargo handlers and handling facilities** (refrigerated, fumigation) that are critical to the perishable market (e.g. MIA)
- **Other specialized service companies** like insurance providers, banks, etc.

South Florida Cargo Market Dynamics

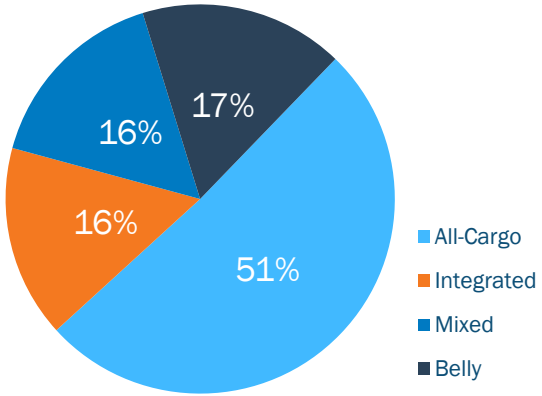
2015 FLL Cargo Airline Market Share
81,322 Tons (105,000 sq. ft.)



FLL Constraints:

- The predominant narrowbody feet of FLL's Airlines have limited capacity to carry belly cargo
- Growth opportunities for integrators (UPS/FedEx) is typically tied to regional economic growth
- FLL lacks infrastructure, logistical & other support services for all-cargo (freight) operators

2015 MIA Cargo Airline Market Share
2,210,776 Tons



Nearly all of South Florida all-cargo freighter operations occur at MIA

- Established logistical and support infrastructure
- 13,000 ft. runway
- Nearly 2 million sq. ft. of dedicated warehouse space on-airport

2035 General Aviation Projections – Baseline & Sensitivity Analysis

Activity Metric	Accelerated Baseline 2035 Forecast	Sensitivity Analysis 2035 Forecast
Annual GA Operations	37,704	54,135
Peak Month	4,130	5,414
Peak Month Average Day operations (PMAD)	133	175
Based Aircraft	94	135

Sources: Ricondo & Associates, Inc., FLL Baseline Activity Forecasts, June 2016; Kimley Horn & Associates, Inc., Demand/Capacity Analysis, September 2016.

GA Facilities – Summary

- Current and proposed apron area is anticipated to meet demand requirements over the forecast planning period under the accelerated baseline and sensitivity analysis scenario
- Based on FBO input, the majority (60%) of transient operations of larger aircraft (i.e. turboprops and jets) stay more than one day and seek to hangar their aircraft
  - Current and proposed GA hangar facilities do not meet the projected PMAD demand:
    - Baseline Forecast: 64,000 additional sq. ft. of hangar
    - Sensitivity Analysis (High GA Growth): 290,000 additional sq. ft. of hangar

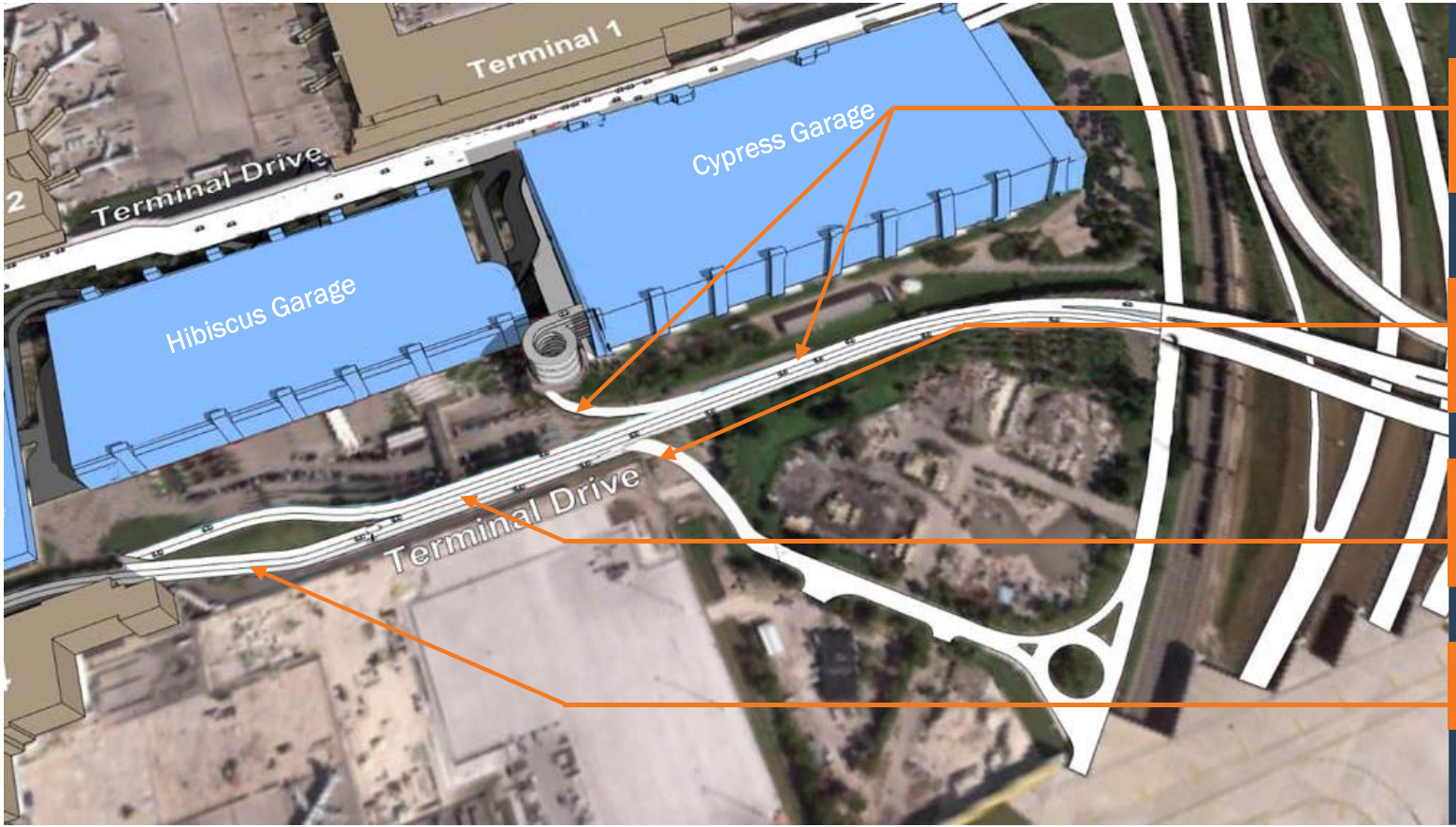
Sources: Ricondo & Associates, Inc., FLL Baseline Activity Forecasts, June 2016; Kimley Horn & Associates, Inc., Demand/Capacity Analysis, September 2016.

Short-Term Improvements

Landside & Terminal

Landside

Existing Roadway Congestion



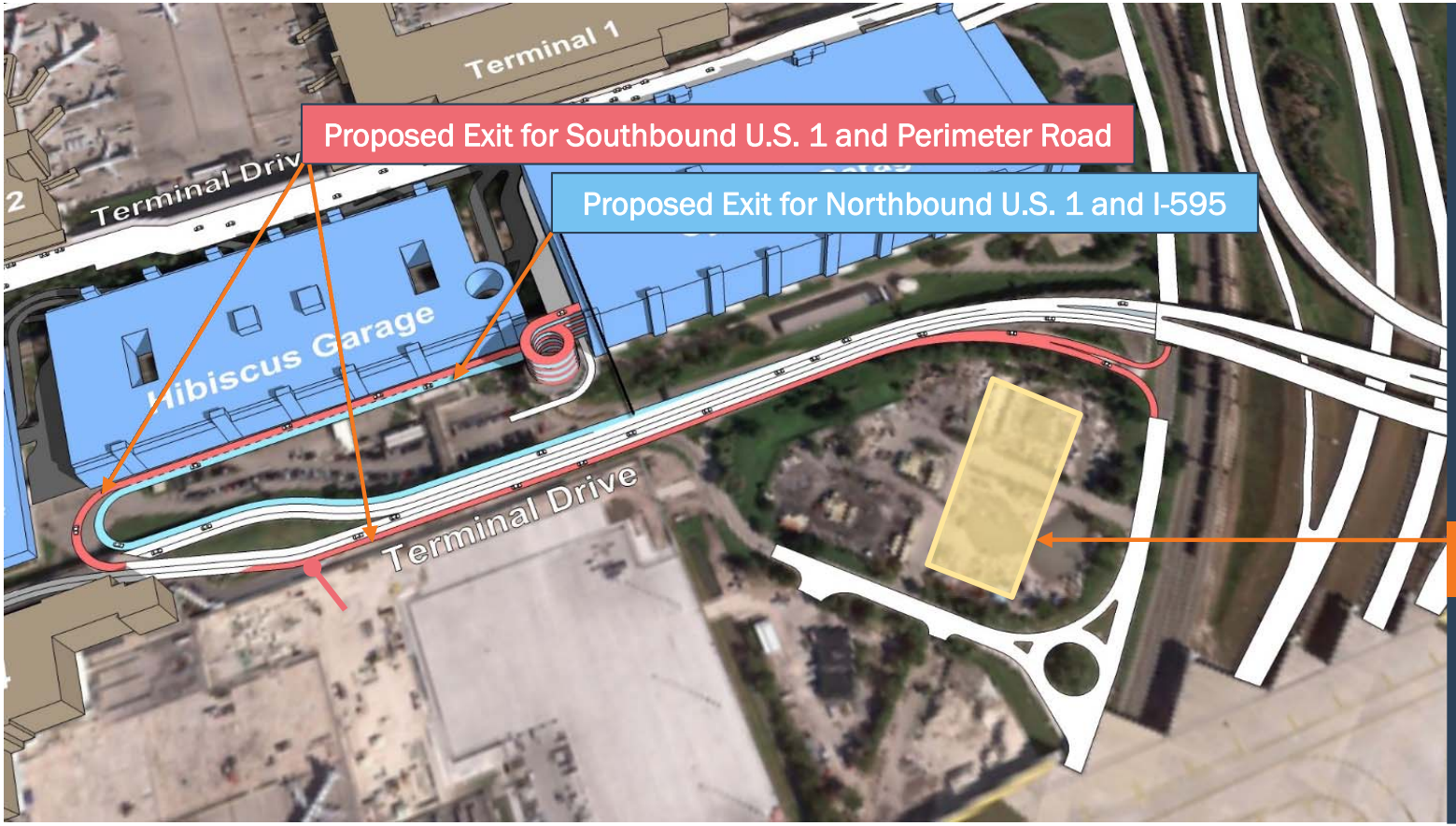
- Limited weave distance (exiting garage and RCC)
- Roadway narrows from 4 to 3 lanes

- Departures level vehicles cause cross-weaving with arrivals traffic (to Perimeter Road)

- Roadway narrows from 4 to 3 lanes
- Merge point for arrivals and departures roadways

- Limited weave distance
- Roadway narrows from 4 to 3 lanes

Merging/Weaving & Exit Roadway Improvements



- Provides greater decision distance for vehicles exiting Cypress and merging onto outbound terminal roadway
- Channels northbound and southbound traffic to minimize weaving
- Adds a new lane to the outbound terminal roadway
- New connection to Perimeter Road minimized weaving

- Proposed Cell Phone Lot Area

Roadway Management Technology (Flexing) - Dynamic Messaging Signs (DMS)

- Locate DMS prior to Arrivals & Departures Signs
- DMS to show travel time on each level or congested level alert
- Continue with FDOT coordination to have DMS on US-1 and I-595 (If possible)

