Master Plan for the Cleveland Hopkins International Airport

Virtual Public Workshop #2

Facility Requirements & Preliminary Alternatives

October 14, 2020

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Agenda

- Introduction
- Airfield
- Terminal
- Landside
- Other Airport Facilities
- Schedule
- Work in Progress

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Master Plan Process

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We are here

Pre-Planning

- Airport Visioning
- Current Master Plan Redline
- Special Emphasis Study Identification
- Project Scoping
- Airport's Strategic Plan
- Public Involvement Plan

Investigation Phase

- Relevant Master Plan Data Summary
- Forecast Review/Update
- FAA Approval
- Facility Requirements Review/Update
- Exhibit 'A' and Obstructions Analysis

- Exhibit A'
- FAA Approval
- Airport Layout Plan

Solutions and Implementation Phase

- Identify Alternatives
- Evaluate Alternatives

- Select Preferred Alternatives
- Financial Feasibility Analysis
- Implementation
- Capital Improvement Program
- Confirm Alignment with Airport Strategic Plan
- Unmet Needs Assessment
- Administrative Recommendations

Documentation Phase

- Airports Geographic Information Systems Data Entry
- Airport Layout Plan & electronic Airport Layout Plan
- Airport Review
- City Review
- FAA Review
- Study Documentation
  - Handouts
  - Tech Reports
  - Exhibit 'A'- Airport Layout Plan Set
- Airport Adoption

Public Involvement Program

- Community Outreach
- Executive & Working Committees
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- Community Outreach
- Executive & Working Committees
- Public Town Hall
- Community Outreach

Solutions Phase –
Identify Alternatives & Begin Evaluation - Airfield

- Annual Capacity
- Runway Length
- Accommodate FAA Design Standards
- Long-Term Taxiway Alternative

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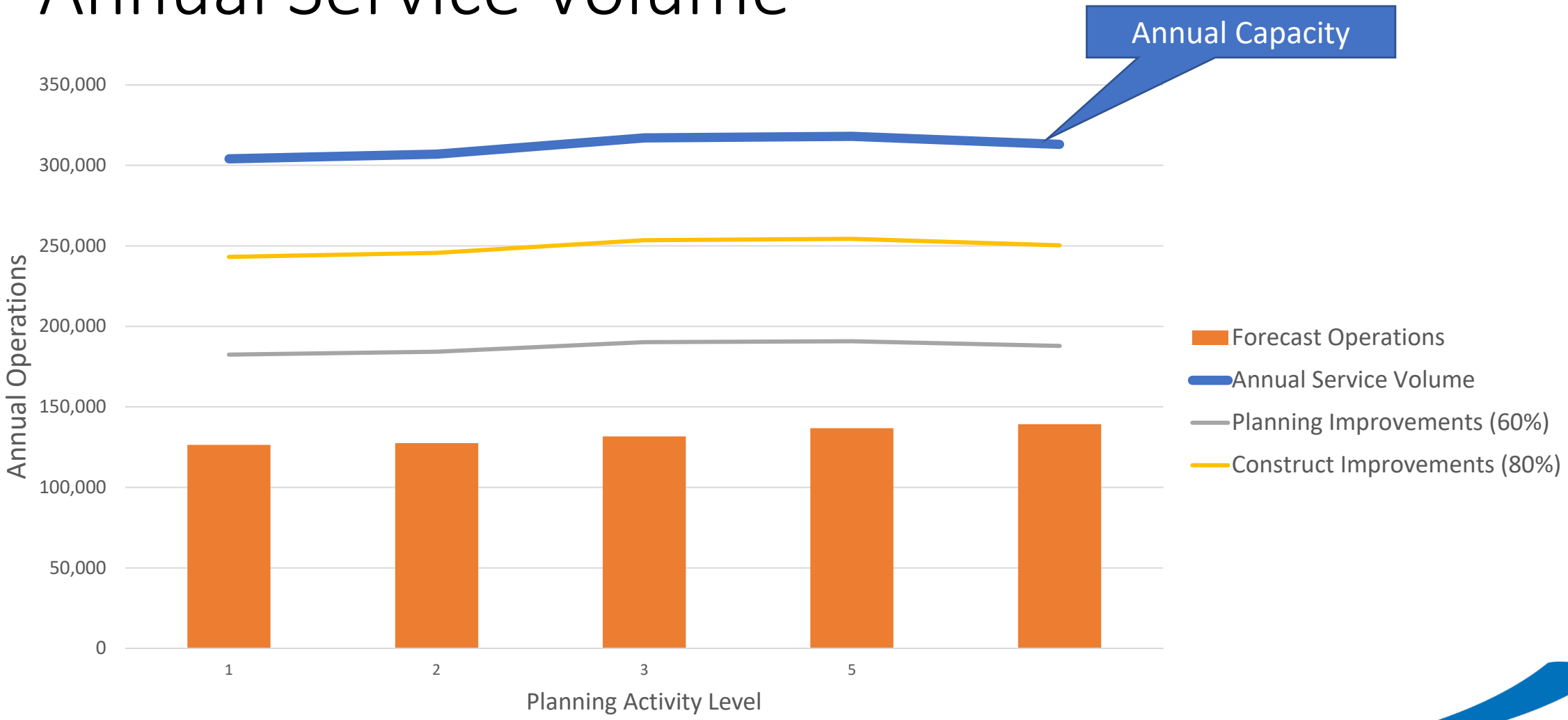
Annual Service Volume



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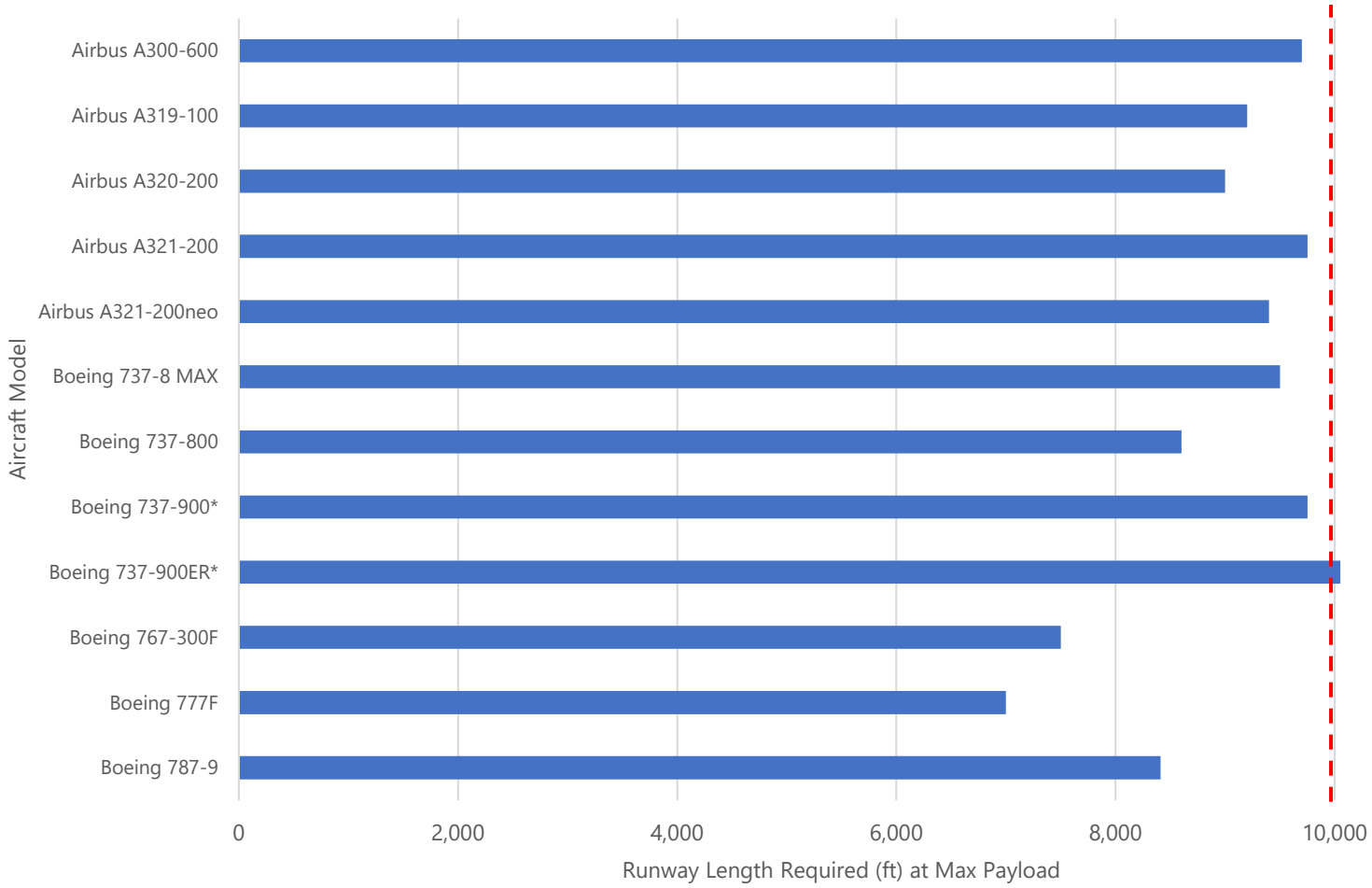
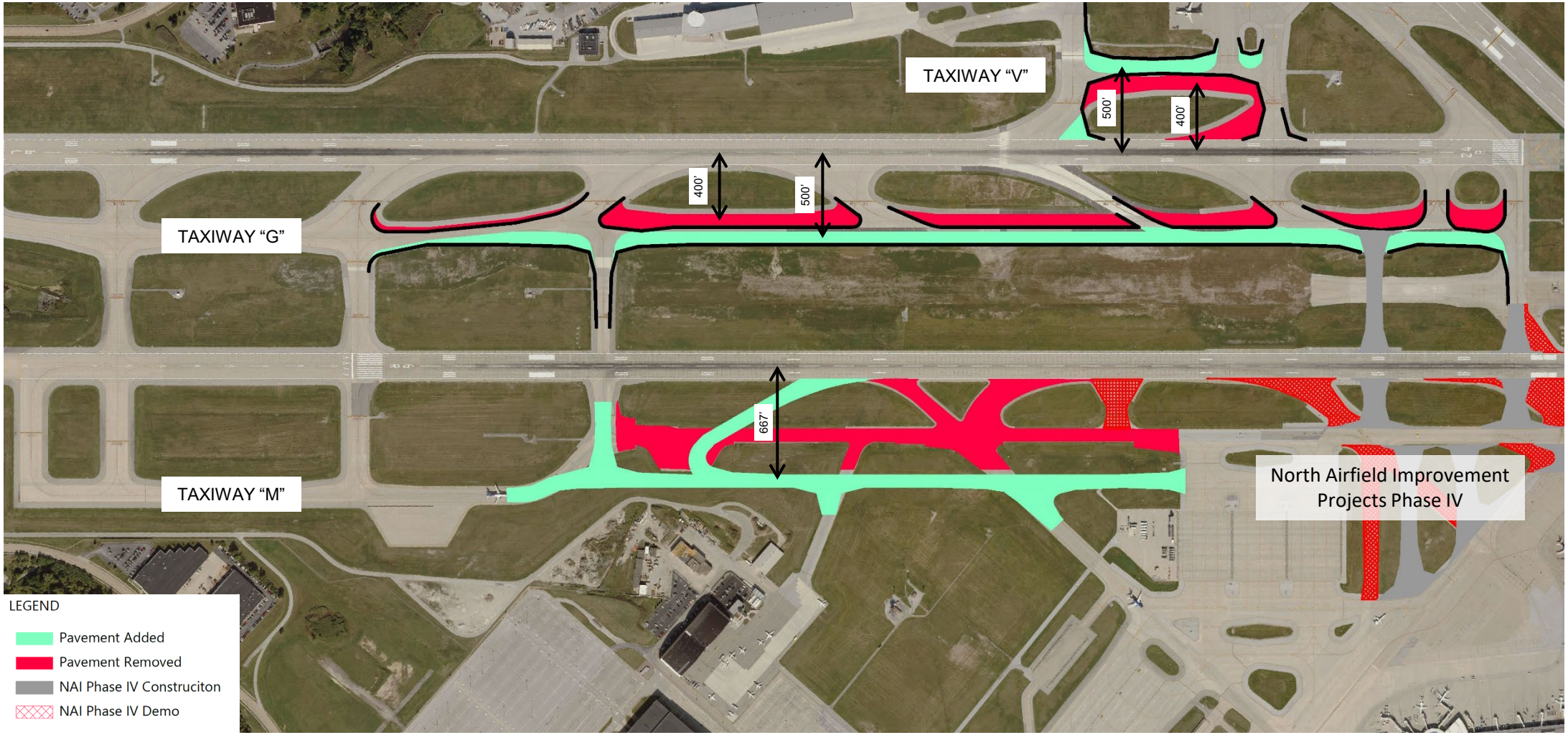
Runway Length (Maximum Payload)

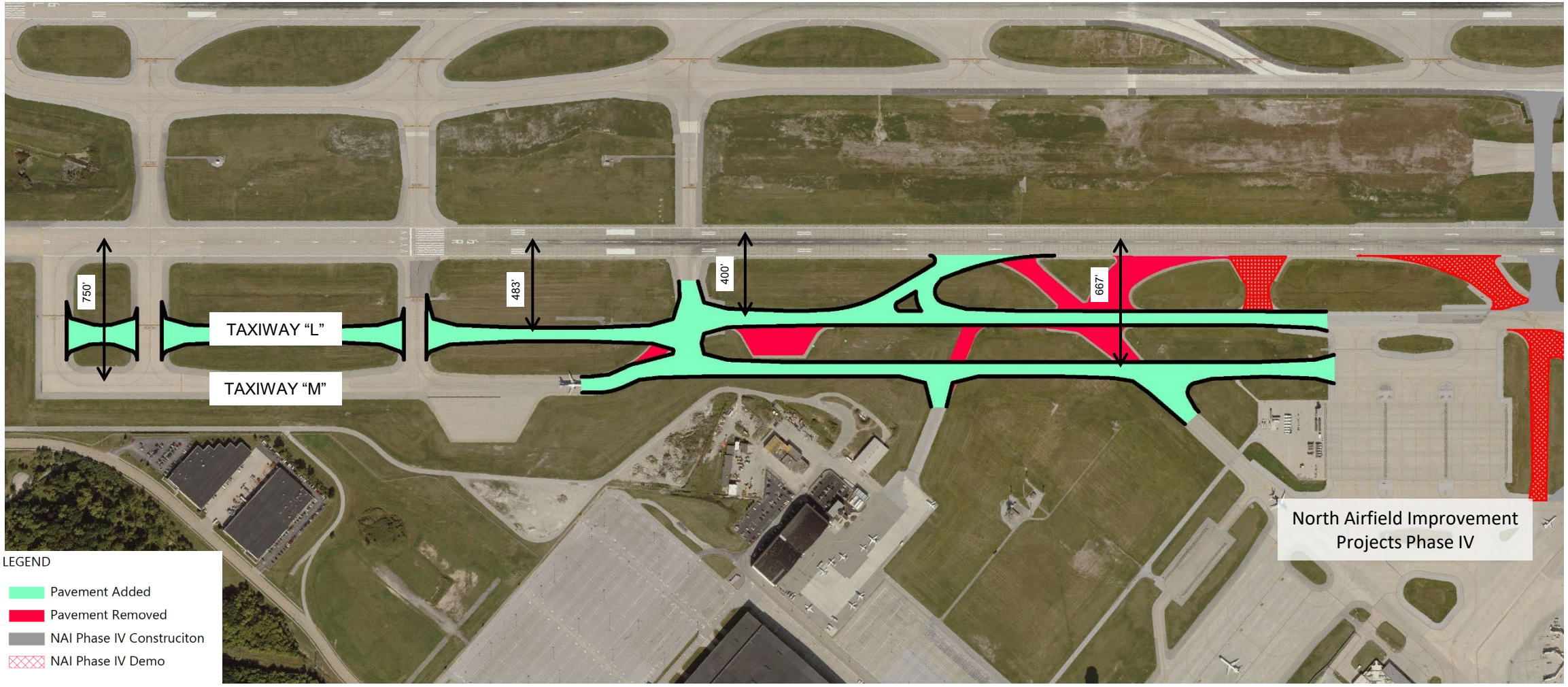


Runways are sufficient to handle all the forecast fleet mix for destinations from CLE

Accommodate FAA Design Standards



Long-Term Parallel Taxiway Alternative



Solutions Phase – Identify Alternatives & Begin Evaluation - Terminal

- Terminal Requirements Analysis
- Families of Terminal Alternatives

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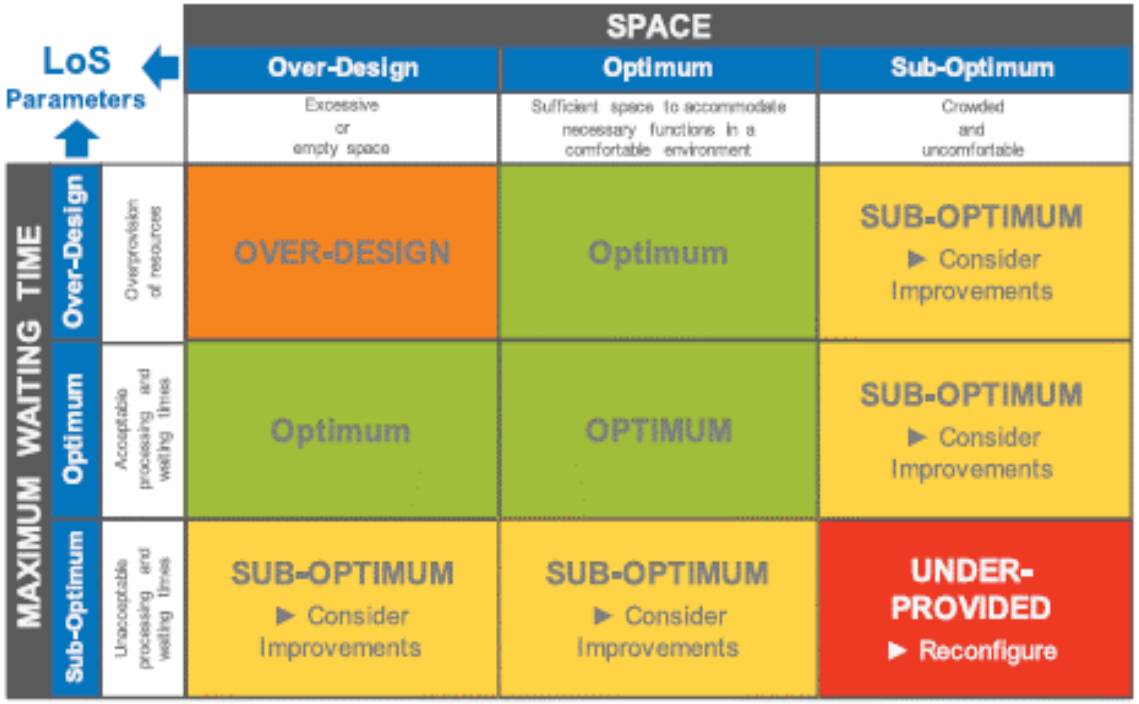
Terminal Requirements Analysis

