



Embrace What's Next



Master Plan 2050 Stakeholder Meeting

May 22, 2018

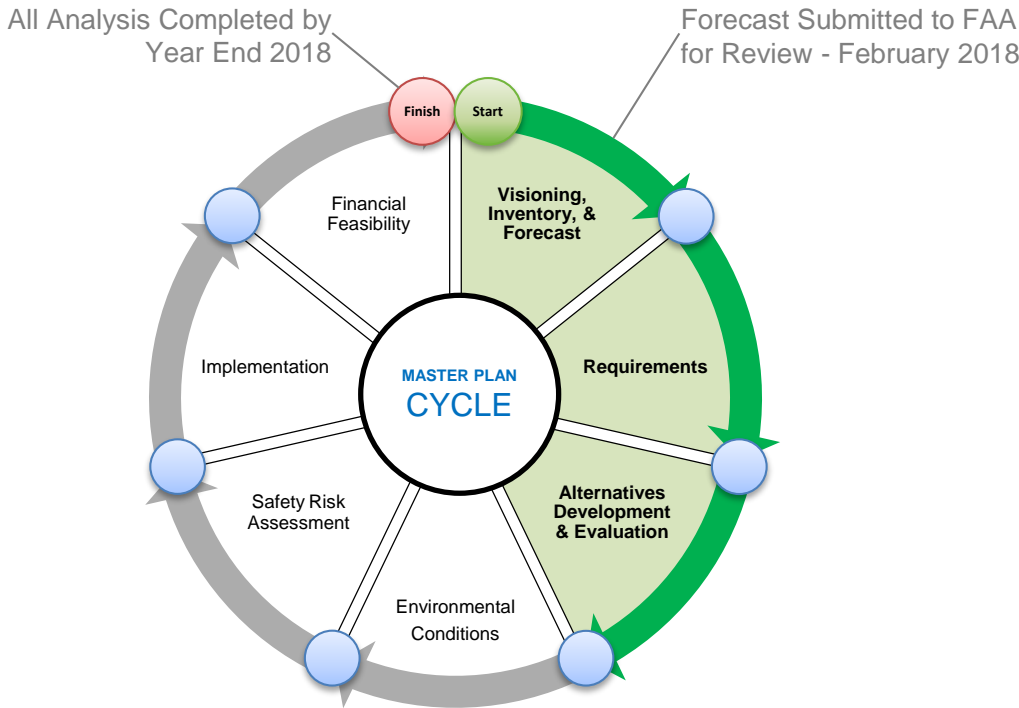
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- Master Plan Progress To Date
- Aviation Activity Forecast Summary
- Passenger Concourse Concepts & Level 1 Evaluation

Master Plan Schedule

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Progress To Date

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Completed	Underway	Upcoming
<ul style="list-style-type: none">• Master Plan Website• Master Plan Goals & Objectives• Draft Inventory of Existing Conditions• Draft Aviation Forecast	<ul style="list-style-type: none">• Edits to Inventory of Existing Conditions• FAA Review of Forecast• Demand/Capacity Facility Requirements• Alternatives Analysis & Level 1 Evaluation• Financial Feasibility Model/Plan	<ul style="list-style-type: none">• Airline Engagement• Public Meeting #1 (Early Summer)• Alternatives Analysis & Level 2/3 Evaluation• Implementation Plan• Financial Feasibility





Embrace What's Next



Aviation Activity Forecast Summary
Draft Results



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Purpose of The Forecast

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The forecasts were developed as part of the Master Plan Update as a basis for determining future facility requirements at the Airport. The forecasts represent market-driven demand for air services. The forecasts are unconstrained, and as such, do not take facility constraints or other limiting factors into consideration. In other words, for the purposes of estimated future demand, the forecasts assume facilities can be provided to meet demand.

If the Airport's forecast is used for FAA decision-making, such as approval of the master plan, the FAA requires that the Airport's forecast be consistent with the most recent TAF (Terminal Area Forecast) or be separately approved for use in the master planning process.



Historical Activity Trends



Historical Connecting Passengers

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32.1%

originating passengers
in 2006

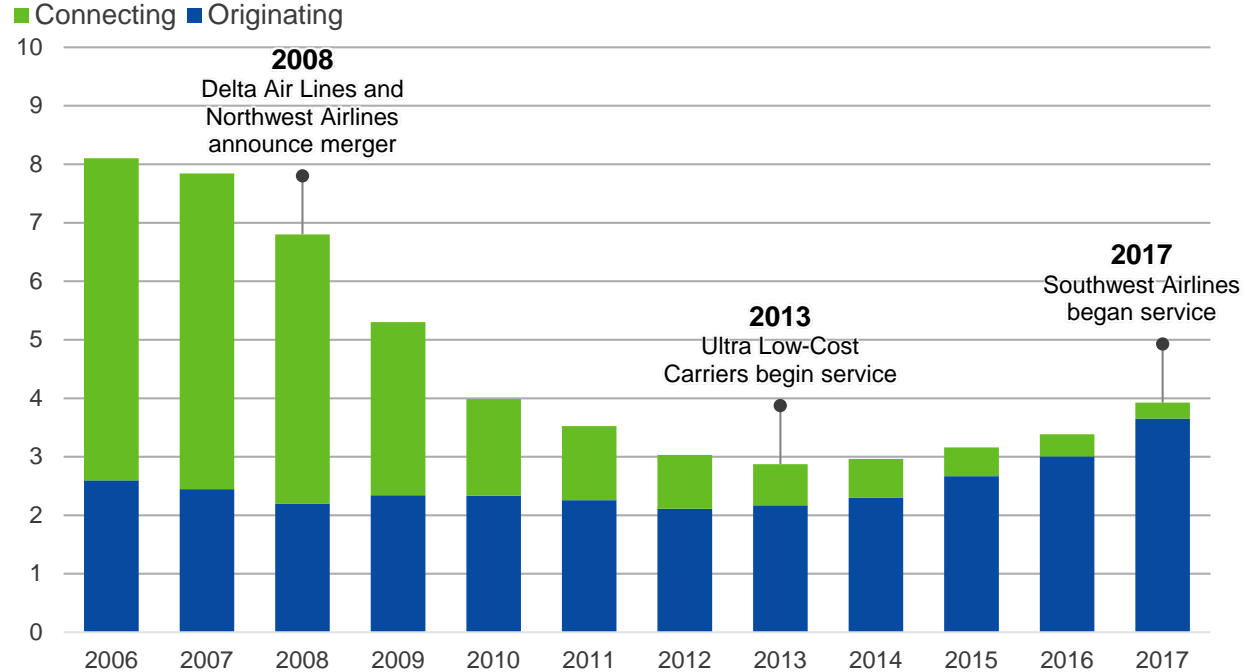
93%

originating passengers
in 2017

+1,480,900

originating passengers
since 2013

Enplaned Passengers (in millions)



Source: Kenton County Airport Board.



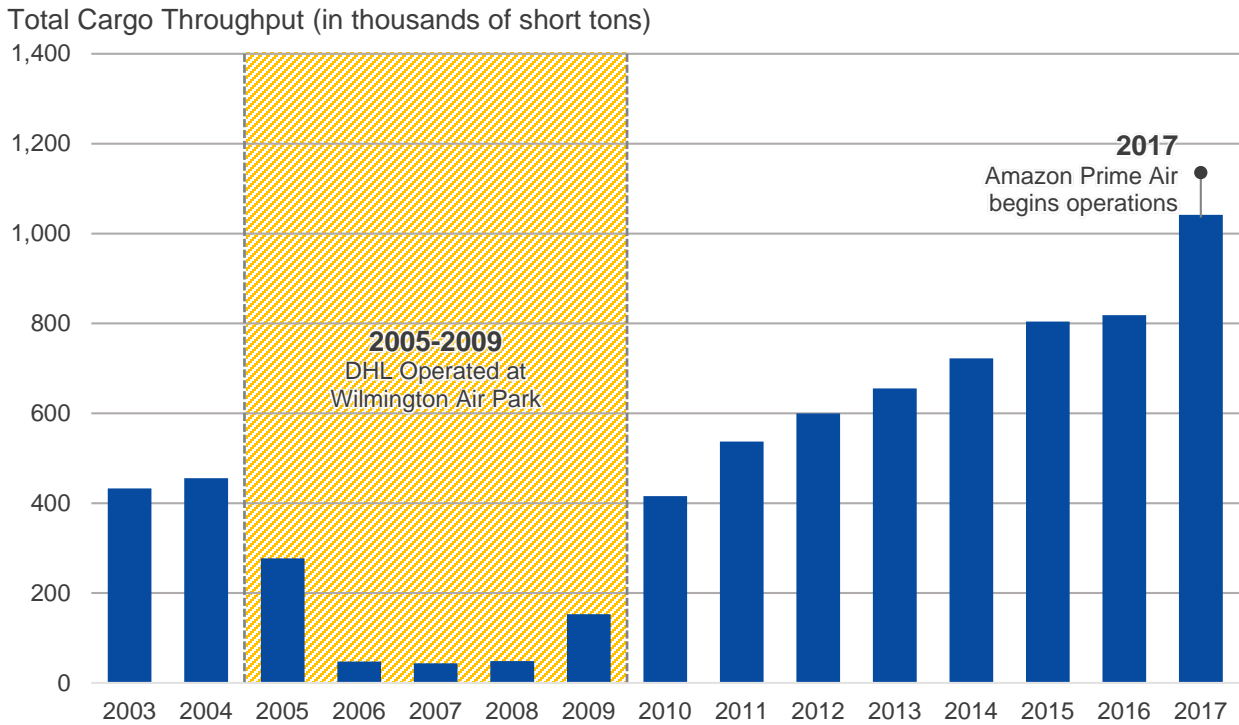
Historical Cargo Trends

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+14.0%
average annual growth
since 2010¹

DHL has accounted for
90.8%
of cargo throughput
since 2010

¹ 2010 was first full year for DHL at CVG since returning from Wilmington Air Park.



