DETROIT METRO ▪ WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

Technical Advisory Committee

Detroit Metropolitan Airport Master Plan Update

Meeting #2: Preliminary Facility Requirements

June 8, 2016

Leigh | Fisher

Introduction

Today's agenda and discussion topics

1. **Project Overview and Applicable Background**
2. **Master Plan Update Technical Progress**
   - Airfield
   - Passenger terminals
   - Ground transportation and parking
   - Cargo, GA, and support facilities
3. **Next Steps**

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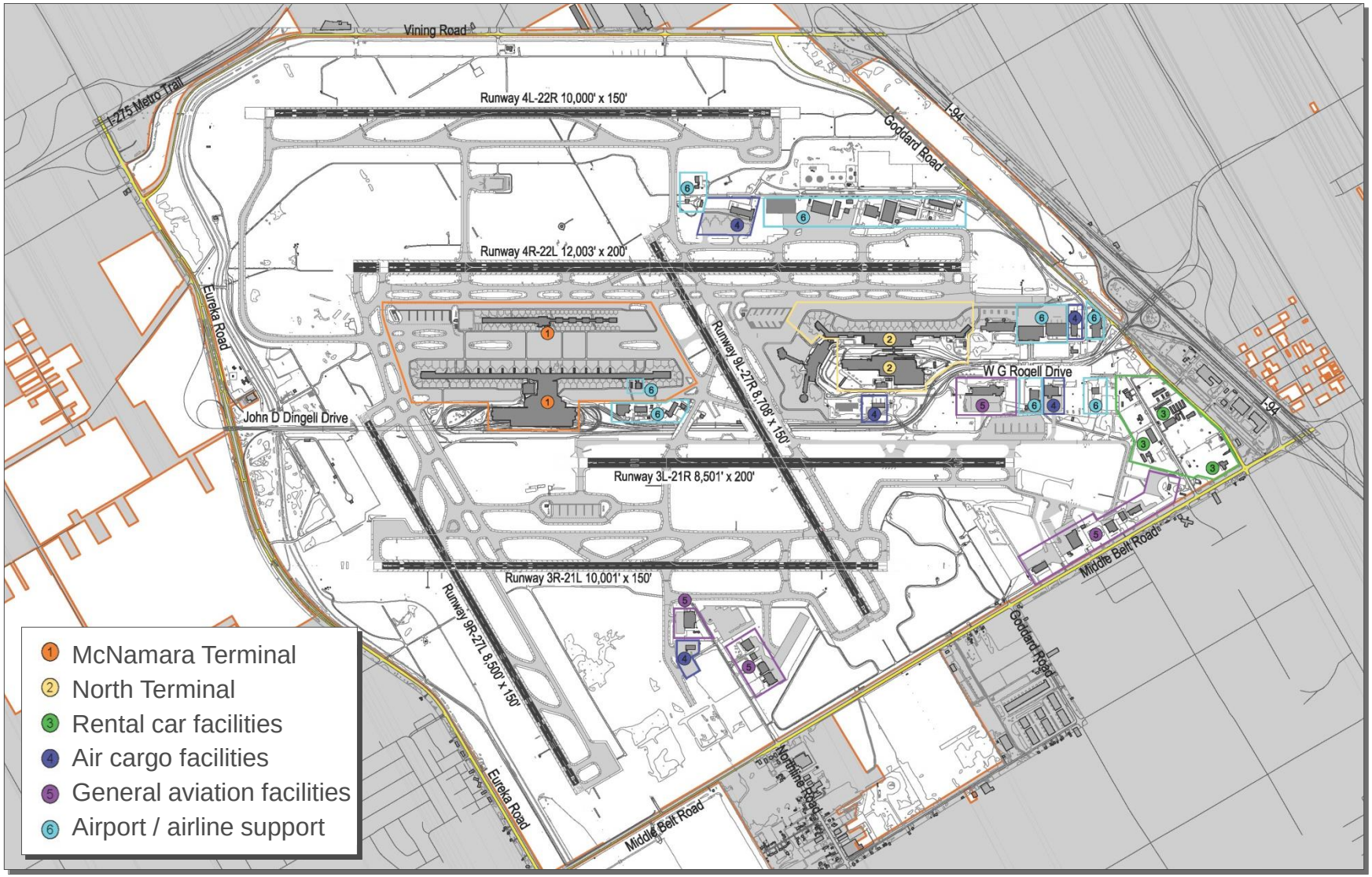
Detroit Metropolitan Wayne County Airport



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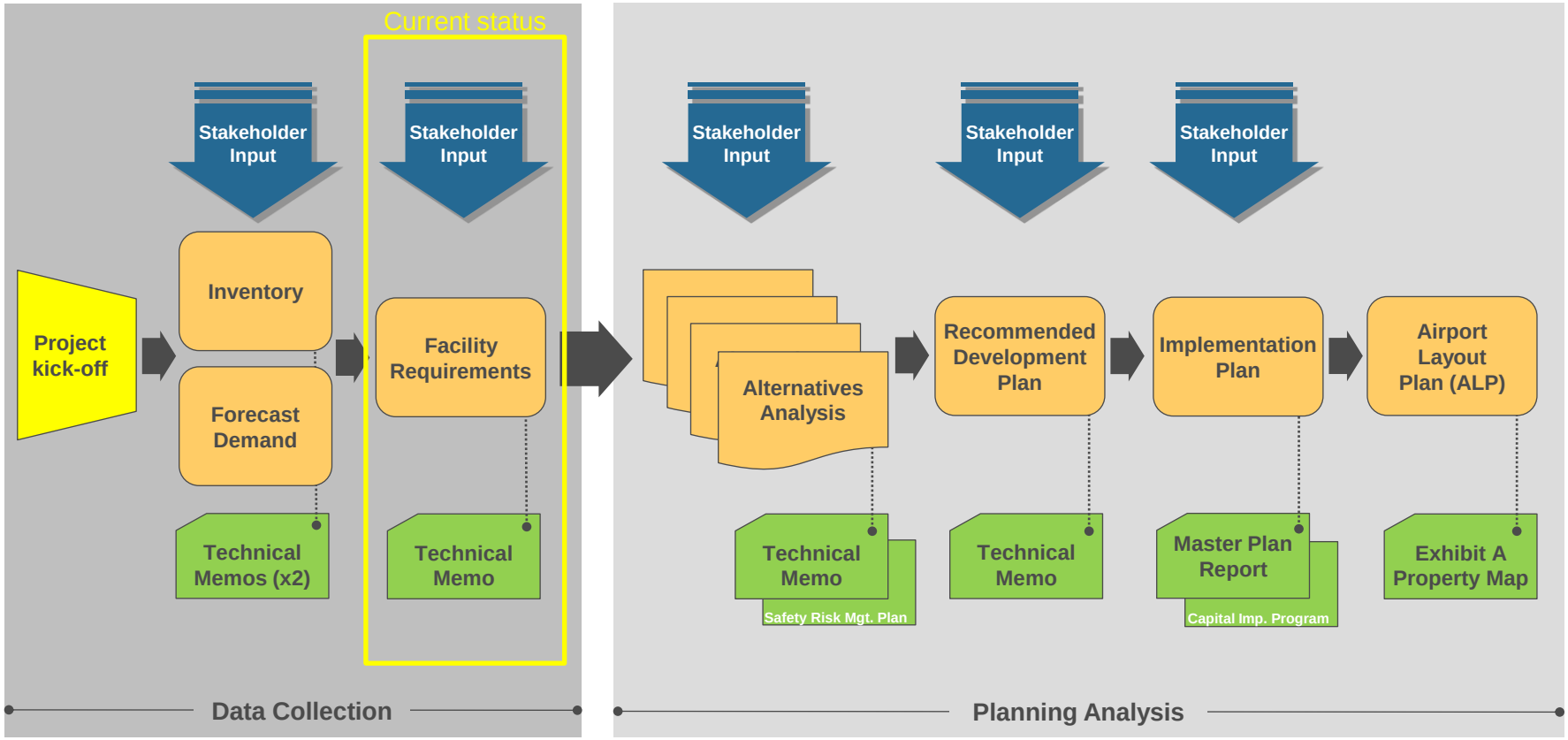
The Master Planning Process

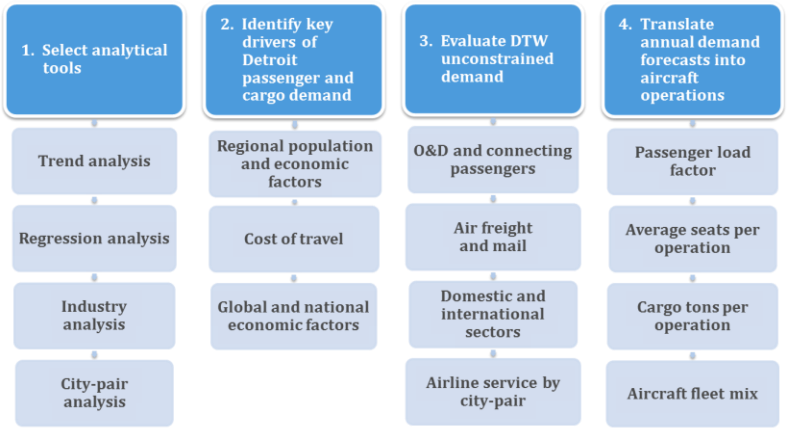
The master planning process includes a series of technical analyses and summary documents, as well as opportunities for stakeholder and community input



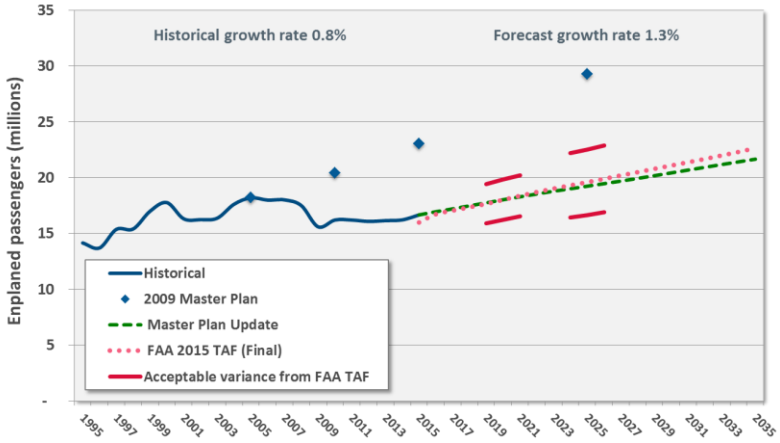
Forecast Aviation Activity

Total annual passengers and operations are forecast to increase an average of 1.3% and 0.7% respectively per year between 2015 and 2035

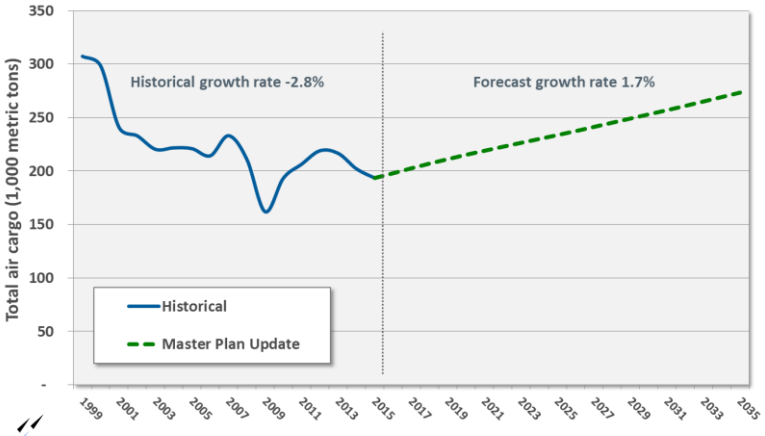
Forecast Methodology and Approach



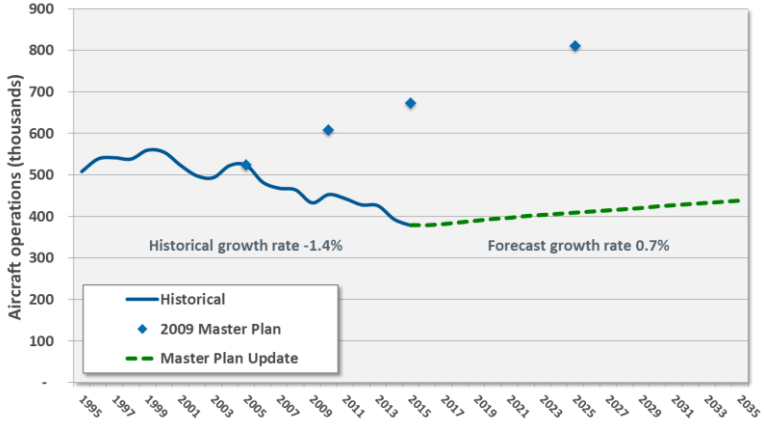
Forecast Passengers



Forecast Air Cargo



Forecast Aircraft Operations



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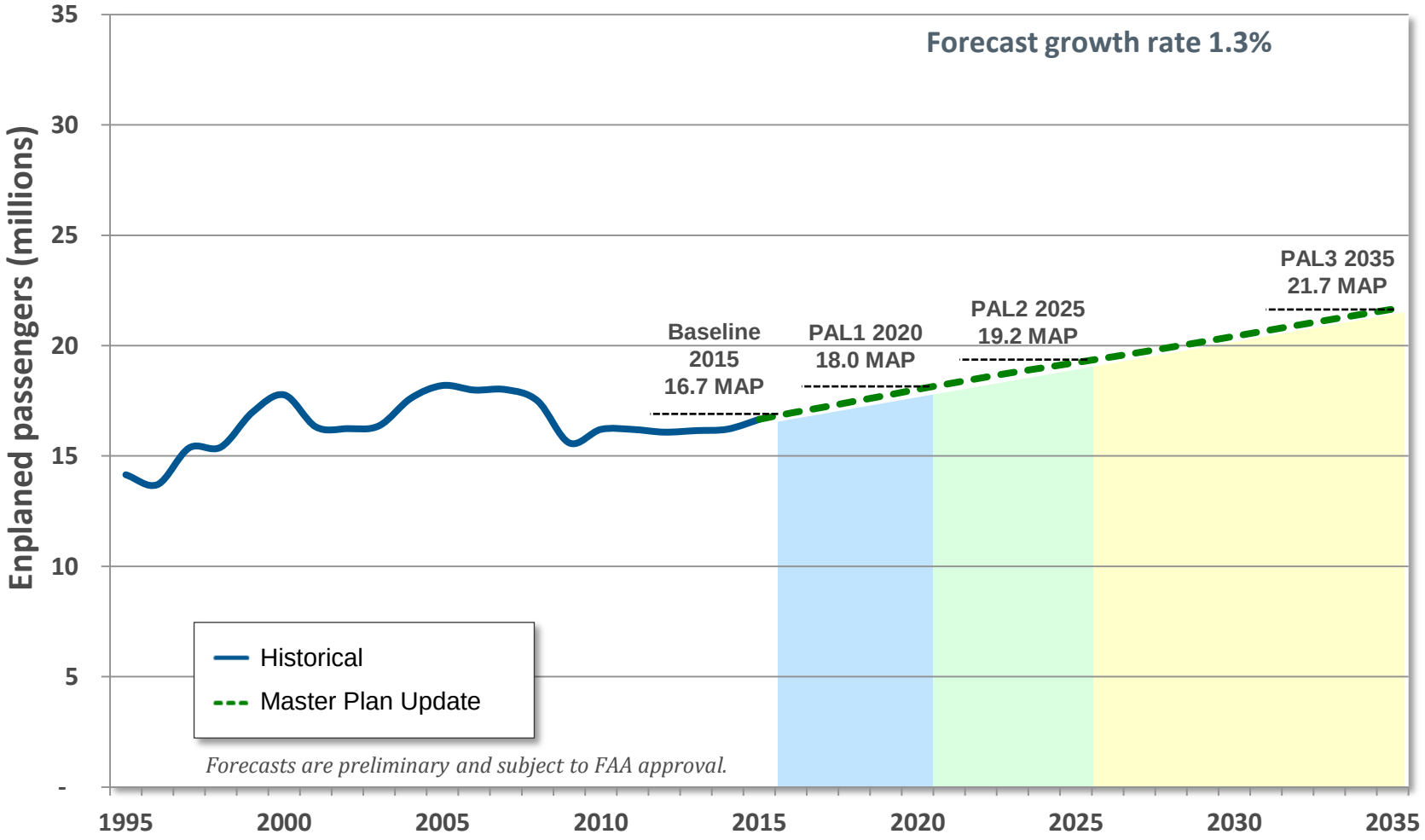
Future Planning Activity Levels