3 New static signs proposed under separate project

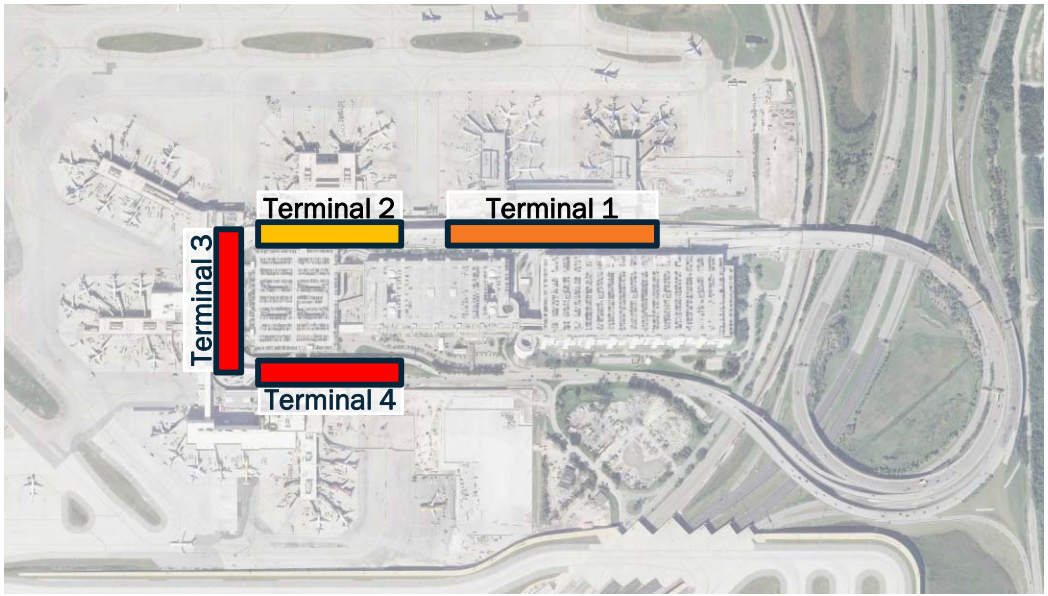
Pedestrian Signalized Crosswalks

Illustrative Example

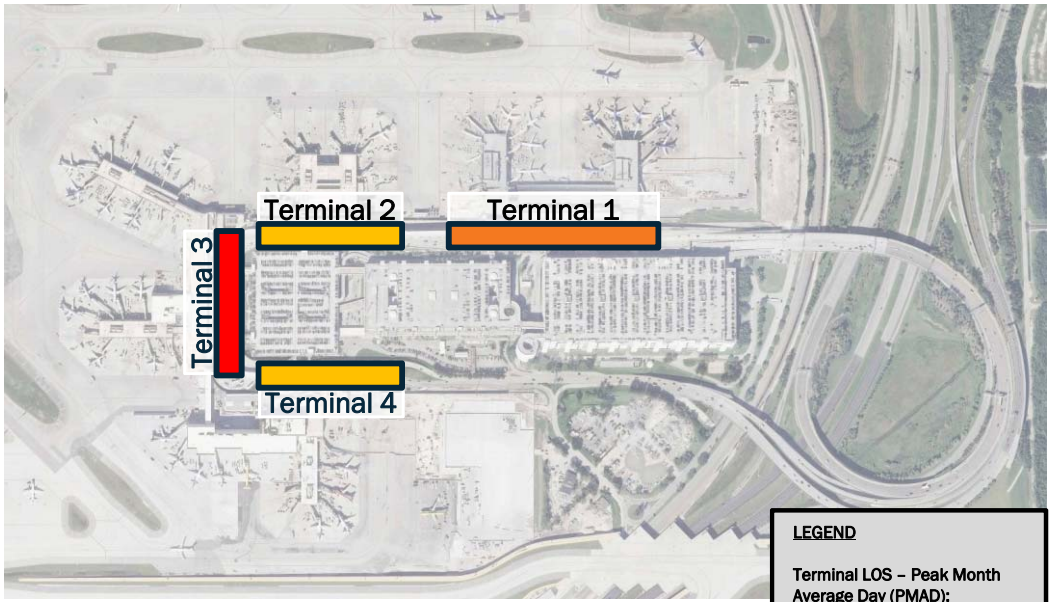
Photo Source: Google – John Wayne Airport

Arrivals Level Terminal Curbside LOS

Existing Conditions (2015)

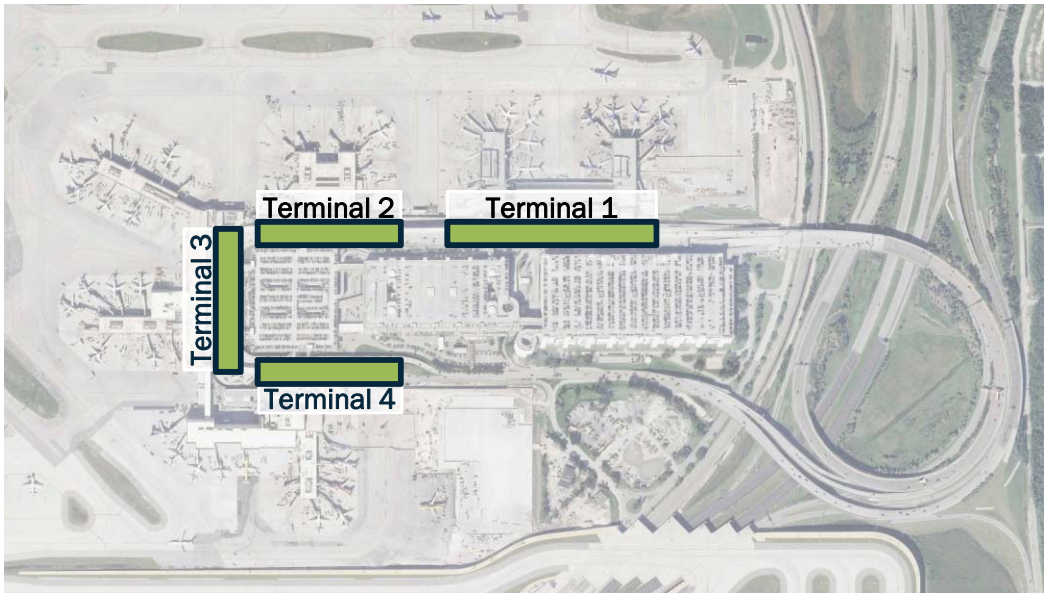


2020 Conditions with Short-term Improvements

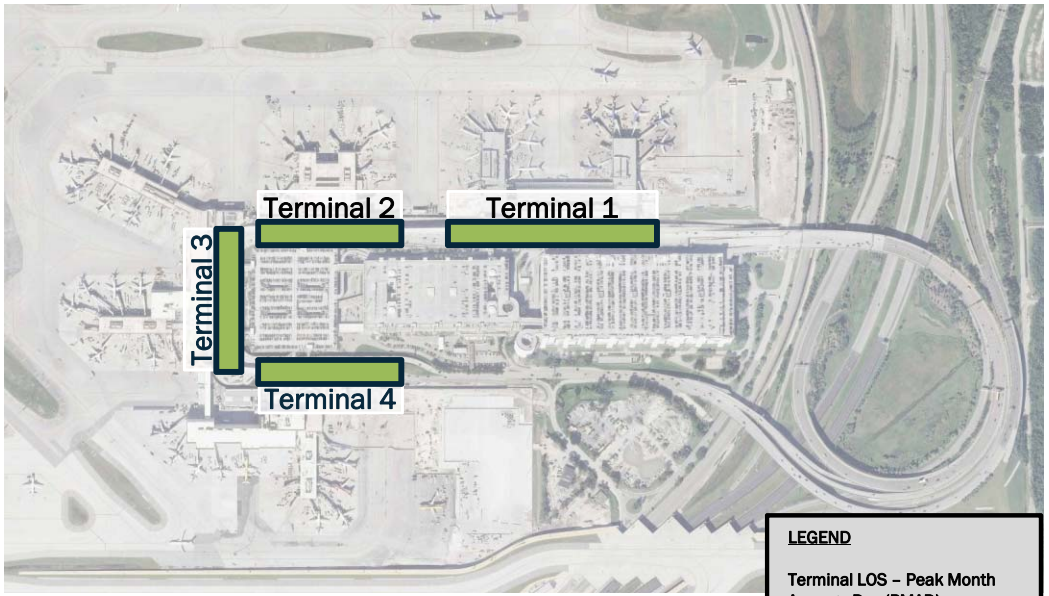


Departures Level Terminal Curbside LOS

Existing Conditions (2015)