Level of Service (LOS) of many terminal facilities is dictated by two important variables, space and time – specifically queuing space and waiting time



SOURCE: IATA ADRM

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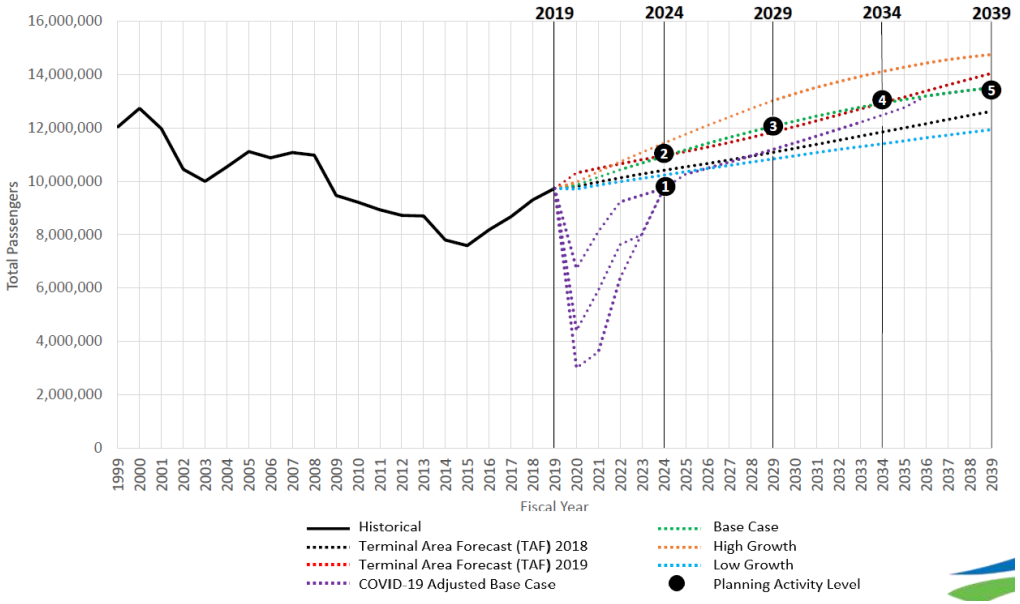
Terminal Requirements Analysis

Requirements based on a demand driven analysis – terminal facility requirements were determined by forecast passenger and aircraft activity; as demand increases post COVID-19 impacts, facility growth is anticipated.

Forecast – Total Passengers



Planning Activity Levels

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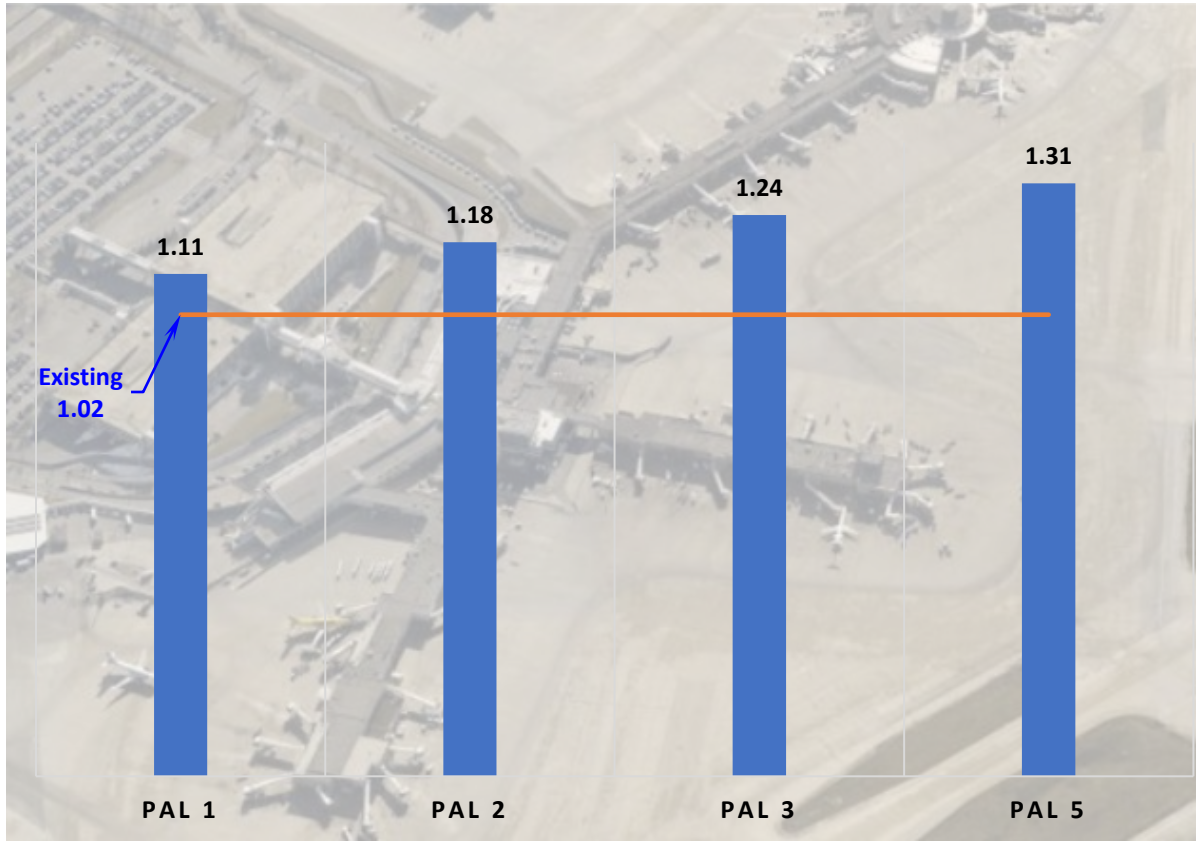
Terminal Requirements Analysis

Total Terminal Area (million sq. ft.)



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Terminal Requirements Analysis

Critical elements to address for space deficiencies in the near and long term

- Ticketing/Check-in: the ticketing lobby is too narrow and does not provide adequate depth for the typical airline check-in process with self-service kiosk and queue and bag check-in processes
- Checked Baggage Inspection Systems (CBIS): two additional explosive detection system (EDS) devices and up to 14 additional checked baggage resolution area (CBRA) stations are required by the end of the planning period (there are currently three EDS devices and 11 CBRA stations)
- Security Screening Checkpoints: a consolidated centralized SSCP is preferred and the existing SSCP's are not sized adequately for current and future security lane configurations
- Holdrooms: many holdrooms are currently undersized for projected demand

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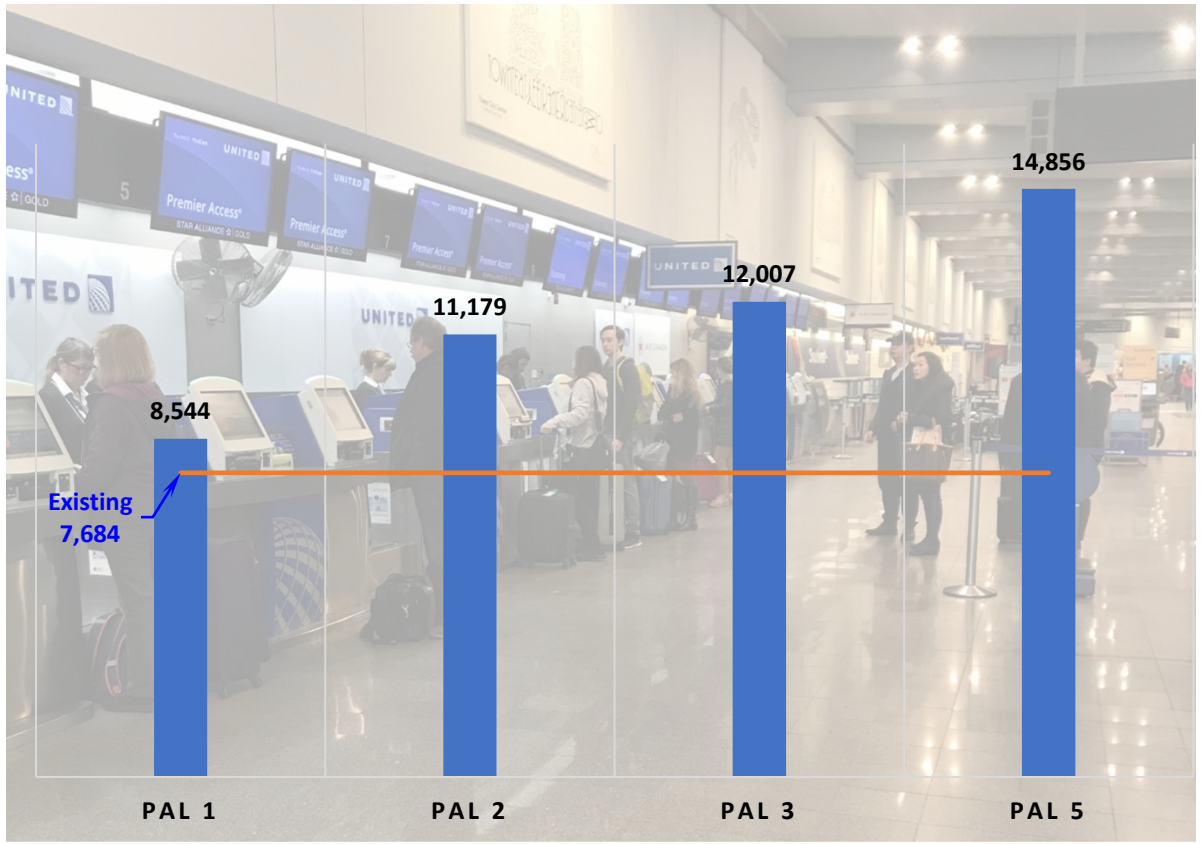
Terminal Requirements Analysis

Ticketing Counter and Active Check-in Area (sq. ft.)



Key Assumptions:

- CLE specific passenger arrival profile to the terminal
- International Air Transport Association (IATA) time and space parameters for check-in
- CLE specific passenger processing times at various check-in facilities
- Exclusive use and common use check-in facilities averaged to arrive at future requirements
- Continued and expanded use of technology for check-in passenger processing and baggage, i.e. self-service kiosk and bag check-in, etc.

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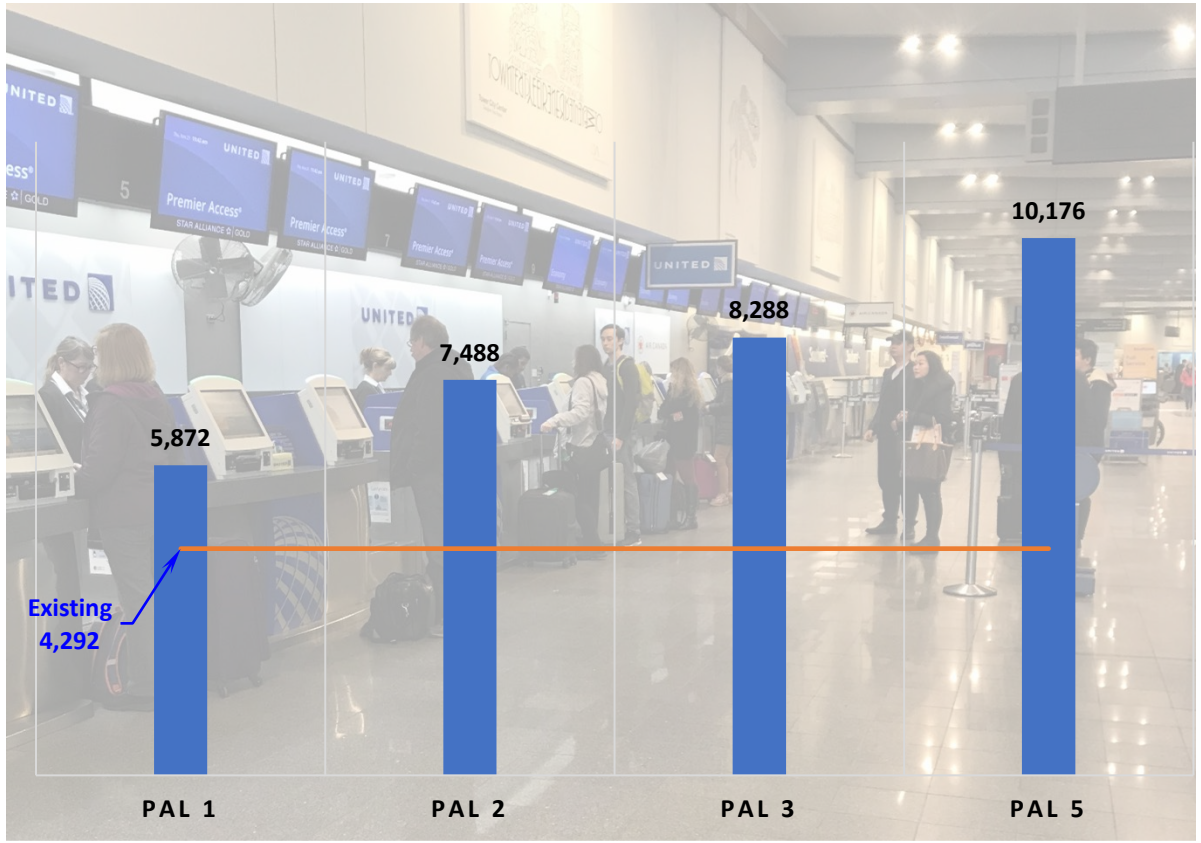
Terminal Requirements Analysis

Ticketing Queue (sq. ft.)



Key Assumptions:

- CLE specific passenger arrival profile to the terminal
- International Air Transport Association (IATA) time and space parameters for check-in queue
- CLE specific passenger queue wait times
- In-queue kiosk for boarding pass and bag tag printing

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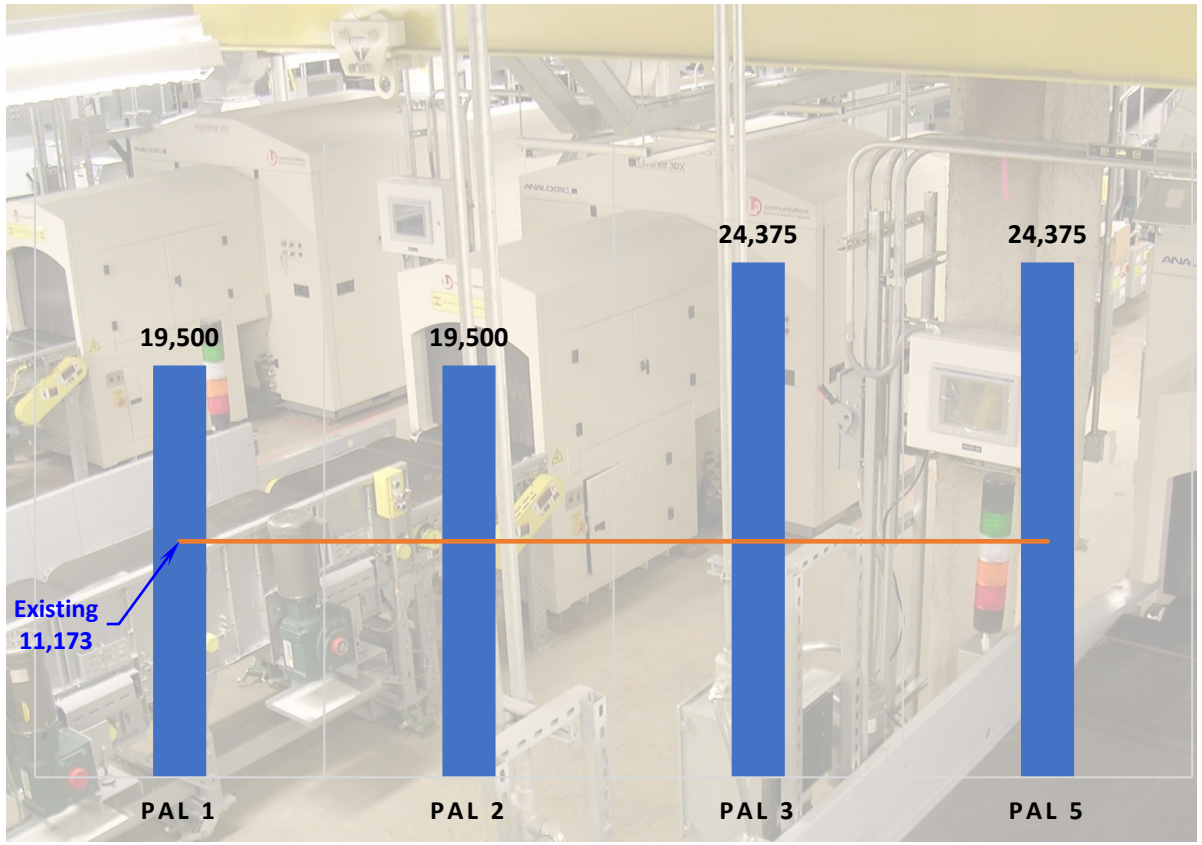
Terminal Requirements Analysis

Checked Baggage Inspection System (sq. ft.)