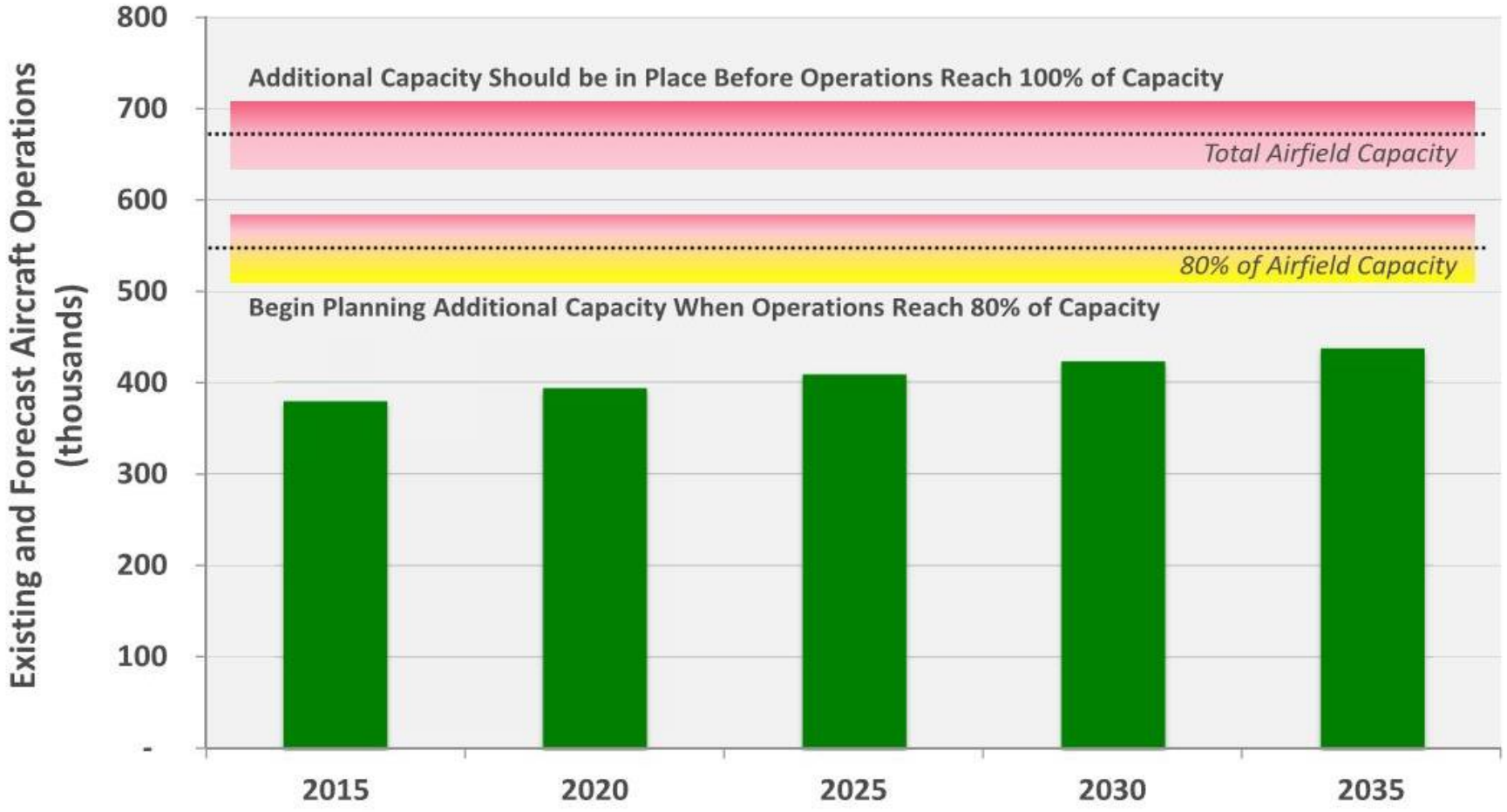
In addition to Baseline conditions, three future Planning Activity Levels (PALs) are under consideration



Technical Progress: Airfield

Annual Service Volume (ASV)

Total existing and forecast aircraft operations are well below the capacity of the existing runway system



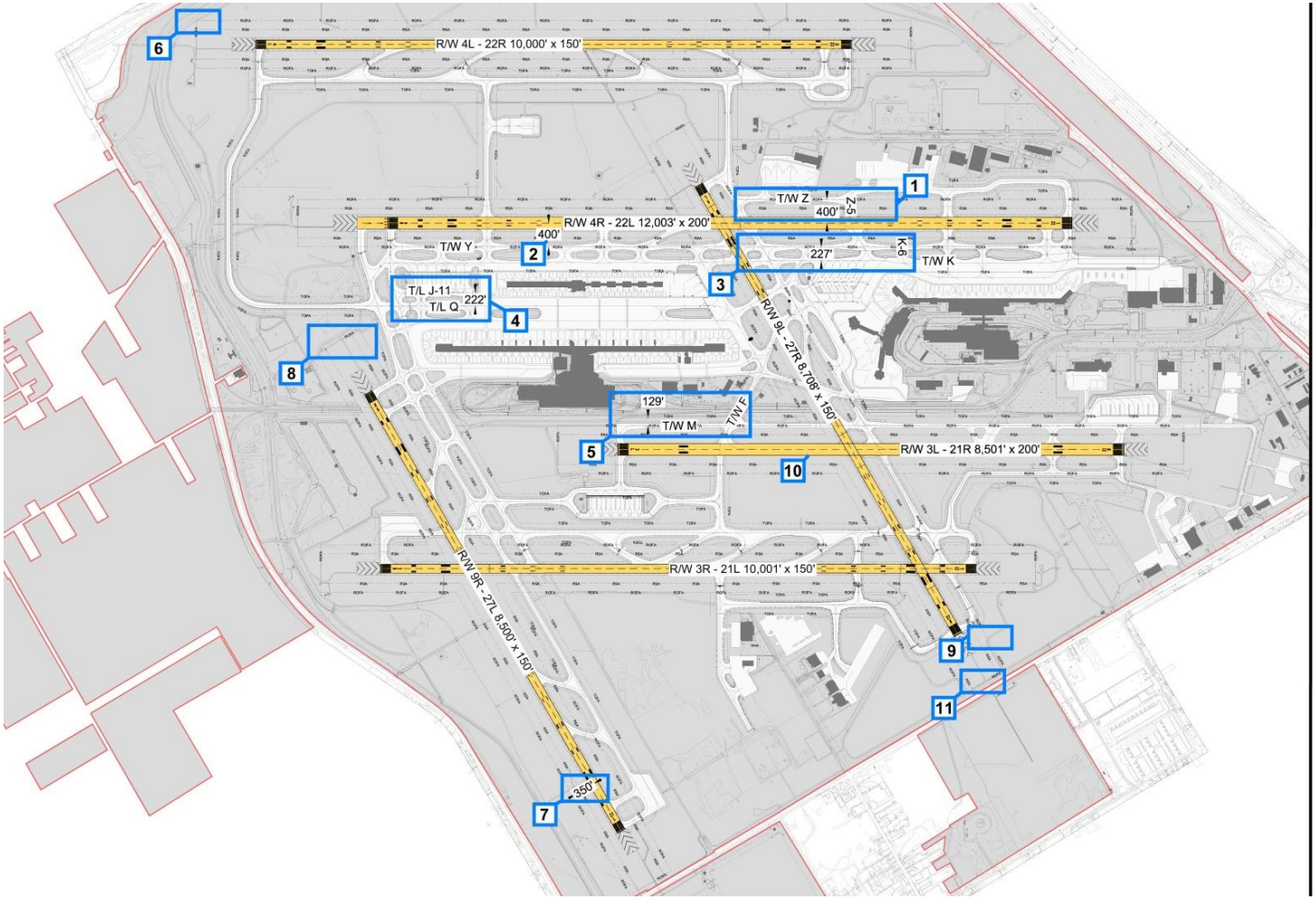
Design Aircraft, RDC, TDG

No changes to the airfield design group; some modifications to taxiways can be expected

- **RDC D-V standards mostly met (11 deviations identified)**
- **TDG Group 6**
- **Forecasts driven changes**
- **Assessing the practical impacts of new aircraft coming online**

Airfield Geometry/Standards

All known geometry MOS will be reviewed in the evaluation of alternatives

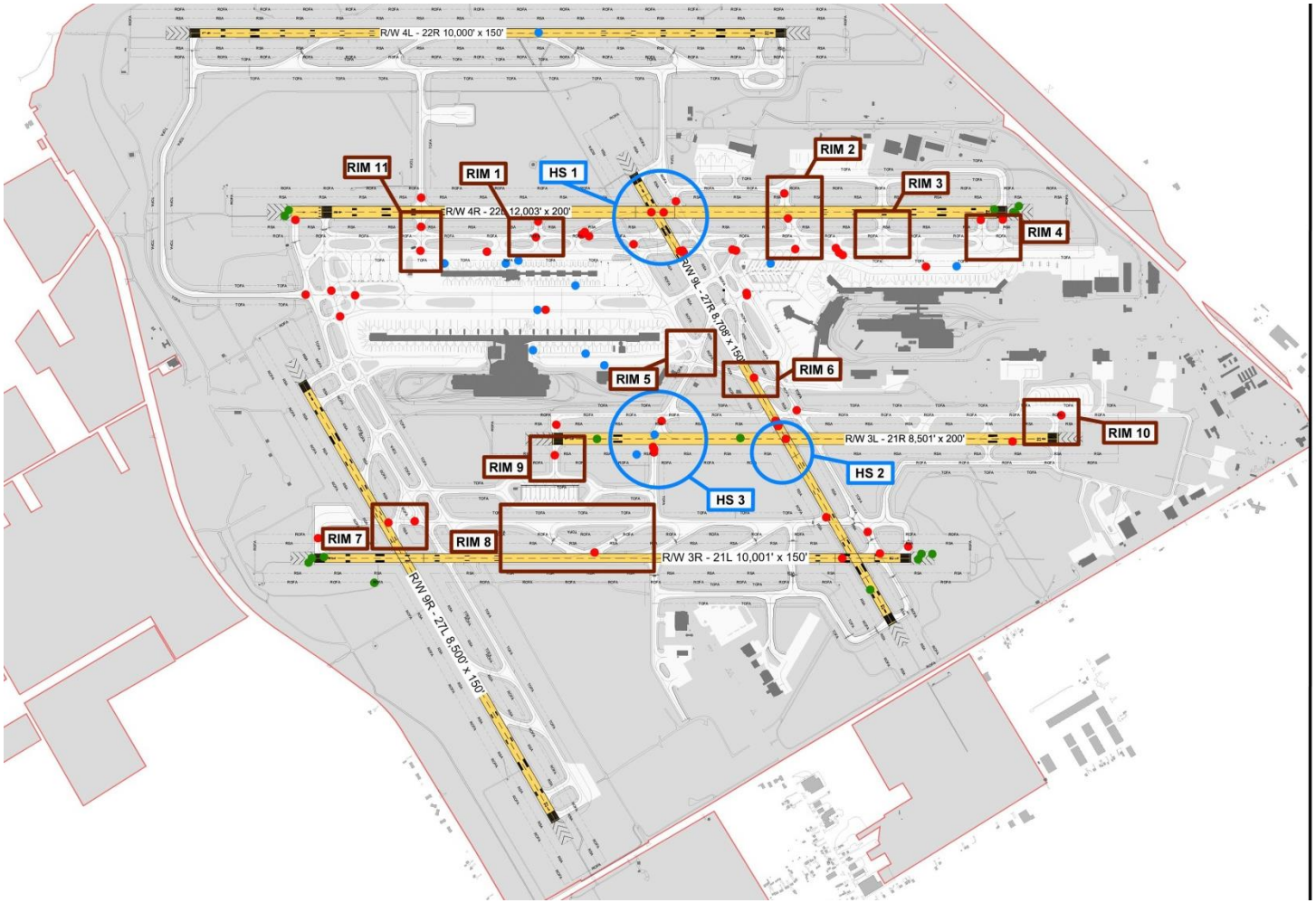


GEOMETRY DEVIATION FROM DESIGN STANDARD DESCRIPTION

1. The Runway 4R-22L centerline to parallel Taxiway Z centerline is separated by 400 feet south of Taxiway Z5. This does not meet standards when weather conditions fall below CAT I conditions, which requires 500 feet of separation.
2. The Runway 4R-22L centerline to parallel Taxiway Y centerline is separated by 400 feet. This does not meet standards when weather conditions fall below CAT I conditions, which requires 500 feet of separation.
3. The Taxiway Y centerline to Taxiway K centerline between Runway 9L-27R and Taxiway K6 is separated by 227 feet. This does not meet ADG-V taxiway to taxiway separation standards of 267 feet as required.
4. The Taxilane J11 centerline to Taxilane Q centerline is separated by 222 feet. This does not meet the required taxilane to taxilane separation standards of 245 feet.
5. The vehicle service road (VSR) penetrates the Taxiway M Taxiway Object Free Area (TOFA) south of Taxiway F by as much as 31 feet. TOFAs are required to be clear of service roads.
6. The VSR penetrates the Runway 22R Runway Object Free Area (ROFA) beyond the stop end of the runway by 12 feet, reducing the available ROFA beyond the stop end of the runway to 988 feet. This does not meet ROFA clearance standards.
7. The Runway 9R-27L centerline to Runway 27L glideslope antenna is separated by 350 feet. This does not meet standards for runway centerline to glideslope separation.
8. The VSR penetrates the Runway 27L ROFA beyond the stop end of the runway by 74 feet, reducing the available ROFA beyond the stop end of the runway to 926 feet. This does not meet ROFA clearance standards.
9. The VSR penetrates the Runway 9L ROFA beyond the stop end of the runway by 608 feet, reducing the available ROFA beyond the stop end of the runway to 392 feet. This does not meet ROFA clearance standards.
10. Runway 3L-21R does not currently have paved shoulders. 35 foot wide shoulders are required for Runway 3L-21R.
11. The RSA beyond the stop end of Runway 9L is limited by 90 feet. Declared distances are currently applied to the runway to mitigate this non-standard condition.