2020 Conditions with Short-term Improvements

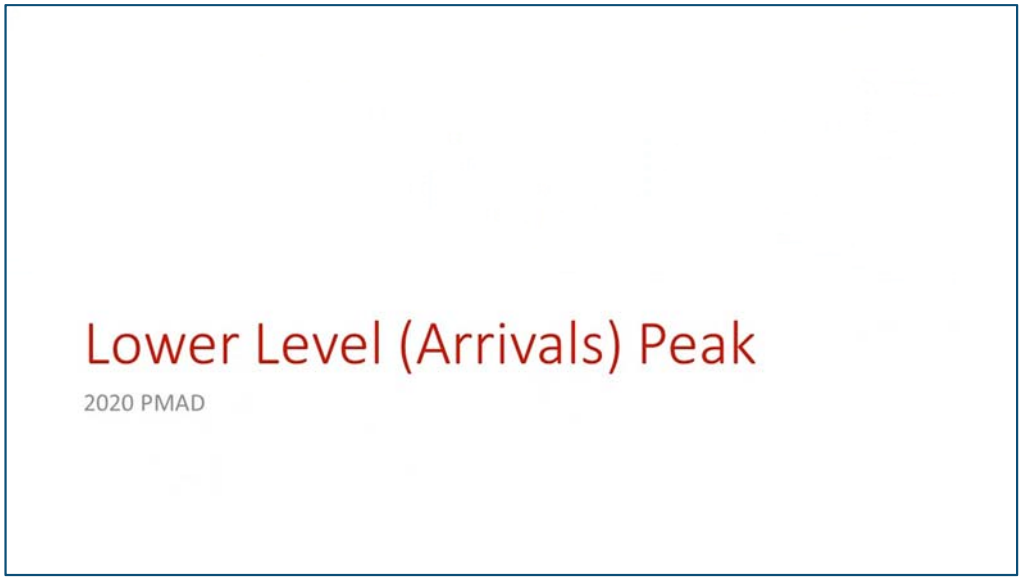


Curbside Roadway Modeling – Lower Level

With and Without Short-Term Improvements

From KHA-3/23/17

2020 - Without Improvements

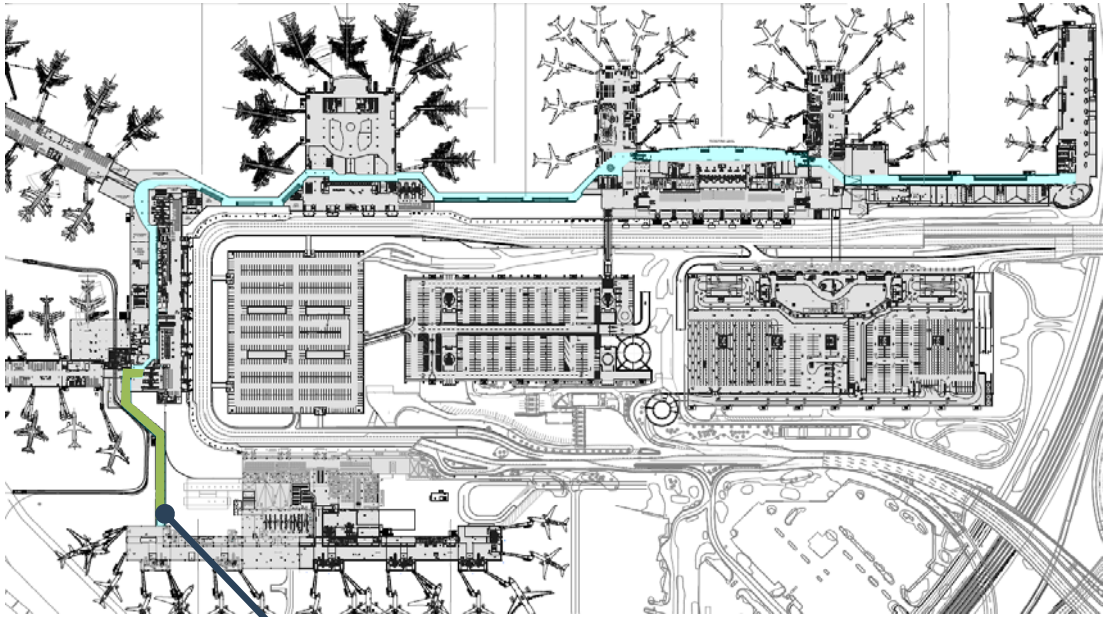


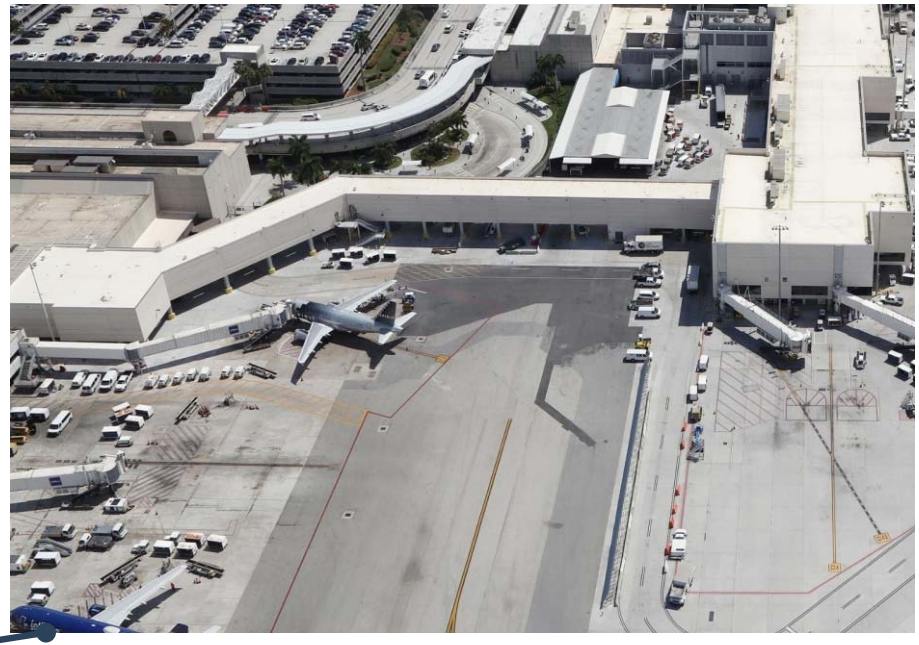
2020 - With Improvements

Source: Kimley Horn & Associates, Inc.

Terminal

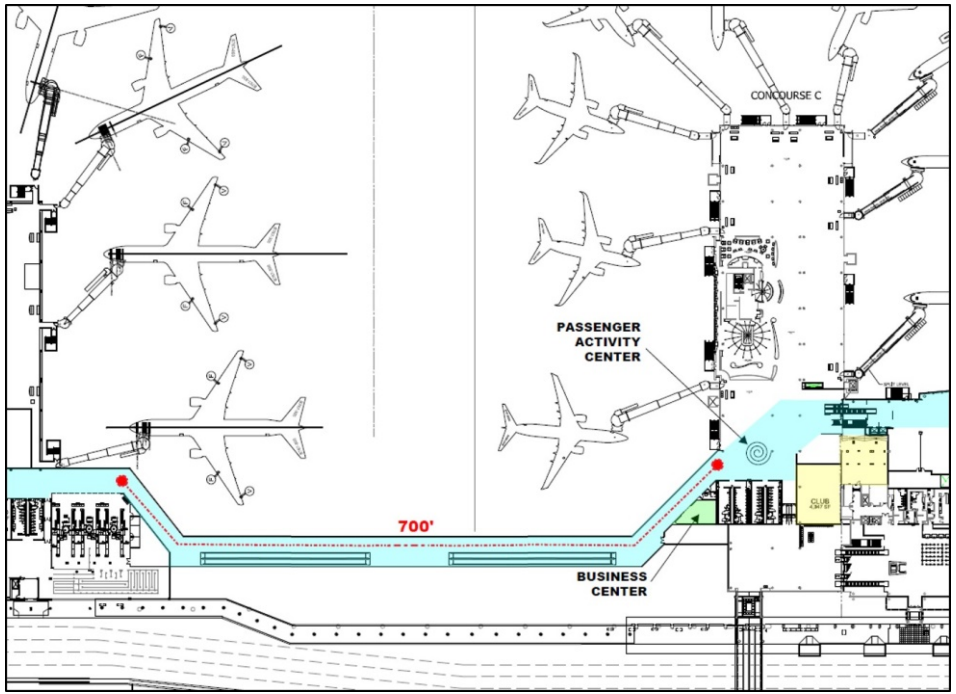
Post-Security Checkpoint Terminal Connection Plan

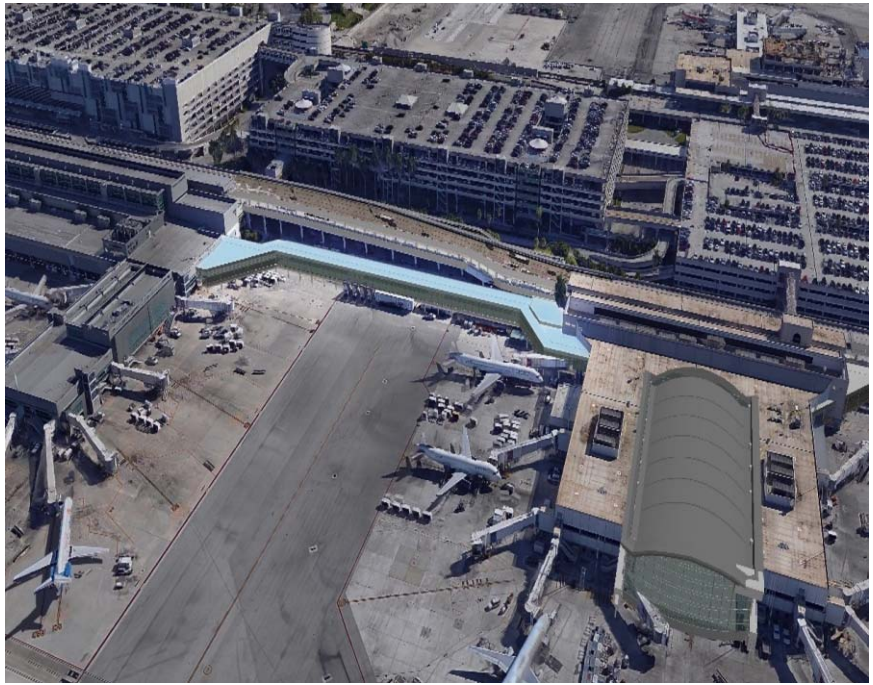




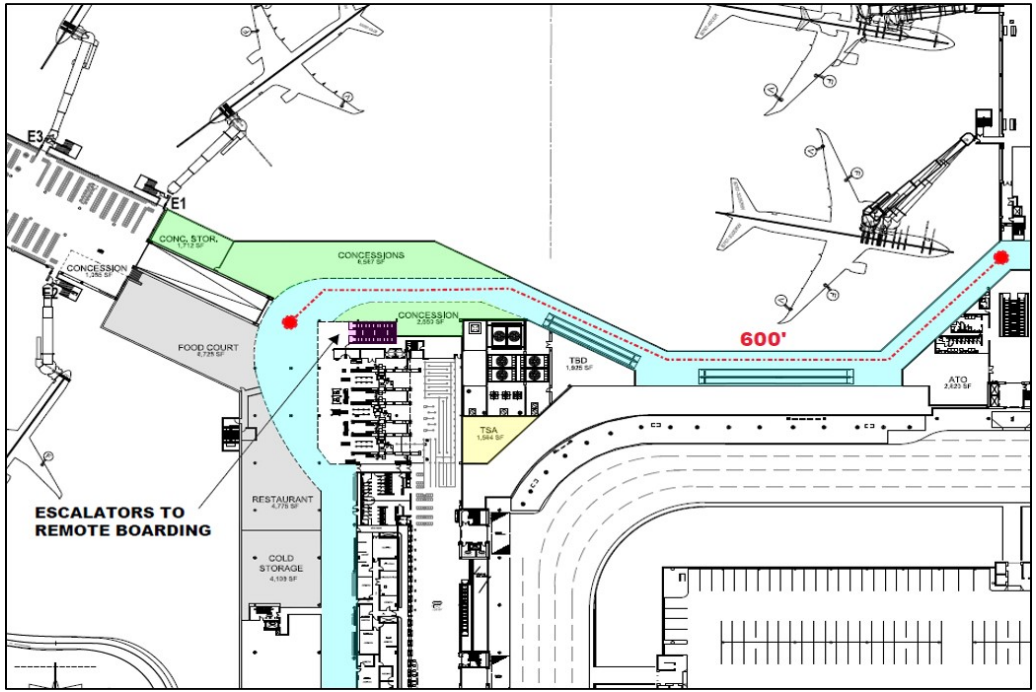
T3-T4 Connector completed
November 2016

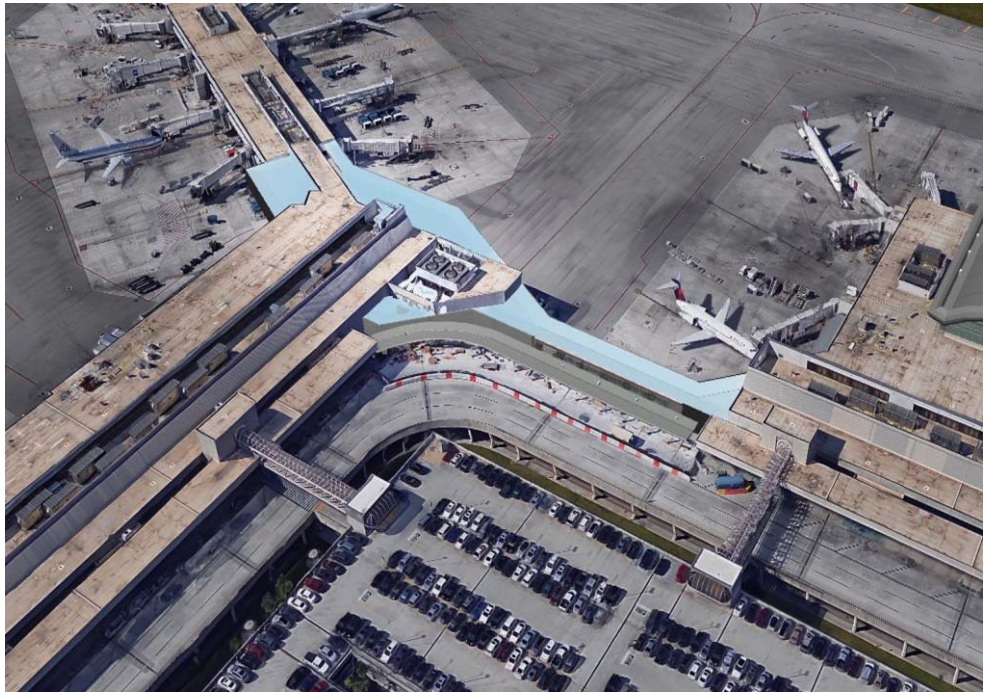
Terminal Connection Plan
Proposed T1-T2 Connector Concept





Terminal Connection Plan
Proposed T2-T3 Connector Concept





Additional Terminal Improvements under consideration

- Temporary terminal facility for additional gates
- Terminal 4 ticket lobby and baggage claim expansion / modernization
- Terminal 3 / Terminal 4 connector building (pre-security)

Temporary Terminal Facility
Illustrative Example

Master Plan Concepts for Serving Demand through 2035

Terminal & Landside

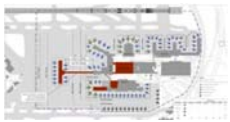
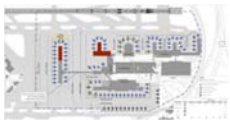
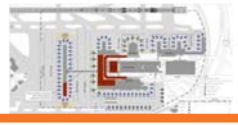
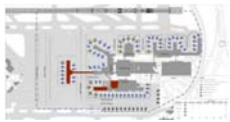
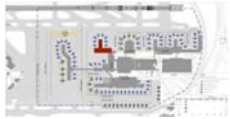
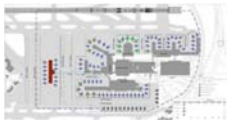
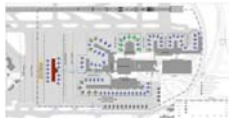
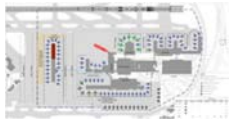
Terminal