Source: Kenton County Airport Board.

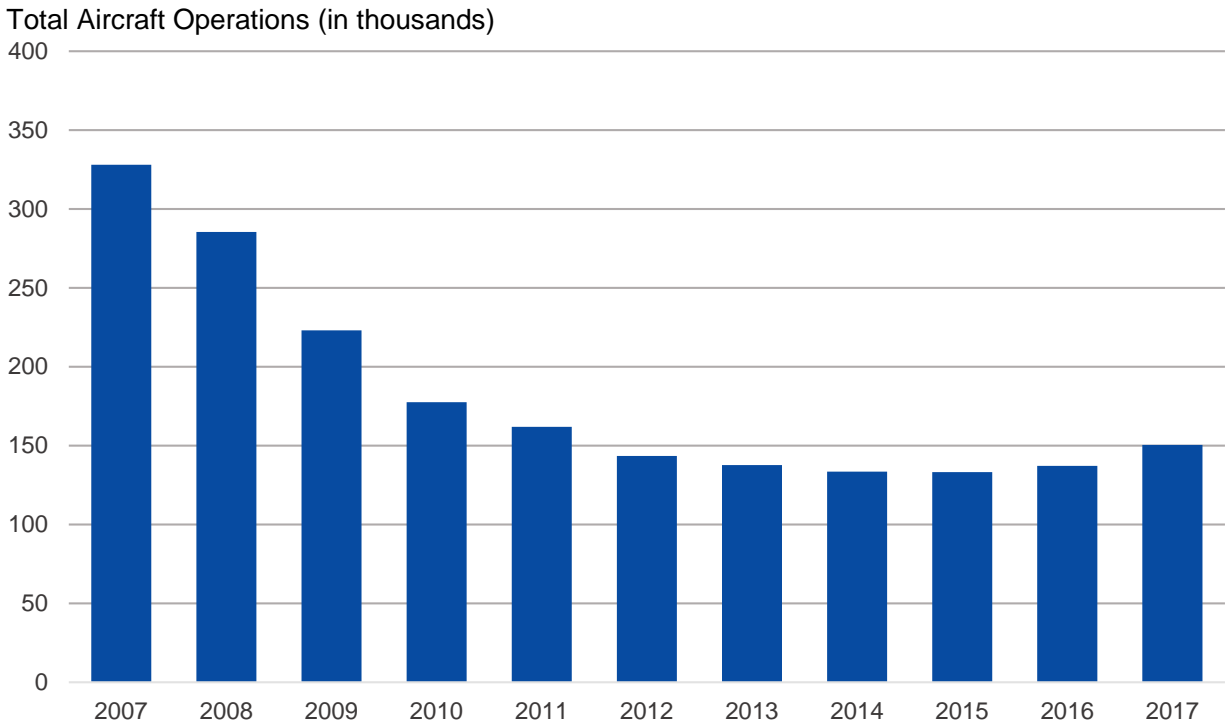


Historical Total Aircraft Operations Trend

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328,056
aircraft operations
in 2007

150,463
aircraft operations
in 2017



Sources: Kenton County Airport Board.

Forecasts



Forecast Methodology

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- Based on a supply side, or bottom-up, approach.
- Assumptions per airline group are provided below:

Legacy Network Carriers	Low-Cost Carriers	Ultra Low-Cost Carriers	International Carriers
<ul style="list-style-type: none">• Modest increases to existing markets with growth focused on hub flying• New entrant to begin service within short-term timeframe	<ul style="list-style-type: none">• Consistent growth to markets within existing networks• New entrant to begin service within short-term timeframe	<ul style="list-style-type: none">• Significant growth in short-term with additional service to markets within existing ULCC networks and addition of new markets	<ul style="list-style-type: none">• WOW Air will begin service in 2018.• LCC and ULLC growth into Caribbean markets within short-term timeframe• New entrants to begin service within short-term timeframe

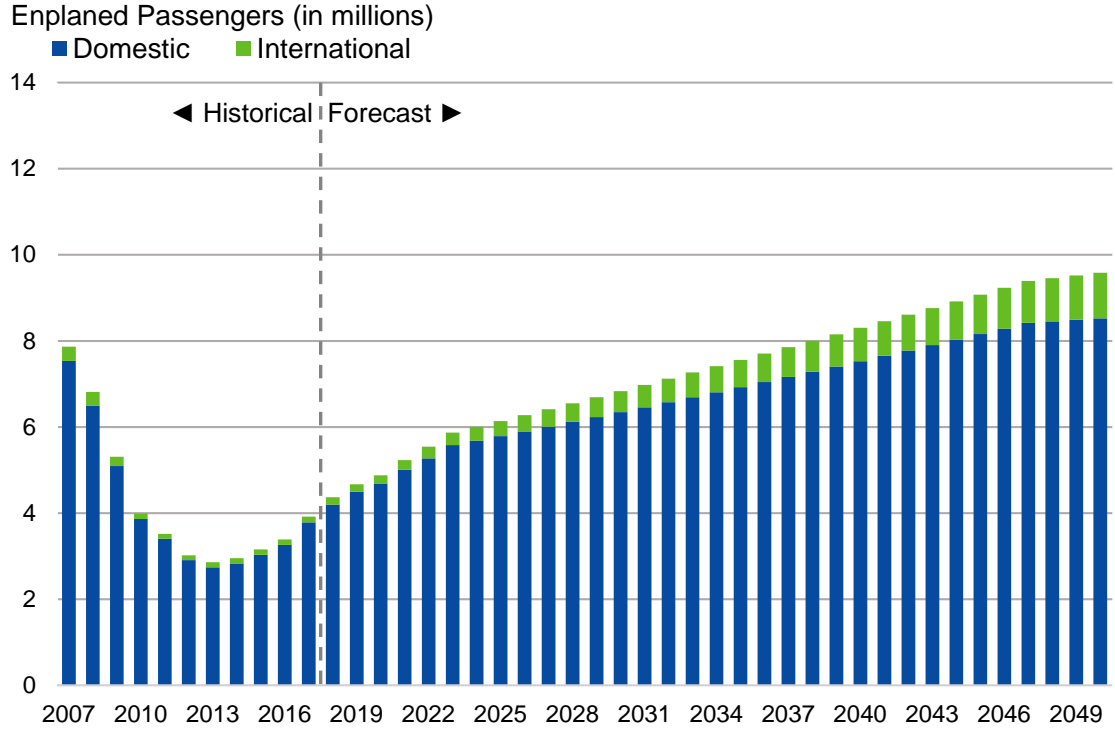
Forecast Summary

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Domestic Enplaned Passengers
8.5 million
in 2050

International Enplaned Passengers
1.1 million
in 2050

Total Enplaned Passengers
9.6 million
in 2050



Cargo Throughput Forecast Summary

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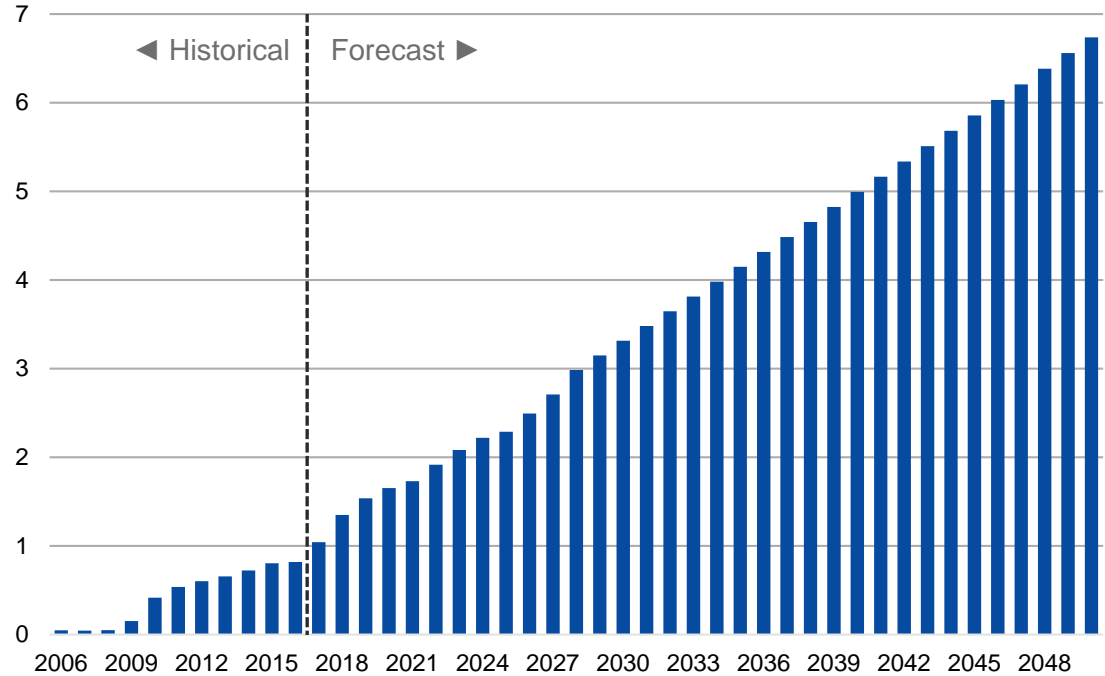
1.1 Million

tons in 2017

6.7 Million

tons in 2050

Cargo Throughput (in millions of tons)