Runway Incursion Mitigation (RIM)

All identified RIM will be reviewed in the evaluation of alternatives



RUNWAY INCURSION MITIGATION (RIM) AREAS DESCRIPTION

RUNWAY INCURSION MITIGATION (RIM):

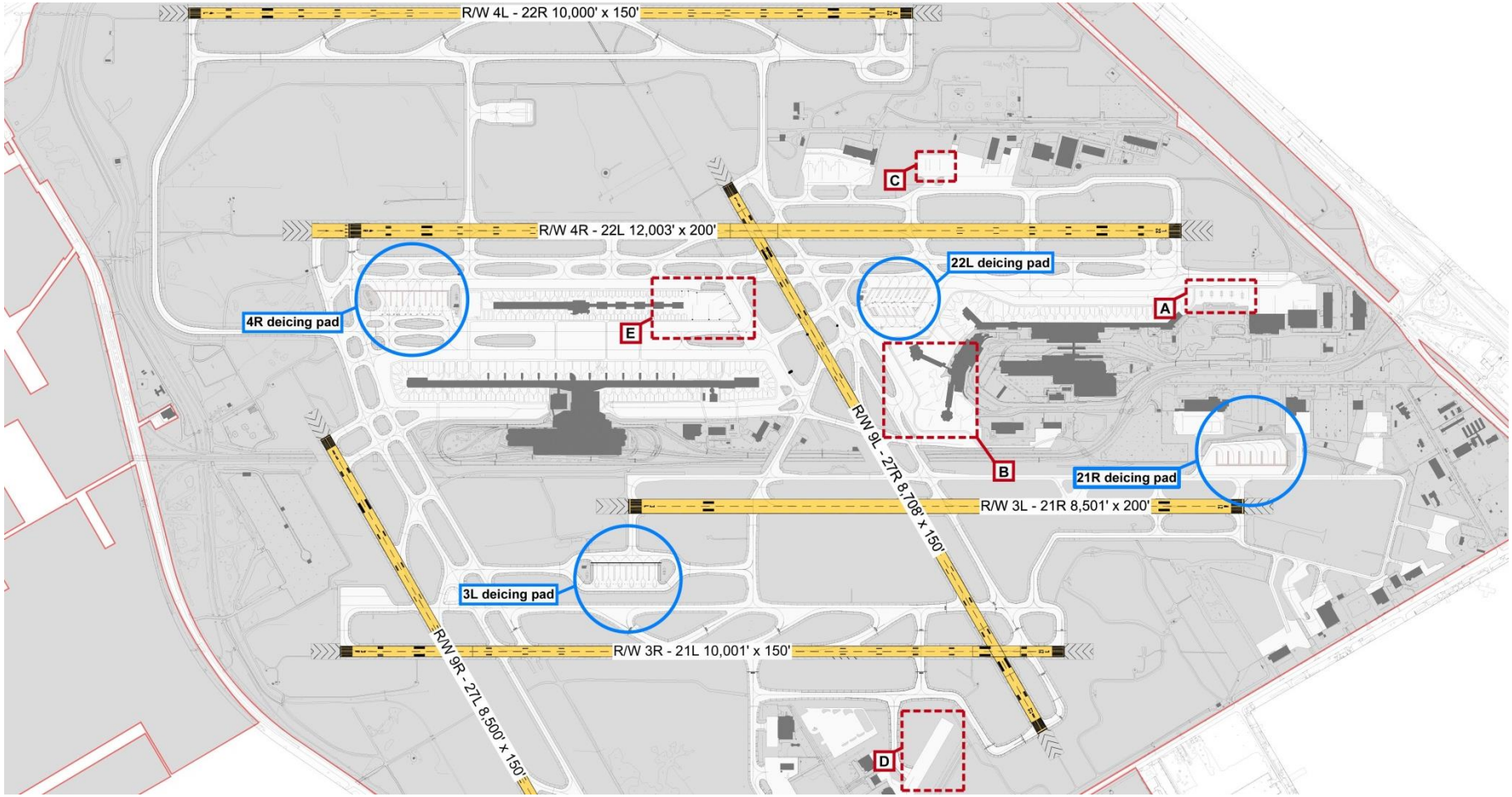
1. Taxiways K3 and Y3 lead directly from the air carrier apron directly to a runway, which is in conflict with recommended RIM criteria.
2. The Runway 4R-22L crossing at Taxiways Z5, Y5, and K5 is at an acute angle which can limit the visibility of the runway for the crossing aircraft and increases distance and travel time of the runway crossing. Additionally the crossing is within the high-energy middle third portion of the runway. These elements conflict with recommended RIM criteria.
3. Taxiways K7 and Y7 lead directly from the air carrier apron directly to a runway, which is in conflict with recommended RIM criteria.
4. The entrances to Runway 4R-22L at Taxiways Y9 and Y10 create a wide expanse of pavement where signage can potentially be located outside the view angle of a pilot's window. Additionally, these entrances lead directly to and from the air carrier apron. These elements conflict with recommended RIM criteria.
5. The intersection of Taxiways F, G, U, U7, and U8 creates a complex intersection with greater than 3 nodes. Additionally, the Runway 9L-27R crossing at Taxiway F is at an acute angle which can limit the visibility of the crossing aircraft and increases distance and travel time of the runway crossing.
6. The intersection of Taxiways G and V2 with Runway 9L-27R creates a wide expanse of pavement and is a high-energy runway crossing.
7. The intersection of Taxiways W and T5 with Runway 9R-27L is an area with a complex taxiway/runway intersection, wide expanse of pavement, and an acute angle crossing of the runway, which can limit the visibility of the crossing aircraft and increases distance and travel time of the runway crossing.
8. The intersection of Taxiways W2 and W3 with Runway 3R-21L creates a wide expanse of pavement where signage can potentially be located outside the view angle of a pilot's window. Additionally the co-location of the exit taxiways can potentially cause confusing geometry for taxiing pilots in low visibility conditions.
9. Taxiway PP1 leads directly from the de-icing apron to the Runway 3L-21R threshold.
10. Taxiway M6 leads directly from the de-icing apron to the Runway 3L-21R threshold.
11. Taxiway R leads directly from the air carrier apron directly to a runway, which is in conflict with recommended RIM criteria

HOT SPOT (HS):

1. The intersection of Runways 9L-27R and 4R-22L is identified as Hot Spot 1. Aircraft taxiing on Runway 9L-27R should be prepared to hold at the holding position markings on the runway.
2. The intersection of Runways 9L-27R and 3L-21R is identified as Hot Spot 2. Aircraft taxiing on Runway 9L-27R should be prepared to hold at the holding position markings on the runway.
3. The intersection of Taxiway F with Runway 3L-21R is identified as Hot Spot 3. Aircraft taxiing on Taxiway F sometimes enter Runway 3L-21R without clearance.

Deicing and Remain Overnight (RON) Aprons

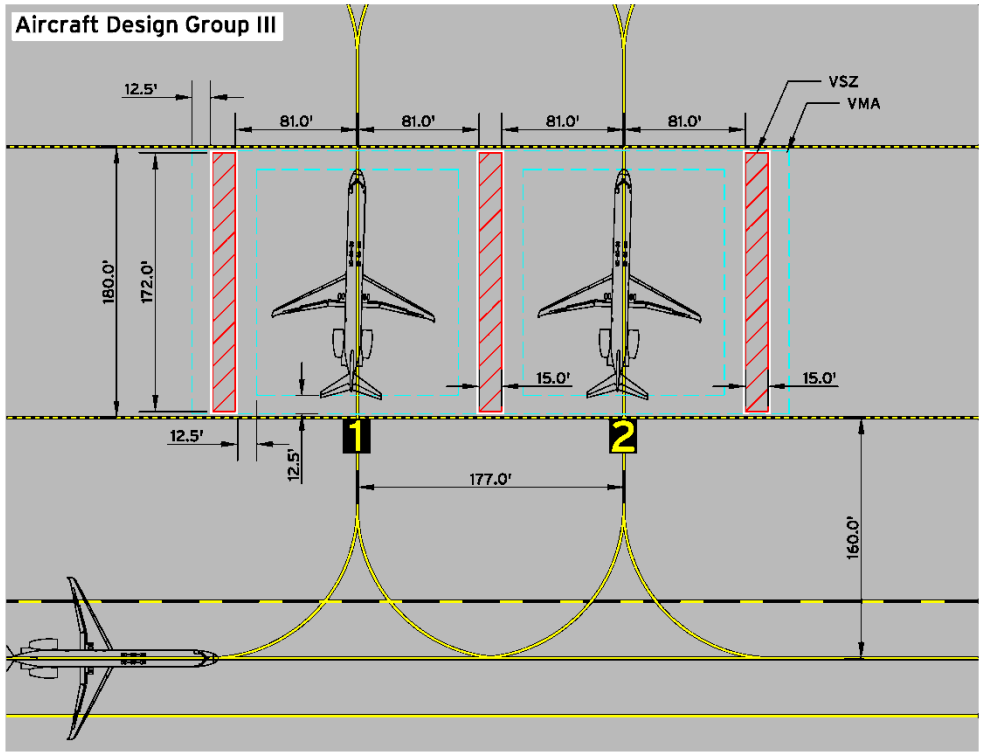
Modifications to address deicing and RON areas to be reviewed in evaluation of alternatives



Deicing Pad Requirements

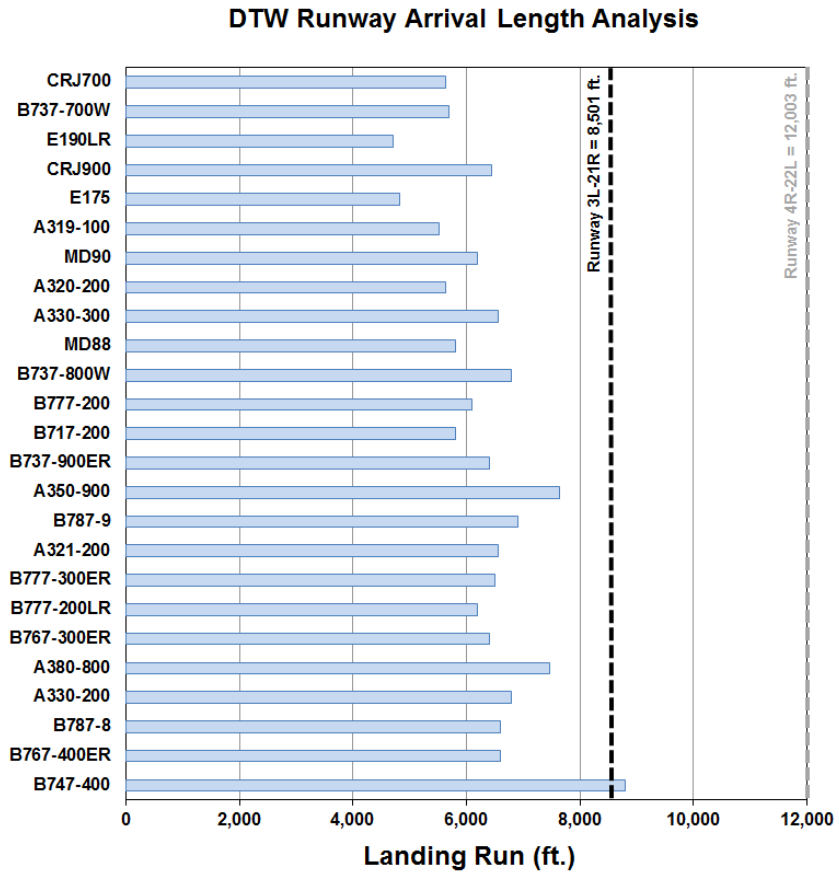
Deicing pad modifications will be evaluated using SIMMOD

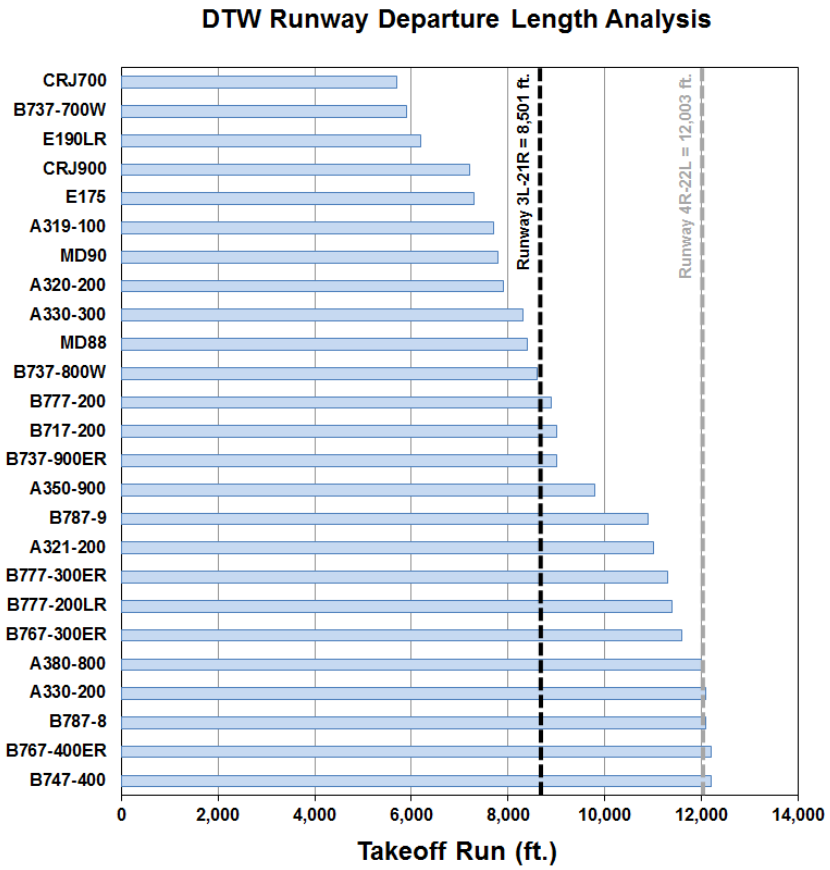
- **1 or 2 additional widebody spots needed for SkyTeam**
- **1 or 2 widebody spots needed for other airlines**
- **Deicing pads eventually need to be expanded to meet new deicing FAA AC requirements**



Pad	ADG	# Positions	Length	Width	Sq Ft	Proposed length	Proposed width	Proposed Sq Ft	Additional Sq Ft	Lost positions
4R	III	6	954.0'	203.7'	194,329.8	1,060'	204	215,820	**21,490**	1
3L	III	6	973.4'	222.8'	216,873.5	1,060'	223	236,056	**19,183**	1
21R	III	6	981.7'	195.6'	192,020.5	1,060'	196	207238	**15,217**	1
22L West	II	6	701.2'	136.3'	95,573.6	778'	136	105973	**10,399**	1
22L East	II	4	479.0'	136.3'	65,287.7	523'	136	71,216	**5,929**	0

Runway Length Requirements





Existing Runway Lengths

4L-22R 10,000’ x 150’
4R-22L 12,003’ x 200’
3L-21R 8,501’ x 200’
3R-21L 10,001’ x 150’
9L-27R 8,708’ x 150’
9R-27L 8,500’ x 150’

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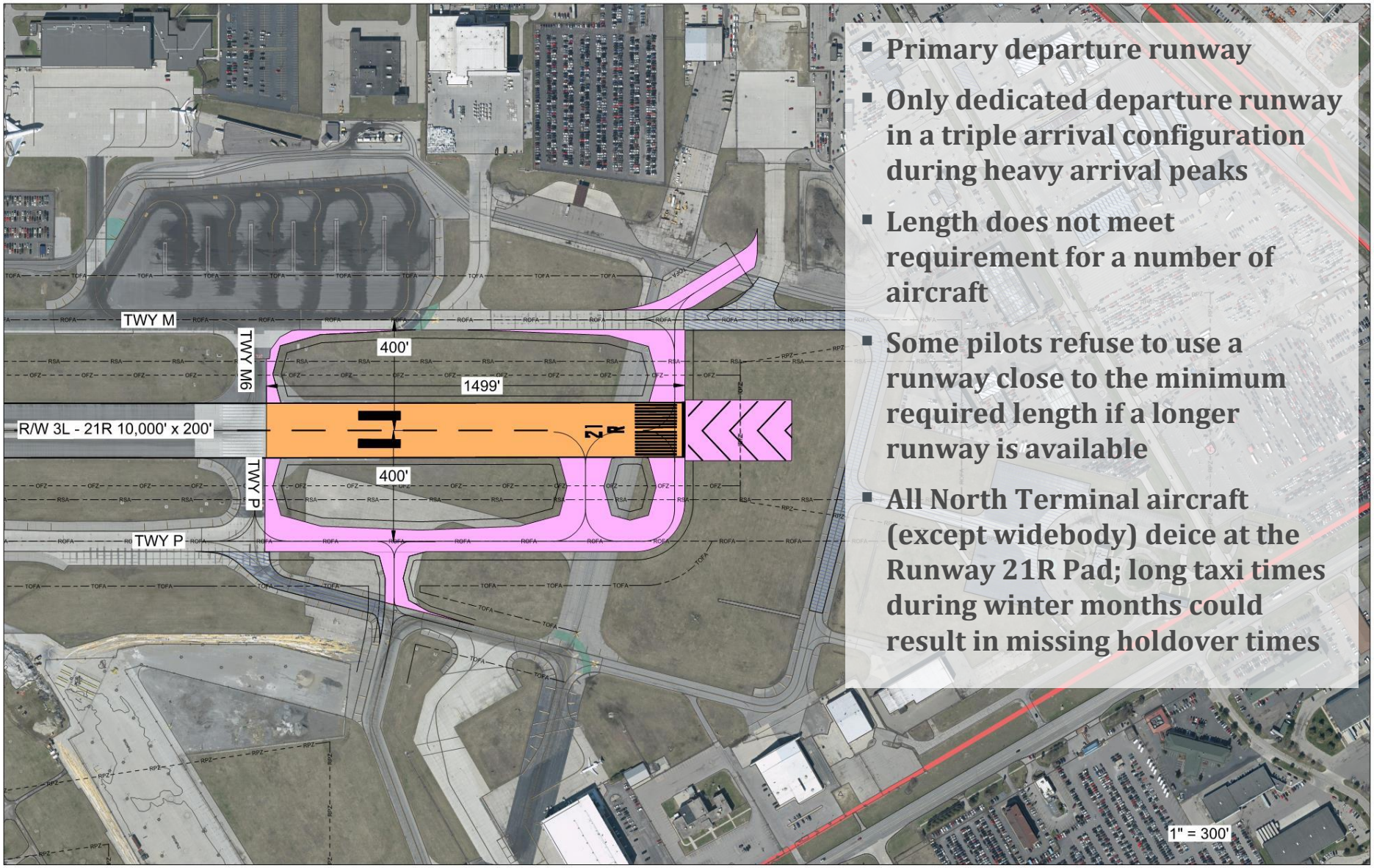
Runway 3L-21R Extension