Terminal Development Planning Guidelines

- Baseline conditions assume 66 gates
- The EIS Record of Decision for the South Runway Program includes consideration of the expansion of gates up to 77
- Terminal Development Alternatives propose the following incremental phasing:
  - Phase 1: 77 gate build out
  - Phase 2/3: 83-85 gate build out
  - Ultimate Phase: 95 gate build out
- Goal of each incremental phase is to provide additional gate capacity while replacing older facilities with minimal operational impacts

Terminal Development Concepts

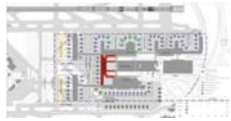
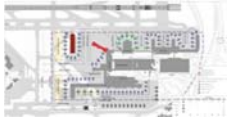
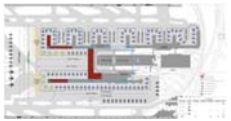
LEGEND
Short-Listed Concepts

	Phase 1	Phase 2A	Phase 2B	Phase 3A	Phase 3B	Ultimate
Satellite Pier Opt 1						
Satellite Pier Opt 2						
Satellite Pier Opt 3						
Satellite Pier Opt 4						

Terminal Development Concepts

LEGEND

Short-Listed Concepts

	Phase 1	Phase 2A	Phase 2B	Phase 3A	Phase 3B	Ultimate
Satellite Pier Opt 5A						
Satellite Pier Opt 5B						
Satellite Pier Opt 6						
T4 East Extension						
T4 West Extension						

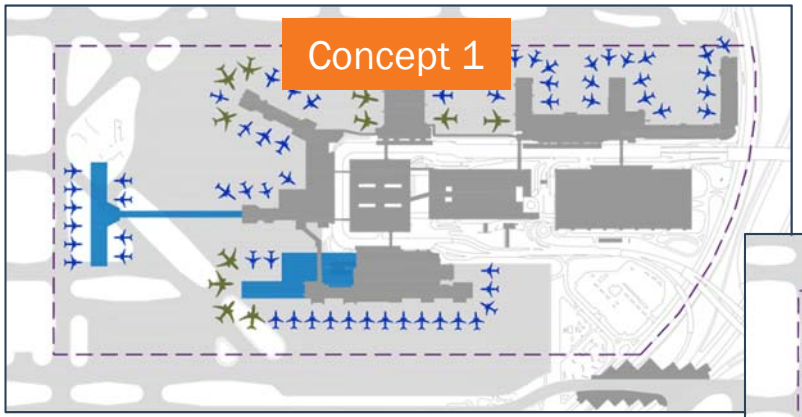
Screening Matrix for Terminal Development Concepts

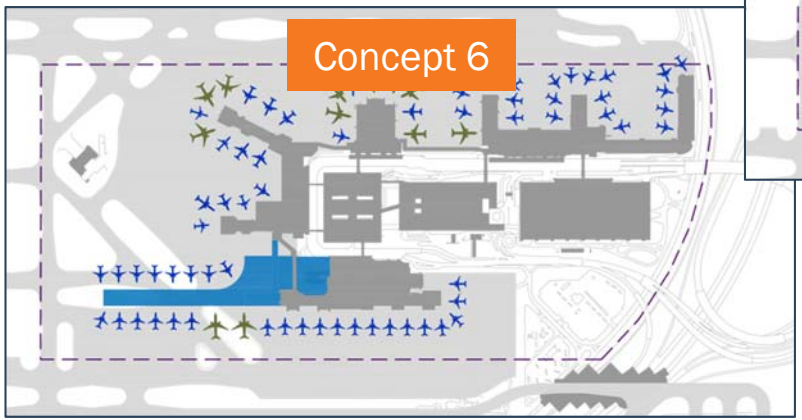
Screening Criteria	Satellite Option 1	Satellite Option 2	Satellite Option 3	Satellite Option 4	Satellite Option 5	Satellite Option 6	T4 East Extension	T4 West Extension
Capacity Benefits								
Operational Considerations and Flexibility								
Incremental Development Potential								
Constructability								
Relative (to other Alternatives) Costs								
Future Expansion Potential								

LEGEND:

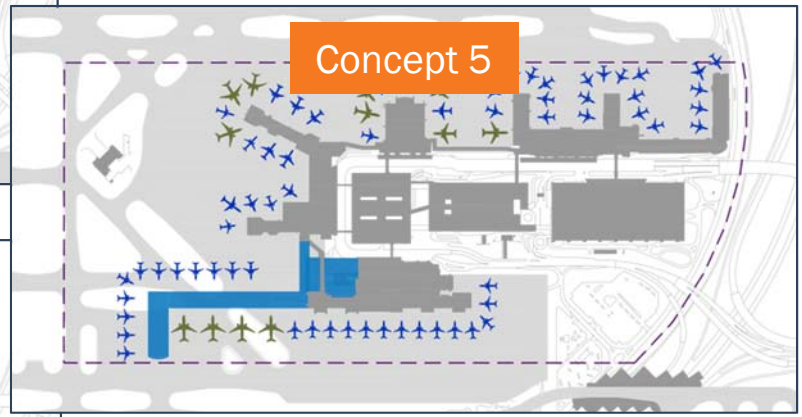
- Meets Criteria
- Partly Meets Criteria
- Does not Meet Criteria
- Short-listed Concepts

Short Listed Terminal Concepts
Phase 1 Development (77 Gate Complex)





Short-listed (from those considered):
Develop mid-field Concourse and/or
Expand Concourse G to the west

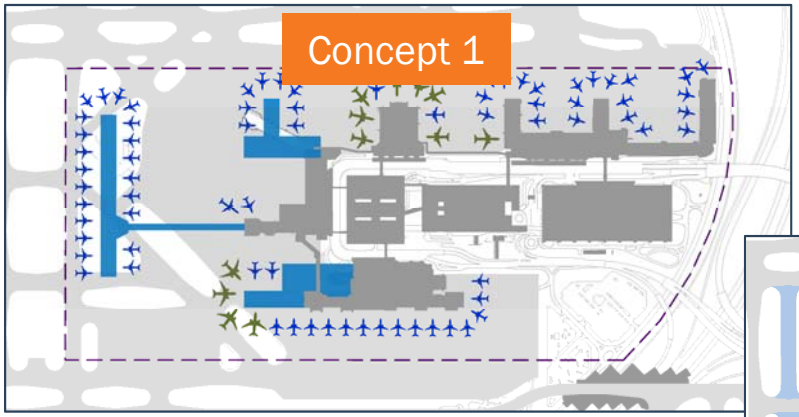


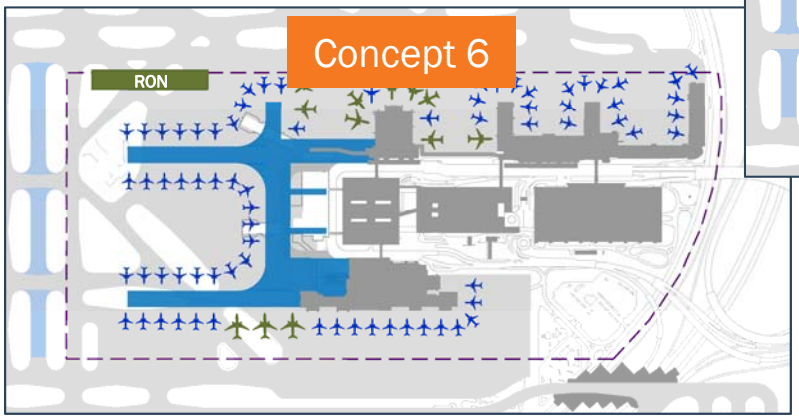
Note: New south side gates in Concourse G West extension in Concepts 5 & 6 are anticipated to be NB/WB capable that would serve as domestic/international swing gates.

Narrowbody Gate

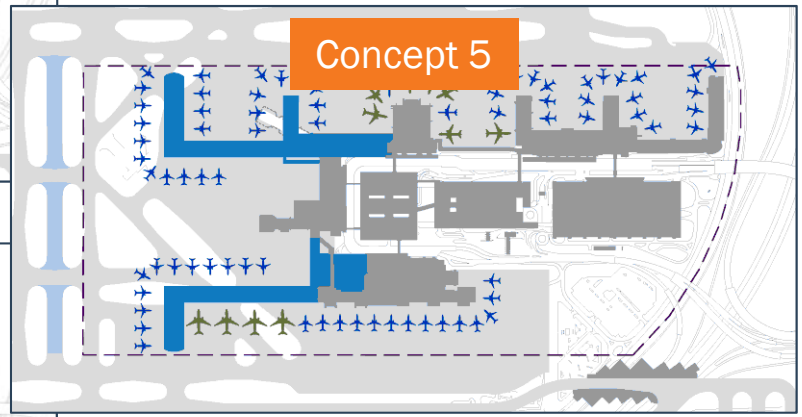
Widebody Gate

Short Listed Terminal Concepts
Phase 2/3 Development (83 - 85 Gate Complex)





Short-listed (from those considered):
Develop mid-field Concourse and/or
Expand Concourse G to the west

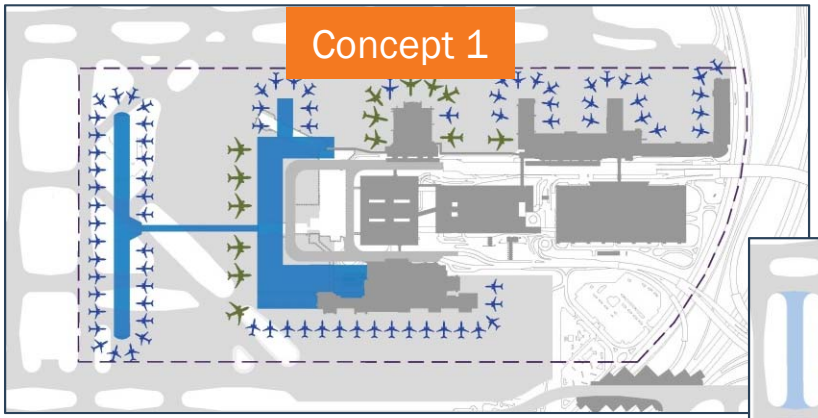


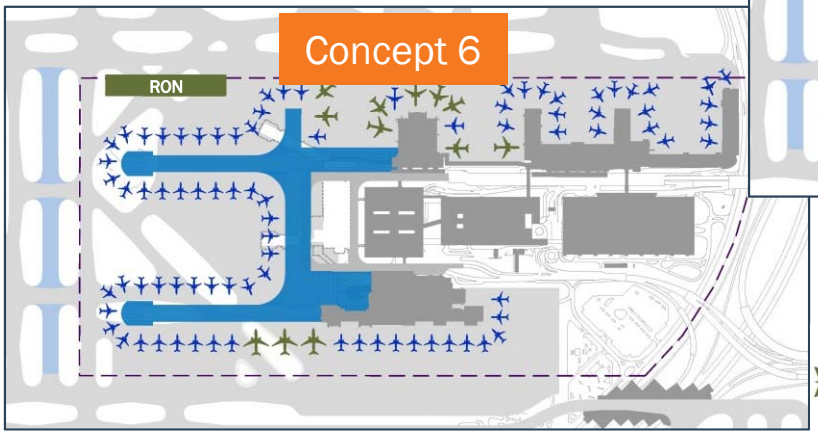
Note: New south side gates in Concourse G West extension in Concepts 5 & 6 are anticipated to be NB/WB capable that would serve as domestic/international swing gates.