Aircraft Operations Forecast Summary Chart

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Passenger Aircraft Operations

200,380

in 2050

Cargo Aircraft Operations

245,840

in 2050

Other Aircraft Operations

12,850

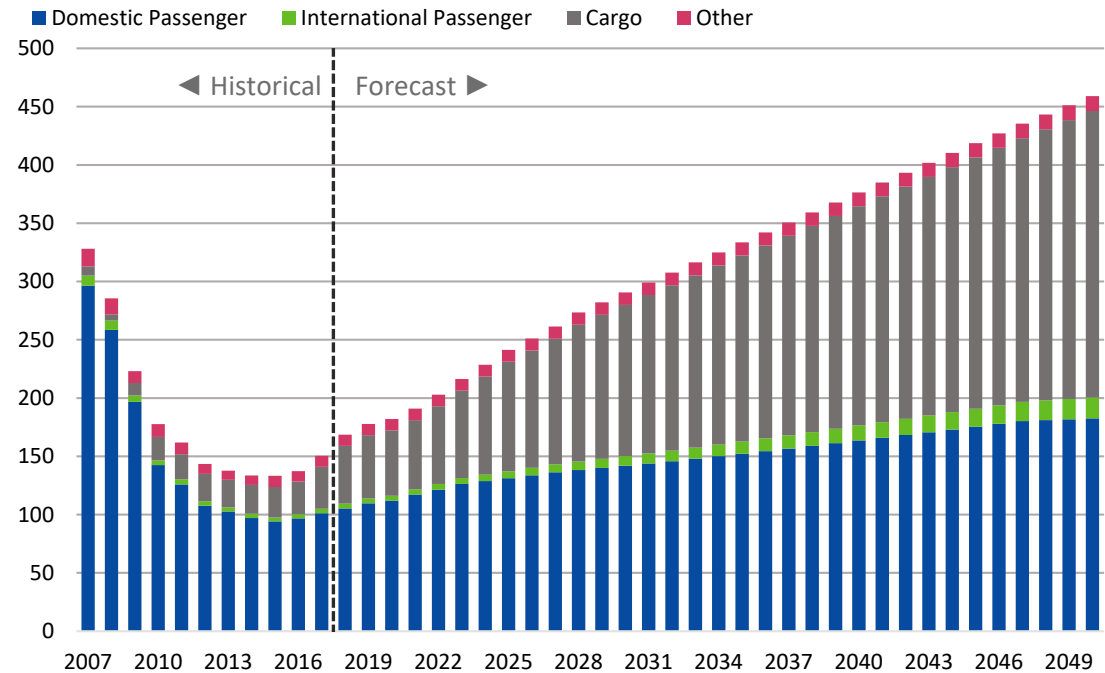
in 2050

Total Aircraft Operations

459,070

in 2050

Aircraft Operations (in thousands)





Embrace What's Next



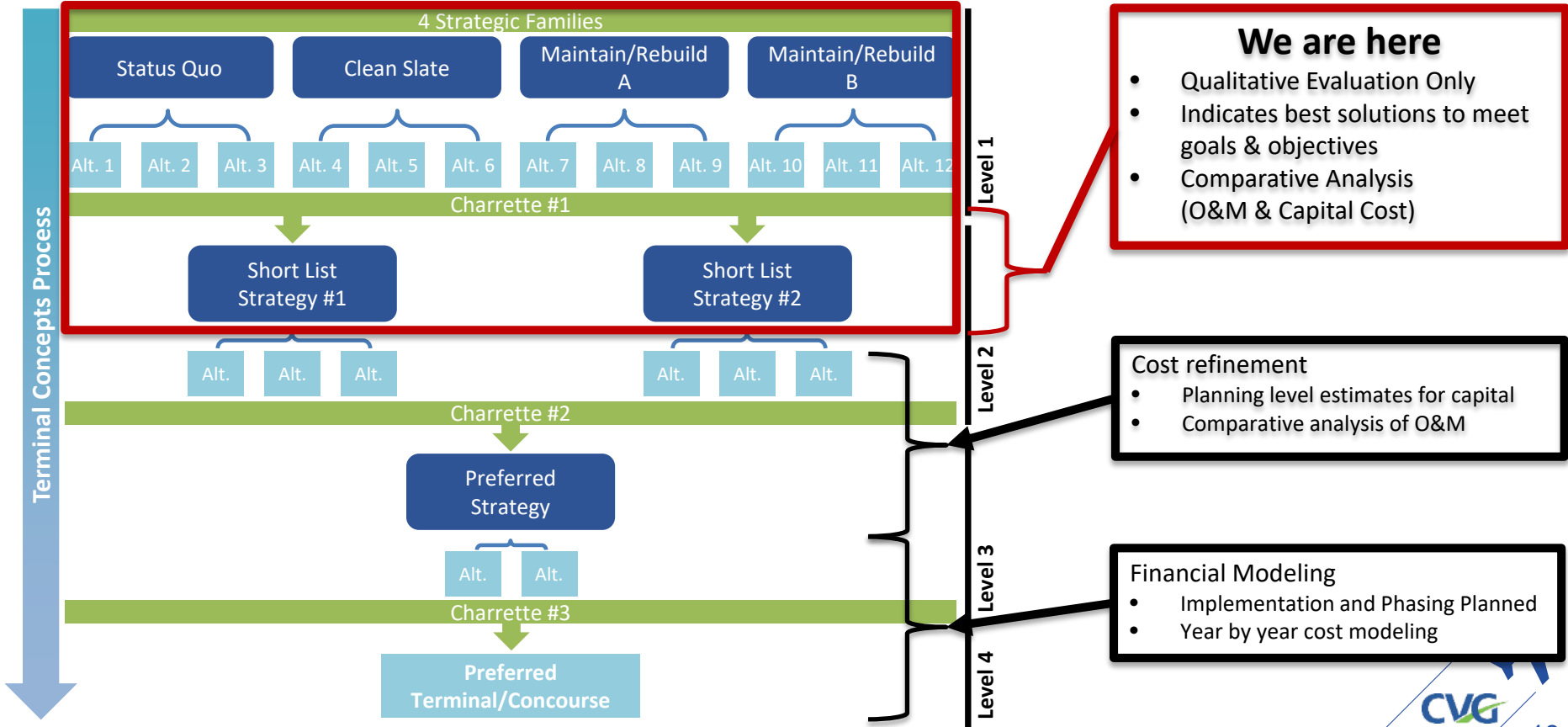
Passenger Concourse Concepts and
Level 1 Evaluation



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Concourse Development Process

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Gate Requirements



2013 Master Plan - Requirements

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- 2013 Master Plan showed a need for 36-42 gate positions in 2035

Multi-Carrier Scenario Year	PAL 1 2015	PAL 2 2020	PAL 3 2025	PAL 4 2030	PAL 5 2035
Annual Enplanements	4.25M	5.39M	5.75M	6.14M	6.56M
ADPM Commercial Departures	167	188	199	201	212
Low Use - Turns per Gate	4.3	4.8	4.9	5	5.1
Gates Required	39	40	41	41	42
Annual Enplanements per Gate	108,960	134,690	140,190	149,660	156,270
Moderate Use - Turns per Gate	5	5.5	5.7	5.8	6
Gates Required	34	35	35	35	36
Annual Enplanements per Gate	124,983	153,935	164,221	175,314	182,318
Projected Use - Turns Per Gate	4.3	4.9	5.3	5.7	6
Gates Required	39	39	38	36	36
Annual Enplanements per Gate	108,960	138,150	151,260	170,440	182,320

MP 2050 Forecast
2037 =
48-58 gates



Gate Requirements

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- Minimum gate requirements based on 100% common use
- Maximum gate requirements based on preferential use (min 3 turns/day)
- Exclusive and preferential gates will increase the requirement
- Gating analysis will refine requirement

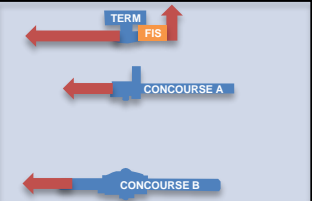
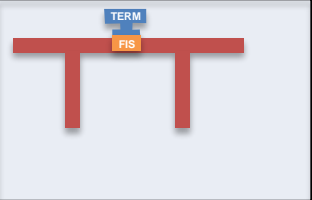
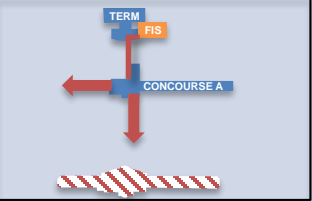
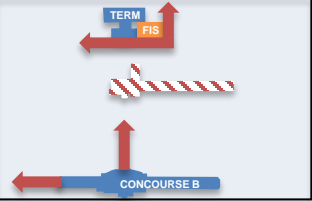
	Existing Gates	Gate Requirements				
		2017 Gates	PAL 1 (2022) Gates	PAL 2 (2027) Gates	PAL 3 (2037) Gates	PAL 4 (2050) Gates
Minimum	51	32	38	42	48	57
Maximum		38	48	51	58	69