Potential extension to be studied further in alternatives analysis



- Primary departure runway
- Only dedicated departure runway in a triple arrival configuration during heavy arrival peaks
- Length does not meet requirement for a number of aircraft
- Some pilots refuse to use a runway close to the minimum required length if a longer runway is available
- All North Terminal aircraft (except widebody) deice at the Runway 21R Pad; long taxi times during winter months could result in missing holdover times

Airfield Efficiency: Taxi Times

South Flow Arrive 21L, 22R / Depart 21R & 22L

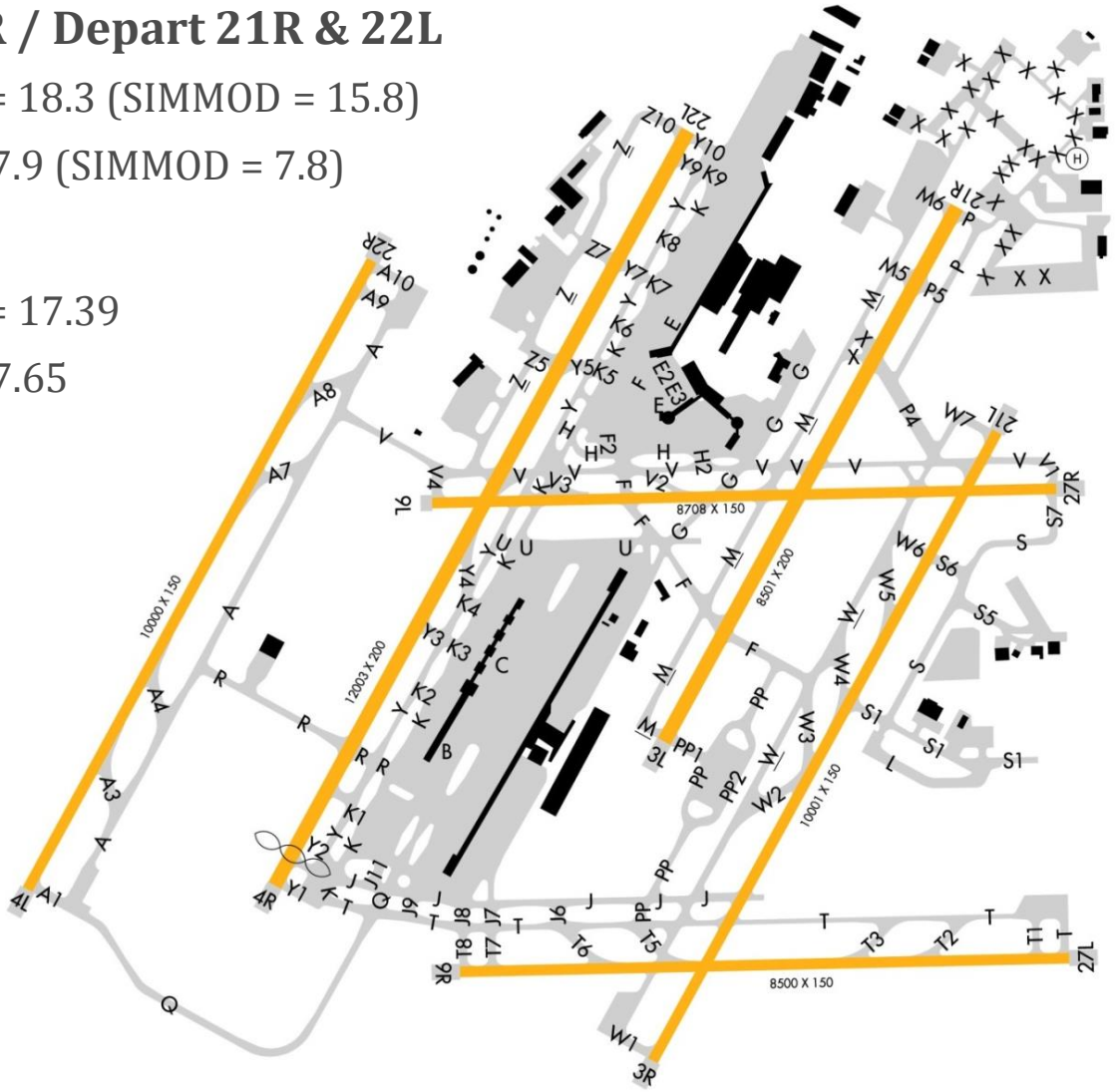
2015 Average Taxi Out Time = 18.3 (SIMMOD = 15.8)

2015 Average Taxi In Time = 7.9 (SIMMOD = 7.8)

Overall

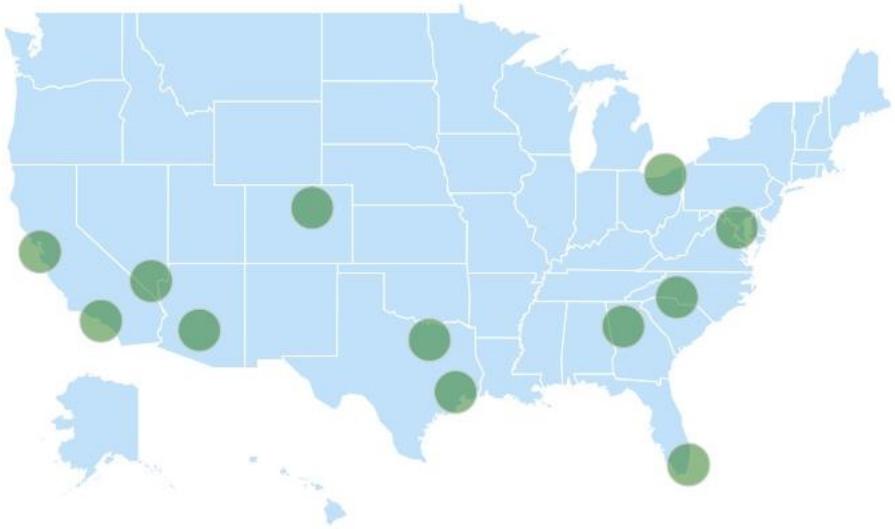
2015 Average Taxi Out Time = 17.39

2015 Average Taxi In Time = 7.65



Metroplex/NextGEN

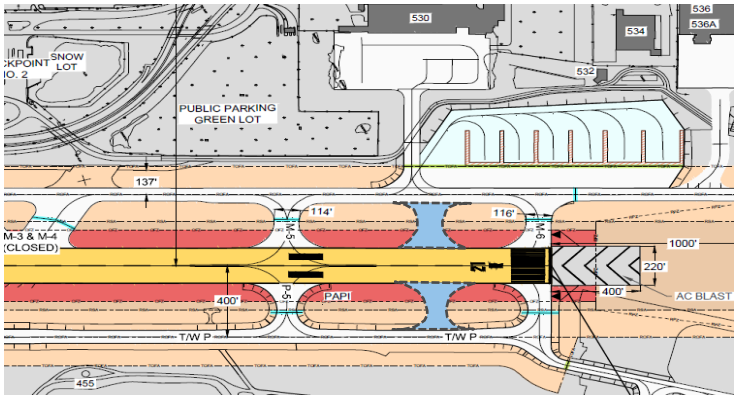
Airfield capacity will be affected by airspace redesign; to be addressed in evaluation of airfield alternatives



Atlanta | Charlotte | Cleveland-Detroit | D.C. | Denver
Houston | Las Vegas | North Texas | Northern California
Phoenix | South Central Florida | Southern California

NextGEN Metroplexes

NextGEN provides more departure routes, which can increase capacity when successive aircraft are going to different geographic areas

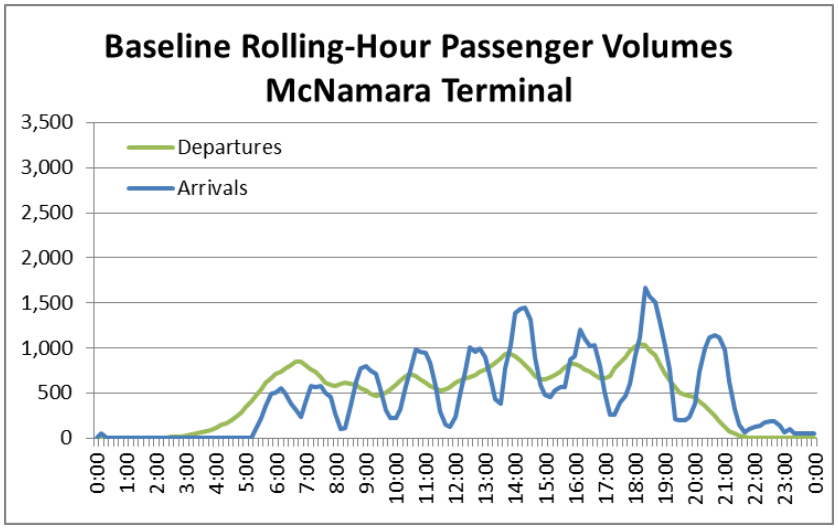


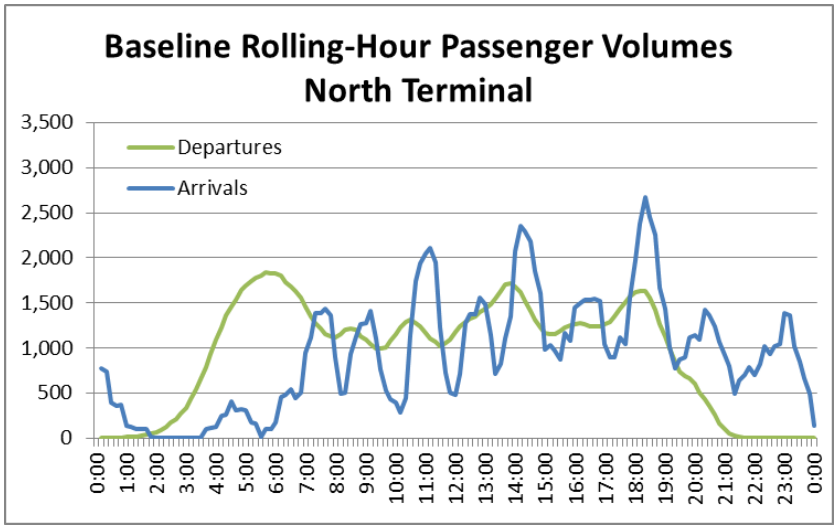
Bypass taxiways at runway ends can help ATC take advantage of NextGEN benefits

Technical Progress: Passenger Terminals

Peak Passenger Flows

Methodology: Peak Passengers = Scheduled Seats x Load Factor x OD % x Earliness Distribution



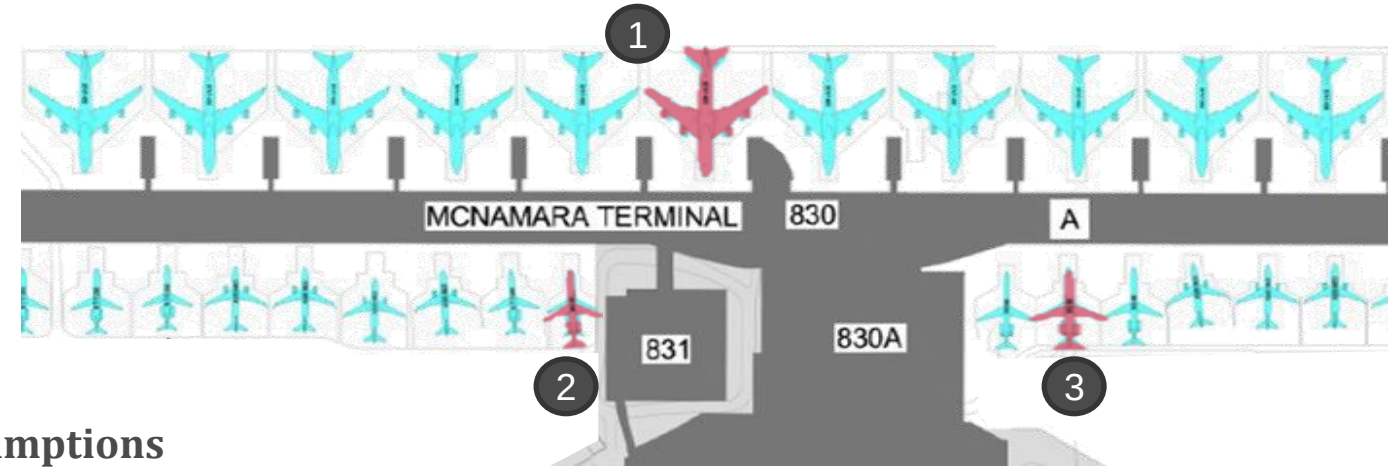


- **McNamara Terminal**
  - Peak departure pax flow ~6:00pm to 7:00pm
  - Peak arrival pax flow ~6:30pm to 7:30pm
- **North Terminal**
  - Peak departure pax flow ~6:00am to 7:00am
  - Peak arrival pax flow ~6:30pm to 7:30pm

Peak-Hour Passenger Activity	Baseline 2015	PAL1 2020	PAL2 2025	PAL3 2035
Airport Total	7,009	7,465	8,534	9,418
McNamara	2,698	3,094	3,452	3,794
Departures	1,051	1,191	1,337	1,465
Arrivals	1,667	1,924	2,130	2,353
North	4,311	4,371	5,082	5,625
Departures	1,842	1,913	2,197	2,287
Arrivals	2,674	2,710	3,179	3,480

Aircraft Gate Assumptions and Requirements

Some up-gauging of the aircraft fleet will likely occur during the planning horizon



- **Assumptions**
  1. Airbus A350s to replace a portion of the 747 fleet
  2. RJ900 to replace a portion of the RJ200 fleet (up to 31' longer & 14' wider)
  3. Bombardier C-series to be added to fleet (up to 10' wider than existing RJs)
- **North Terminal gates will continue to be "dedicated"; no additional shared-use gates beyond the 5 shared-use gates today**
- **Preliminary requirements**
  - Anticipated aircraft types must be accommodated with appropriately sized parking positions
  - Both terminals may need additional RON aircraft parking positions
  - North Terminal needs 3 to 4 additional contact gates

Passenger Check-in Requirements

Existing Passenger Check-in Facilities are adequately sized to meet future demand

	Existing Facilities		Baseline 2015		PAL1 2020		PAL2 2025		PAL3 2035	
	Counters (a) Kiosks	Existing Space (b)	Counters Kiosks	Size Requirement (sq. ft.)	Counters Kiosks	Size Requirement (sq. ft.)	Counters Kiosks	Size Requirement (sq. ft.)	Counters Kiosks	Size Requirement (sq. ft.)
Airport Total	**170 / 73**	**29,500**	**77 / 32**	**24,540**	**89 / 25**	**25,390**	**101 / 24**	**26,940**	**108 / 25**	**27,980**
McNamara	**84 / 49**	**11,870**	28 / 12	9,250	34 / 10	10,220	40 / 9	10,710	43 / 9	11,220
Air France	8 / 0		2 / 1	660	3 / 1	680	3 / 1	670	3 / 1	630
Delta	69 / 49		24 / 10	7,970	29 / 8	8,910	34 / 7	9,400	37 / 7	9,960
Virigin Atlantic	8 / 4		2 / 1	620	2 / 1	620	3 / 1	650	3 / 1	630
North	**86 / 24 (c)**	**17,630**	49 / 20	15,290	55 / 15	15,170	61 / 15	16,220	65 / 16	16,770
Air Canada	5 / 0		2 / 1	570	2 / 1	590	2 / 1	570	2 / 1	540
American (inc US)	14 / 11		10 / 4	3,280	12 / 3	3,350	13 / 3	3,530	14 / 3	3,750
Alaksa	8 / 0		3 / 1	840	3 / 1	860	4 / 1	930	4 / 1	880
Frontier	4 / 0		3 / 1	760	3 / 1	760	3 / 1	740	3 / 1	700
JetBlue	4 / 3		3 / 1	880	4 / 1	980	4 / 1	980	4 / 1	930
Lufthansa	6 / 0		4 / 2	1,150	4 / 1	1,030	4 / 1	1,040	4 / 1	980
Spirit	16 / 8		11 / 4	3,460	12 / 3	3,350	14 / 3	3,850	14 / 3	3,640
Southwest	10 / 0		9 / 4	2,930	10 / 3	2,910	11 / 2	2,810	13 / 3	3,430
United	12 / 2		4 / 2	1,410	5 / 1	1,350	6 / 2	1,780	7 / 2	1,930

(a) Includes both Full-Service counters and Bag-Drop Only counters

(b) As measured from Terminal drawings provided by WCAA Staff and field verified where possible

(c) Also includes 7 common-use International Check-in Counters

Additional Terminal Requirements

- **Security Screening Checkpoint**
  - Under Baseline conditions, the North Terminal security screening checkpoint is often congested during morning peak flight times.
  - Future projections show that congestion may occur at McNamara by 2025 or 2035 if facilities are not expanded.