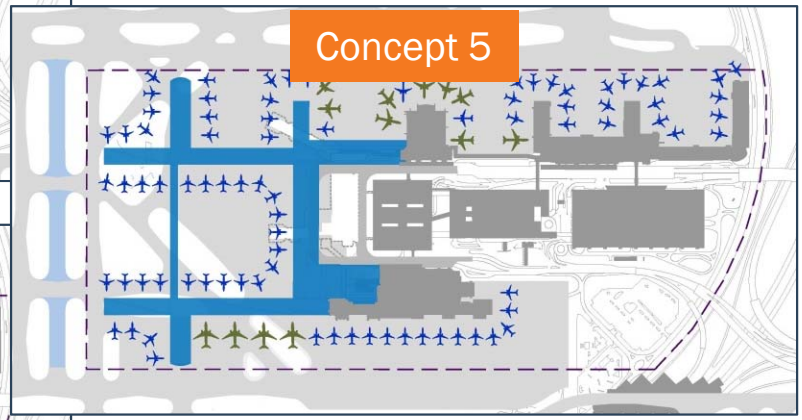
Narrowbody Gate

Widebody Gate

Short Listed Terminal Concepts
Ultimate Phase (Post 2035) Development (95 Gate Complex)







Short-listed (from those considered):
Develop mid-field Concourse and/or
Expand Concourse G to the west

Note: New south side gates in Concourse G West extension in Concepts 5 & 6 are anticipated to be NB/WB capable that would serve as domestic/international swing gates.

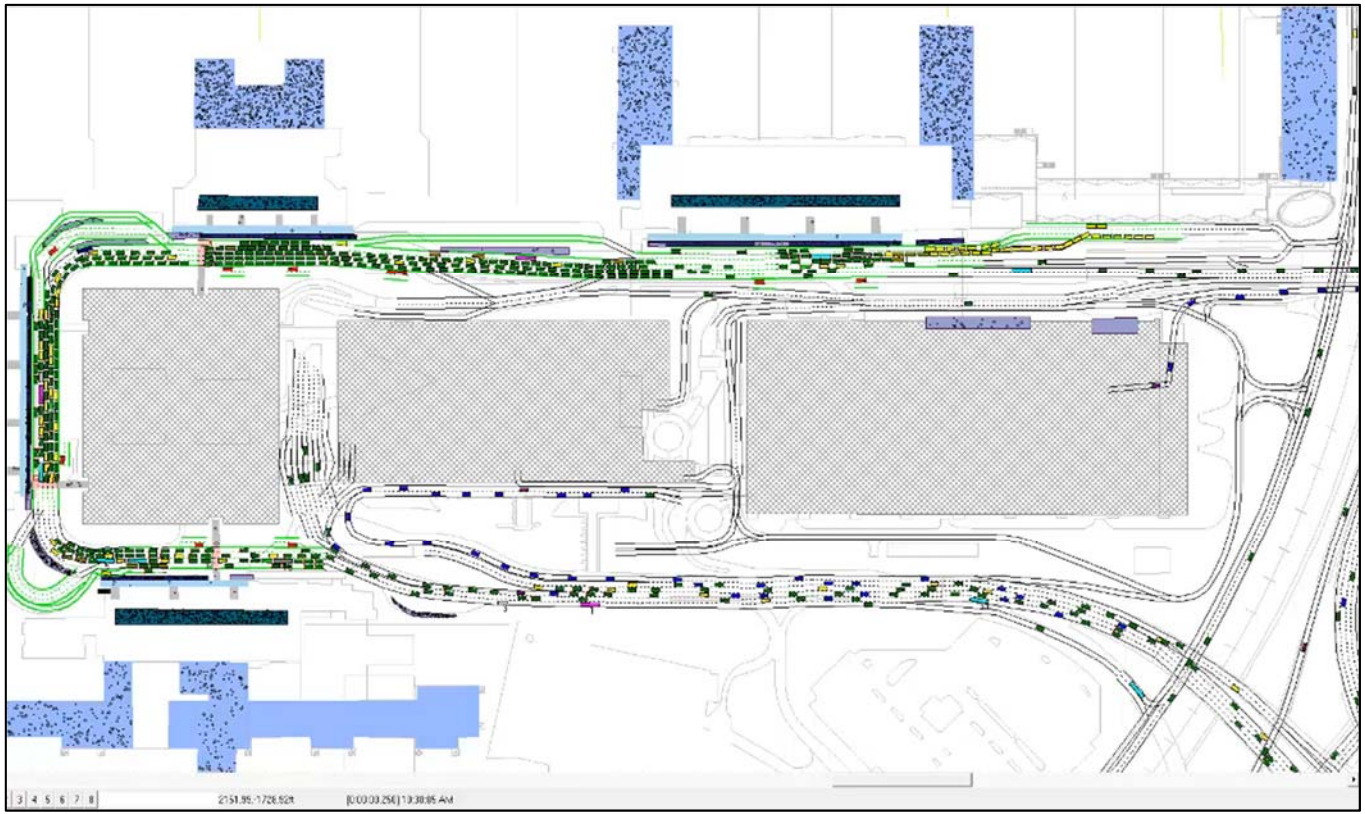
Narrowbody Gate

Widebody Gate

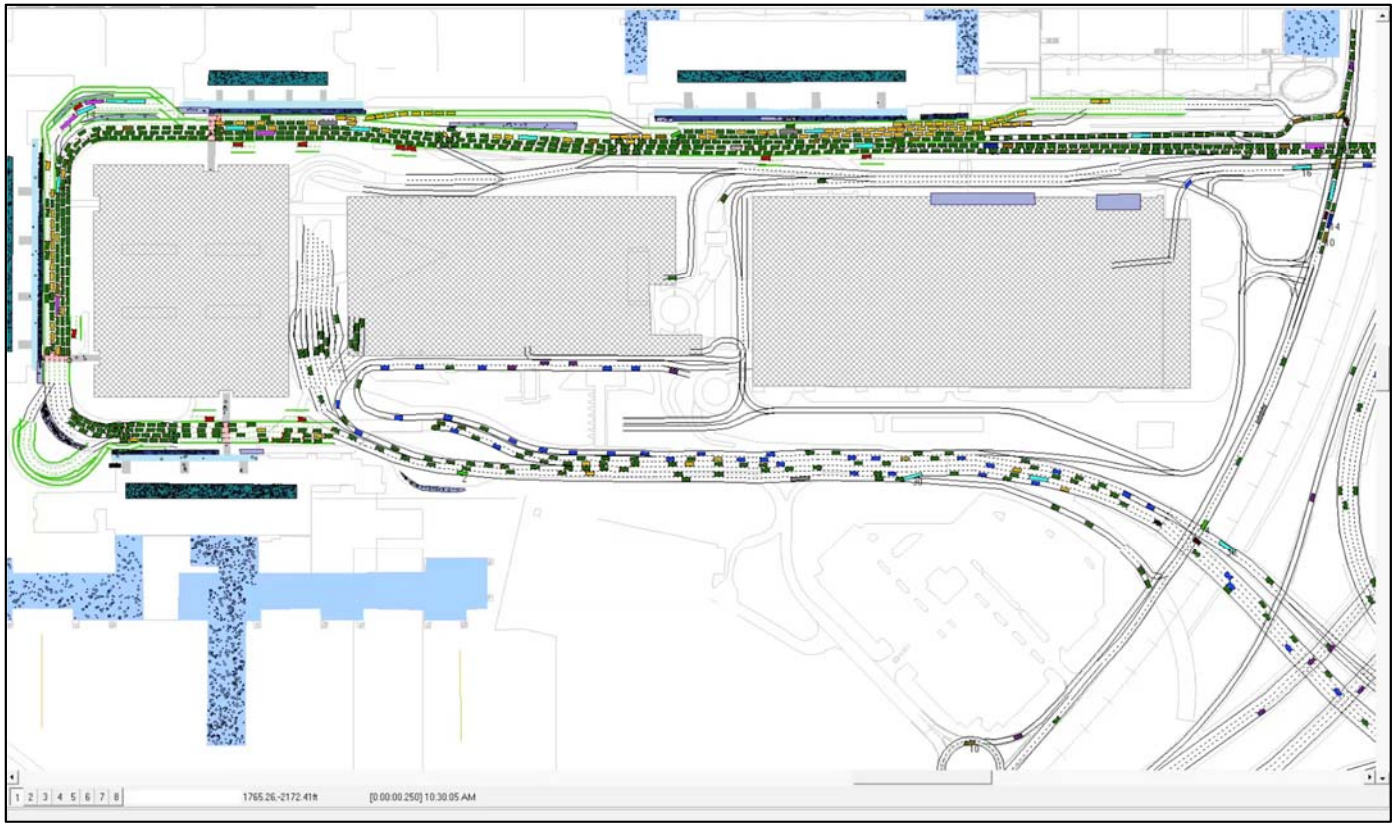
Targets balance with practical airfield capacity

Landside

Curbside Roadway Modeling - 2025 *(with Short-Term Improvements)*

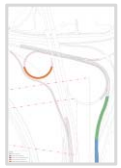
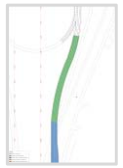


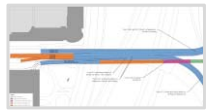
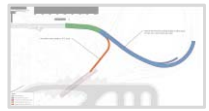
Curbside Roadway Modeling – 2035 *(with Short-Term Improvements)*



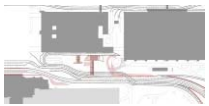
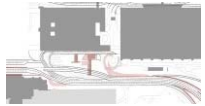
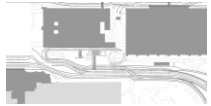
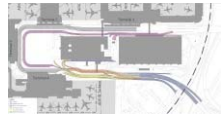
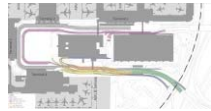
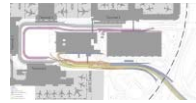
Range of Landside Concepts Considered

Ingress/ Egress

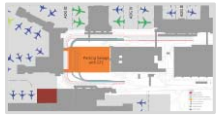



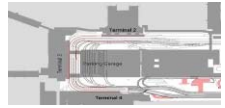
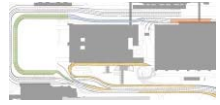