Key Assumptions:

- Explosive Detection System (EDS) device can process 500 to 600 bags per hour
- EDS requirement include TSA required "N" (number of devices to accommodate peak demand) plus 1 device for redundancy
- Area required for Checked Baggage Inspection System is based on area per EDS device of approximately 4,250 sq. ft.
- 4 to 5 Checked Baggage Reconciliation Area Stations per EDS device

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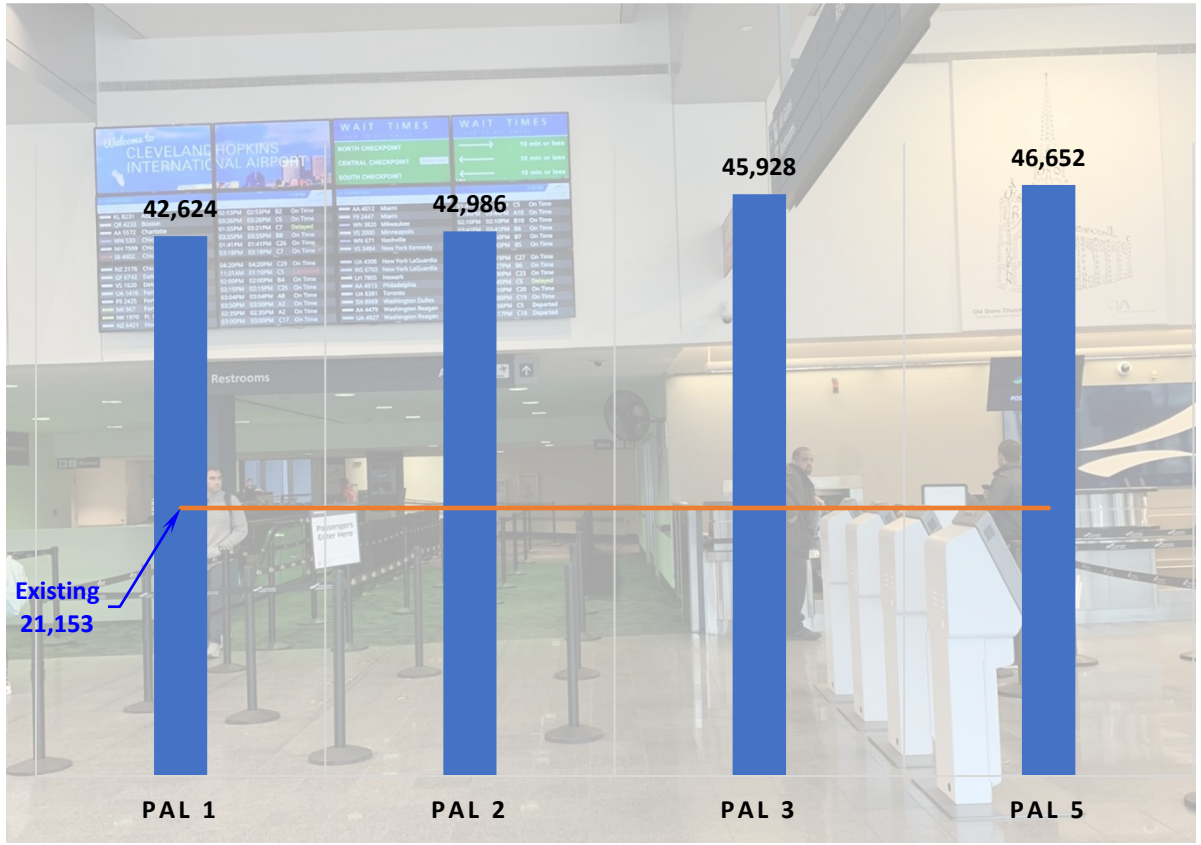
Terminal Requirements Analysis

Security Screening Checkpoint (sq. ft.)



Key Assumptions:

- Future planning for Automated Screening Lane (ASL) technology and protocols
- Provides Standard, Pre✓, and Premium security screening lanes; use of Pre✓ is expected to increase to 40% over the planning period
- Centralized security screening checkpoint
- 3% added demand for employee screening

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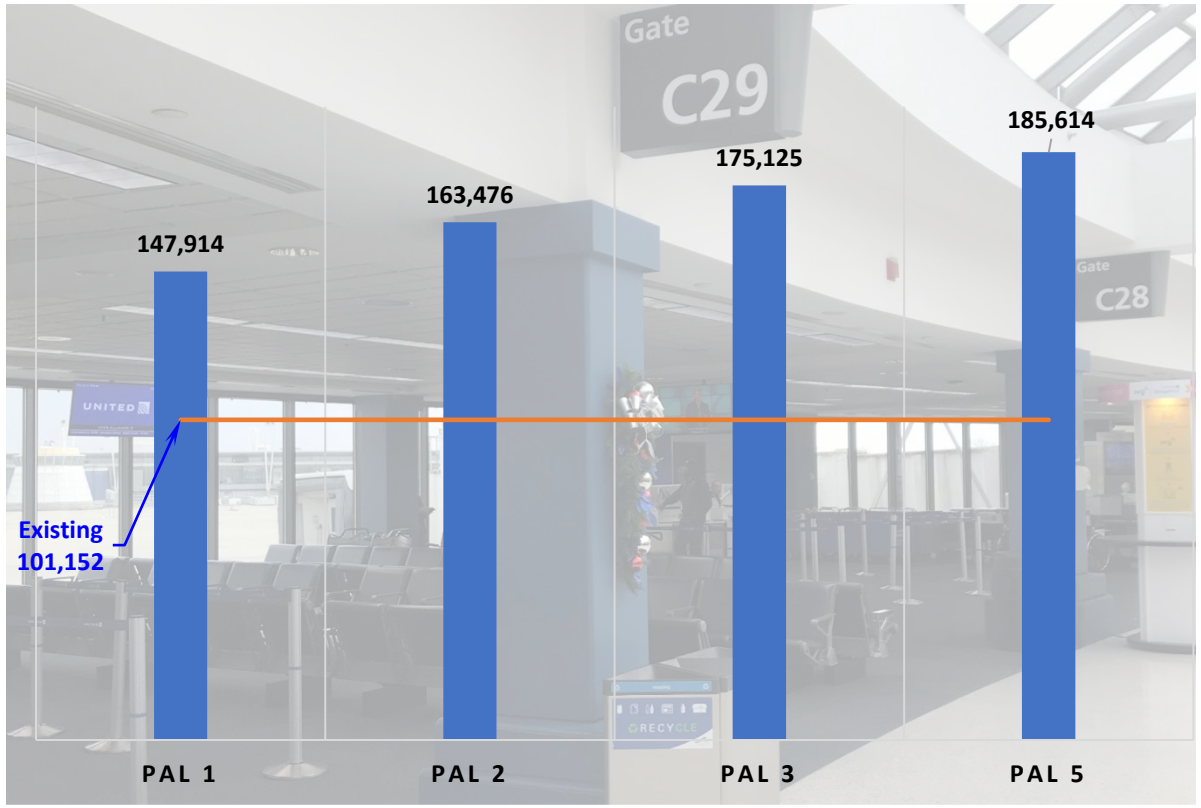
Terminal Requirements Analysis

Holdrooms (sq. ft.)



Key Assumptions:

- Average aircraft seating capacity = 193
- Load factors varies by flight and by year
- 90% of passengers accommodated in holdroom, remaining 10% in other areas
- Provide seating for 75% of accommodate passengers in holdroom, remaining 25% stand
- Dedicated boarding and egress rights-of-way

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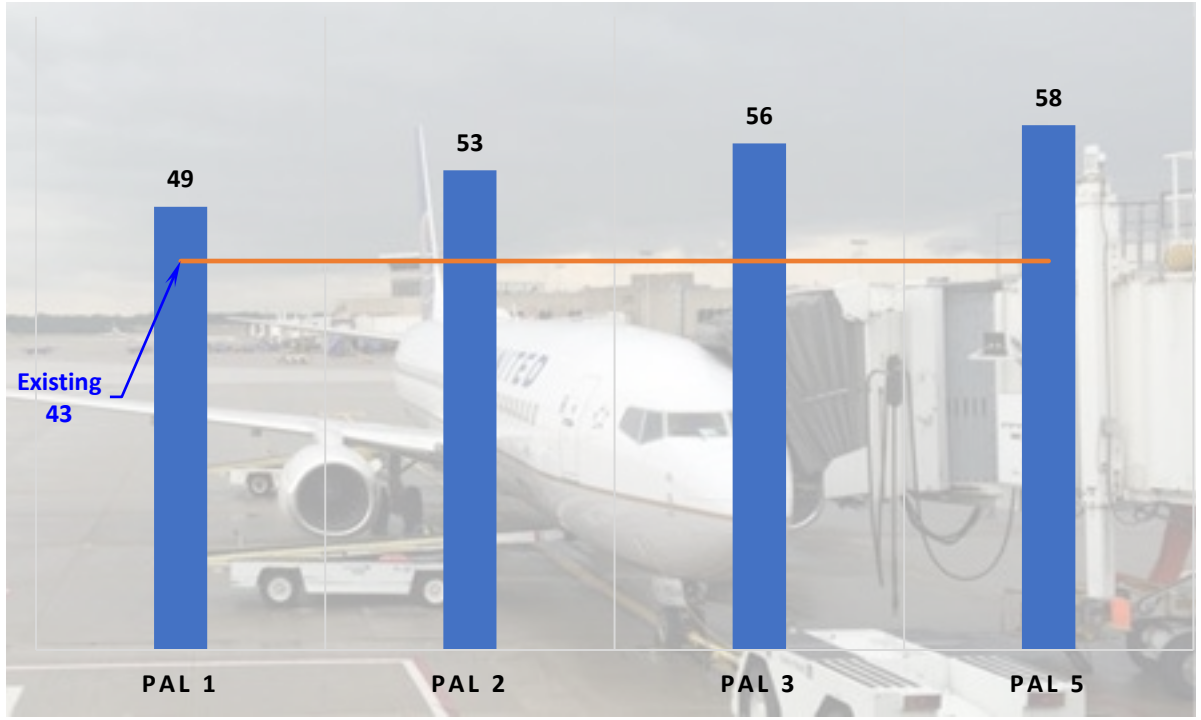
Terminal Requirements Analysis

Gates



Key Assumptions:

- Gates/aircraft parking positions used by airlines during peak period
- Gates added in PAL 2, PAL 3 and PAL 5 to address widebody to narrowbody aircraft adjacency or gates needed during construction phasing
- Majority of positions projected to be Aircraft Design Group (ADG) III
- Assumed largest ADG III as Boeing 737 Max 10 / Airbus A321 NEO

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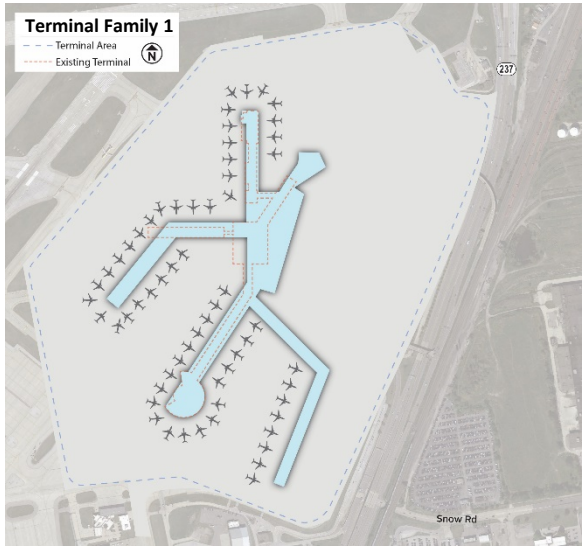
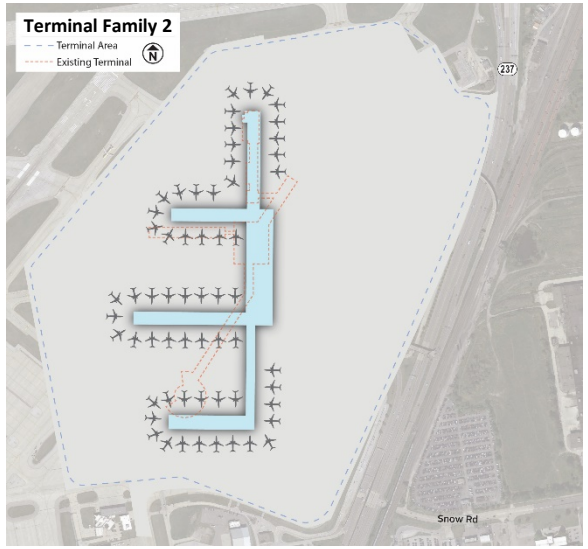
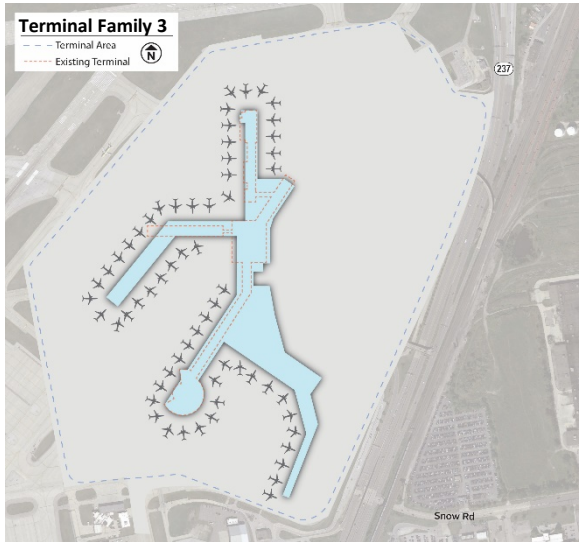
Six Families for PAL 5 Development



Family 1



Family 2



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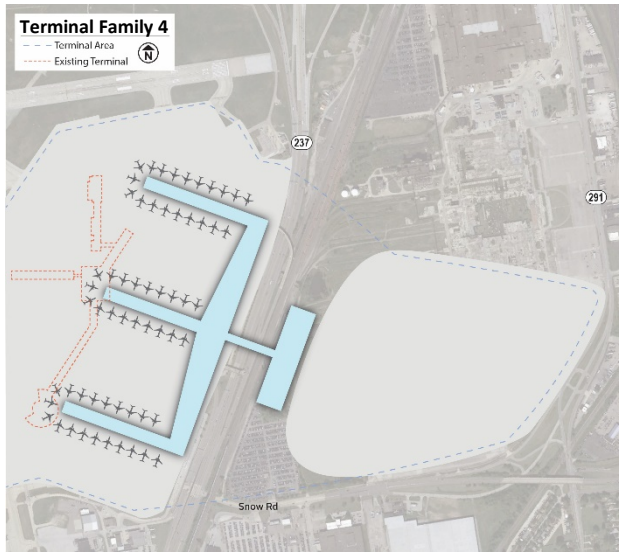

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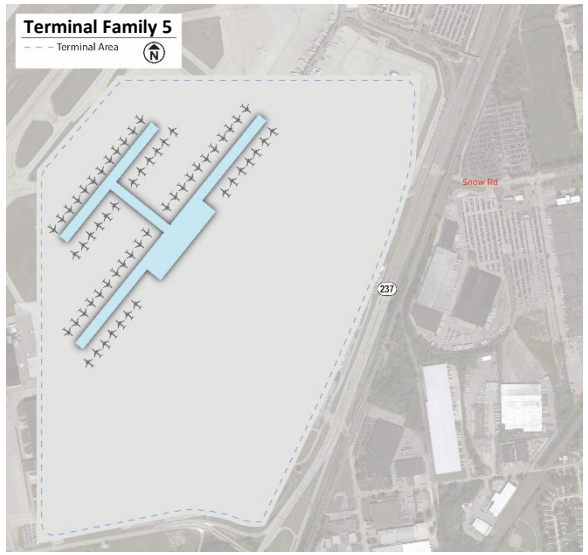
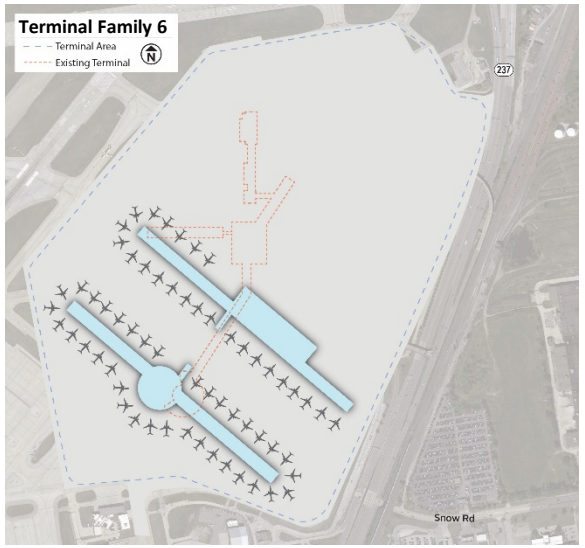