Evaluation of Concepts



Gating Concept Families

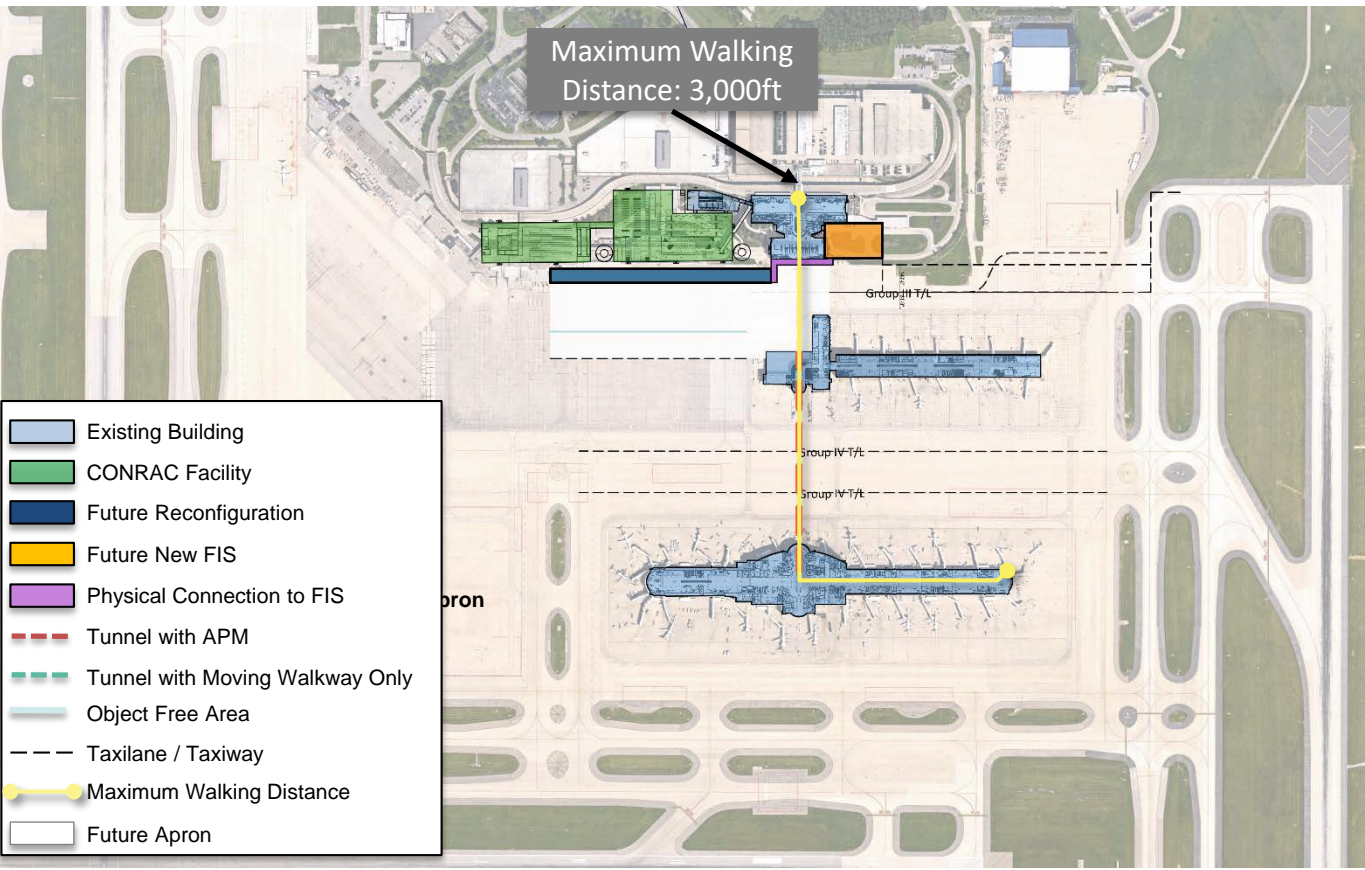
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Families	APM Connection	FIS Relocation
<p>Family 1: Status Quo – Keep A & B</p>		<p>Requires APM</p> <p>Limited Area at Main Terminal to Relocate Int'l Gates</p>
<p>Family 2: Clean Slate – Close A & B</p>		<p>APM Not Required</p> <p>Enables New FIS Facility</p>
<p>Family 3: Maintain/Rebuild A – Close B</p>		<p>APM Not Required</p> <p>Requires New FIS Facility</p>
<p>Family 4: Maintain/Rebuild B – Close A</p>		<p>Requires APM</p> <p>Enables New FIS Facility</p>



Family 1 – Concept 1

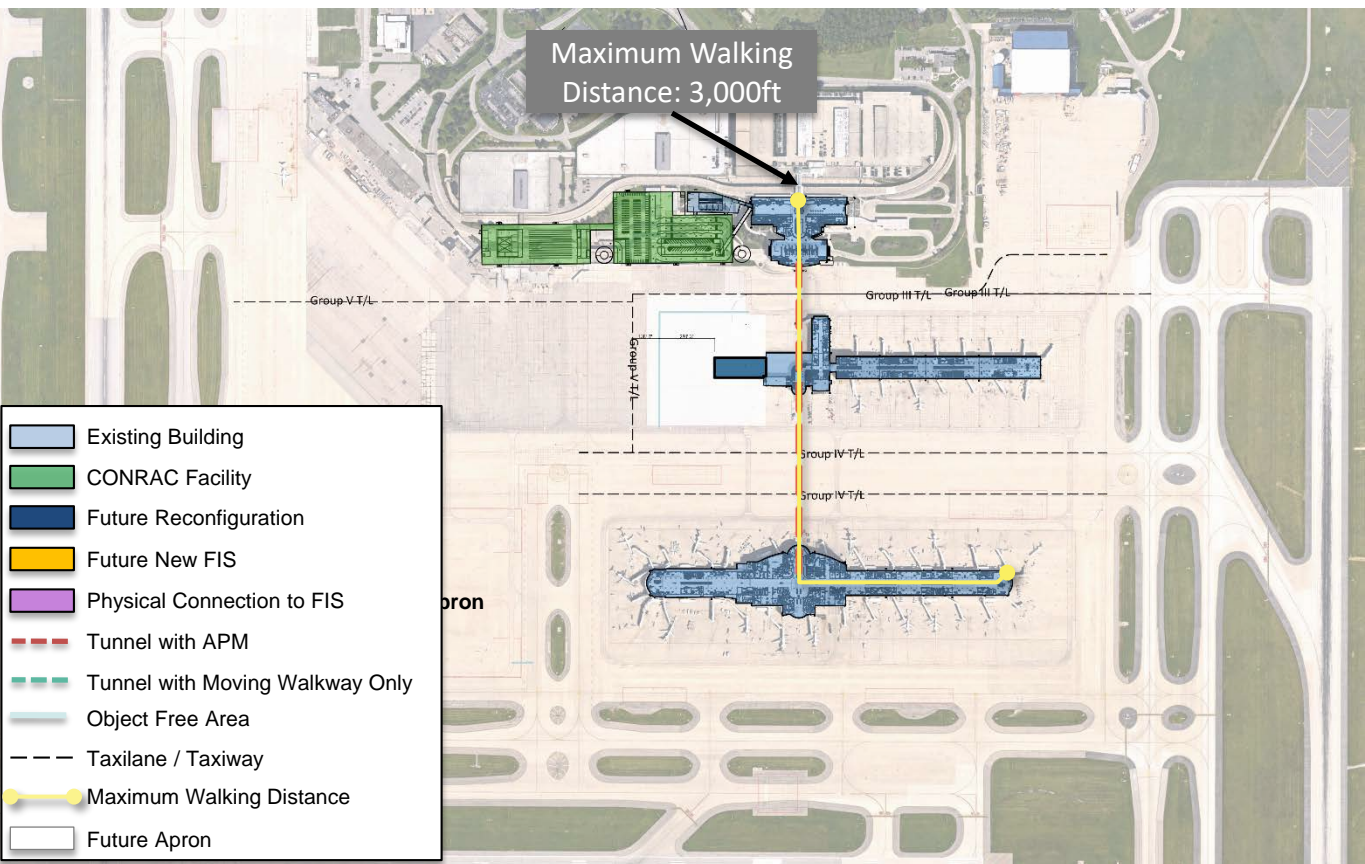
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AIRSIDE	
Airside Circulation/Operations	0
TERMINAL	
Passenger Journey	0
APM Needed	-1
Baggage Operations	0
International Passenger Arrivals	+1
Future Flexibility	-1
IMPLEMENTATION	
Impact to Existing Facilities	+1
Infrastructure Re-Use	+1
Phasing	+1
Project "Off-ramps"	+1
COSTS	
Operations & Maintenance	-1
Capital	+1