	# Lanes	Size (sq. ft.)	# Lanes	Size (sq. ft.)	# Lanes	Size (sq. ft.)	# Lanes	Size (sq. ft.)	# Lanes	Size (sq. ft.)
	Existing Facilities (a)		Baseline 2015		PAL1 2020		PAL2 2025		PAL3 2035	
Airport Total	**23**	**36,700**	**24**	**42,000**	**25**	**43,750**	**28**	**49,000**	**30**	**52,500**
McNamara	11	18,500	9	15,750	10	17,500	11	19,250	12	21,000
Check-in Level	6	11,400								
Upper Level	3	2,500								
Westin	2	4,600								
North	12	18,200	15	26,250	15	26,250	17	29,750	18	31,500
South	6	9100								
North	6	9100								

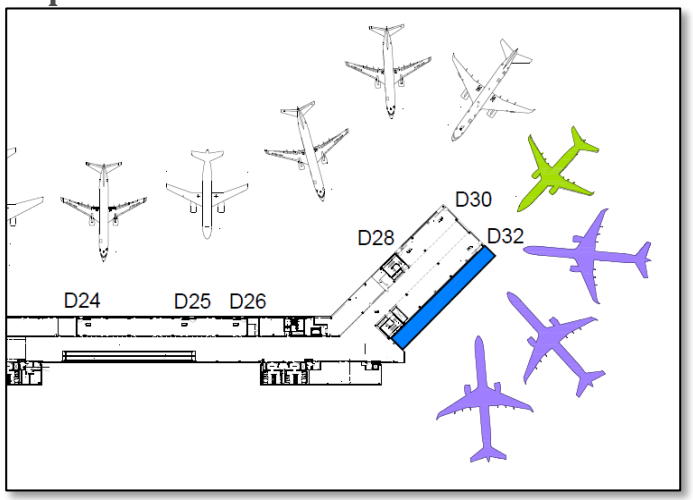
(a) As measured from Terminal drawings provided by WCAA Staff and field verified where possible
(b) Requirements assume processing capacity of 150 pax/hr, and max passenger wait time of 10 min.

- **Customs Border Patrol / Federal Inspection Services**
  - The existing FIS facilities appear to be adequate throughout the forecast period.

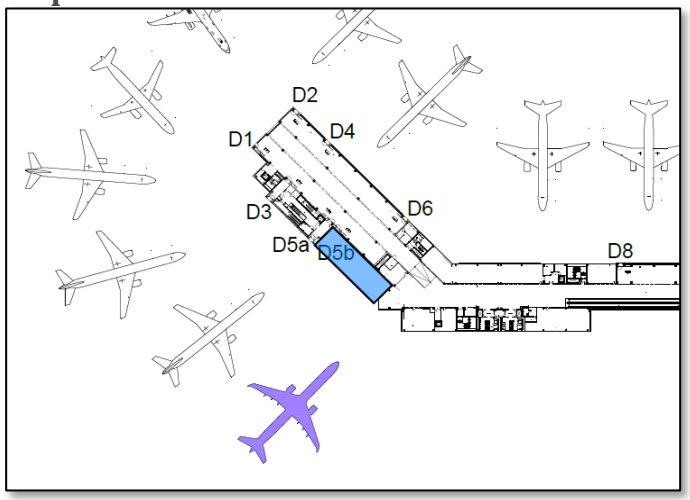
International Peak-Hour Passenger Activity (pph)					
	Existing Capacity	Baseline 2015	PAL1 2020	PAL2 2025	PAL3 2035
McNamara	2,000	404	425	603	603
North	600	249	249	249	249

North Terminal Gate Expansion

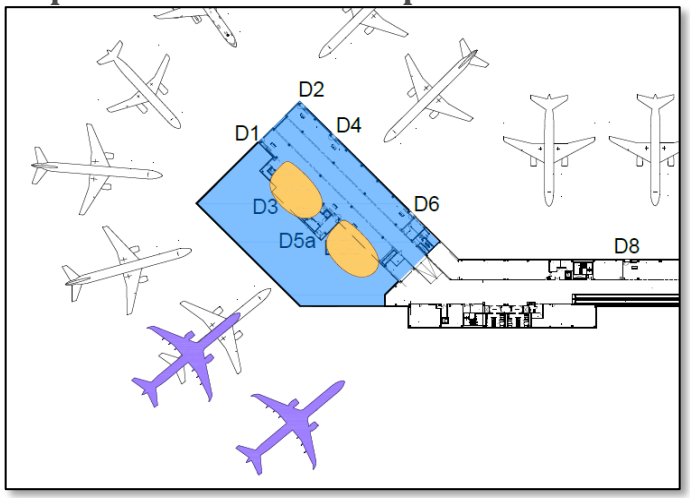
Option 1 – North End Fill-in



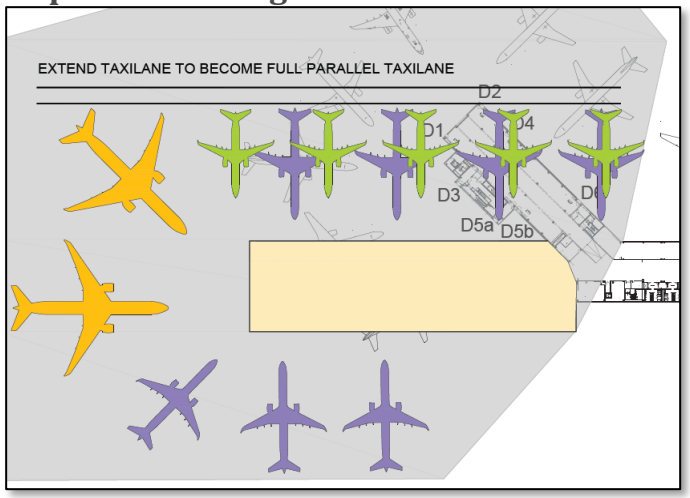
Option 2 – South End Fill-in



Option 3 – South End Expansion



Option 4 – Straighten South End



Key Map

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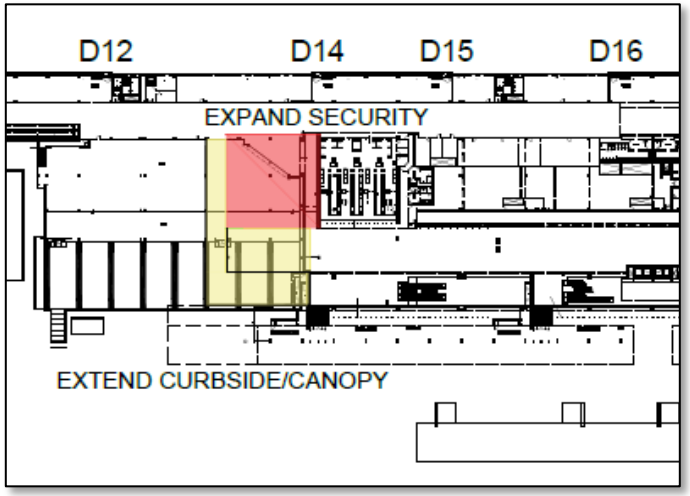
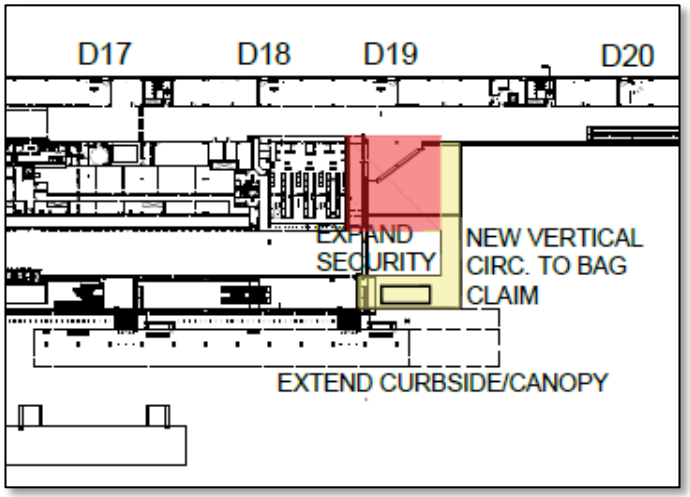
North Terminal Security Checkpoint Expansion

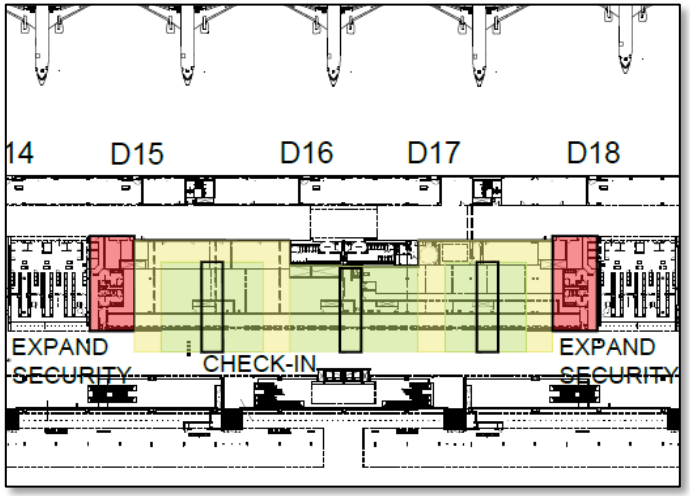
Option 1 – South Expansion



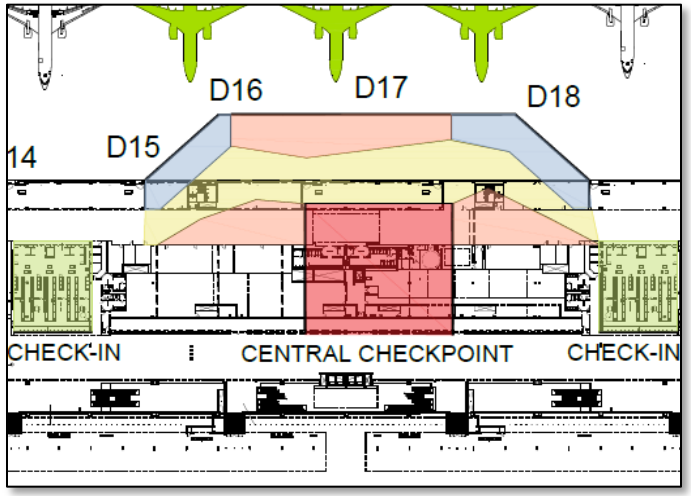
Option 2 – North Expansion



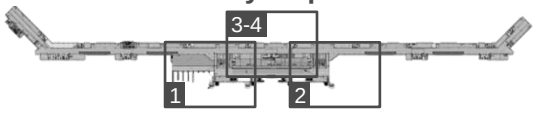
Option 3 – Reconfigure Check-in



Option 4 – Centralize Checkpoint



Key Map



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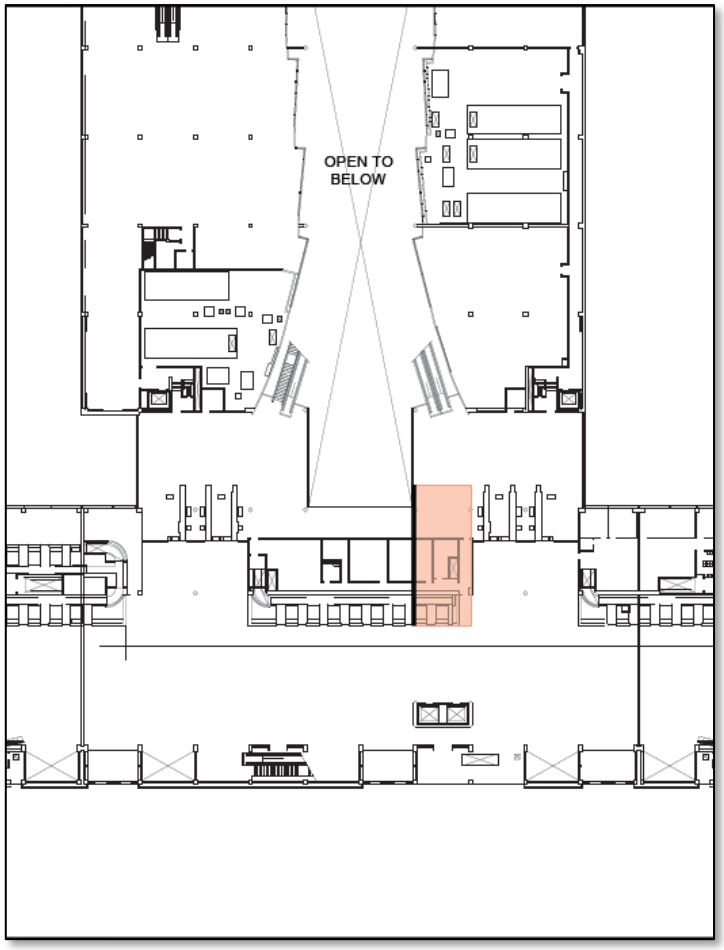
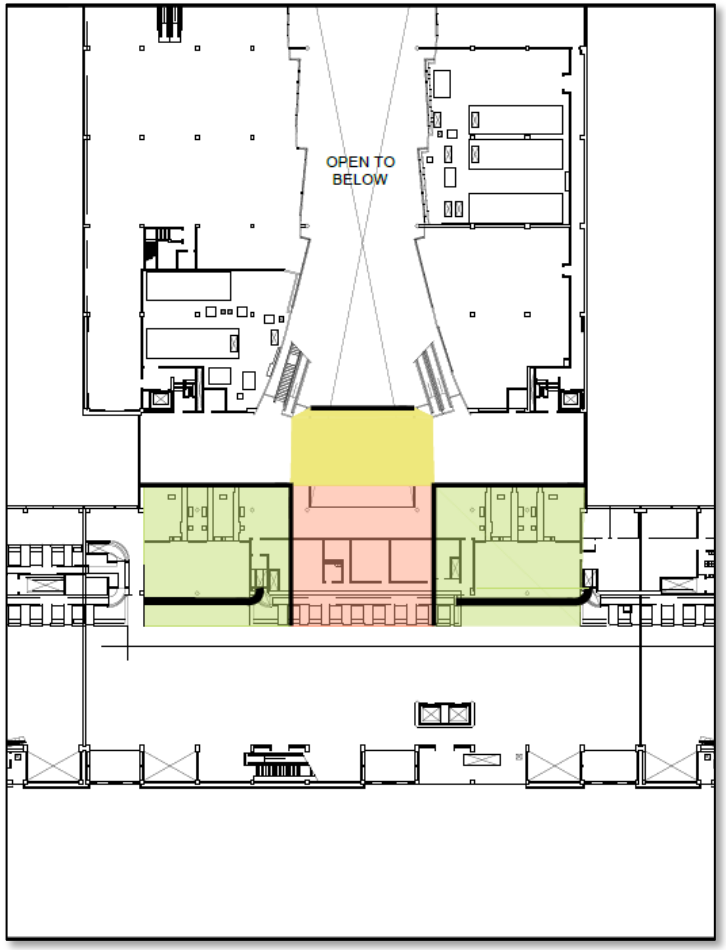
McNamara Terminal Checkpoint Optimization