Family 5



Family 6

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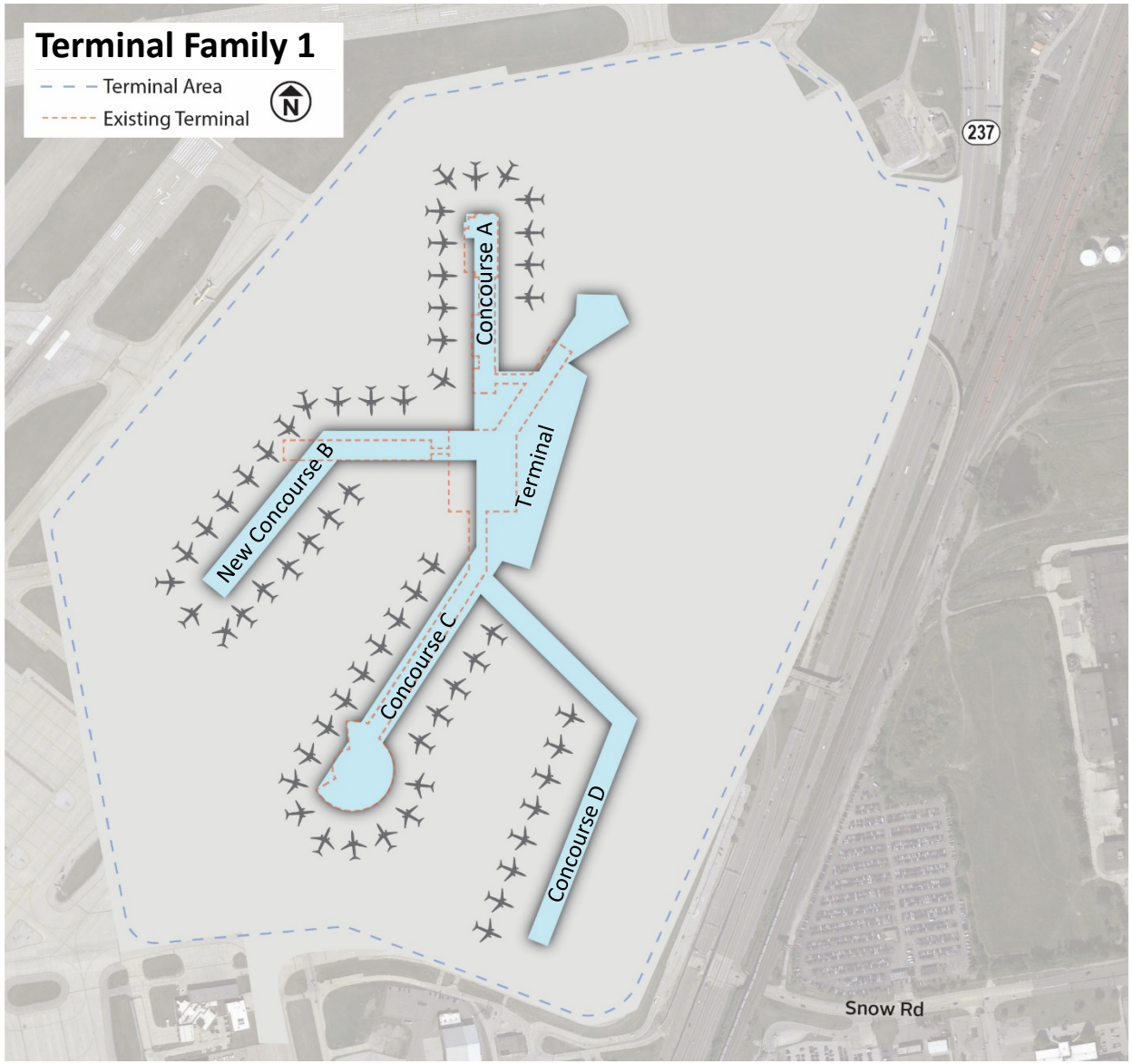
Terminal Family 1



Main Features

- Reuses much of existing facility
- Lowest construction cost
- Higher on-going maintenance/ replacement costs

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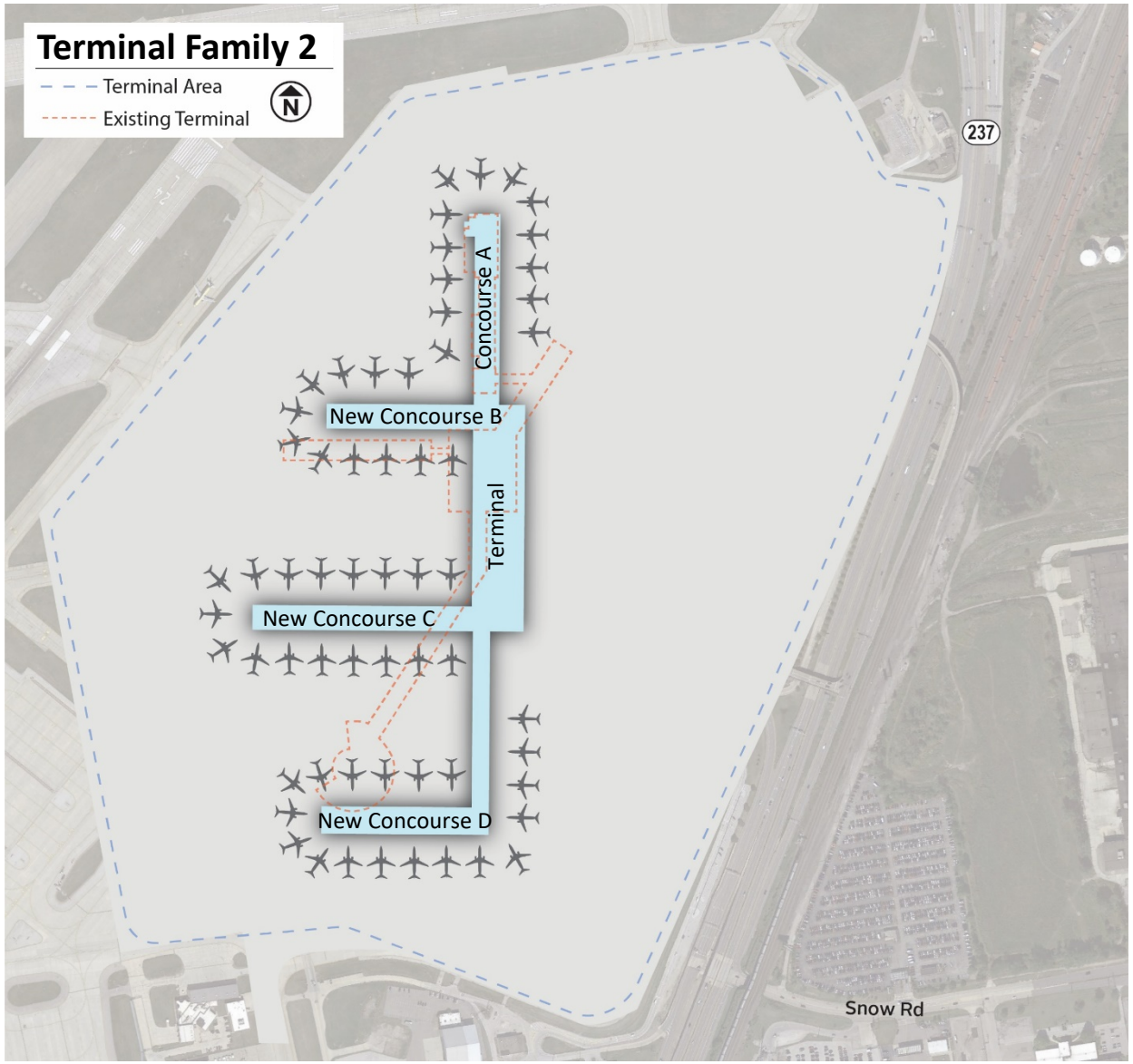
Terminal Family 2



Main Features

- Balance between reused and new facilities
- Incremental phased construction
- More efficient passenger processing
- Improved passenger circulation
- Increased concession opportunities
- Greater operational flexibility

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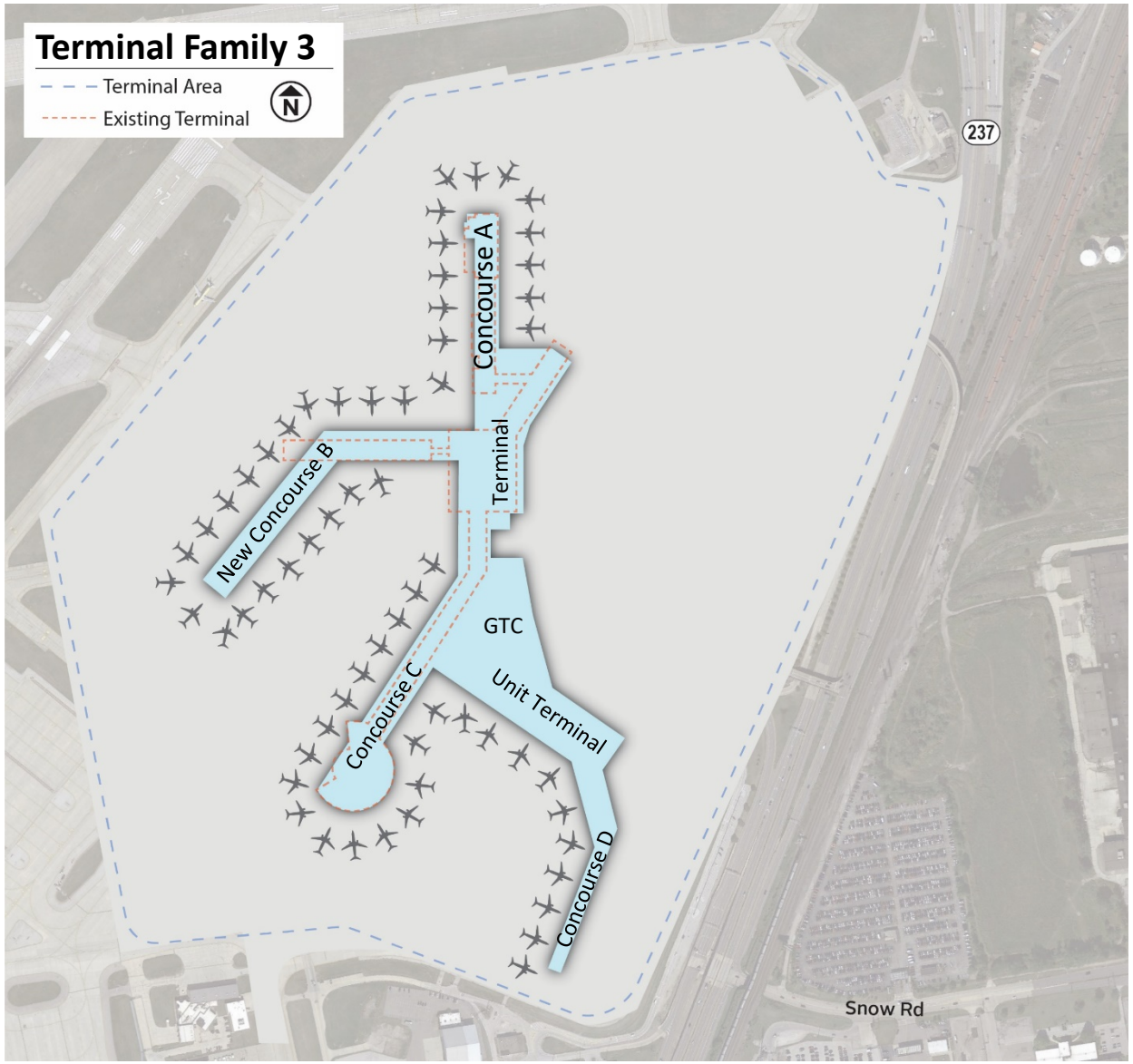
Terminal Family 3



Main Features

- Reuses much of existing facility
- Adds a unit terminal
- Reduces walking distances
- Decentralizes SSCP and Ticketing
- Longer curbside
- Opportunity for in-terminal GTC

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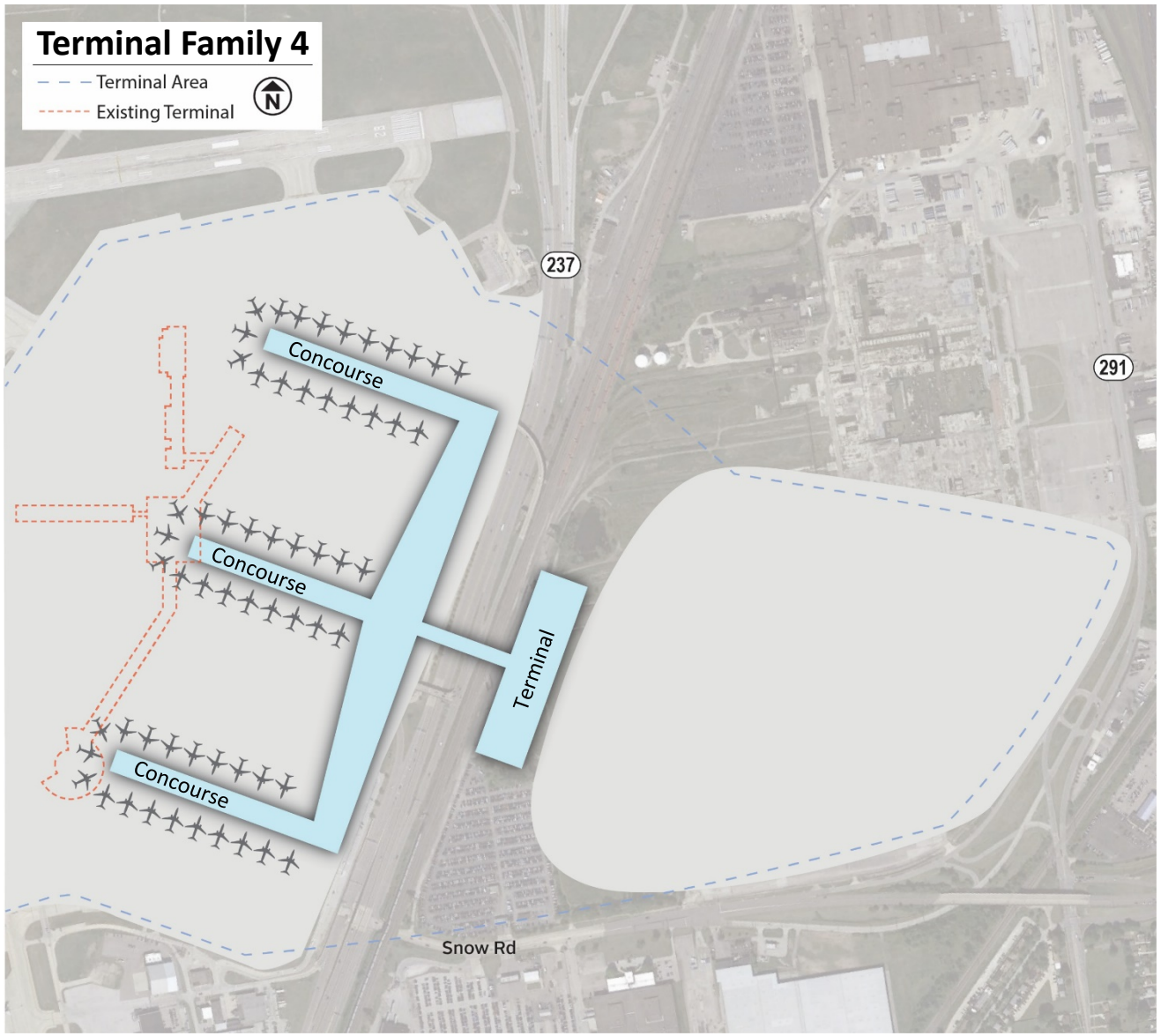
Terminal Family 4



Main Features

- Makes use of off-site property
- Bridge across route 237
- Provides all new facility
- Opportunities for Terminal Improvements
- Reduces maintenance/replacement costs

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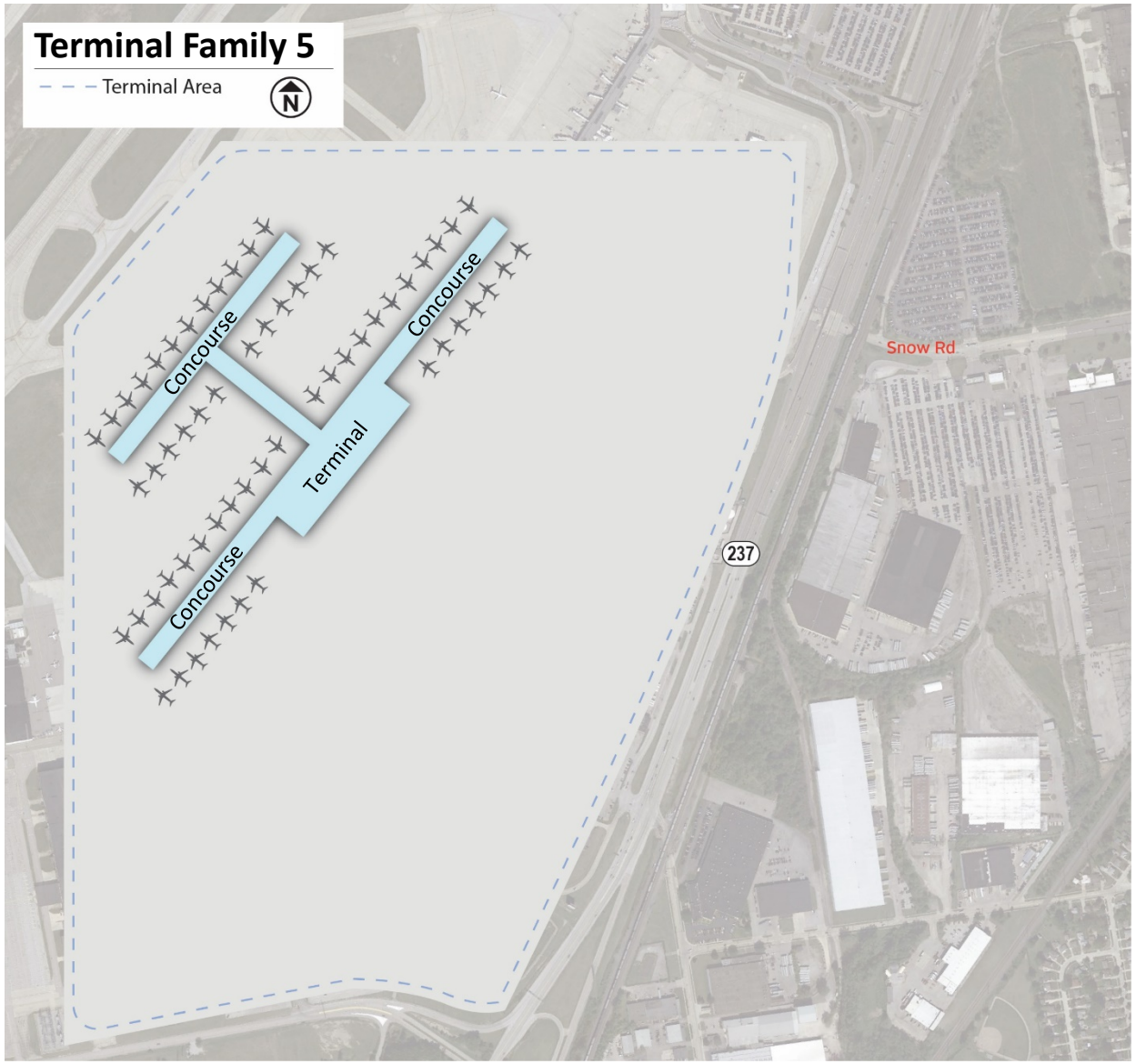
Terminal Family 5