Family 1 – Concept 2

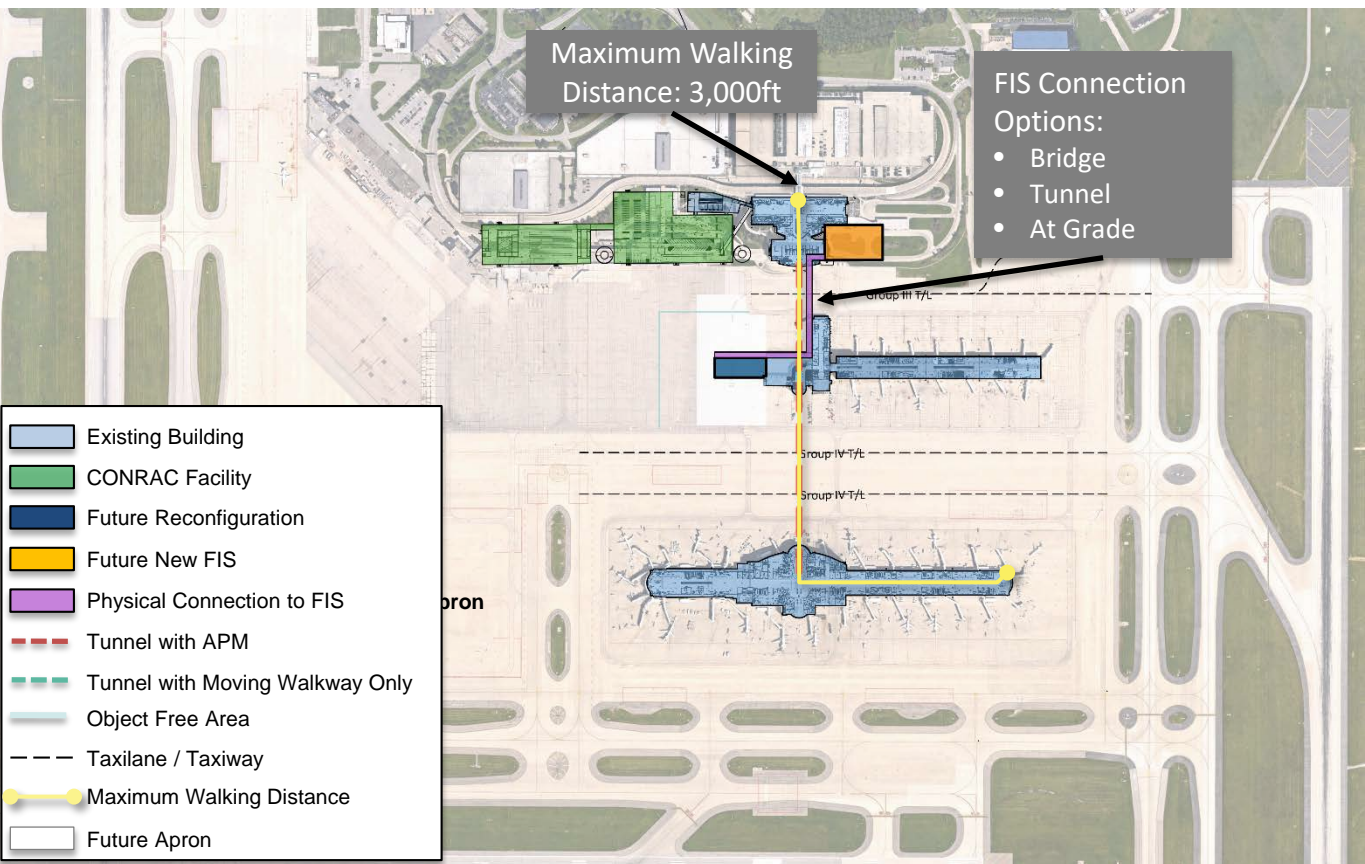
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AIRSIDE	
Airside Circulation/Operations	+1
TERMINAL	
Passenger Journey	0
APM Needed	-1
Baggage Operations	-1
International Passenger Arrivals	-1
Future Flexibility	0
IMPLEMENTATION	
Impact to Existing Facilities	+1
Infrastructure Re-Use	+1
Phasing	+1
Project "Off-ramps"	+1
COSTS	
Operations & Maintenance	-1
Capital	+1

Family 1 – Concept 3

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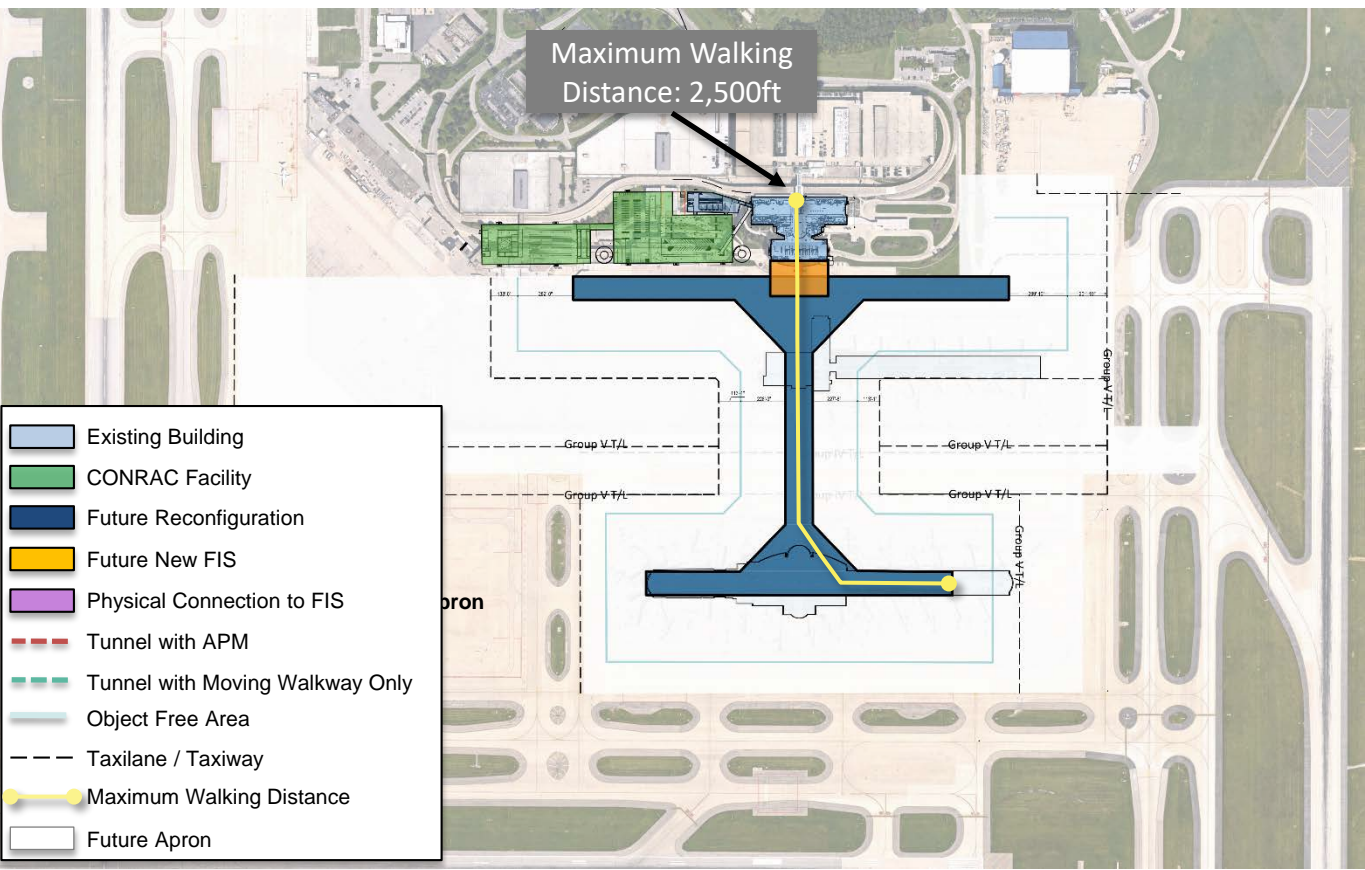


AIRSIDE	
Airside Circulation/Operations	0*
TERMINAL	
Passenger Journey	0
APM Needed	-1
Baggage Operations	0
International Passenger Arrivals	0
Future Flexibility	0
IMPLEMENTATION	
Impact to Existing Facilities	+1
Infrastructure Re-Use	+1
Phasing	+1
Project "Off-ramps"	+1
COSTS	
Operations & Maintenance	-1
Capital	+1