Option 1 – Expand Existing Checkpoint



Option 2 – Centralize Checkpoint



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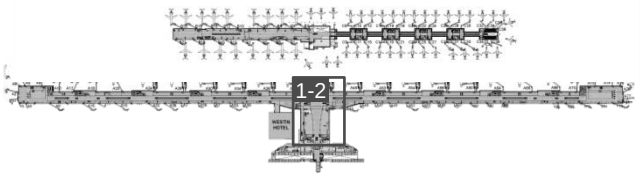

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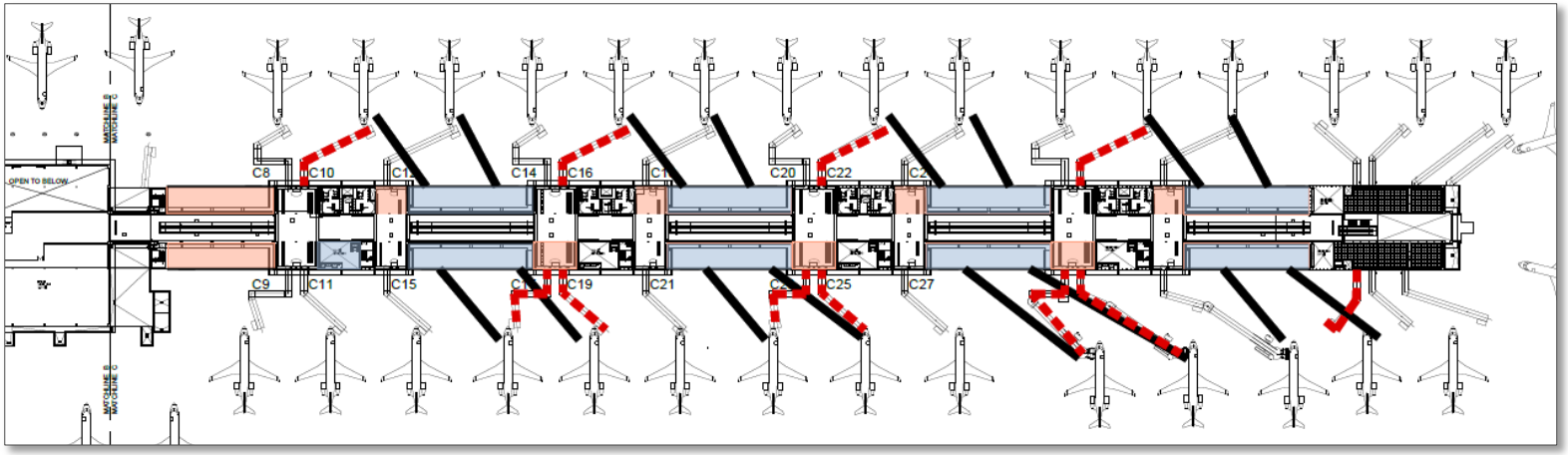
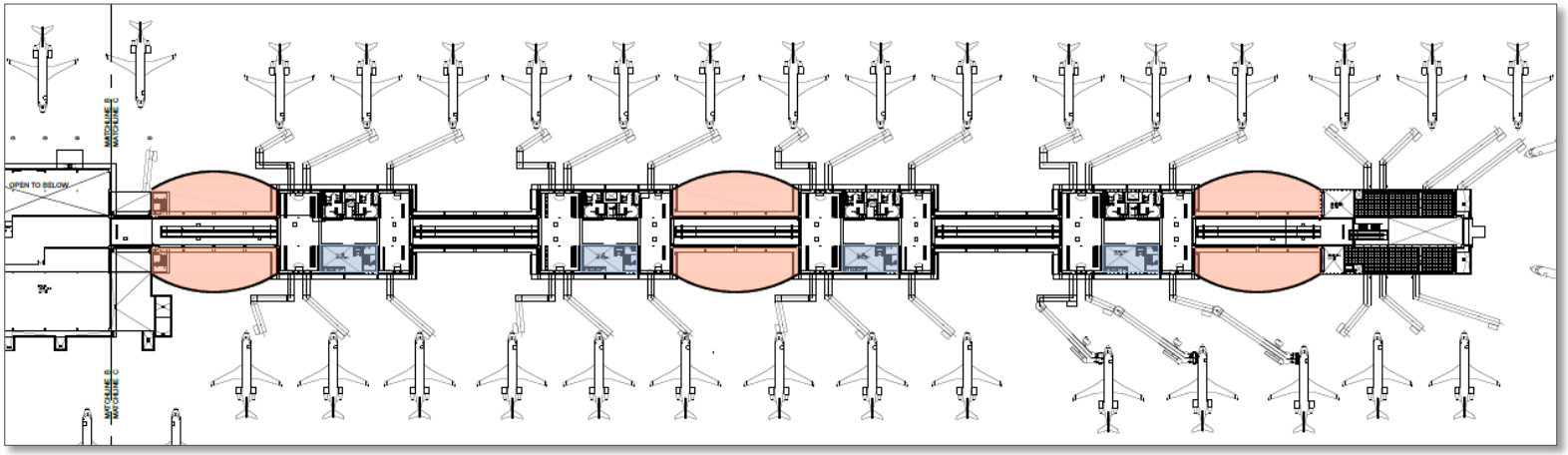
McNamara Terminal Concourse C Expansion

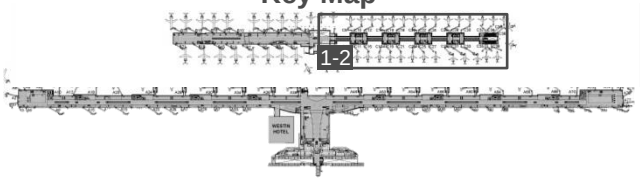
Option 1 – Fill-in and Expand Hold Rooms



Option 2 – Relocate Concession Space into New Nodes



Key Map



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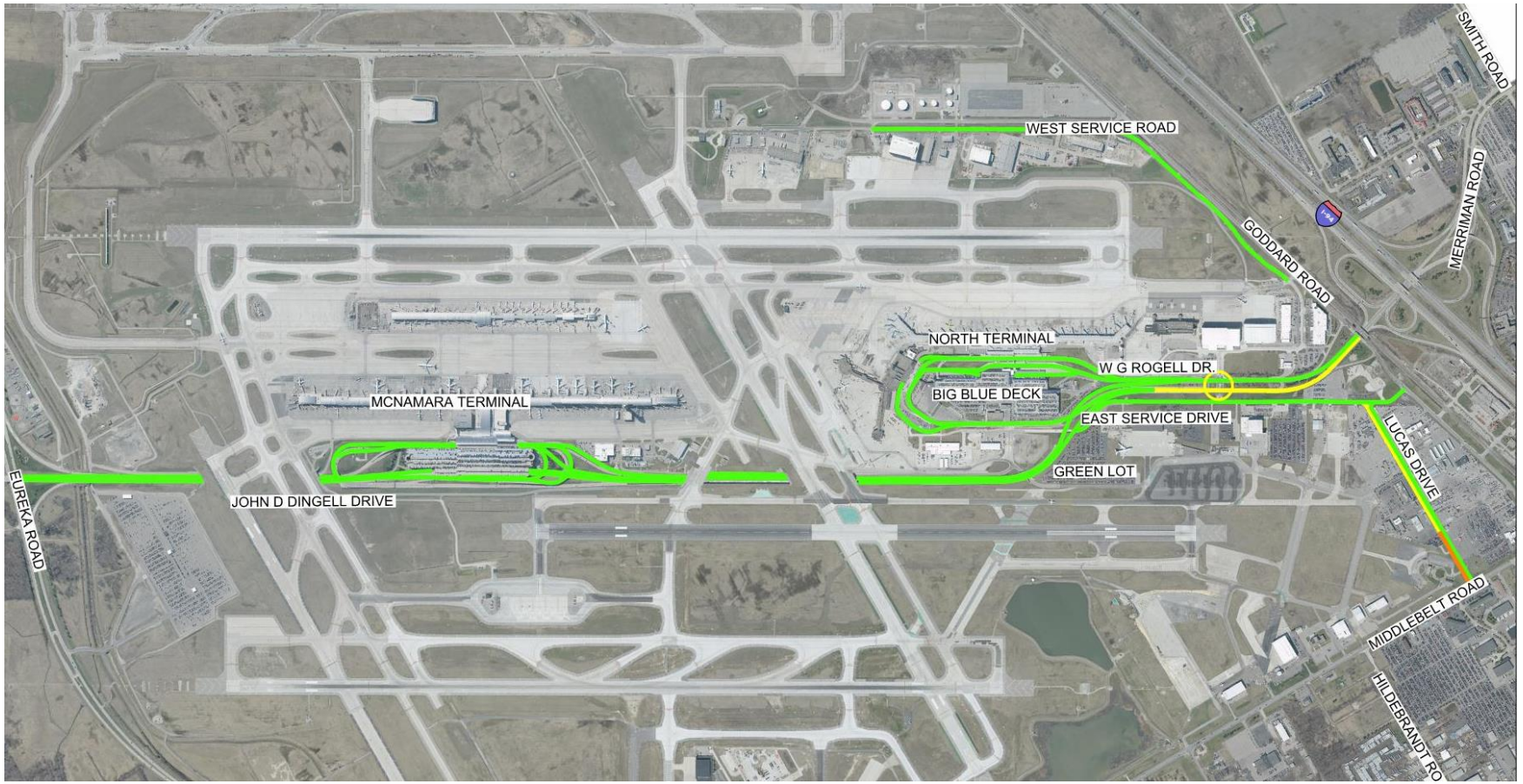
Technical Progress: Ground Transportation & Parking

Roadways Requirements (PAL 3)

Airport roadways are projected to operate within an acceptable level of service throughout the planning horizon



V/C = Volume to capacity ratio
LOS = Level of service

V/C Ratio	LOS	V/C Ratio	LOS
0 - 0.26	A	0.60 - 0.79	D
0.26 - 0.41	B	0.79 - 1.00	E
0.41 - 0.60	C	1.00 - 5.00	F

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Curbside Vehicle Dwell Times

Dwell times along with traffic volumes are a primary driver of curbside demand and managing dwell times will reduce the required curb length

Vehicle Classification	Existing Dwell Times (Min)		Recommended Maximum Dwell Times (Min)	
	McNamara Terminal	North Terminal	McNamara Terminal	North Terminal
Upper Level - DEPARTURES				
Private Vehicles	1.7	1.8	1.8	1.8
Taxicab	2.0	3.9	2.0	2.0
Limousine	1.6	5.2	2.0	2.0
Middle Level - ARRIVALS				
Private Vehicles	6.0	5.3	2.5	2.5
Lower Level - INT'L ARRIVALS				
Private Vehicles	2.6	N/A	2.5	N/A
Employee Bus	1.8	N/A	1.8	N/A
Ground Transportation Center (GTC)				
Hotel/Motel Shuttle	1.8	1.6	1.8	1.8
Off-Airport Parking Shuttle	1.7	2.7	1.8	1.8
Public Transit Bus (Charter Bus)	4.5	9.0	4.5	4.5
Green Lot Bus	2.2	5.2	2.2	2.2
Rental Car Bus	5.6	5.1	2.5	2.5
Interterminal Shuttle	1.2	3.2	1.2	1.2

Curbside Requirements

The McNamara lower level international arrivals curbside and ground transportation Center have the greatest deficiency over the planning horizon

McNamara Terminal

	Existing Supply	Current Operations	Estimated Requirement Baseline	PAL 1 (2020)	PAL 2 (2025)	PAL 3 (2035)
Upper (Departures) level						
Active Curbside						
Private vehicle/taxi (ft)	**760**	**725**	**775**	**800**	**800**	**875**
Surplus (Deficit) feet		**35**	***(15)***	***(40)***	***(40)***	***(115)***
Hotel Curbside						
Hotel/valet curb (ft)	125	125	125	125	125	125
Shuttle/Dedicated area (ft)	100	100	100	100	100	100
Number of lanes	5	5	5	5	5	5
Middle (Arrivals) level						
Private vehicle (ft)	**950**	**1,575**	**725**	**775**	**800**	**850**
Surplus (Deficit) feet		***(625)***	***225***	***175***	***150***	***100***
Number of lanes	5	5	5	5	5	5
Lower (International Arrivals) Level						
Active Curbside						
Private vehicle (ft)	**240**	**875**	**850**	**925**	**950**	**1,000**
Surplus (Deficit) feet		***(635)***	***(610)***	***(685)***	***(710)***	***(760)***
Dedicated Areas						
Employee parking shuttle (ft)	40	40	40	40	40	40
TSA/CBP Spaces (ft)	140	140	140	140	140	140
Number of lanes	5	5	5	5	5	5
Ground Transportation Center						
Taxi (feet)	210	200	200	200	225	225
Hotel/motel shuttle (ft)						
Off-airport parking shuttle (ft)	200	400	440	440	480	480
Green lot bus (ft)						
Public transit/charters (ft)	125	120	120	120	120	120
Rental car shuttle (ft)	325	405	225	225	270	270
Inter-terminal shuttle (ft)	65	40	40	40	40	40
Total curbside length (ft)	**925**	**1,165**	**1,025**	**1,025**	**1,135**	**1,135**
Surplus (Deficit) feet		***(240)***	***(100)***	***(100)***	***(210)***	***(210)***
Number of lanes	4	4	4	4	4	4

North Terminal

	Existing Supply	Current Operations	Estimated Requirement Baseline	PAL 1 (2020)	PAL 2 (2025)	PAL 3 (2035)
Upper (Departures) Level						
Private vehicle/taxi (ft)	**740**	**500**	**500**	**525**	**600**	**625**
Surplus (Deficit) feet		***620***	***620***	***595***	***520***	***495***
Number of lanes	4	4	4	4	4	4
Lower (Arrivals) Level						
Private vehicle (ft)	**830**	**1,425**	**750**	**775**	**875**	**925**
Surplus (Deficit) feet		***(595)***	***80***	***55***	***(45)***	***(95)***
Number of lanes	4	4	4	4	4	4
Ground Transportation Center						
Taxi (ft)	Level 4	-	-	-	-	-
Linear curb						
Hotel/motel shuttle (ft)	350	360	320	320	400	400
Off-airport parking shuttle(ft)						
Rental car shuttle (ft)	500	405	225	225	270	270
Total curbside length(ft)	**850**	**765**	**545**	**545**	**670**	**670**
Surplus (Deficit) feet		***85***	***305***	***305***	***180***	***180***
Pull-in parking stalls						
Public transit (stalls)	2	2	2	2	2	2
Green lot bus (stalls)	4	3	2	2	2	2
Charter buses (stalls)	2	2	2	2	2	2
Inter-terminal shuttle (stalls)	1	1	1	1	1	1
Total number of spaces	**9**	**8**	**7**	**7**	**7**	**7**
Surplus (Deficit) stalls		***1***	***2***	***2***	***2***	***2***
Number of lanes	3	3	3	3	3	3

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Potential Cell Phone Lots

Cell phone lots can shorten curbside dwell times and reduce curbside congestion

Parking Requirements

Parking requirements assume unconstrained demand within each lot; however, demand may be managed by rate changes to divert parkers between facilities

	Existing Supply	Estimated Requirement* Baseline	PAL 1 (2020)	PAL 2 (2025)	PAL 3 (2035)
McNamara					
Short-term	723	645	678	696	775
Long-term	8,690	9,300	9,771	10,037	11,175
Total	**9,413**	**9,945**	**10,449**	**10,733**	**11,950**
Surplus (Deficit)		(532)	(1,036)	(1,320)	(2,537)
Big Blue Deck					
Short-term	203	123	132	149	164
Long-term	5,958	6,347	6,835	7,702	8,497
Total	**6,161**	**6,469**	**6,967**	**7,851**	**8,661**
Surplus (Deficit)		(308)	(498)	(883)	(811)
Green Lots					
Green Lot 1	1,517	1,268	1,352	1,479	1,631
Green Lot 2	896	440	468	512	565
Total	**2,413**	**1,708**	**1,820**	**1,991**	**2,197**
Surplus (Deficit)		826	(112)	(171)	(206)

*Assumes 5% surplus over demand to account for vehicles searching for a parking space