Terminal Roadway

Terminal Curb

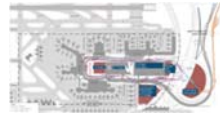



Parking and Rental Car Facilities

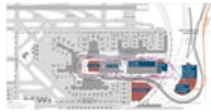




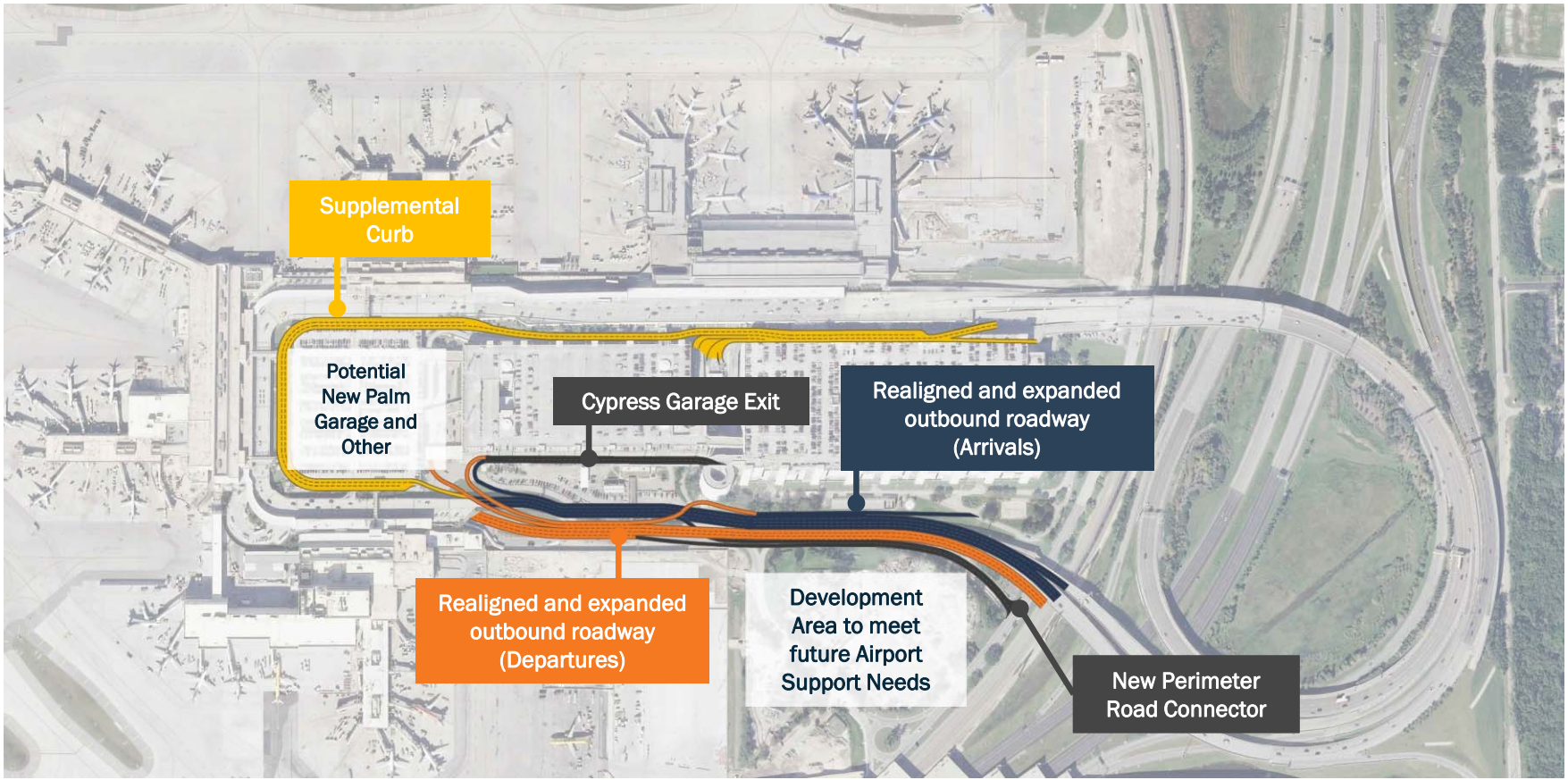





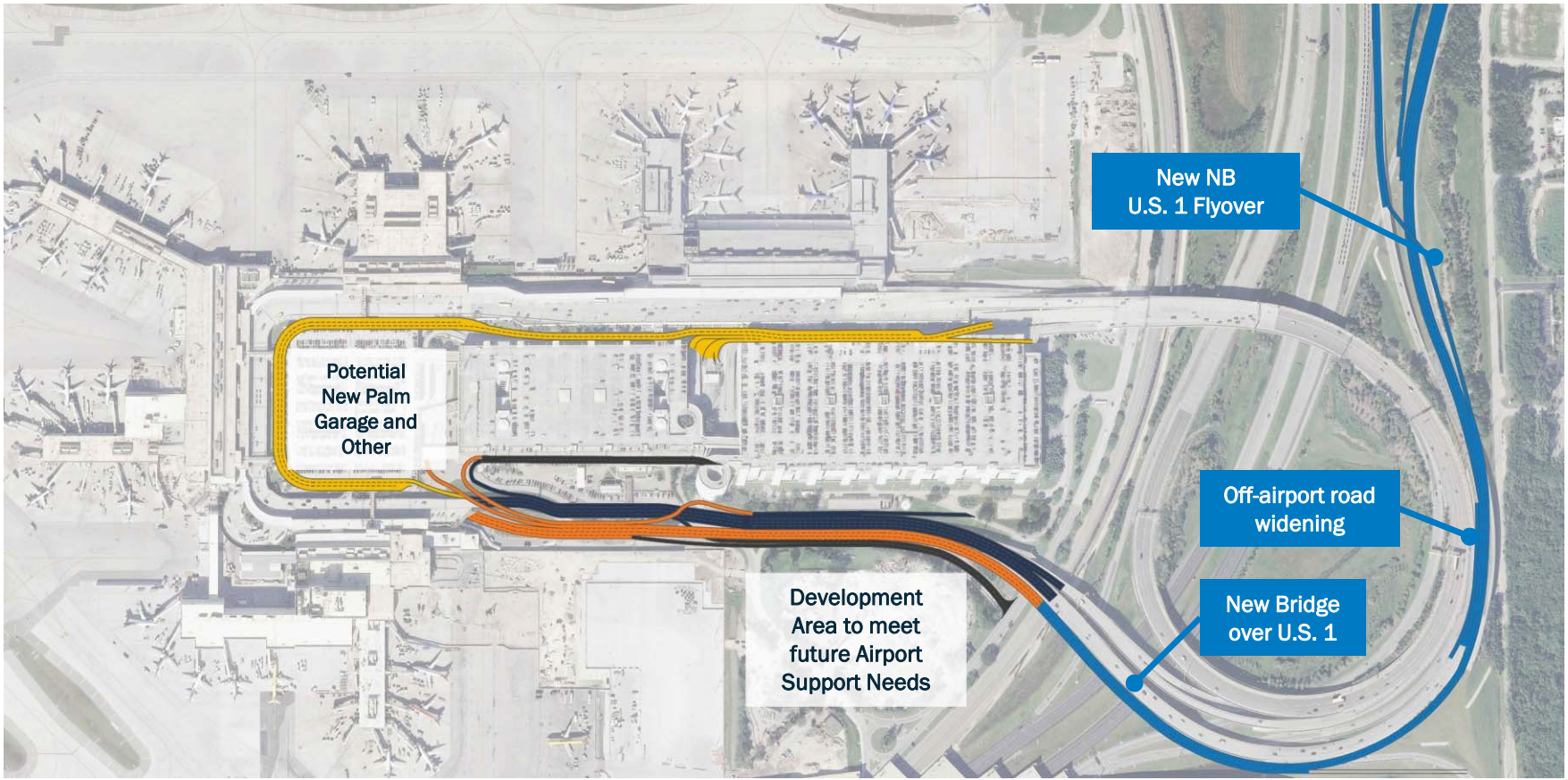




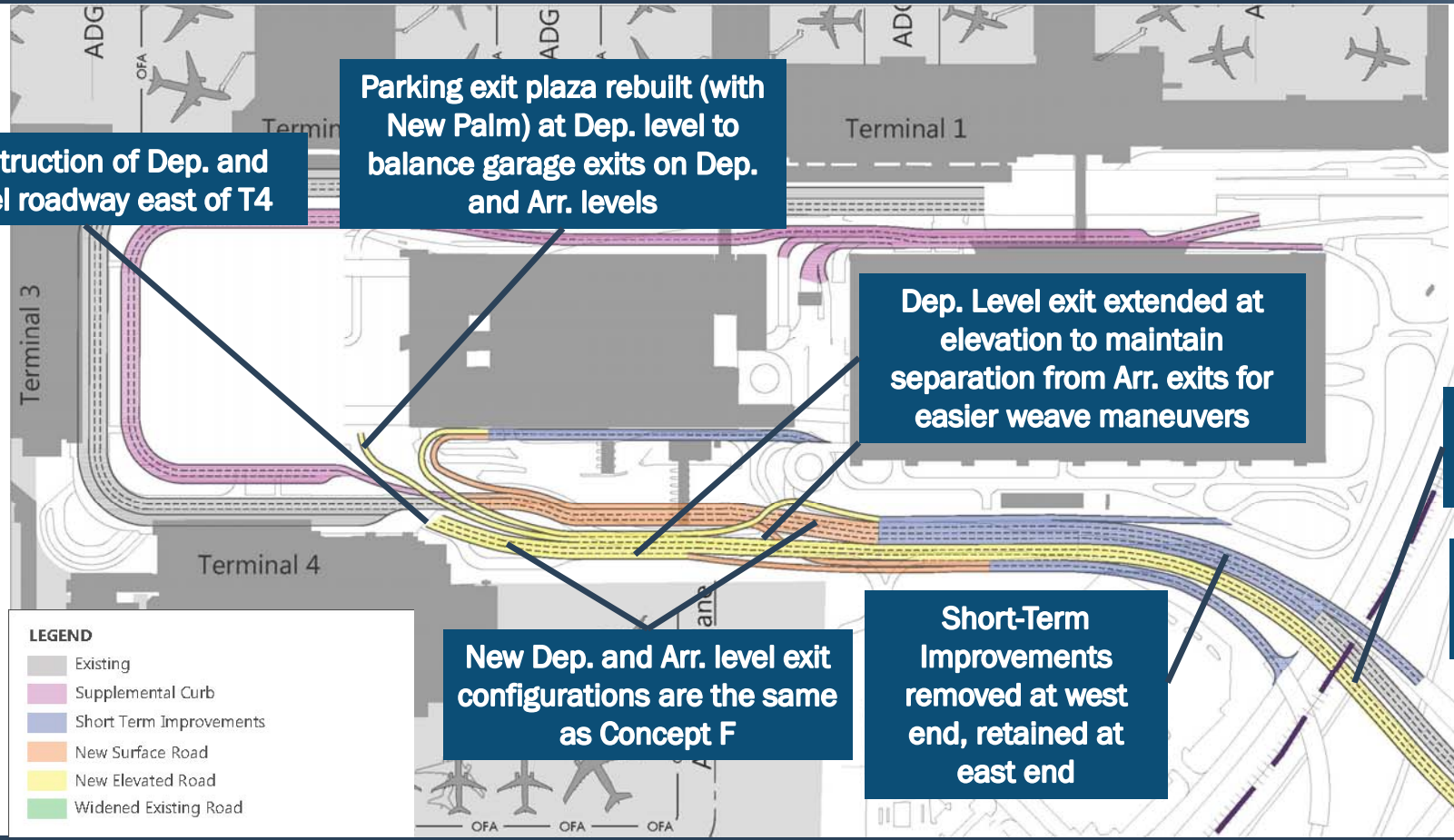
Preliminary Terminal Curbside and Roadway Expansion Alternative
On-Airport Improvements



Preliminary Terminal Curbside and Roadway Expansion Alternative With Off-Airport Improvements