*Assumes no at grade connector

Family 2 – Concept 1

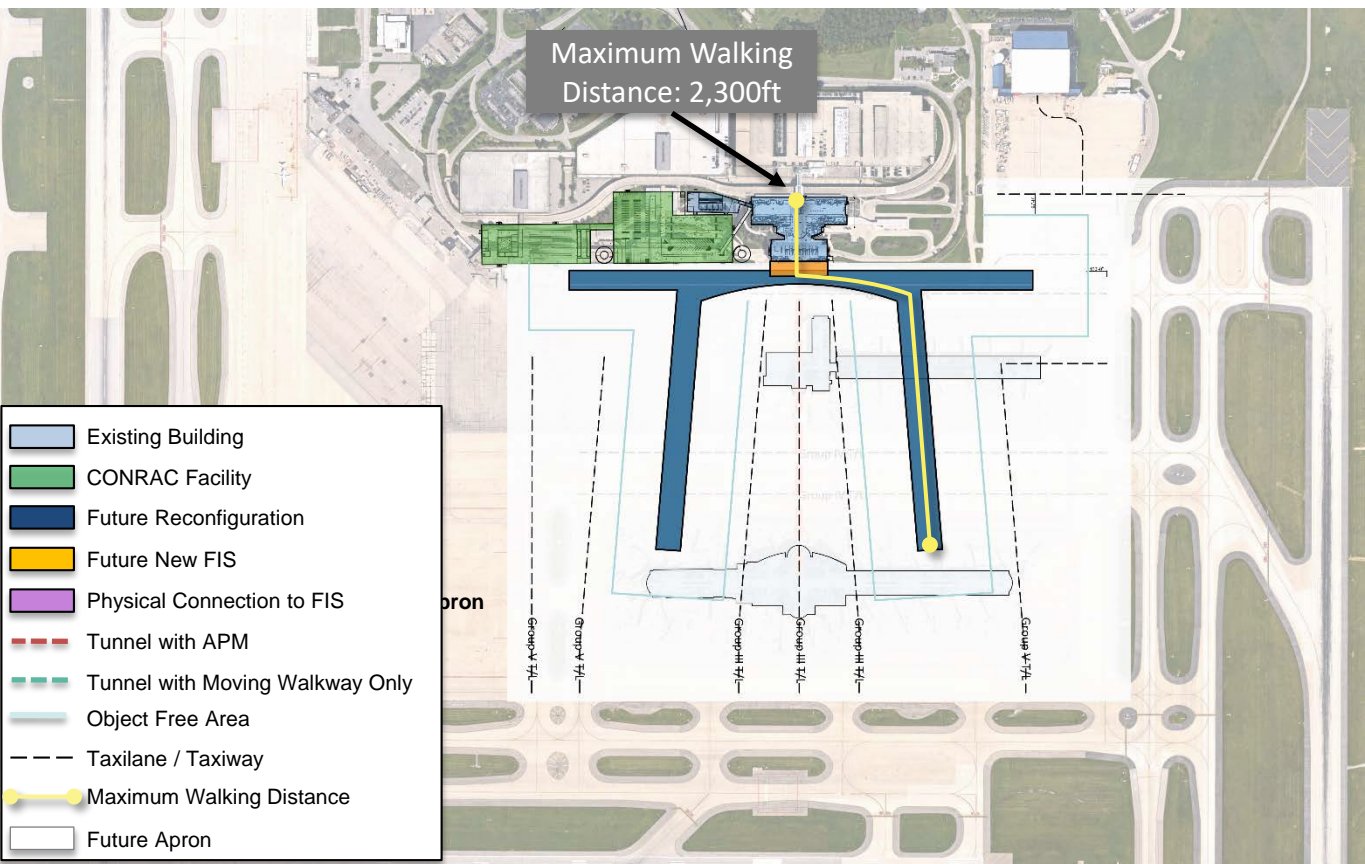
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AIRSIDE	
Airside Circulation/Operations	-1
TERMINAL	
Passenger Journey	+1
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	+1
IMPLEMENTATION	
Impact to Existing Facilities	+1
Infrastructure Re-Use	0
Phasing	0
Project "Off-ramps"	+1
COSTS	
Operations & Maintenance	+1
Capital	-1

Family 2 – Concept 2

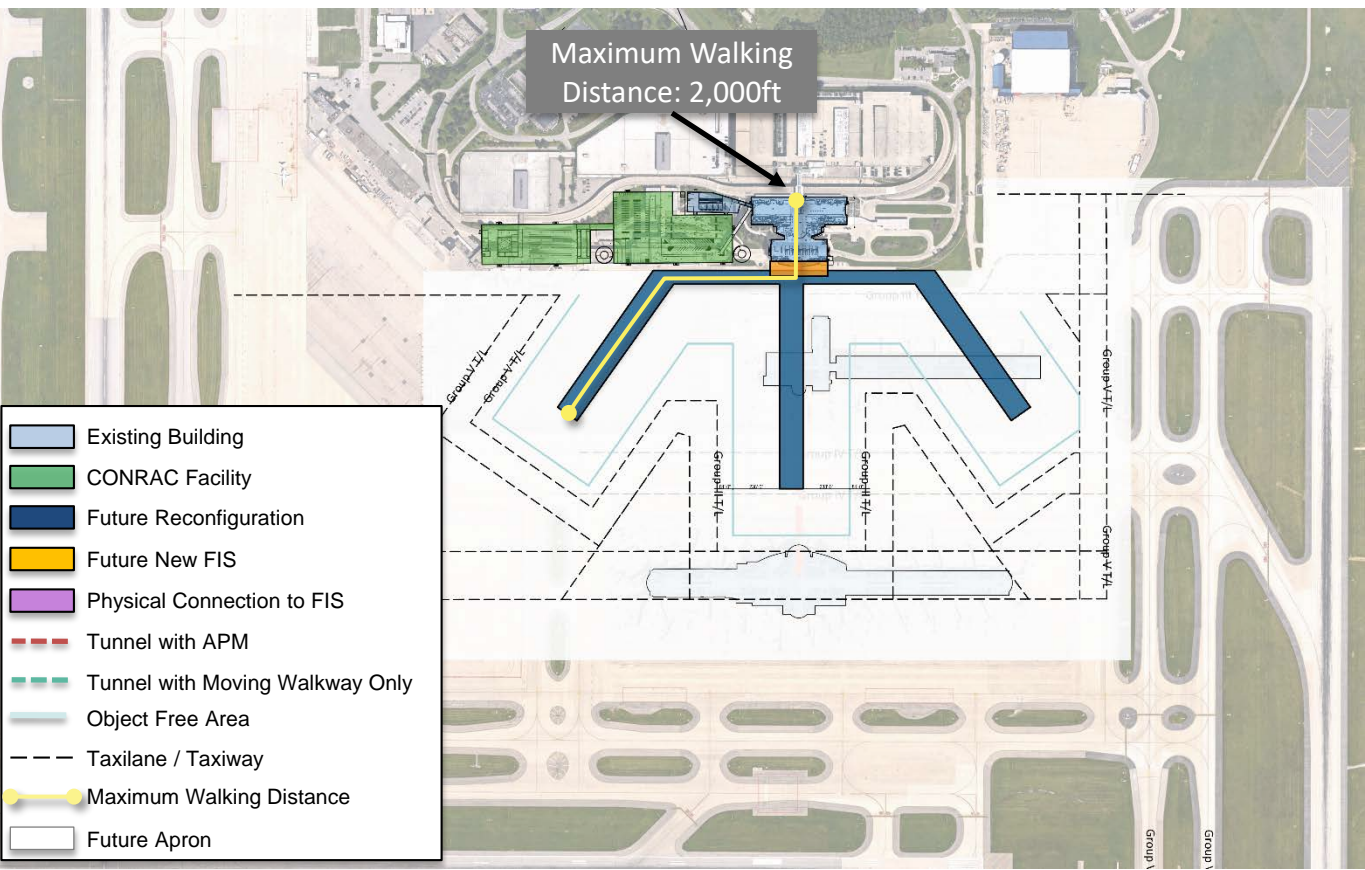
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AIRSIDE	
Airside Circulation/Operations	-1
TERMINAL	
Passenger Journey	+1
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	0
IMPLEMENTATION	
Impact to Existing Facilities	+1
Infrastructure Re-Use	-1
Phasing	-1
Project "Off-ramps"	-1
COSTS	
Operations & Maintenance	+1
Capital	-1