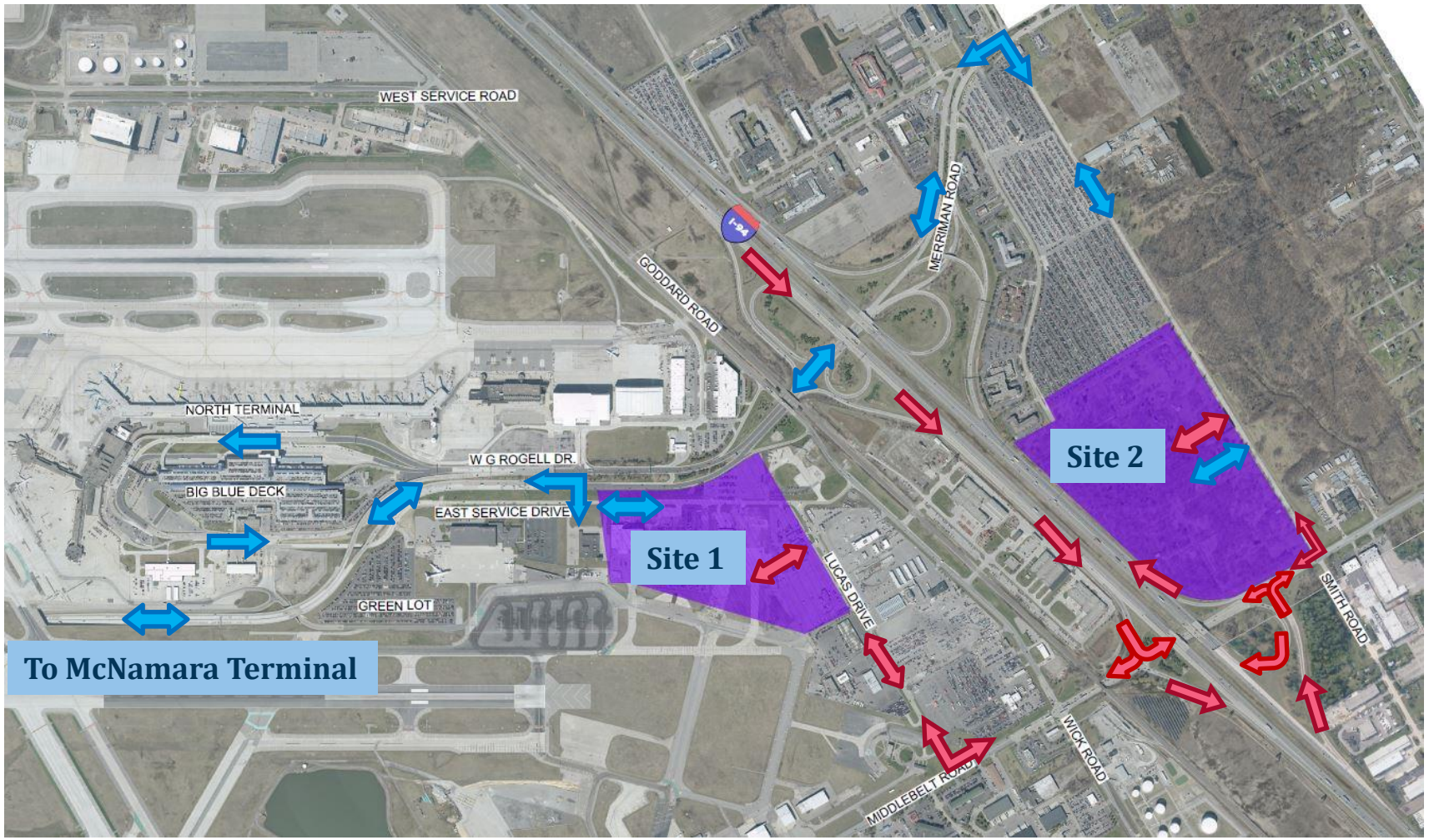
Rental Car Requirements

Rental car lots are at capacity and utilize space for multiple purposes; some requirements may be met by rearranging existing space to work more efficiently

		Estimated Requirements			
	Existing Supply	**Baseline**	**PAL 1 (2020)**	**PAL 2 (2025)**	**PAL 3 (2035)**
Customer Service / Employee Areas					
Employee / visitor parking spaces (stalls)	565	664	706	768	841
Employee / visitor parking area (acres)	4.2	4.9	5.2	5.6	6.2
Customer Service Area / Administrative Offices (acres)	1.3	1.3	1.4	1.5	1.7
Total customer service / employee area	**5.4**	**6.2**	**6.6**	**7.2**	**7.9**
Ready/Return Area					
Ready parking spaces (stalls)	1,437	2,230	2,373	2,578	2,826
Return parking spaces (nose-to-tail) stalls	1,838	2,705	2,878	3,127	3,428
Total ready-return area (acres)	**19.4**	**29.4**	**31.3**	**34.0**	**37.3**
Service and Storage Areas					
Fueling and washing (acres)	1.9	2.7	2.9	3.1	3.4
Maintenance (acres)	1.3	2.0	2.1	2.3	2.6
Stacking, staging and storage (acres)	18.7	23.1	24.6	26.7	29.3
Total service area (acres)	**22.0**	**27.8**	**29.6**	**32.2**	**35.3**
Additional service areas/circulation (acres)	**18.0**	**18.0**	**19.2**	**20.8**	**22.8**
Total site (acres)	**64.9**	**81.5**	**86.7**	**94.2**	**103.3**
Surplus (Deficit) acres		(16.6)	(21.8)	(29.3)	(38.4)

Potential Consolidated Rental Car Facility Sites

Potential consolidated facility locations are being reviewed



Potential consolidated rental car site

Public flow to/from regional roads

Shuttle flow to/from airport terminals

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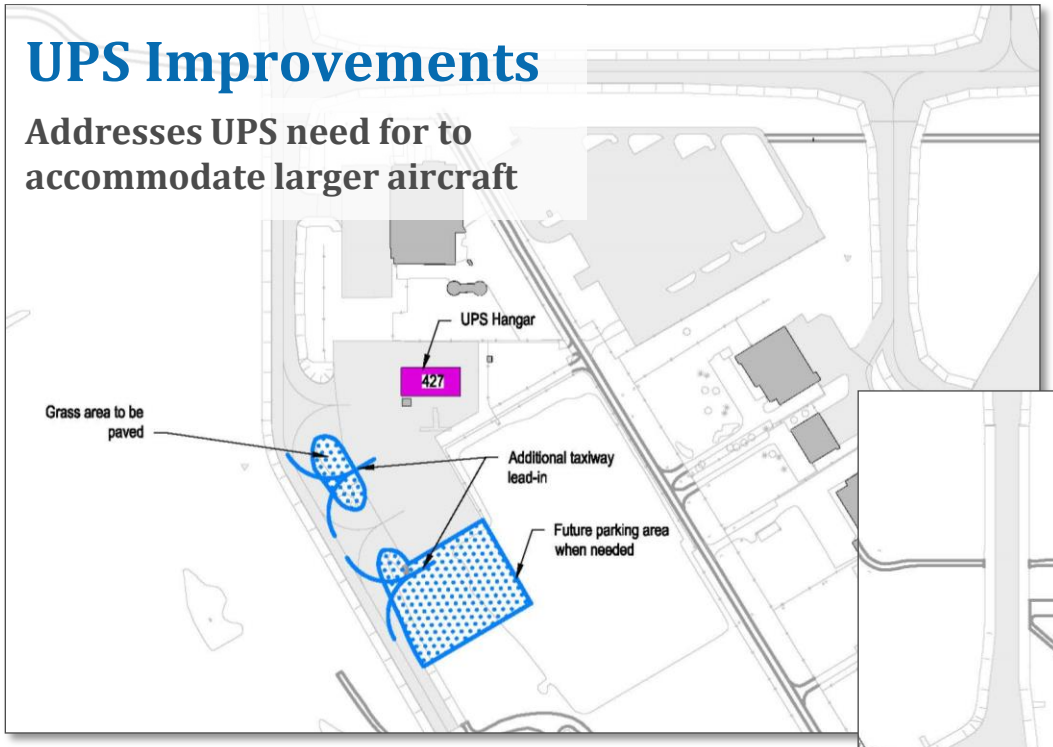
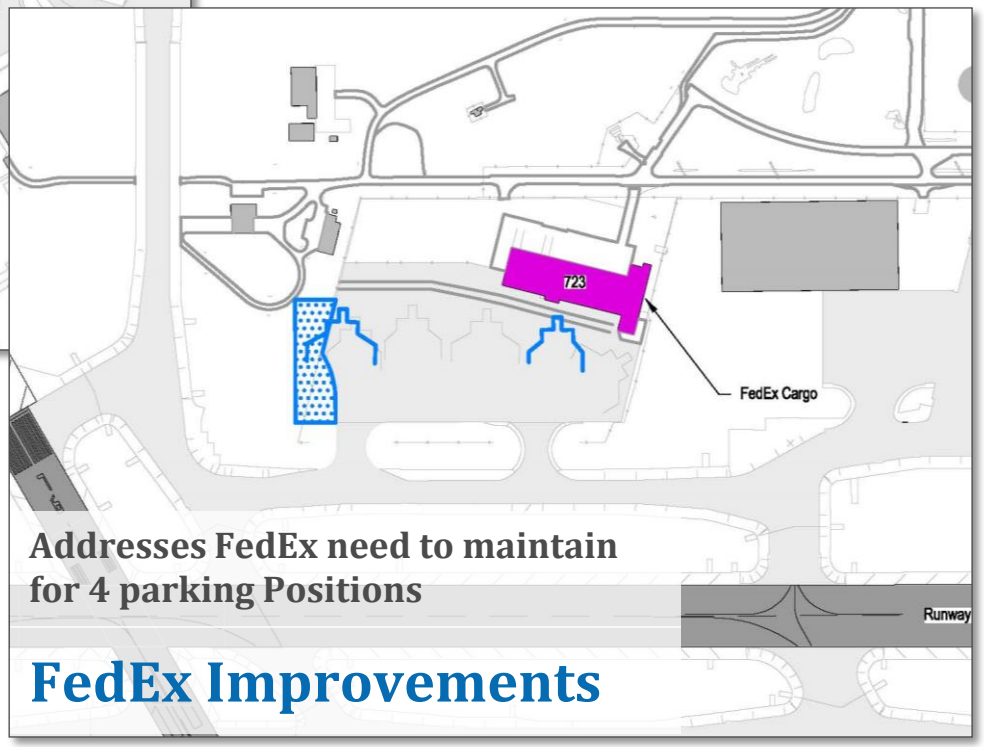
Technical Progress: Cargo, GA, & Support Facilities

Apron Expansion and Operational Improvements

UPS Improvements

Addresses UPS need for to accommodate larger aircraft





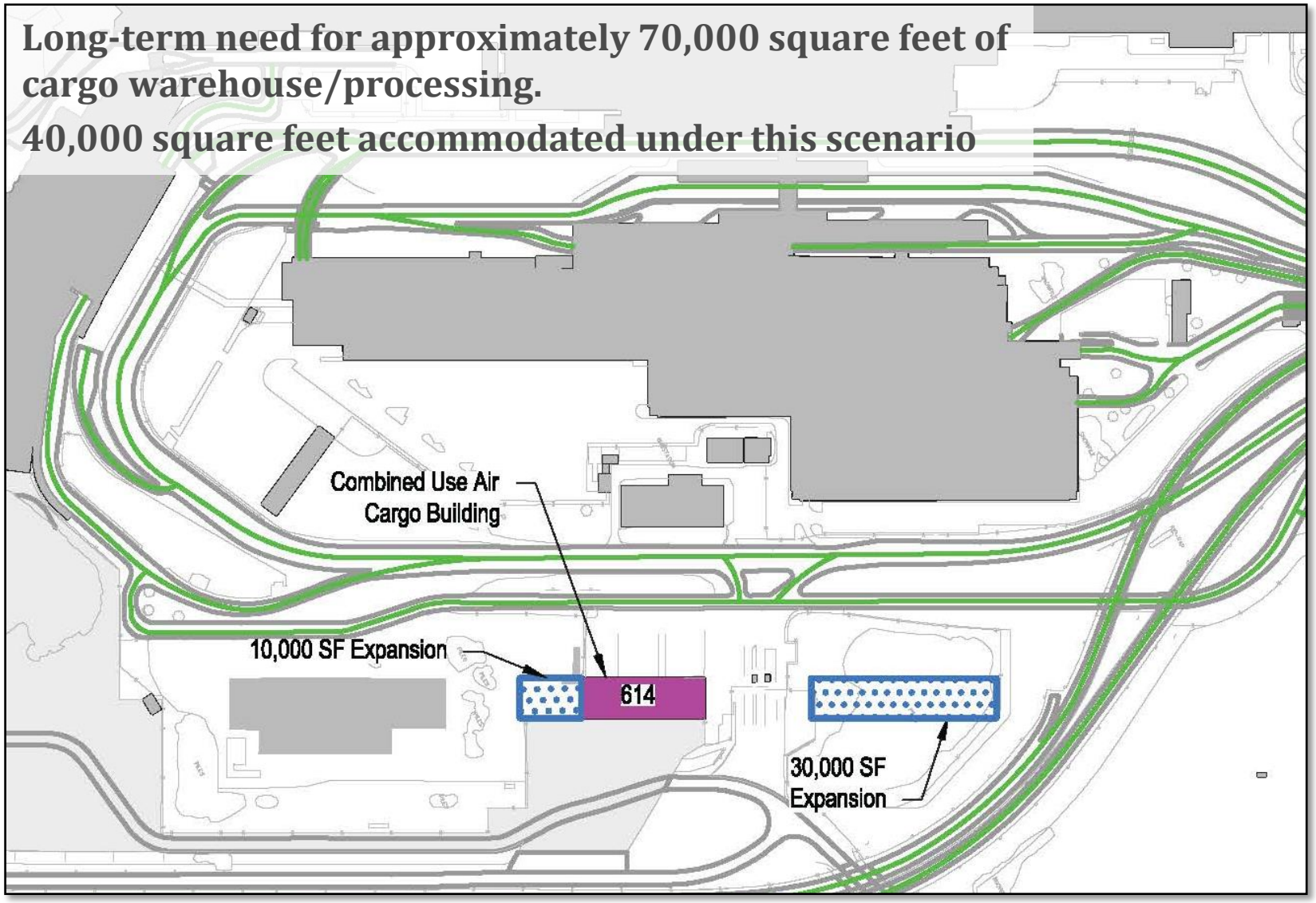
Addresses FedEx need to maintain for 4 parking Positions

FedEx Improvements

Combined Use Expansion: Initial Considerations

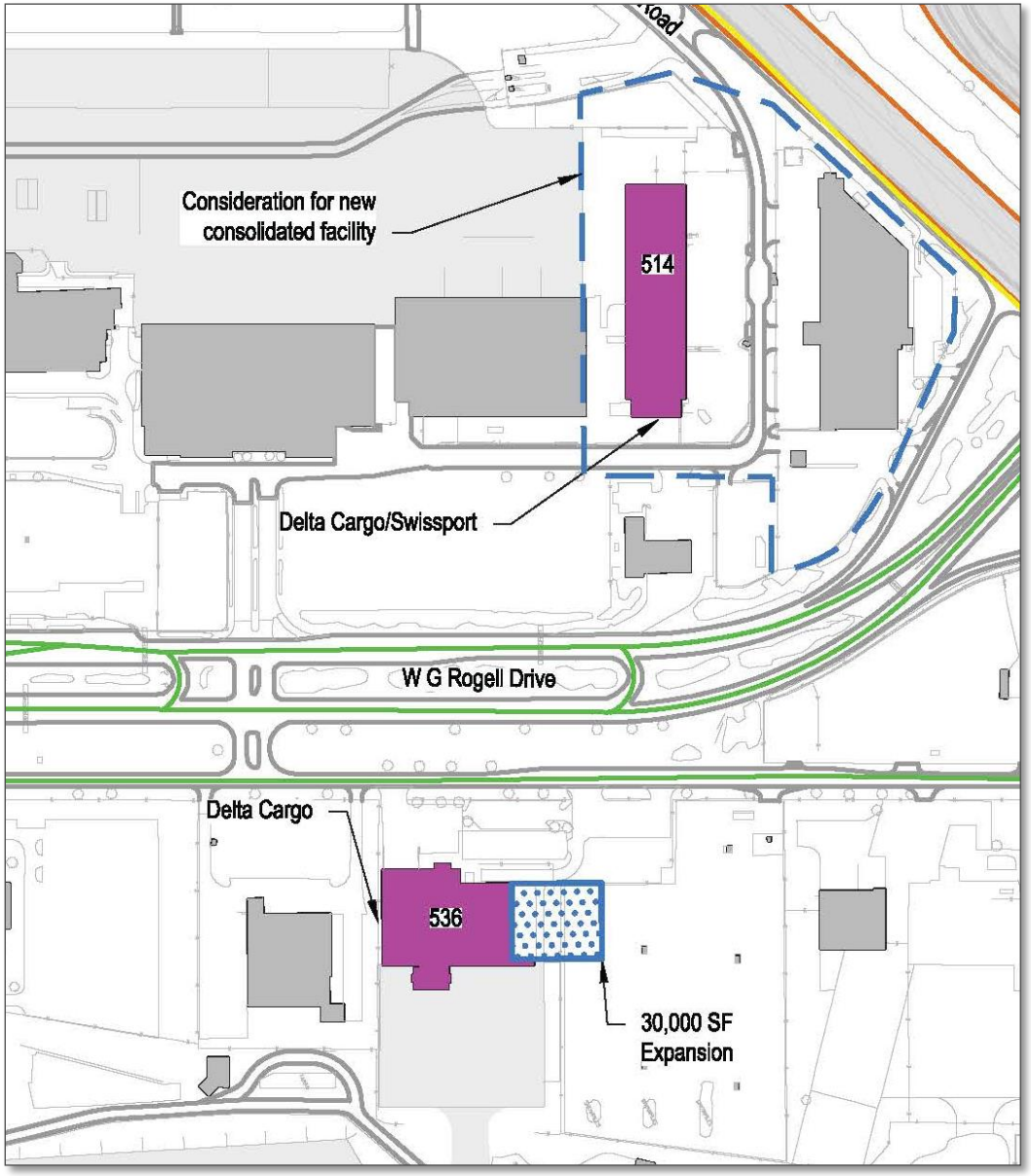
Long-term need for approximately 70,000 square feet of cargo warehouse/processing.