Main Features

- Provides all new facility
- Opportunities for Terminal Improvements
- Reduces maintenance/replacement costs
- Construction does not impact existing terminal operations
- Frees the north airport campus for redevelopment
- Higher initial cost

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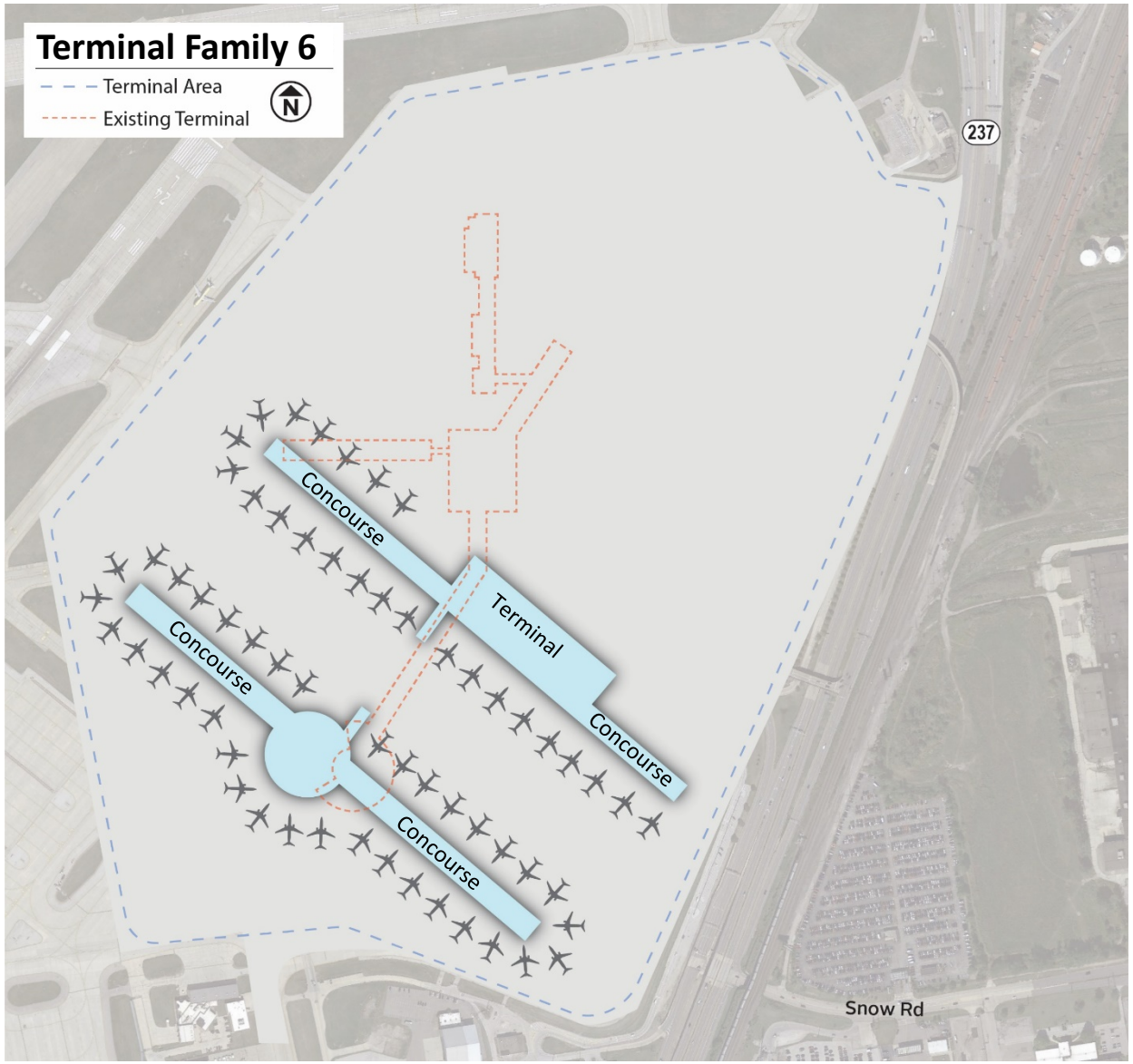
Terminal Family 6



Main Features

- Facilitates efficient aircraft movements
- Provides all new facility
- Opportunities for Terminal Improvements
- Reduces maintenance/replacement costs
- Incremental phased construction

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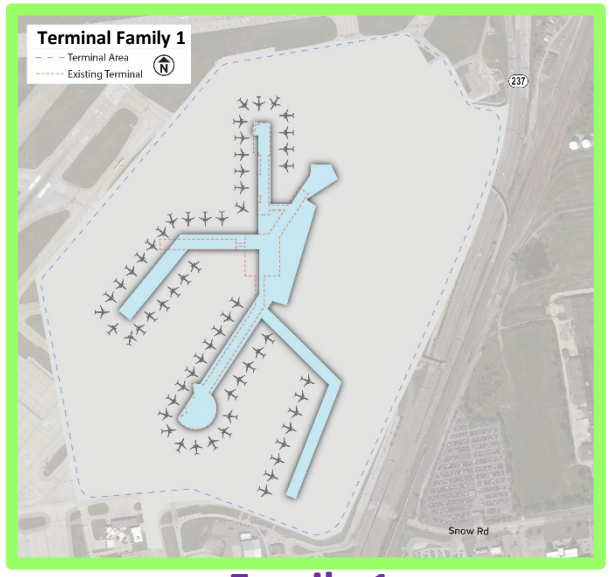
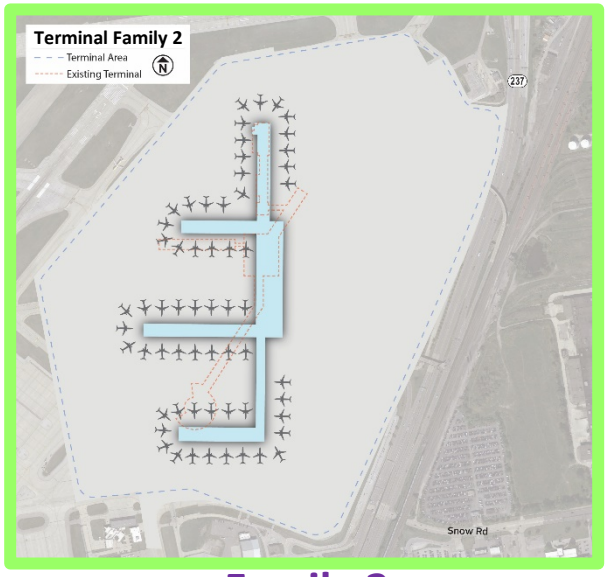
Three Families Selected for Detailed Evaluation



Family 1



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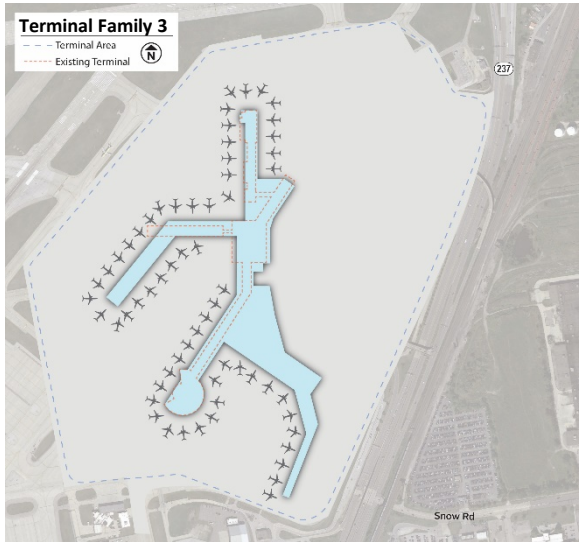

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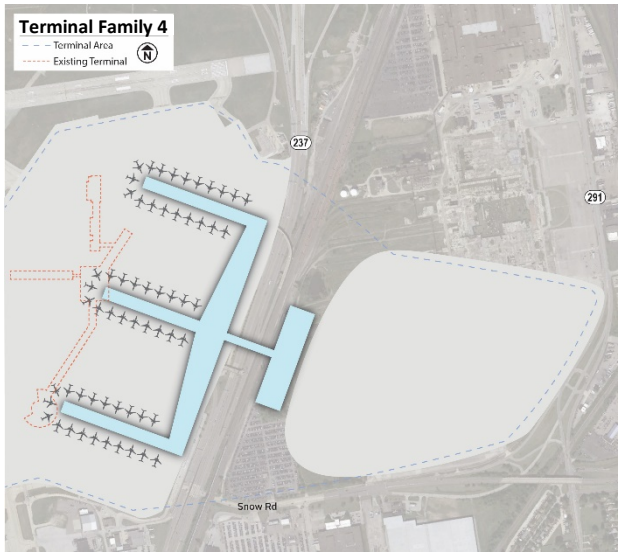

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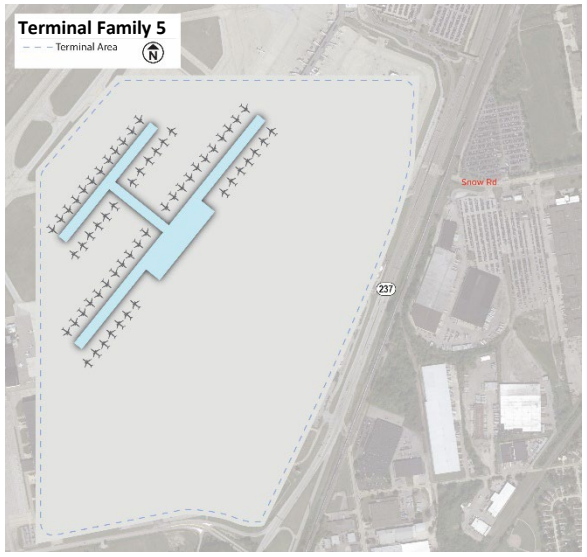

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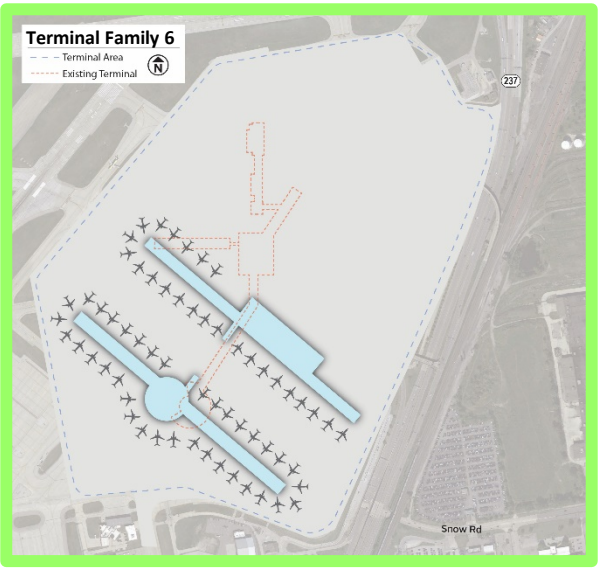

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Solutions Phase – Identify Alternatives & Begin Evaluation - Landside

- Landside Orientation
- Curb/Road Level of Service
- Landside Facility Requirements
- Preliminary Regional Access Concepts

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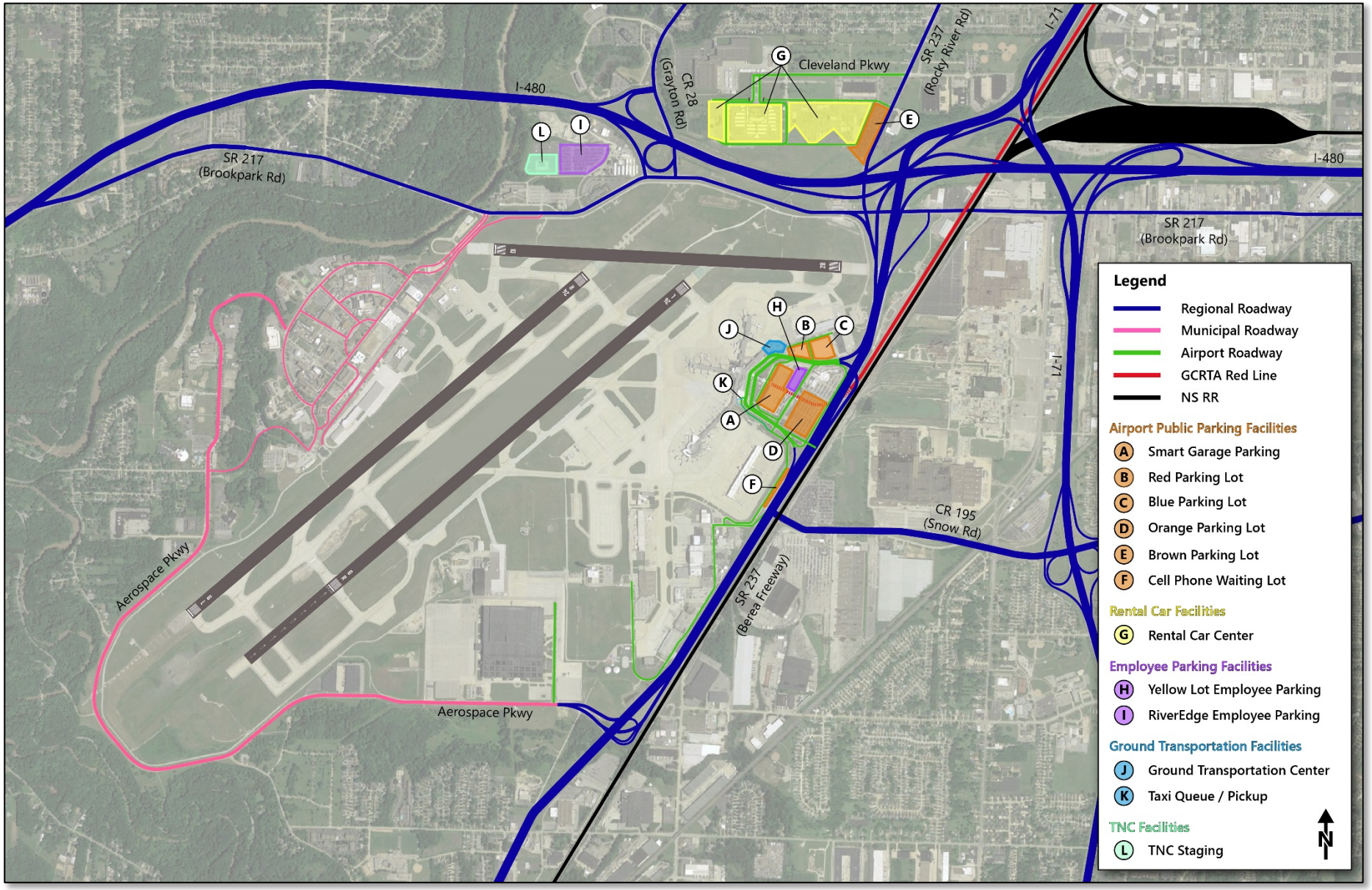
Existing Landside Regional Context



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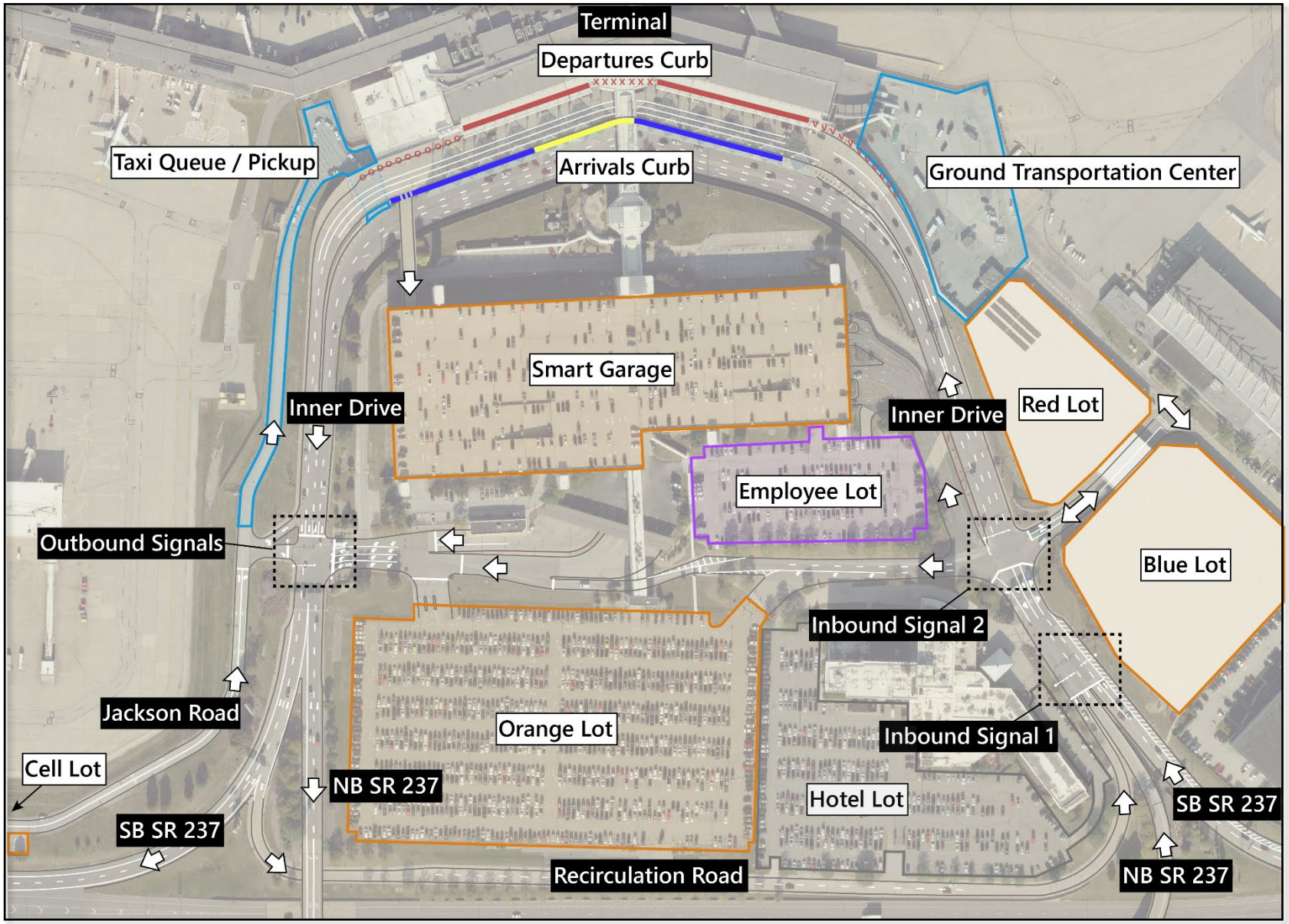
Existing Landside Terminal Area