Family 2 – Concept 3

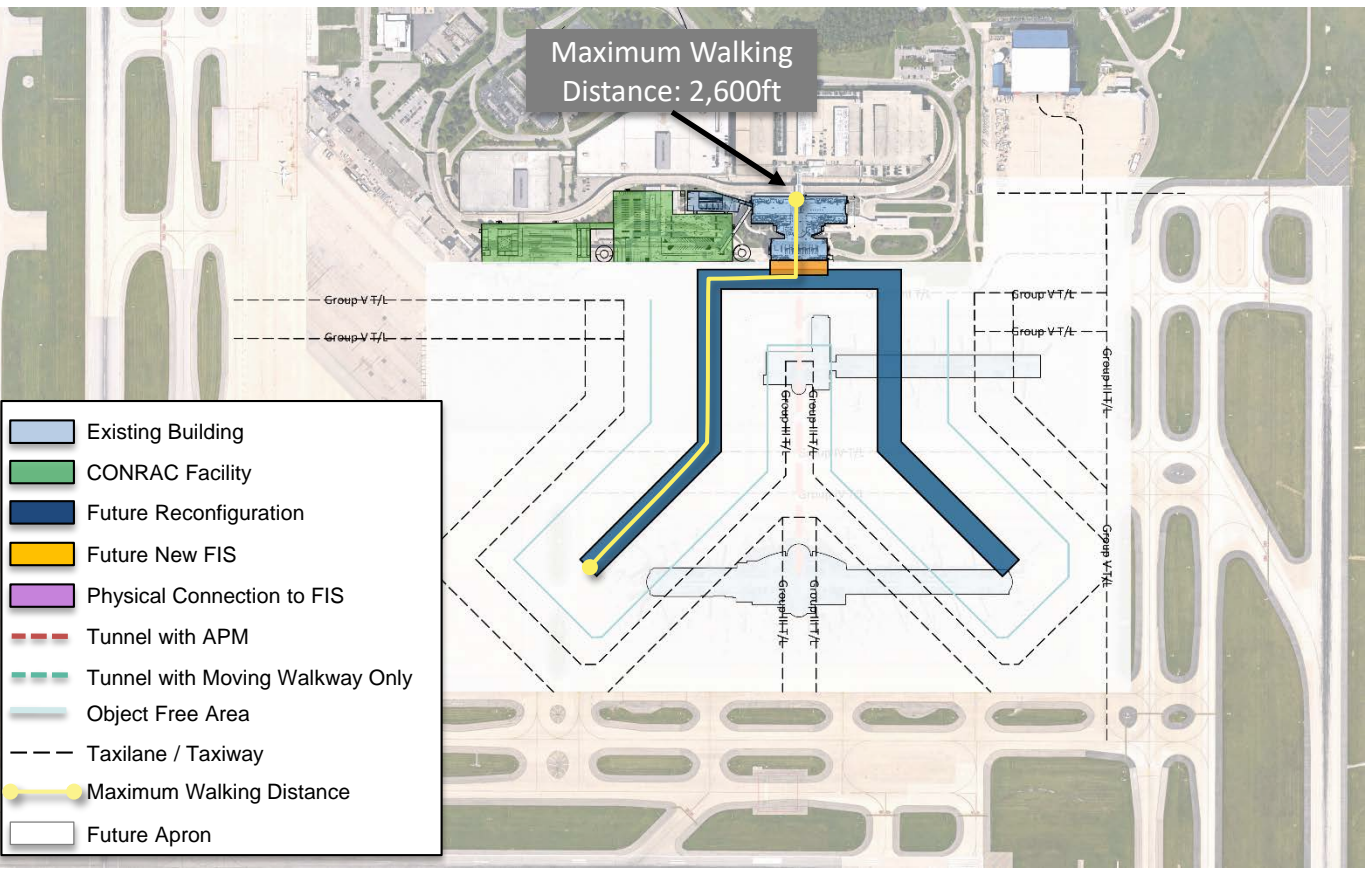
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AIRSIDE	
Airside Circulation/Operations	-1
TERMINAL	
Passenger Journey	+1
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	0
IMPLEMENTATION	
Impact to Existing Facilities	+1
Infrastructure Re-Use	-1
Phasing	-1
Project "Off-ramps"	-1
COSTS	
Operations & Maintenance	+1
Capital	-1

Family 2 – Concept 4

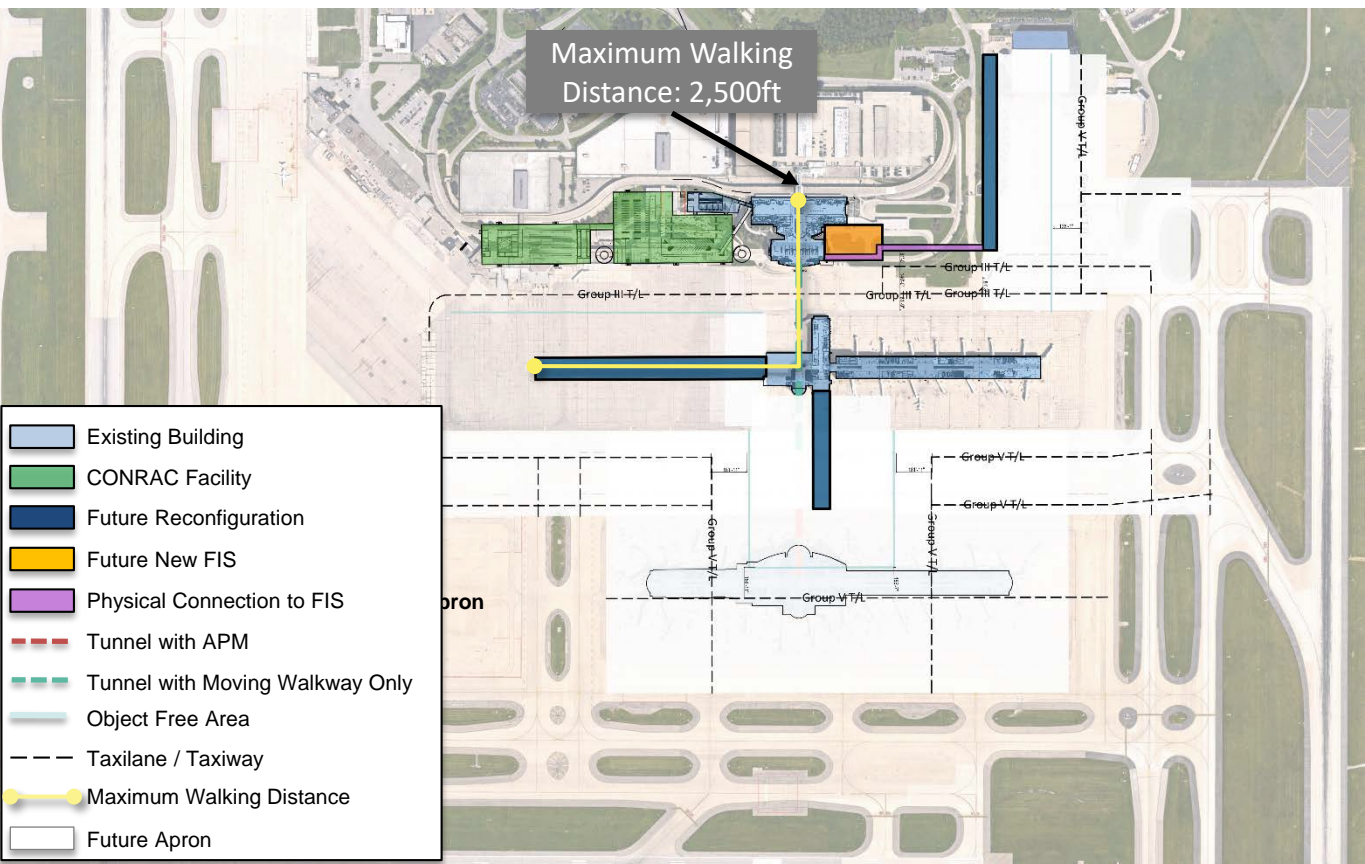
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AIRSIDE	
Airside Circulation/Operations	-1
TERMINAL	
Passenger Journey	+1
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	0
IMPLEMENTATION	
Impact to Existing Facilities	+1
Infrastructure Re-Use	-1
Phasing	-1
Project "Off-ramps"	-1
COSTS	
Operations & Maintenance	+1
Capital	-1

Family 3 – Concept 1

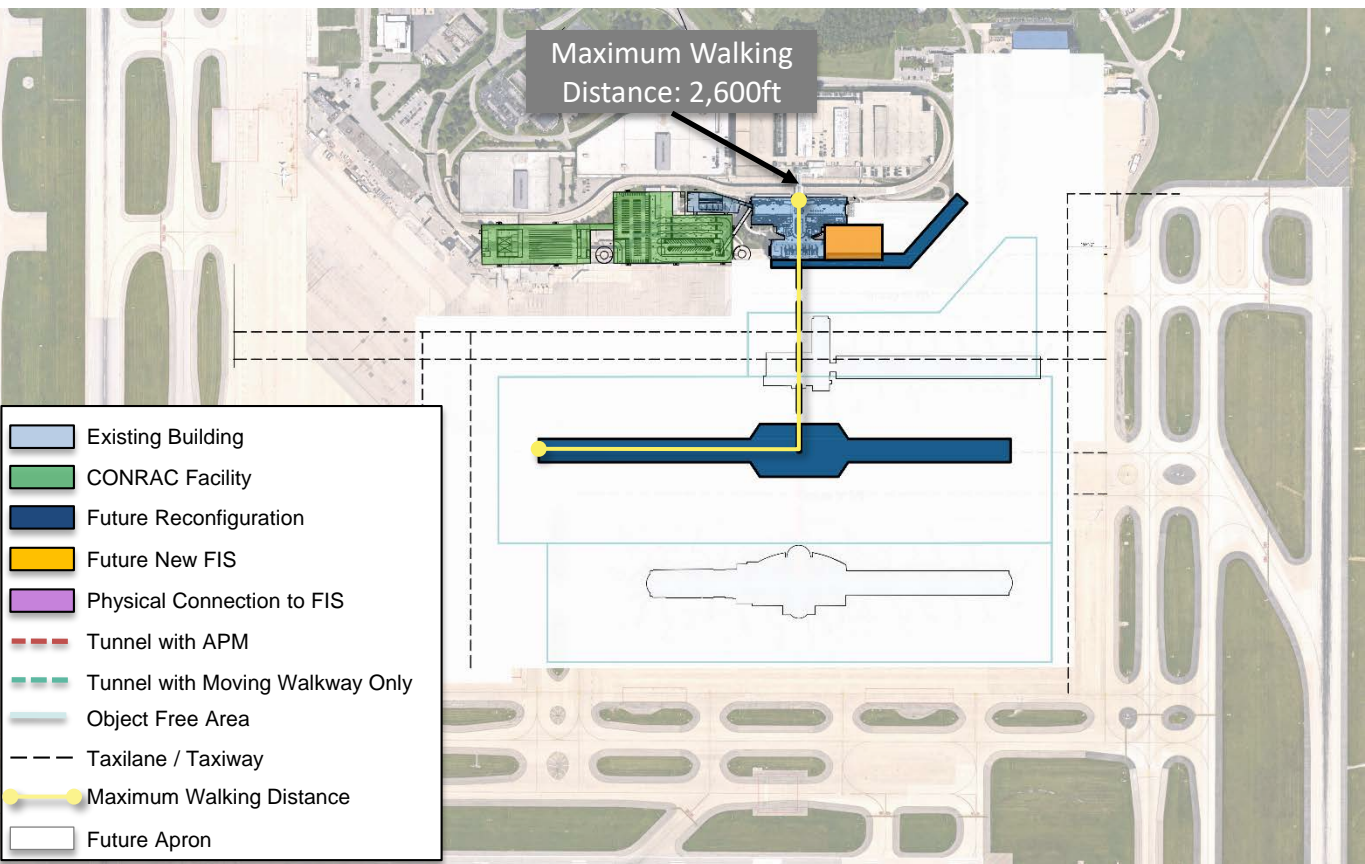
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AIRSIDE	
Airside Circulation/Operations	0
TERMINAL	
Passenger Journey	0
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	-1
IMPLEMENTATION	
Impact to Existing Facilities	-1
Infrastructure Re-Use	0
Phasing	+1
Project "Off-ramps"	+1
COSTS	
Operations & Maintenance	0
Capital	0