40,000 square feet accommodated under this scenario



Belly Cargo Expansion and Potential Redevelopment Area

- Long-term need for approximately 70,000 square feet of cargo warehouse space
- Additional 30,000 square feet accommodated under a Delta expansion of Building 536
- Consideration may be given to redeveloping Building 514 and LSG Sky Chefs facility into a multi-tenant cargo facility



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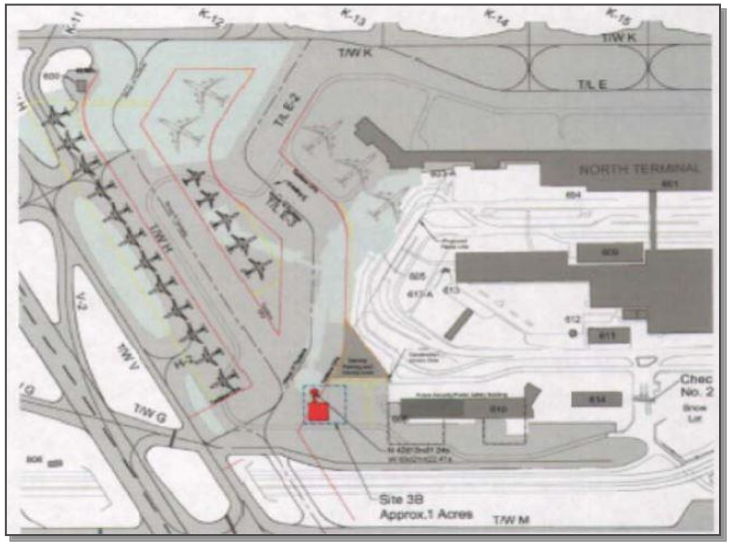
General Aviation and Aviation Support Requirements

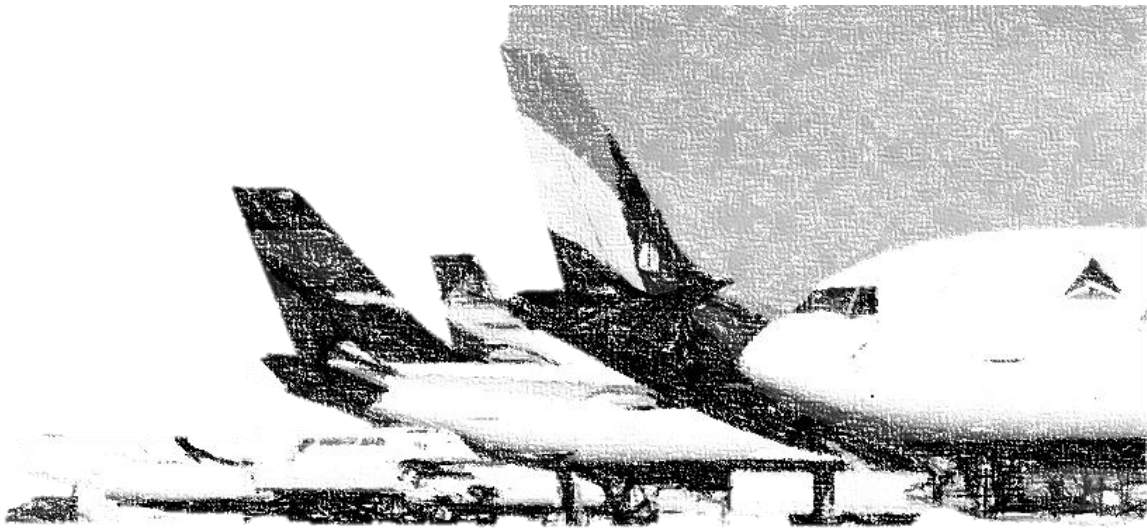
- **General aviation**
  - Activity to remain flat throughout the planning period; no issues reported
  - Opportunities for development areas on the south side of the airfield
- **Airline support**
  - No feedback on issues related to GSE, fueling, aircraft maintenance facilities
  - LSG Sky Chefs (72,900 SF bld 505) is not easily accessible from McNamara Terminal and will reach useful life in 8 years
- **ATCT replacement**
  - Site 3B - between Admin offices and public safety headquarters approved by FAA
  - Requires reconfiguration of the future expansion of the deicing pad
  - Timing to be determined



Next Steps

Next Steps

1. **Finalize requirements**
   - Stakeholders, tenants, and communities ideas
   - Additional suggestions to address technical problems
2. **Assess alternatives**
3. **Financial capacity assessment**
4. **Draft Existing ALP for FAA review**



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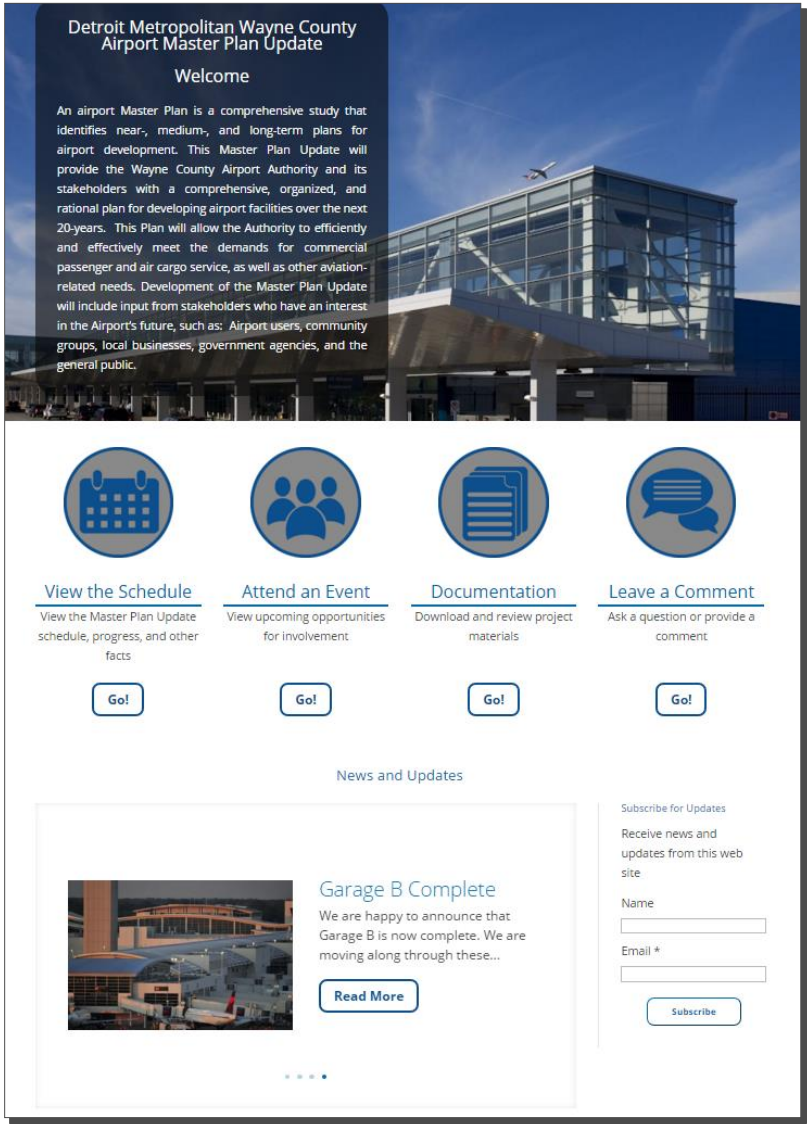
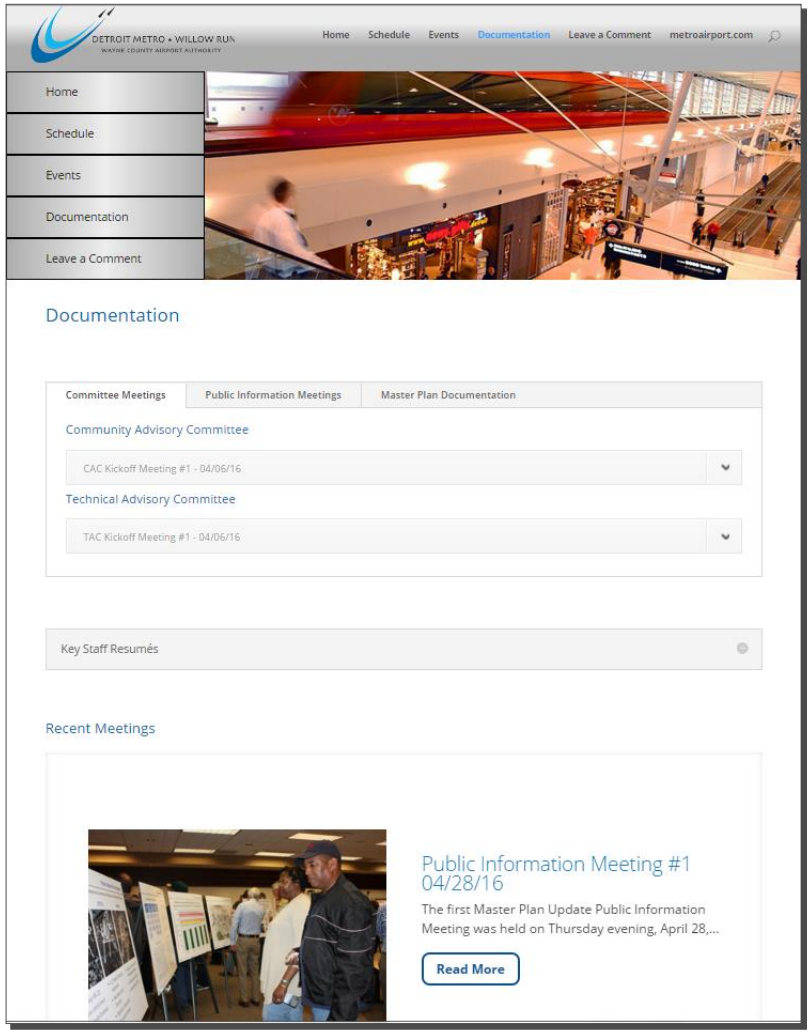
Project Website

www.detroitmetroairportmasterplan.org





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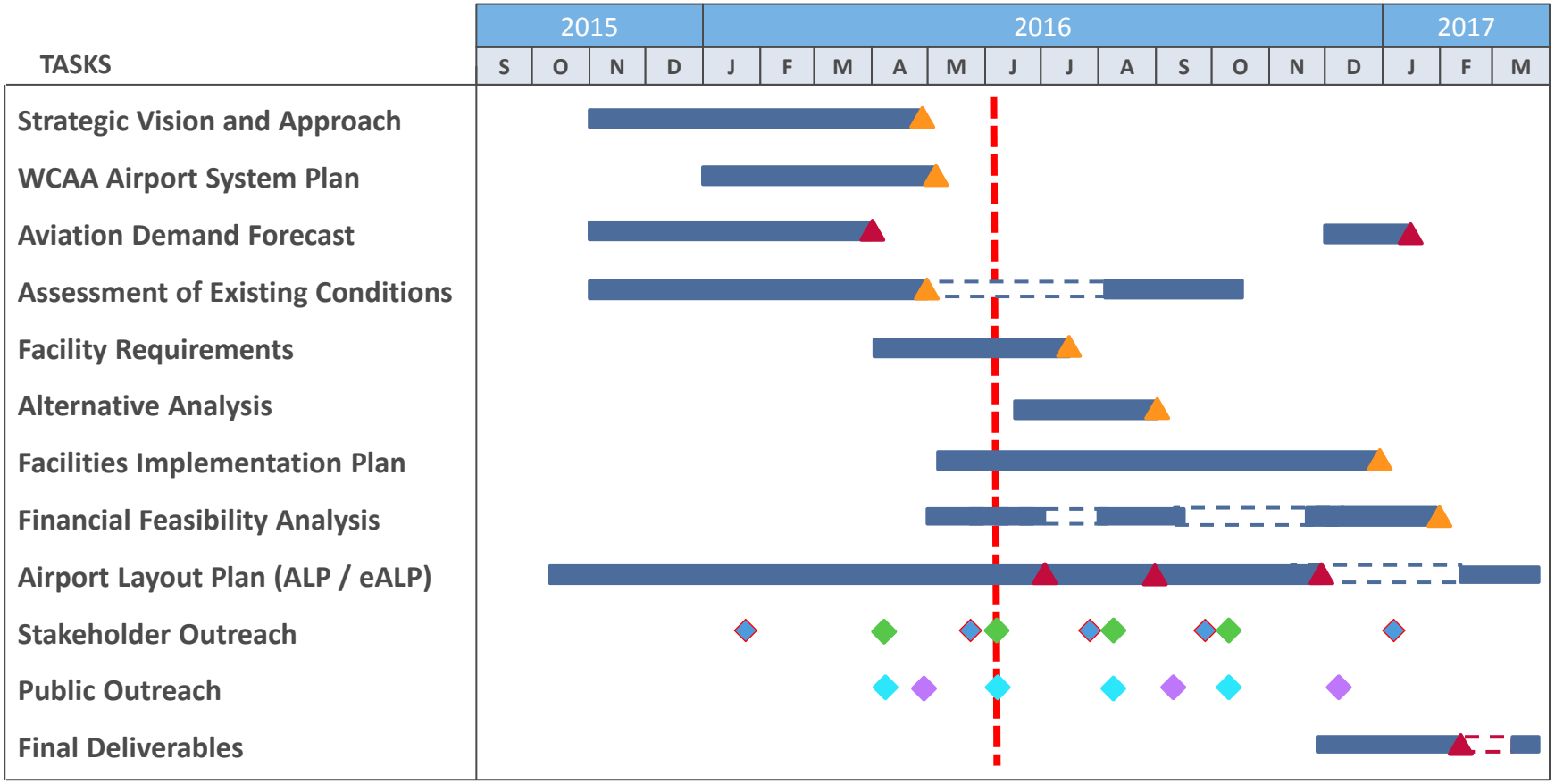
DTW Master Plan Project Schedule



- Project Steering Committee (PSC) meeting
- Technical Advisory Committee (TAC) meeting
- Citizen Advisory Committee (CAC) meeting
- Public workshop
- Draft Technical Memorandum
- FAA review and approval

Note: Not all Scope of Work tasks are depicted; some tasks assumed to occur within the primary tasks shown above.

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Committee Meetings and Topics for Discussion

Dates are tentative and subject to change

Target dates	Discussion topics
April 6 ✓	Project kick off; Airport Master Plan introduction; project progress and initial findings
June 8 ✓	Facilities needed to accommodate future demand; initial alternatives
August 3	Final alternatives
October 5	Recommended development plan and implementation strategies
September 8 **December 8**	Public meetings to present master plan findings
Subcommittees	Ongoing and being scheduled

Questions and Closing Remarks