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Curb Roadway Level of Service

Dwell Time	Location and Peak Hour	Level of Service	
		Base 2019 / PAL 1	PAL 5
1:30	Departures 4:30 – 5:30 am	B	C
5:00	Arrivals 5:30 – 6:30 pm	D	F
3:00	Arrivals 5:30 – 6:30 pm	B	B

A	Best
B	
C	Target
D	
E	
F	Worst

Source: Curtis Transportation Consulting Analysis; Prepared by RS&H, 2020

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Major Roadway Level of Service

Location	Peak Hour	Level of Service	
		Base 2019 / PAL 1	PAL 5
Inbound	Departures 4:30 – 5:30 am	C	C
	Arrivals 5:30 – 6:30 pm	F	F
Outbound	Departures 4:30 – 5:30 am	B	B
	Arrivals 5:30 – 6:30 pm	C	C

A	Best
B	
C	Target
D	
E	
F	Worst

Source: Curtis Transportation Consulting Analysis; Prepared by RS&H, 2020

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What the Level of Service Analysis Tells Us

- Reduce dwell times on arrivals curb to national norms
  - → Effective management of “Active Loading Only”
  - → More convenient Cell Phone Lot
- Increase distance between airport entrance and terminal
- Eliminate traffic crossing inbound roadway
- Eliminate inbound traffic signals

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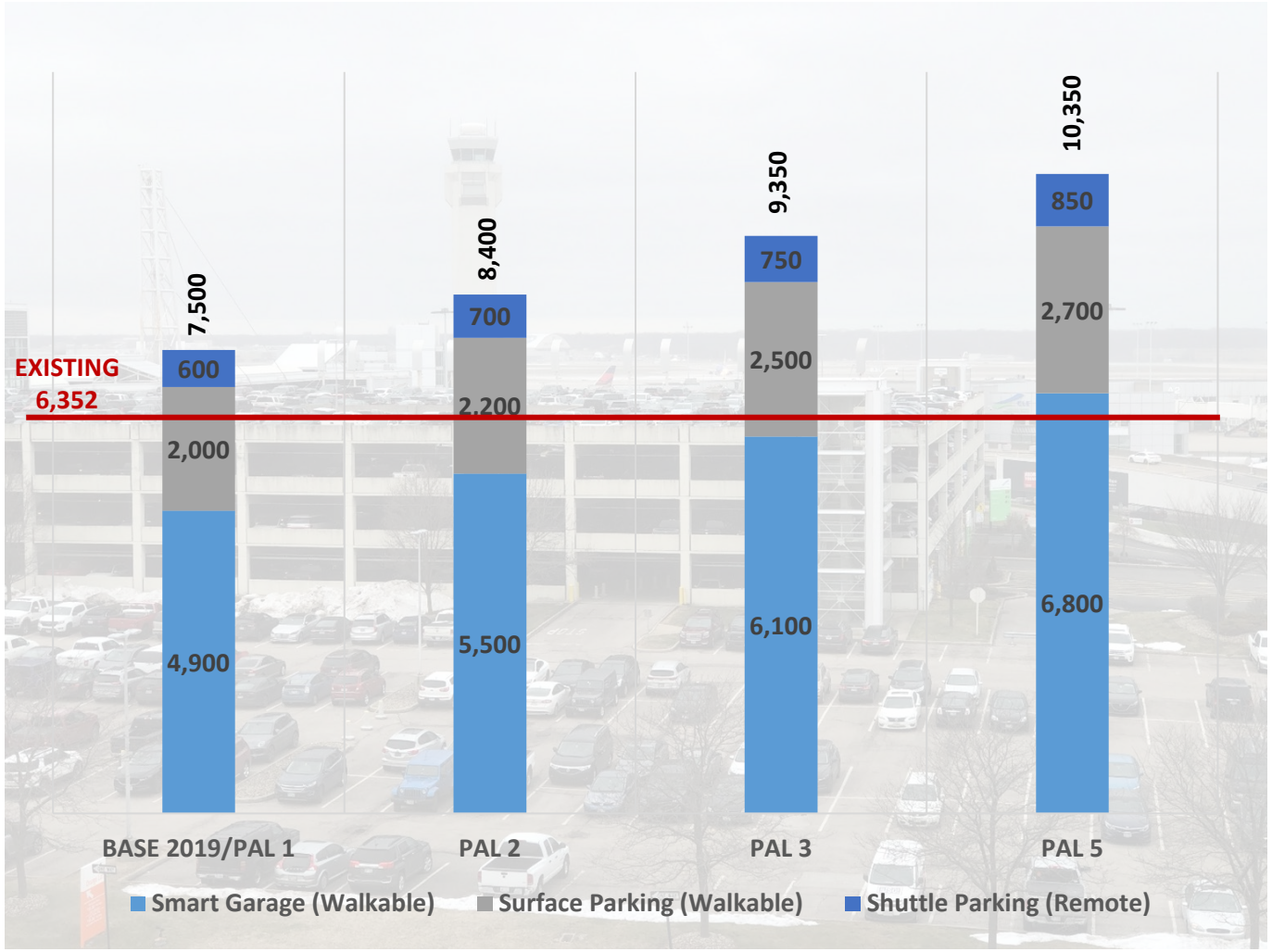
Public Parking Requirements



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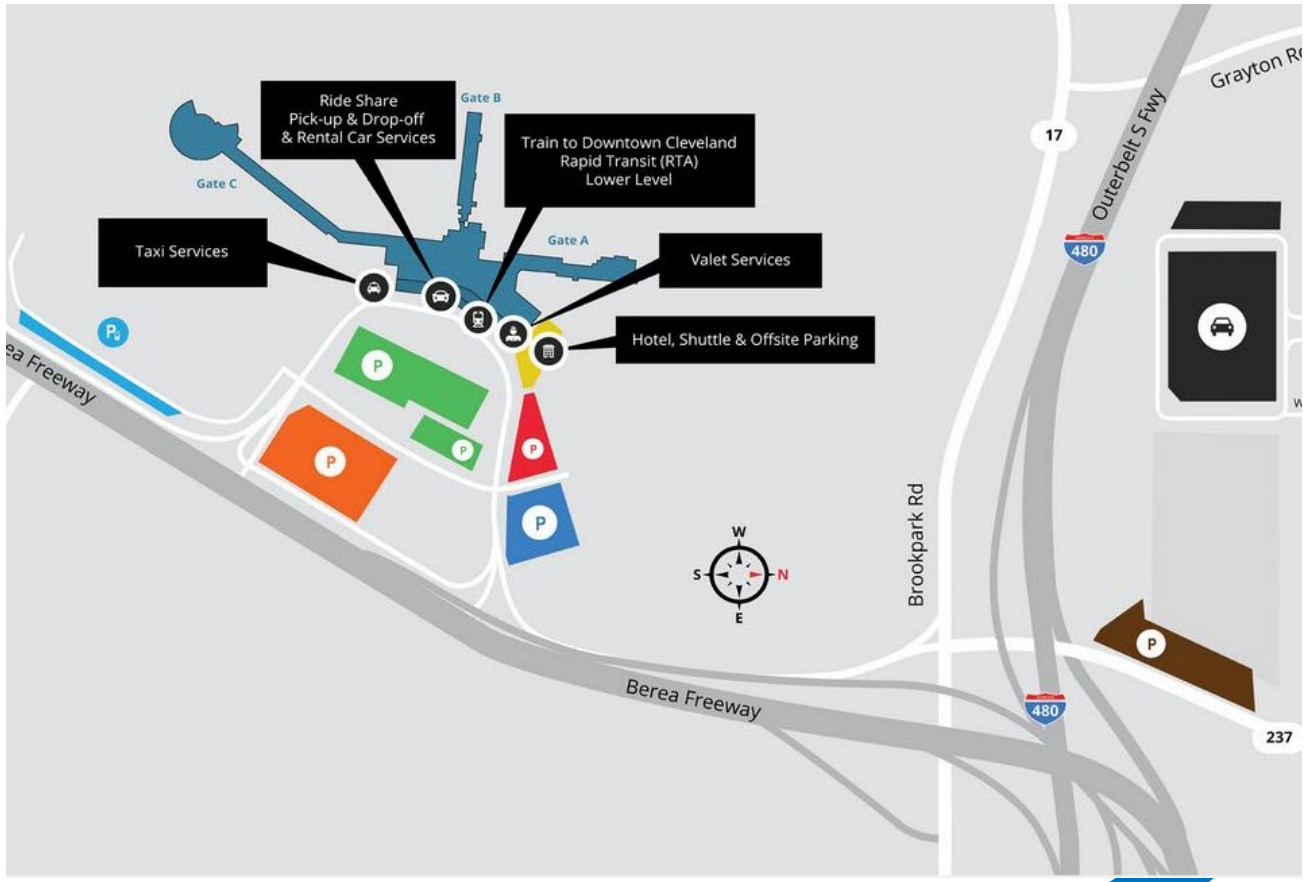
Ground Transportation Center (GTC)

- New GTC meets all but one requirement through PAL 5
- Need to add 12 more limo staging spaces by PAL 5
- Need to simplify the choices of arriving passengers seeking ground mode locations



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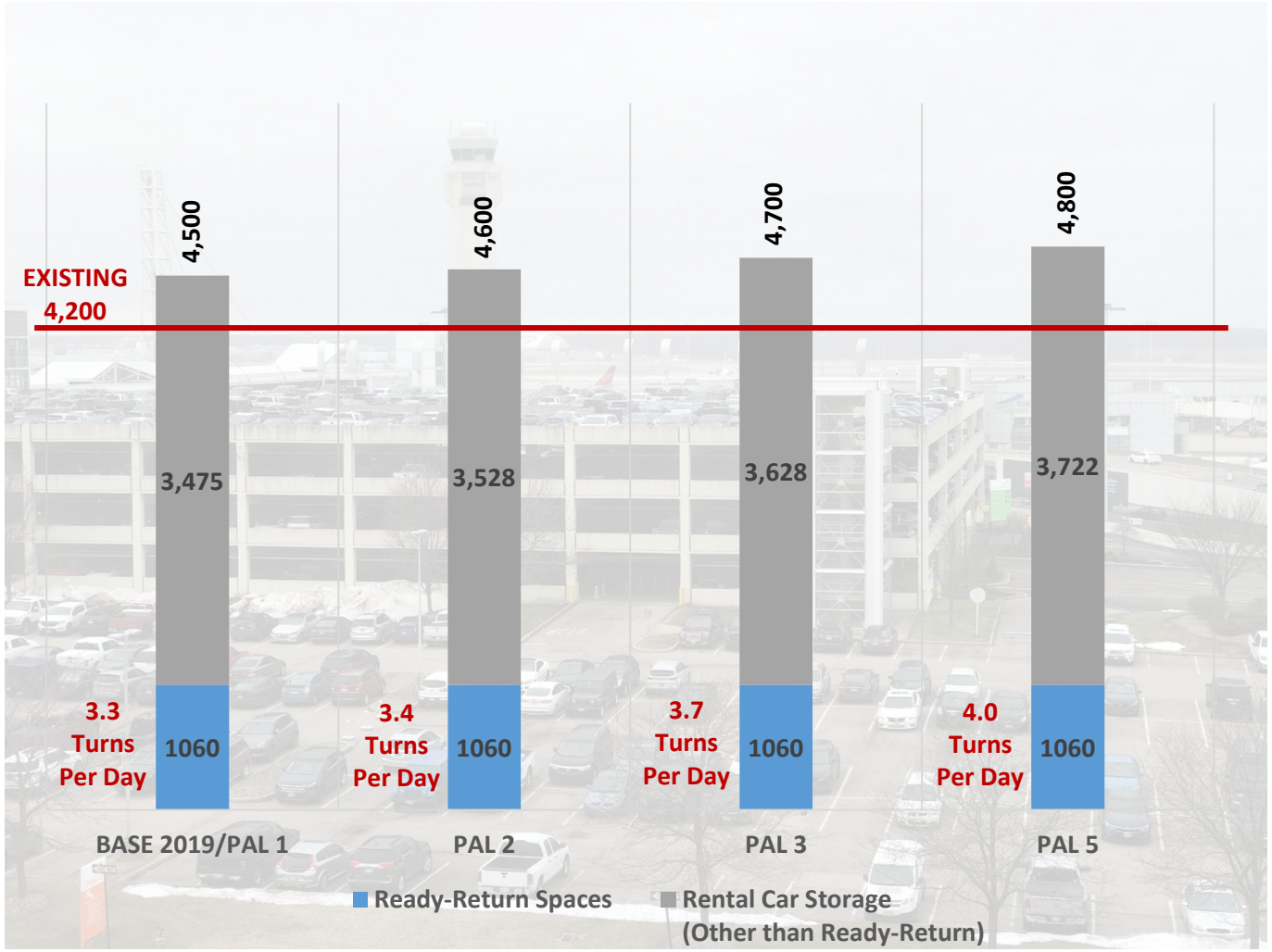
Rental Car Space Requirements



- Need 600 more spaces
- Location is big issue re: accessibility and convenience

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Facility Requirements Analysis Summary

- Adjust curb configuration, operation, and enforcement
- Relocate Cell Phone Lot
- Revise roadway system configuration
- Add 4,000 (walkable) public parking spaces
- Improve convenience of GTC
- Add 600 rental car storage spaces
- Improve Rental Car Center accessibility and convenience

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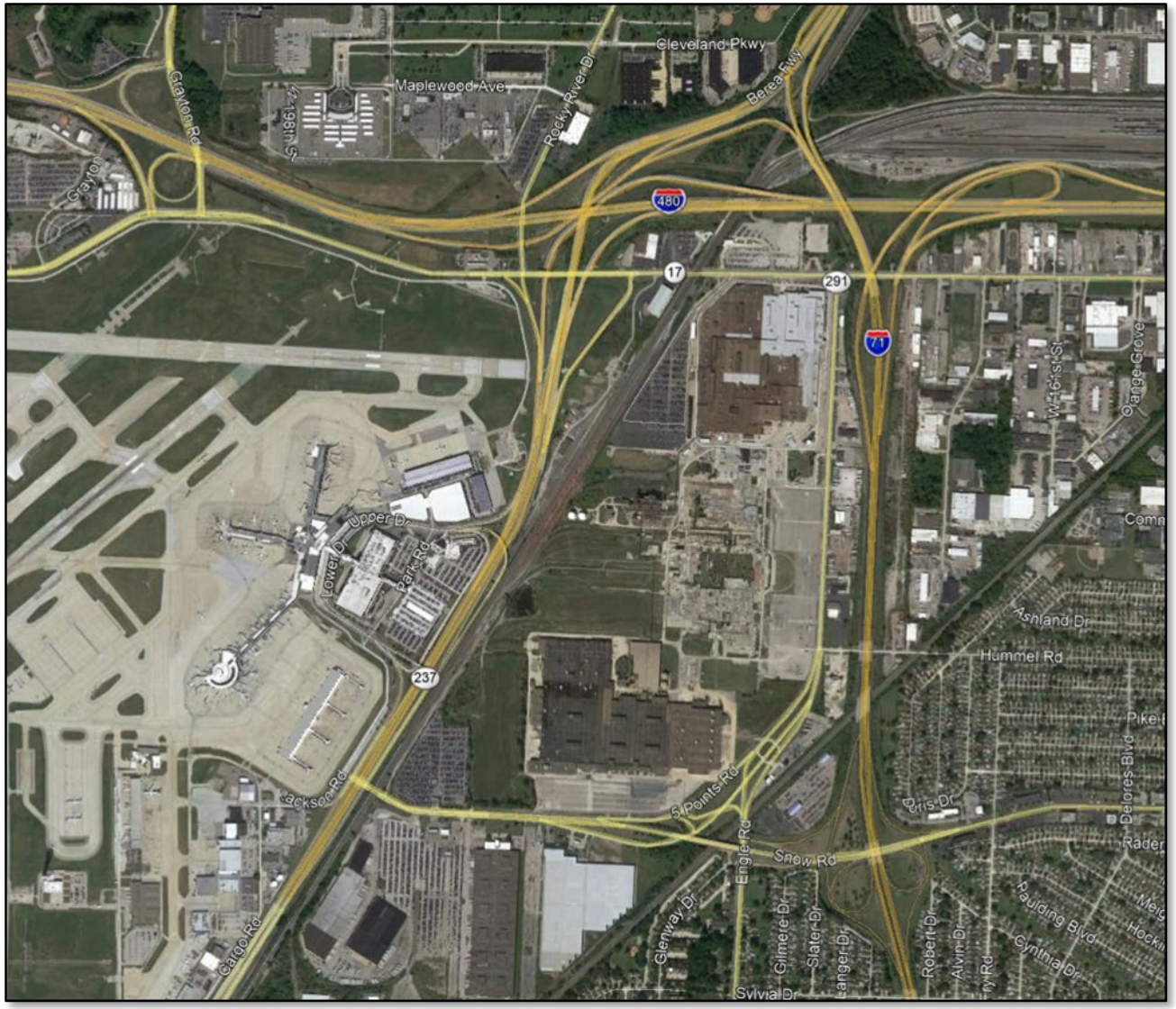
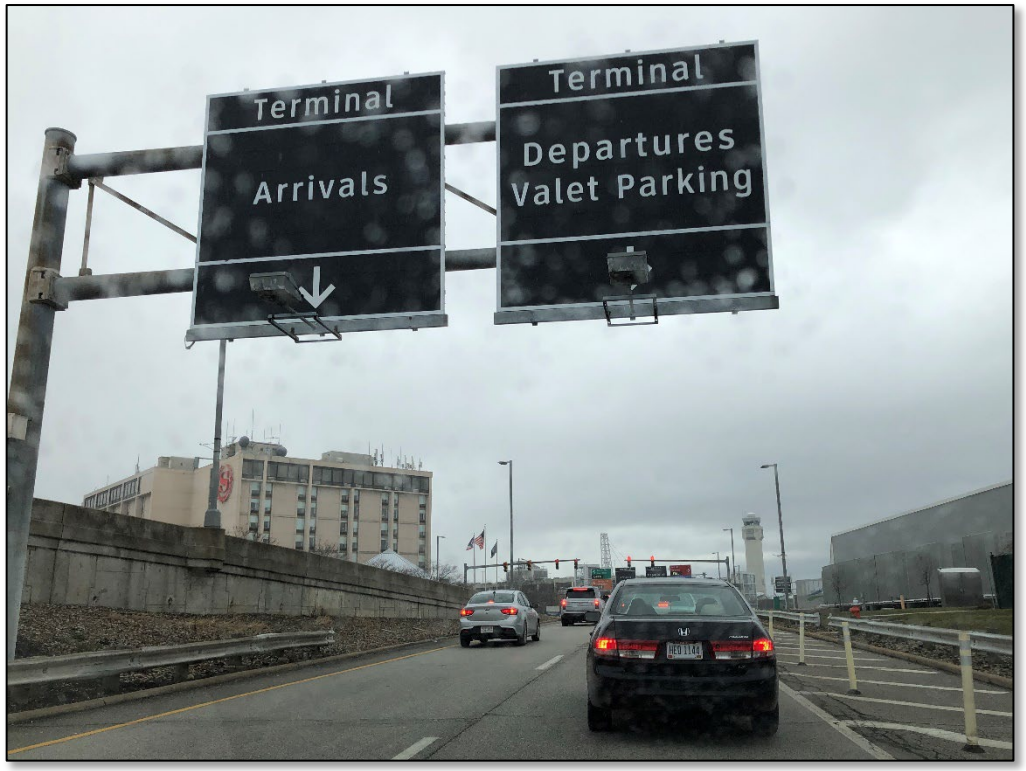
Regional Access Issues