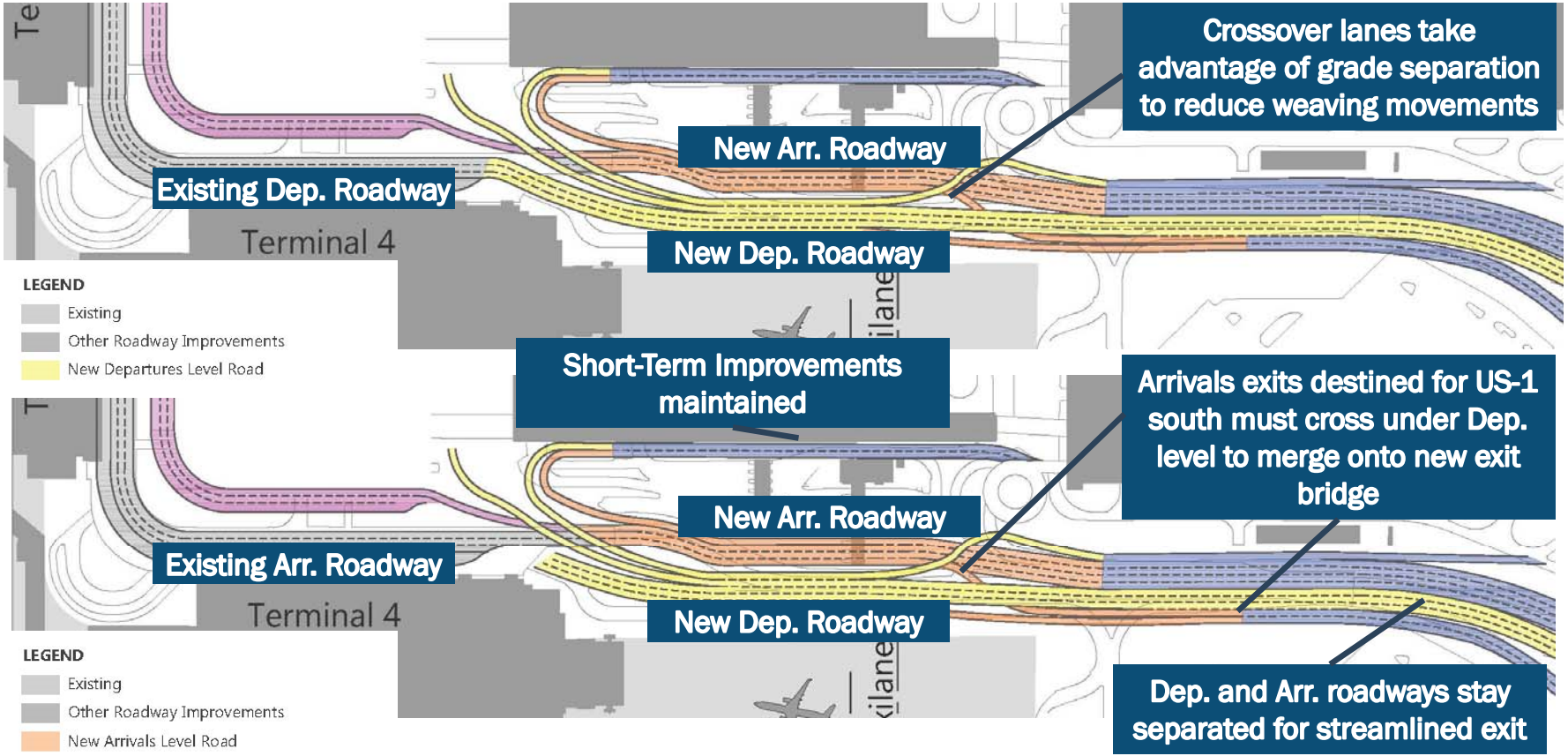
2035 Exit Roadway Capacity
Concept G



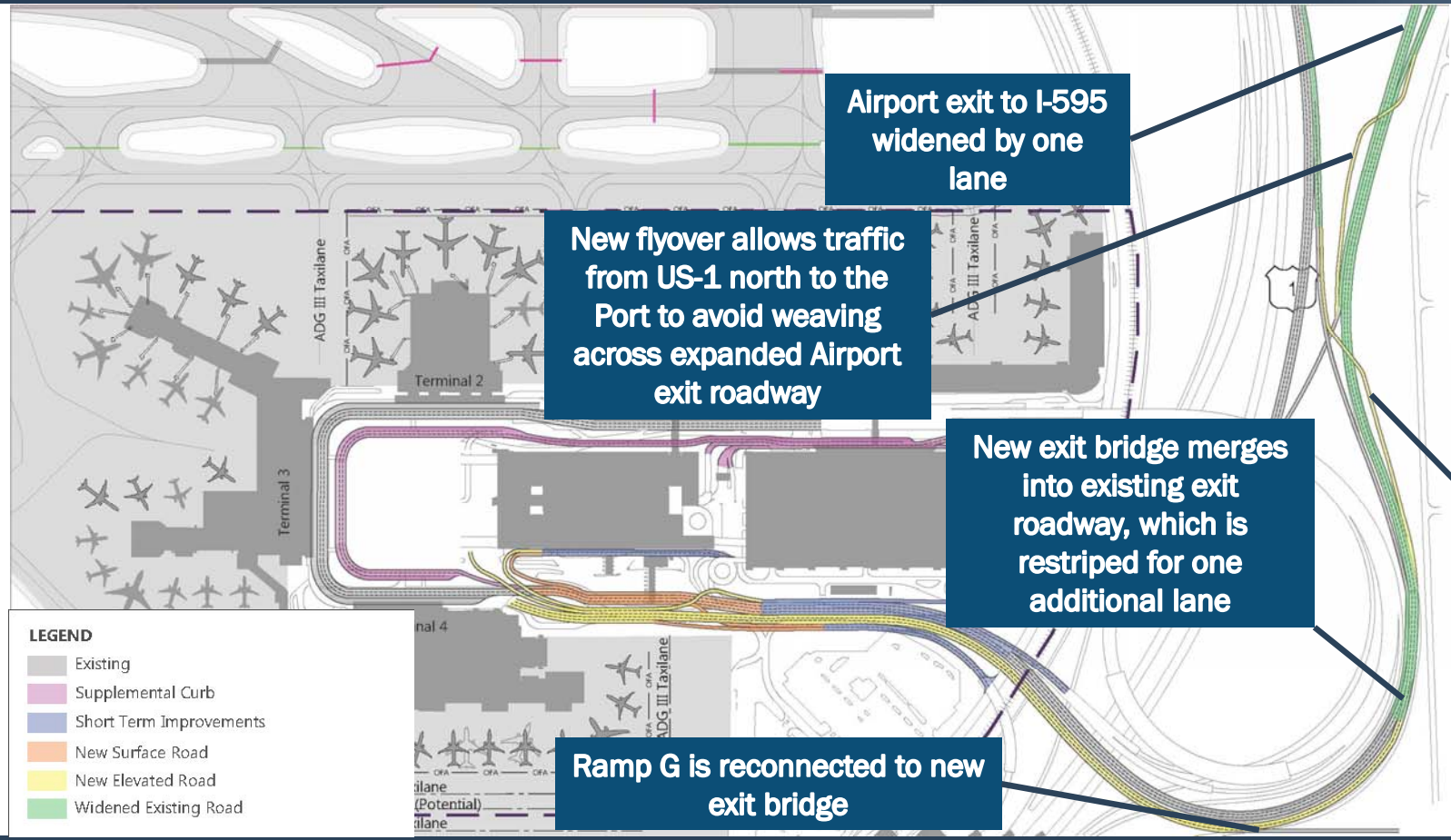
Concept G:

- Construct a new, parallel exit bridge, instead of widening existing bridge
- Requires two new off-airport connection ramps to mitigate weaving

2035 Exit Roadway Capacity
Concept G DETAIL



2035 Exit Roadway Capacity
Concept G Off-Airport



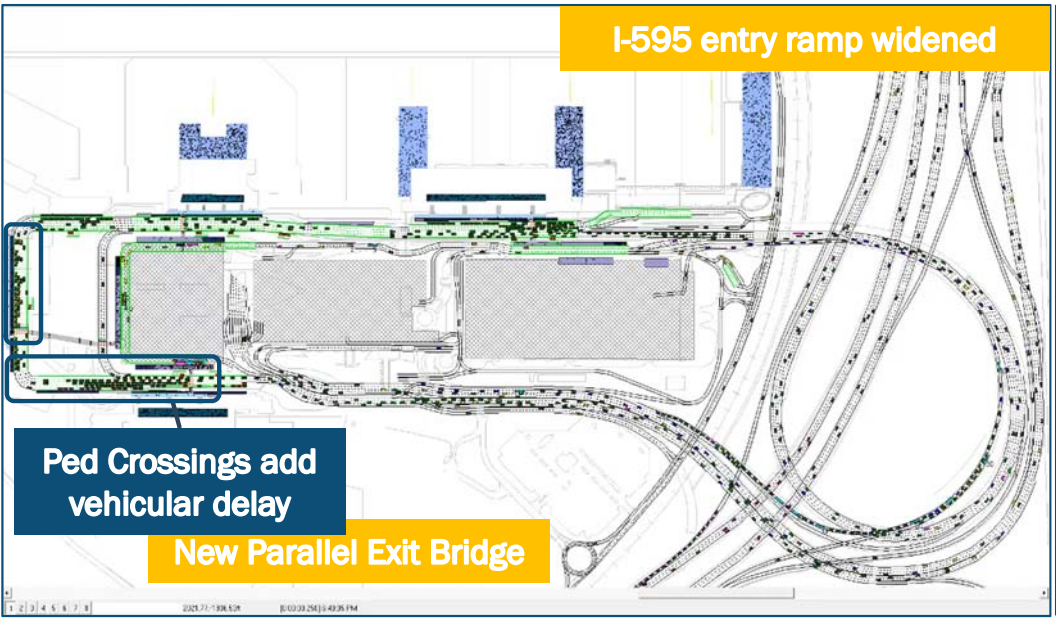
Concept G:

- Construct a new, parallel exit bridge, instead of widening existing bridge
- Requires two new off-airport connection ramps to mitigate weaving

2035 Exit Simulation Comparison

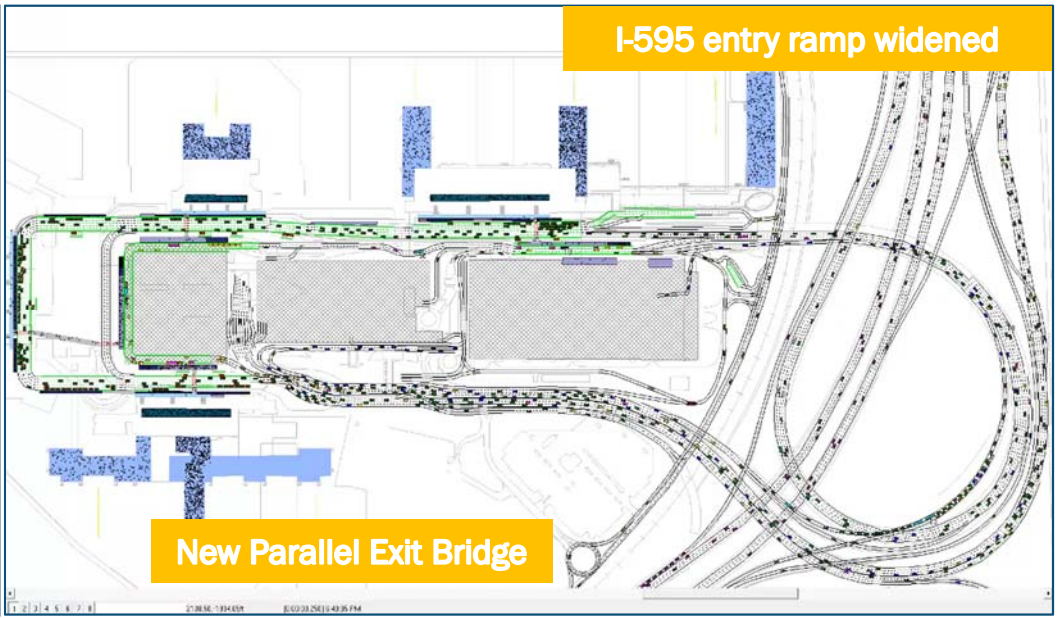
Concept G (assumes Downstream Widening), Lower Level, 6:40 PM

Exit Concept G



Exit Concept G

(Simulates Crosswalks Removed)



Time Period	Arrivals Travel Time Savings
Mid-Day	30% (3 min)
PM Peak	19% (2 min)

Sources: BCAD, July 2015; Ricondo & Associates, Inc., February 2017.
Prepared By: Kimley-Horn & Associates, Inc., February 2017.

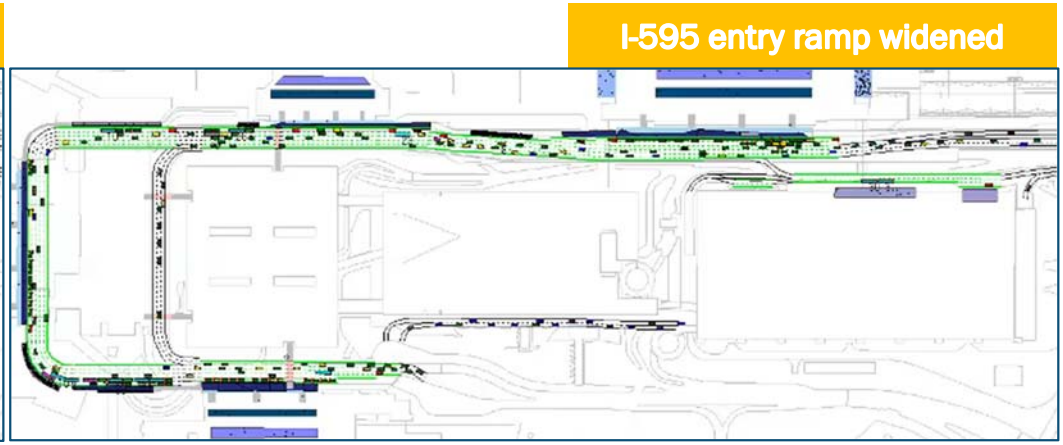
2035 Exit Simulation Comparison

Concept G (assumes Downstream Widening), Upper Level, 6:40 PM

Exit Concept G

Exit Concept G

(Simulates Crosswalks Removed)