- Red Line is a strength
- Interchange issues constrain access
- 75 % of Airport traffic comes in from the North
- Better signing needed on primary roads to CLE
- Better connections wanted to I-71, I-480, and Ohio Turnpike



Landside Objectives

- Improve connectivity to major regional roadways
- Provide a common approach experience for all traffic
- Provide enough distance between regional roadways and terminal for safe decision-making and maneuvering
- Improve wayfinding and orientation



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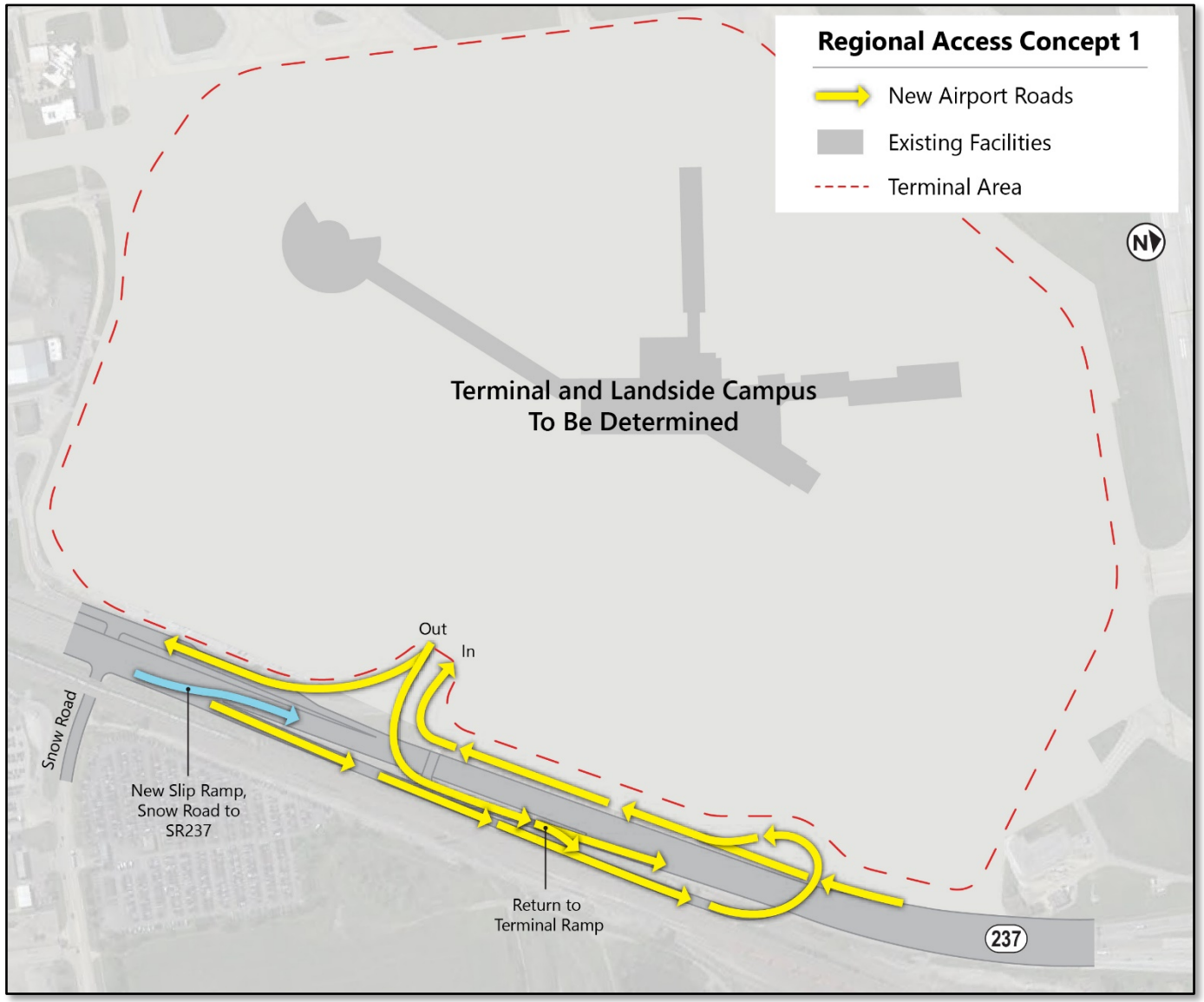
Regional Access Concept #1



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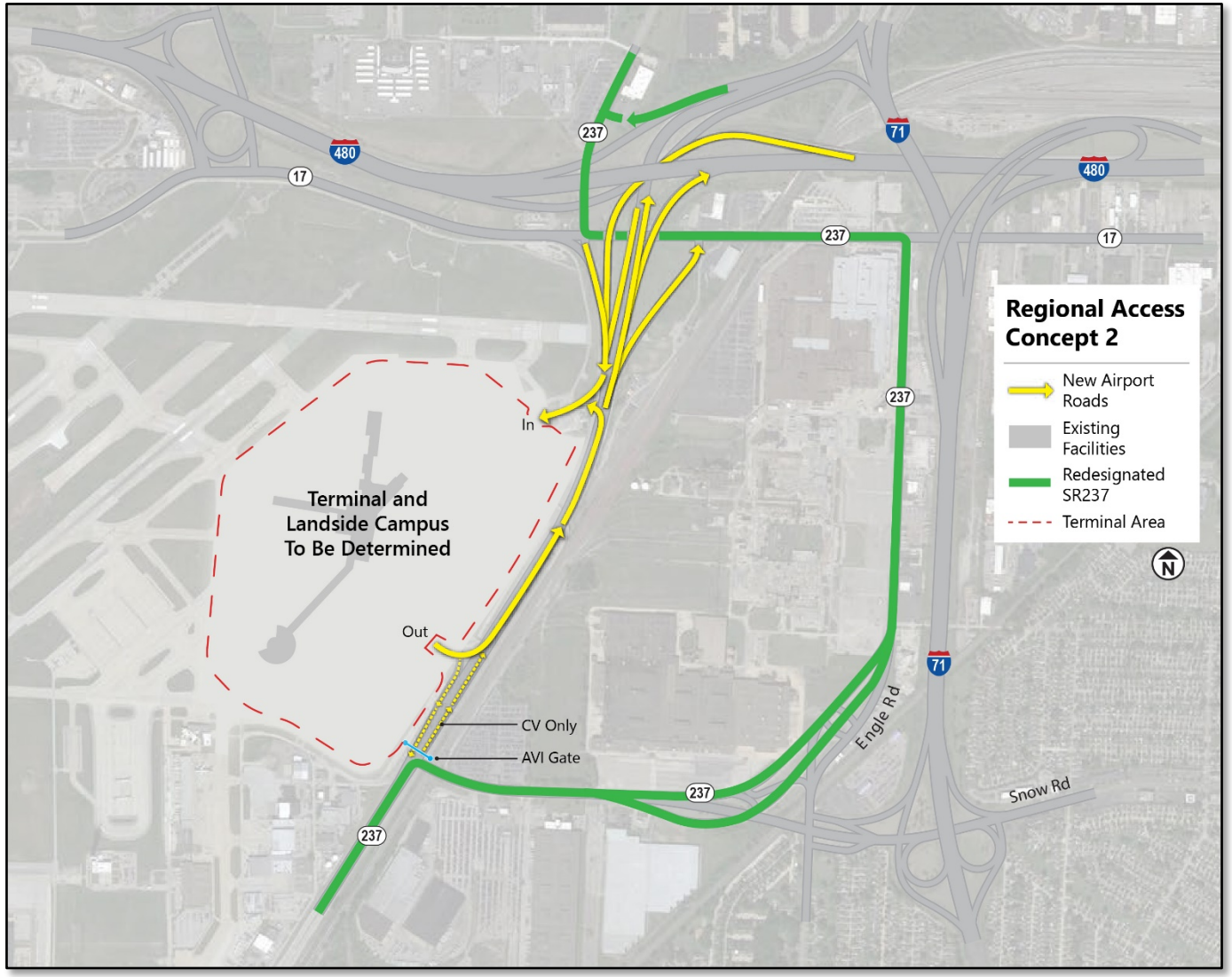
Regional Access Concept #2



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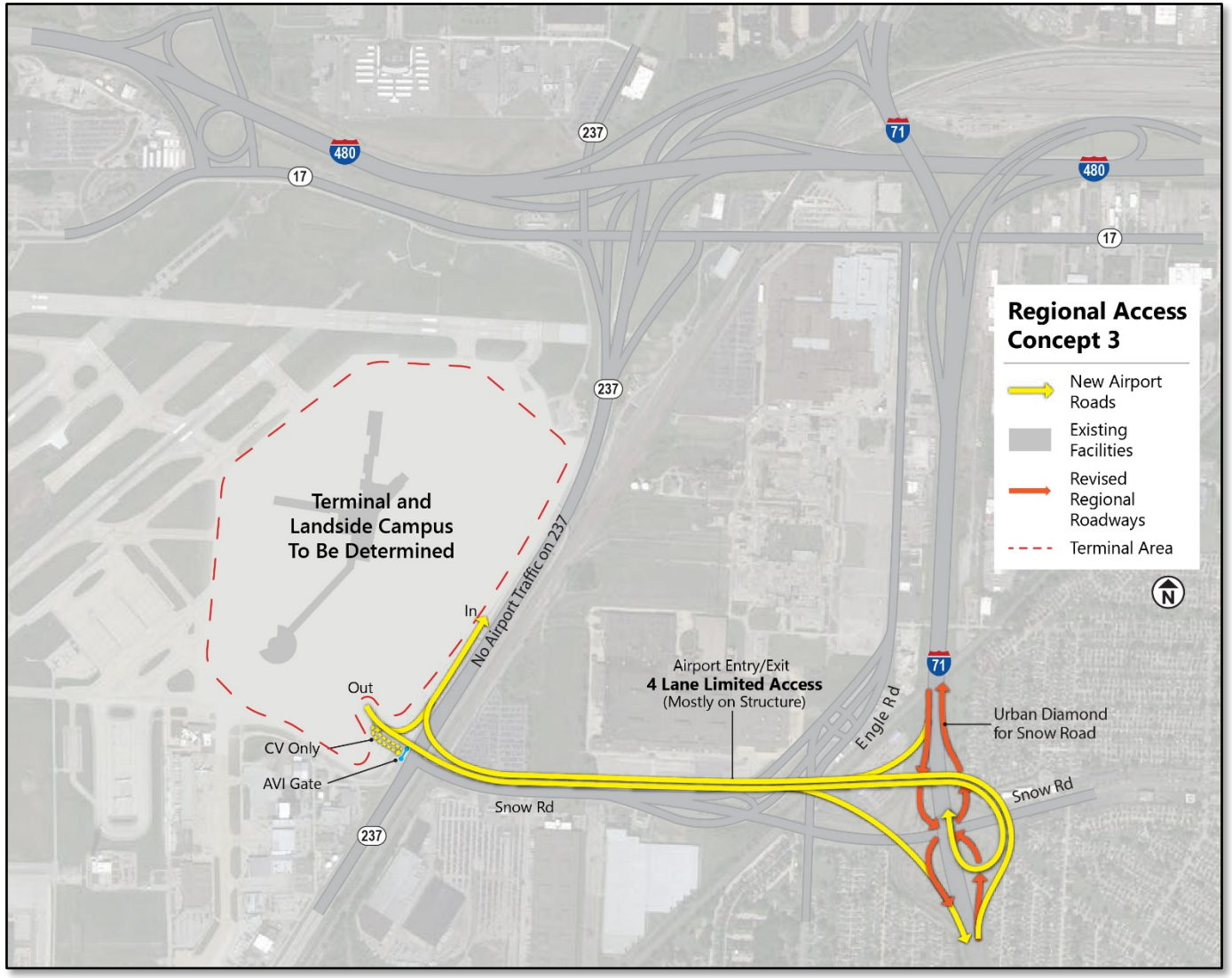
Regional Access Concept #3



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What's Next ?

- Concepts are preliminary
- Feedback is appreciated
- Any regional alternative will need more study and development beyond the scope of the Master Plan

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Solutions Phase – Identify Alternatives & Begin Evaluation – All Other Airport Facilities

- Orientation to Other Airport Facility Areas
- Facility Requirements
- Preliminary Alternatives

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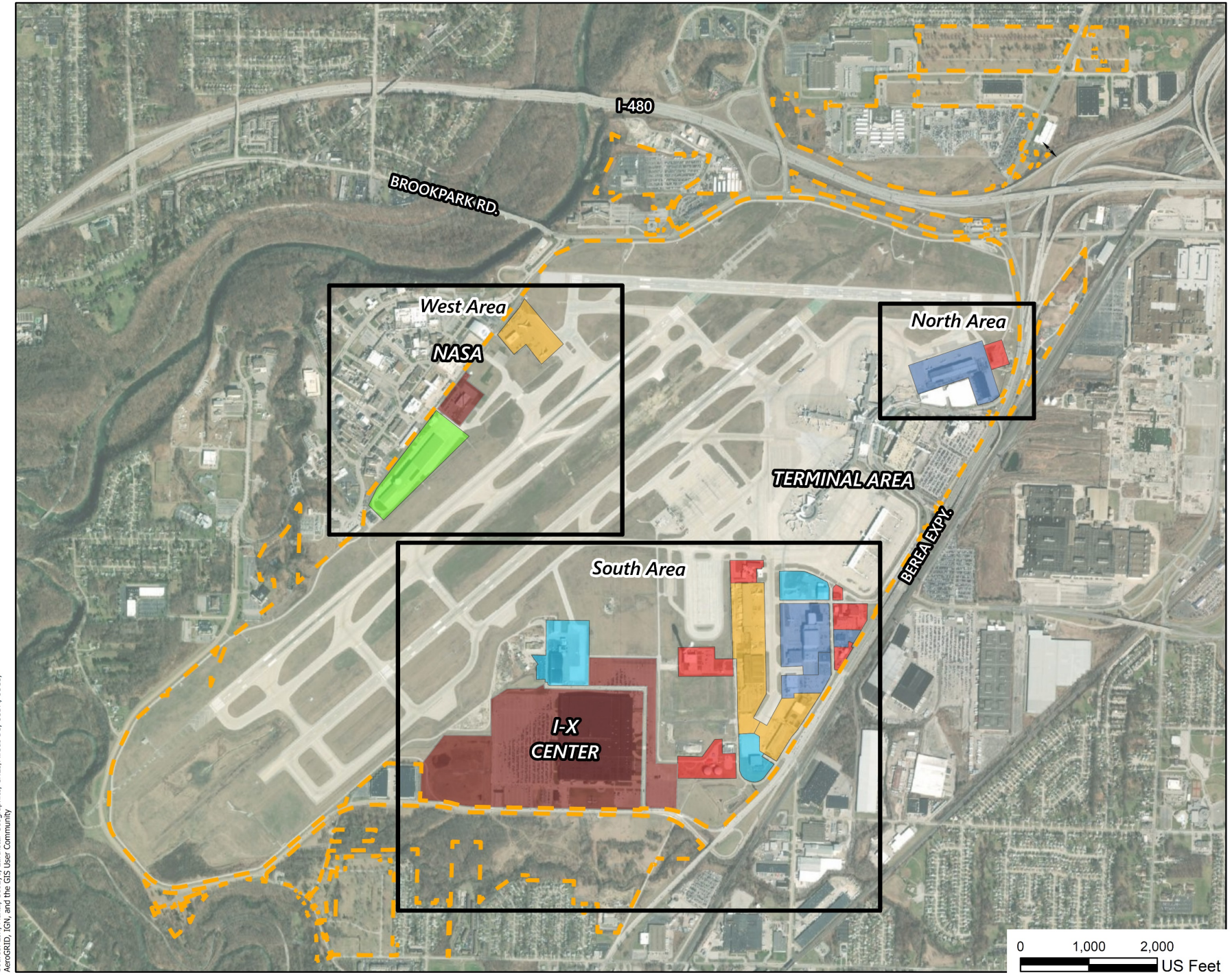
Existing Conditions



Legend

- Airport Property Line
- Airline Aircraft Support and Maintenance
- Airport Maintenance
- Airport Support
- Cargo
- General Aviation
- Other

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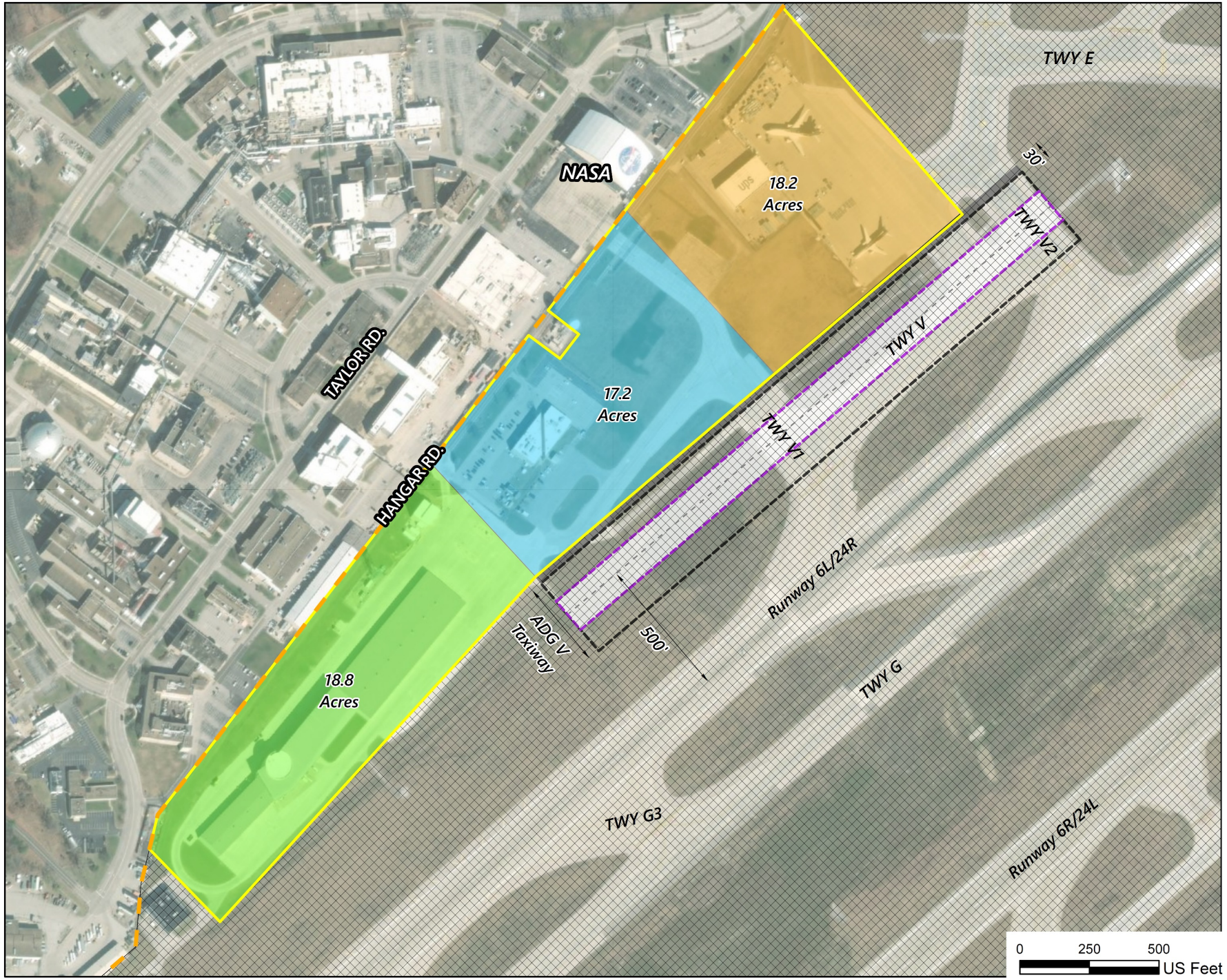
Other Airport Facility Requirements

	Functional Category	Existing Capacity (acres)	PAL 5 Requirement (acres)	Surplus / (Deficit) (acres)
	Airline / Aircraft Maintenance and Support	28	45	(17)
	Airport Maintenance	19	19	0
	Airport Support	8	8	0
	Cargo	23	32	(9)
	FBO / Corporate General Aviation	12	23	(11)
	Total Acres – Other Airport Facilities	90	126	(37)

West and North Development Alternatives



Legend

- Airport Property Line
- No Development Area
- Development / Redevelopment Area
- Future TOFA
- Future Taxiway / Taxilane
- Future Service Road
- Airport Maintenance
- Cargo
- General Aviation
- Future Landside

North Area

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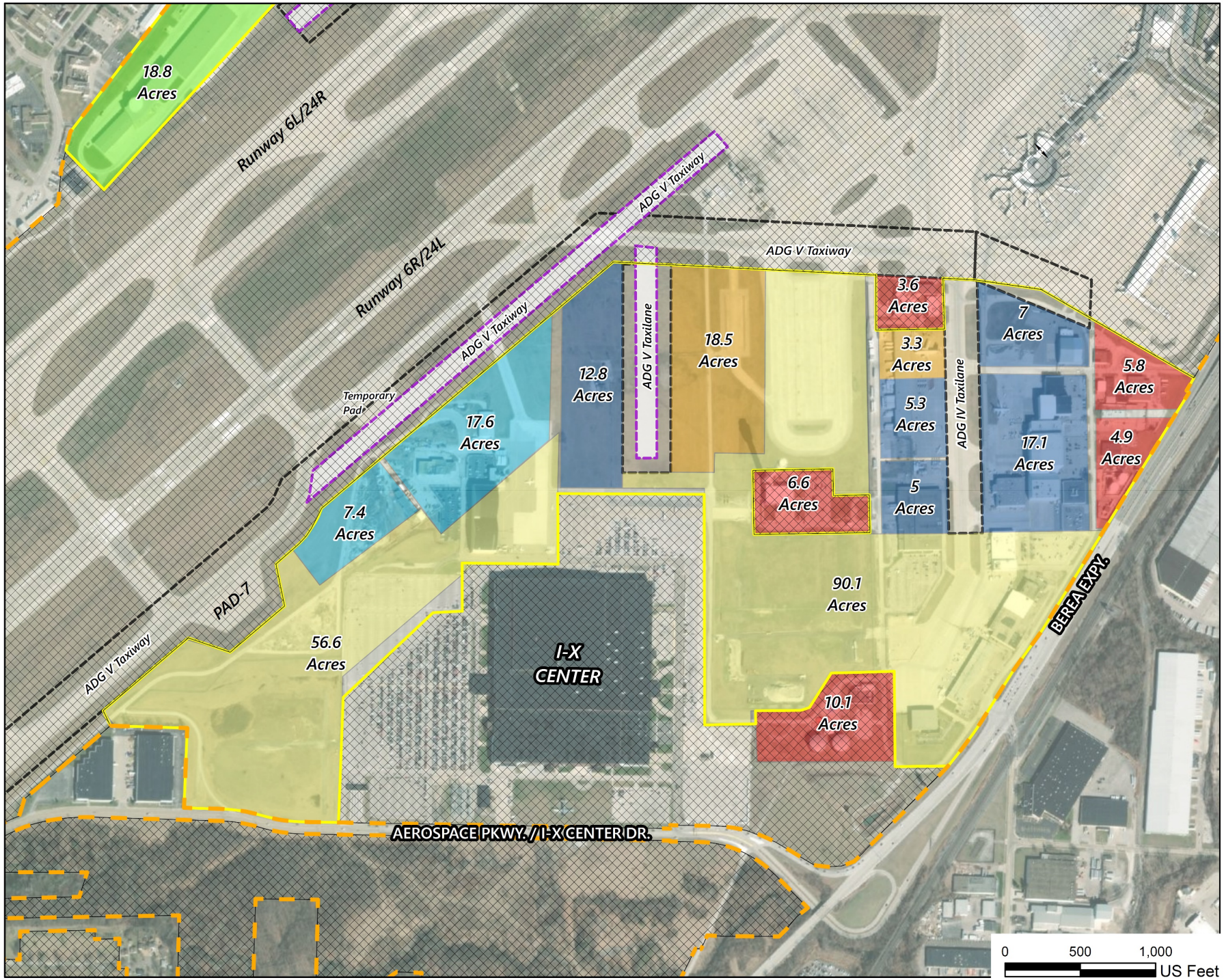

South Development Area Alternative 1

Legend

- Airport Property Line
- No Development Area
- Development / Redevelopment Area
- Future TOFA
- Future Taxiway / Taxilane
- Aircraft Airline Maintenance and Support
- Airport Maintenance
- Airport Support
- Cargo
- General Aviation
- Opportunity Development Area

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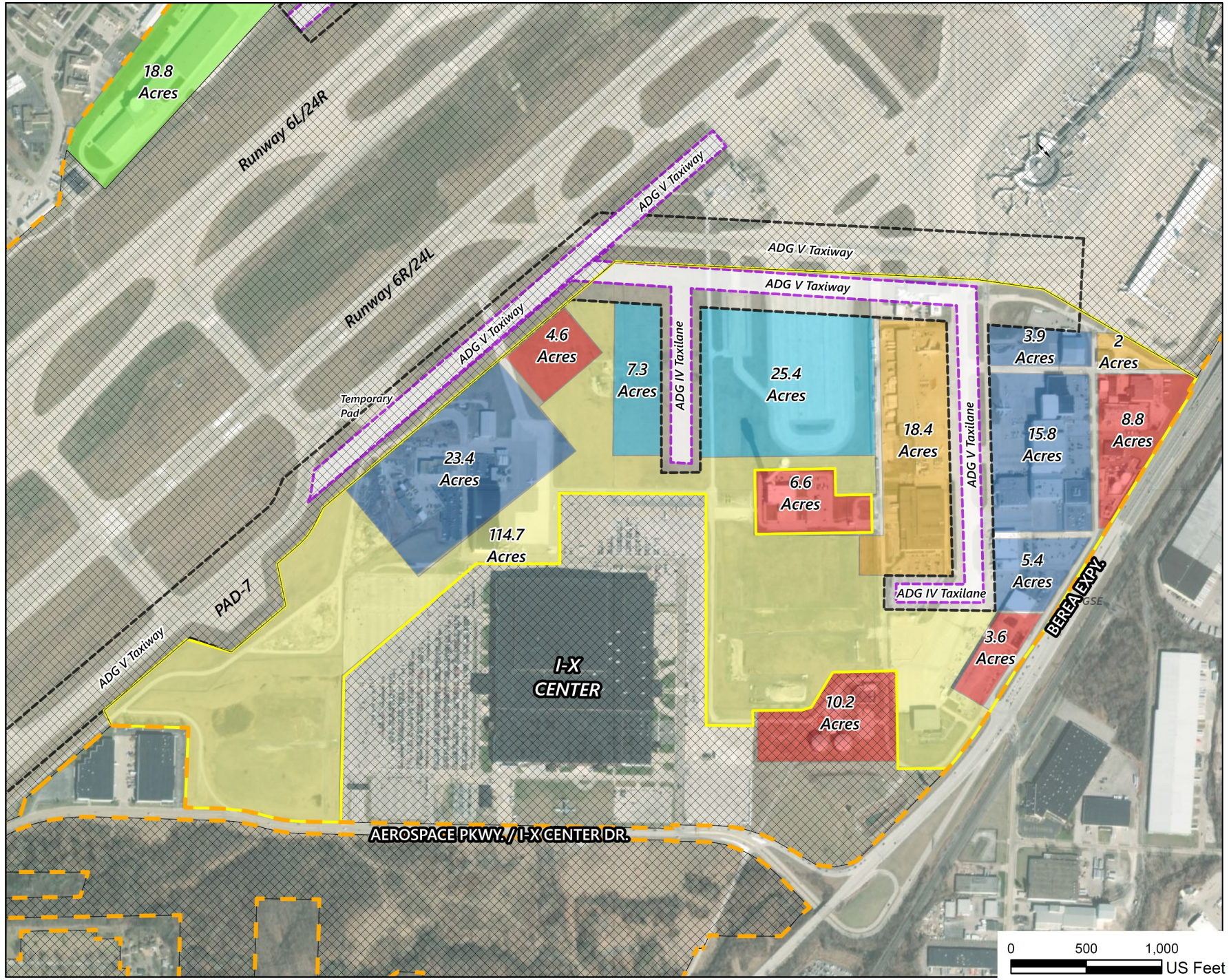
South Development Area
Alternative 2



Legend

- Airport Property Line
- No Development Area
- Development / Redevelopment Area
- Future TOFA
- Future Taxiway / Taxilane
- Aircraft Airline Maintenance and Support
- Airport Maintenance
- Airport Support
- Cargo
- General Aviation
- Opportunity Development Area

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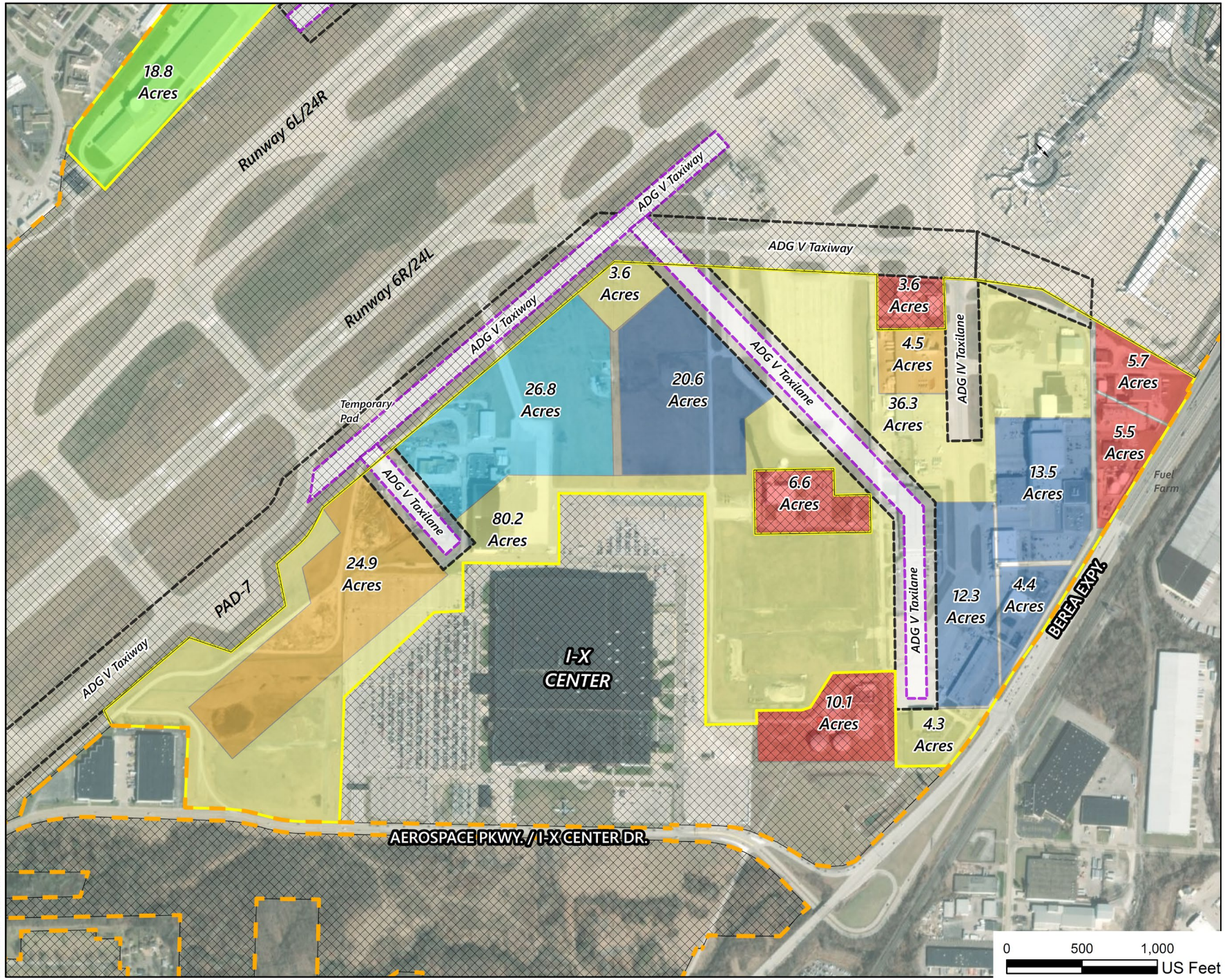

South Development Area
Alternative 3

Legend

- Airport Property Line
- No Development Area
- Development / Redevelopment Area
- Future TOFA
- Future Taxiway / Taxilane
- Aircraft Airline Maintenance and Support
- Airport Maintenance
- Airport Support
- Cargo
- General Aviation
- Opportunity Development Area

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Next Steps

- Master Plan technical work is beginning to identify alternatives based upon Facility Requirements
- Continue with Alternatives Evaluation
- Identify and Develop a Preferred Alternative
- Hold Final Public Workshop in early 2021

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