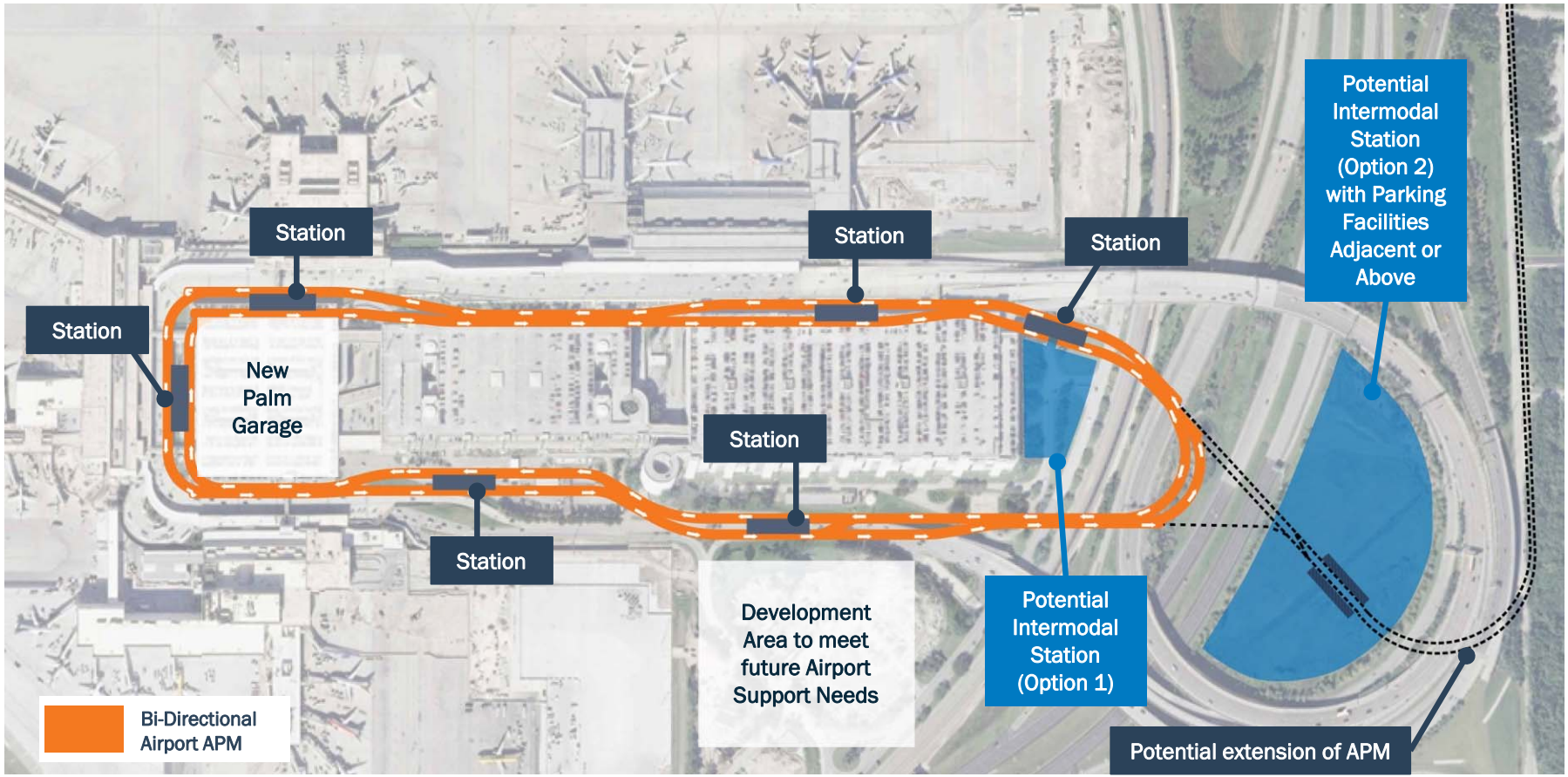
Time Period	Departures Travel Time Savings
Mid-Day	0% (<1 min)
PM Peak	4% (<1 min)

Sources: BCAD, July 2015; Ricondo & Associates, Inc., February 2017.
Prepared By: Kimley-Horn & Associates, Inc., February 2017.

Examples of Automated People Mover Systems (APM)

	Tampa International Airport	Miami International Airport	Orlando International Airport
Existing			
Proposed			

Preliminary Automated People Mover (APM) Concept



Ongoing Analyses and Next Steps

Support Facilities Requirements

Legend

- Facilities Adequate to Serve 2035 Requirements
- Facilities **Not** Adequate to Serve 2035 Requirements

GSE: Ground Support Equipment

Sources: Ricondo & Associates, Inc., FLL Baseline Activity Forecasts, June 2016; Kimley Horn & Associates, Inc., Demand/Capacity Analysis, September 2016.

Anticipated Future Facility Development Needs

Function	2020	2025	2030	2035
Airfield				
Terminal Gates/Processing	✓	✓	✓	✓
Terminal Curbfront/Roadways	✓	✓	✓	✓
Public Parking/Cell Phone Lot 1/	✓	✓	✓	✓
General Aviation 2/	✓	✓	✓	✓
Cargo				
Airport/Airline Support: 3/				
ATCT	As dictated by FAA funding availability			
Fuel Farm	✓	✓	✓	✓
Flight Kitchen		✓	✓	✓
Centralized Receiving/Distribution	✓			
Public Safety/ARFF	As dictated by other facility development			

Notes:
1/ Public parking amenities include cell phone waiting lot, transportation network companies (TNC) and taxi staging areas.

2/ Future general aviation facility development primarily consists of vehicular parking and aircraft storage hangars in replacement of aircraft parking apron.

3/ Future development of other support facilities, including airport maintenance, ARFF, and GSE storage and maintenance, is not anticipated during the 20-year planning horizon.

FLL 2035 Facility Deficiencies (Acres)

Facility Type	Existing Area	2035 Requirement	Deficiency
Cargo	34.2	15.5	0
General Aviation 1/	91.7	102.0	10.3
Airline/Airport Support			
- Flight Kitchens	0.5	2.0	1.5
- Fuel Farm	3.3	4.3	1.0
- ARFF	1.7	4.0	4.0 2/
- Airport Maintenance	2.6	8.6	6
- GSE Storage and Maintenance	- 3/	- 3/	- 3/
- GA Customs	1.0	1.7	0.7 2/
- Centralized Receiving/Distribution	0.0	1.5	1.5
- Public Safety Office	0.75	1.7	1.7 2/
Total	**135.75**		**34.2 4/5/**

Notes:

1/ General Aviation includes H Aviation, Bombardier and Embraer.

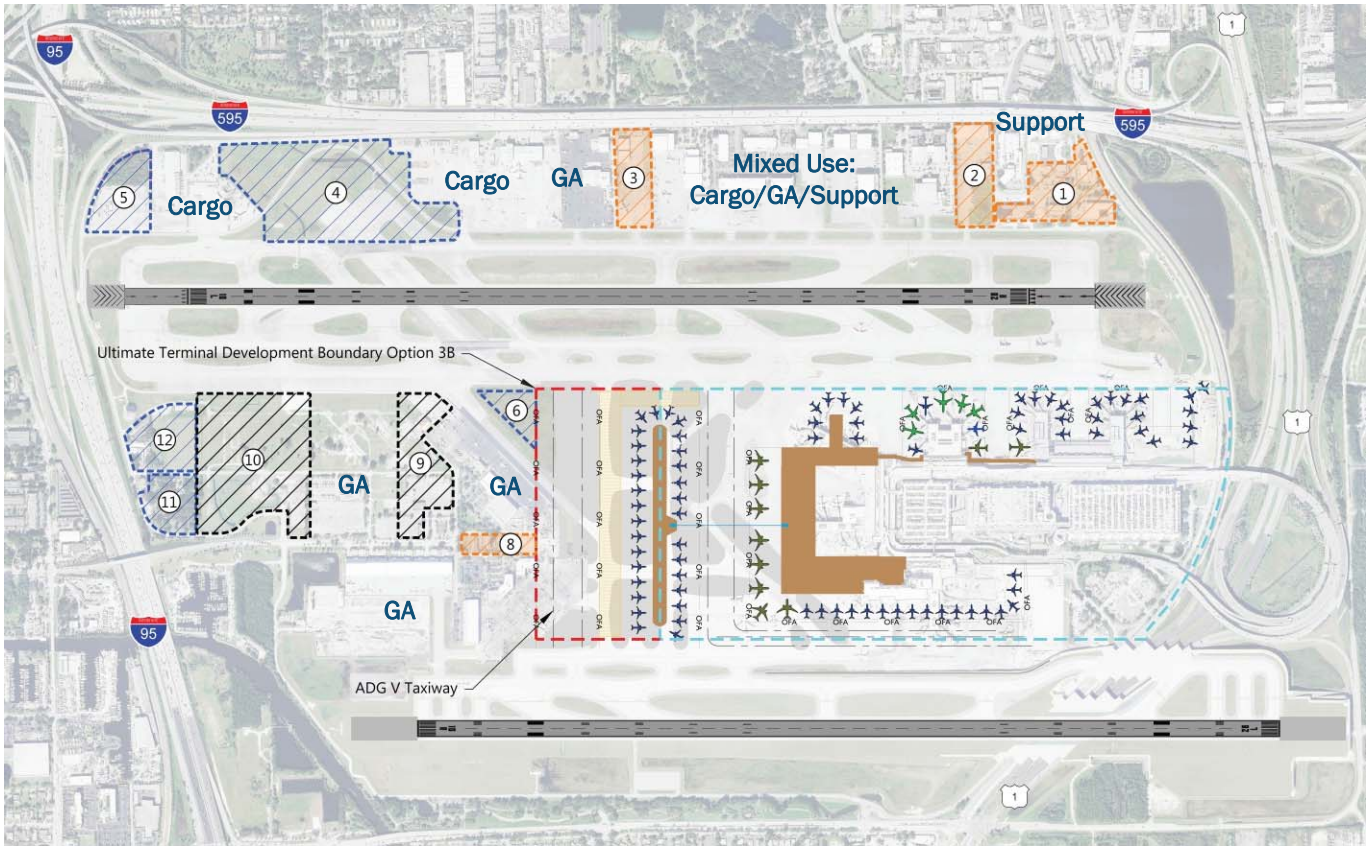
2/ Assumes full relocation of ARFF, GA Customs and Public Safety functions

3/ GSE Storage and Maintenance facilities are embedded with other airline functions.

4/ The total for new facilities has been increased for the potential full replacement of ARFF, Public safety Office and GA Customs facilities.

5/ To account for drainage requirements, the overall deficiency was increased to 34.2 acres which includes a 28% retention requirement for future development.

Future Development Opportunities (Aeronautical Uses) – Option 3B



Notes:

Available Land	102.4	Acres
Additional for 2035	34.2	Acres
Property Available for Other Use	**68.2**	**Acres**
Potential MRO	11.7	Acres
Potential "VIENNA"	29.5	Acres
Property Available for Other Use	**27**	**Acres**

LEGEND

- Available Land for Development (Occupied)
- Available Land for Development (Vacant)
- Available Land for Development (Existing Proposed Use)
- Proposed Building
- Proposed Taxiway/Taxilane
- Taxiway/Taxilane OFA
- Aircraft Pushback Area
- ① Area 1 - 10.8 Acres
- ② Area 2 - 7.7 Acres (Existing General Aviation)
- ③ Area 3 - 6.9 Acres (Existing General Aviation)
- ④ Area 4 - 36.1 Acres
- ⑤ Area 5 - 8.0 Acres
- ⑥ Area 6 - 3.4 Acres
- ⑦ Area 7 - Not Available for Development
- ⑧ Area 8 - 2.9 Acres
- ⑨ Area 9 - 11.7 Acres
- ⑩ Area 10 - 29.5 Acres
- ⑪ Area 11 - 5.7 Acres
- ⑫ Area 12 - 8.0 Acres

Next Steps

- Continue work on short-term improvements; return to Board for approval
- Stakeholder engagement and meetings
- Complete identification of Airport-wide needs (full Airport campus to include cargo, business/general aviation, ancillary/support facilities etc.)
- Further refinement to future development concepts
- Continuation with subsequent master planning tasks

FORT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT
BROWARD COUNTY, FLORIDA

THANK YOU

BROWARD COUNTY FLORIDA

(PRELIMINARY DRAFT) WORK IN PROGRESS - FOR DISCUSSION PURPOSES ONLY