Family 3 – Concept 3

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AIRSIDE

Airside Circulation/Operations	+1
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TERMINAL

Passenger Journey	0
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	-1

IMPLEMENTATION

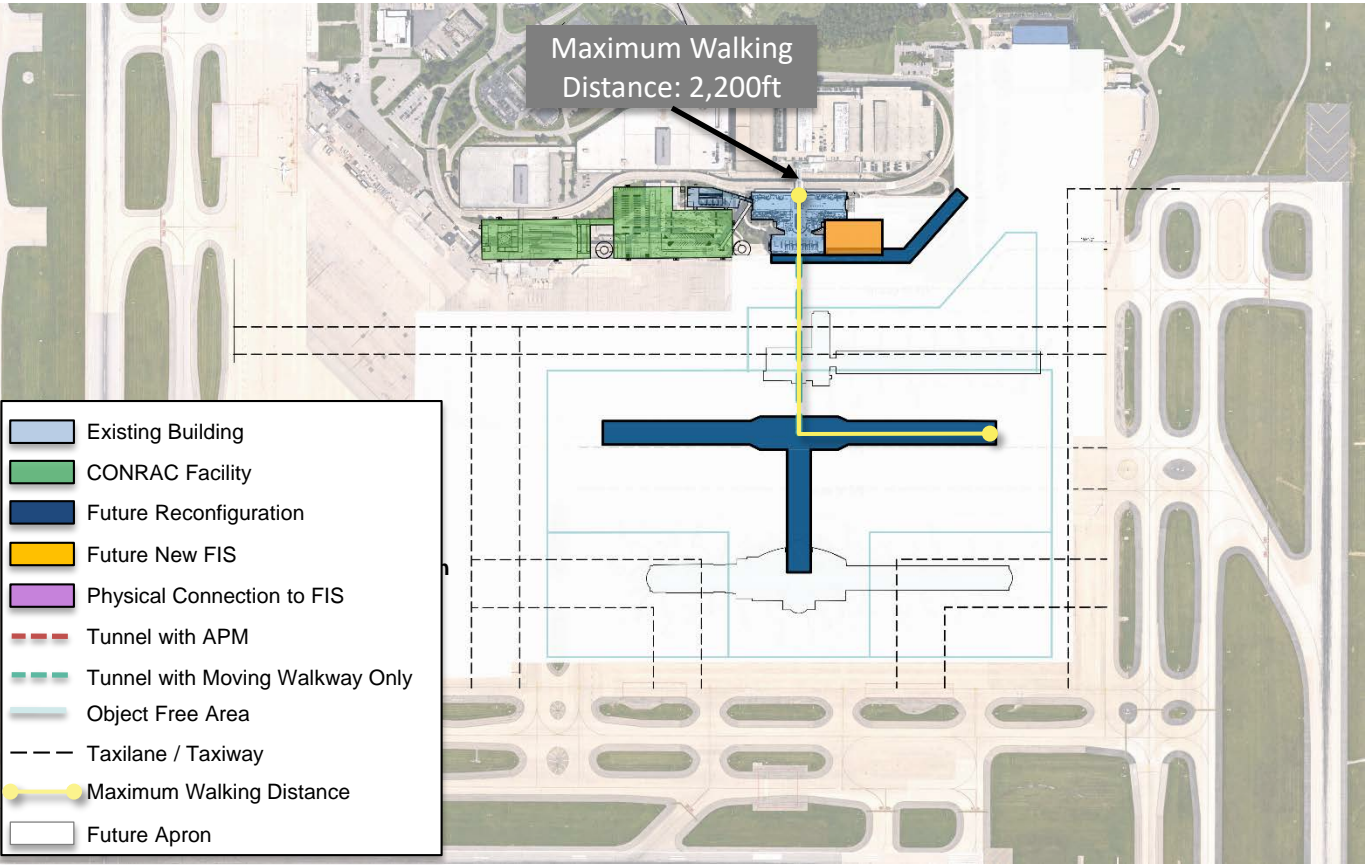
Impact to Existing Facilities	-1
Infrastructure Re-Use	-1
Phasing	-1
Project "Off-ramps"	-1

COSTS

Operations & Maintenance	+1
Capital	-1

Family 3 – Concept 4

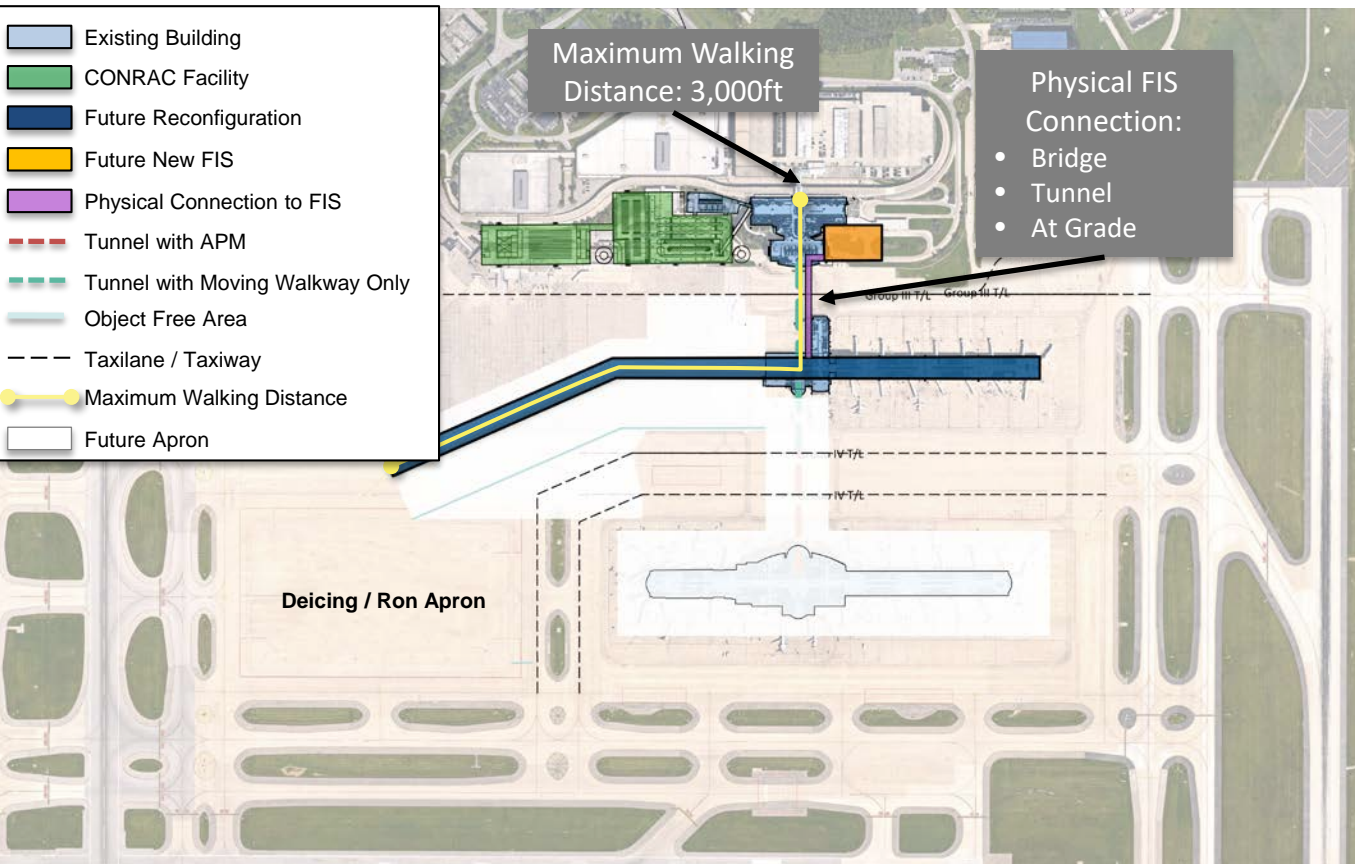
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AIRSIDE	
Airside Circulation/Operations	0
TERMINAL	
Passenger Journey	0
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	-1
IMPLEMENTATION	
Impact to Existing Facilities	-1
Infrastructure Re-Use	-1
Phasing	-1
Project "Off-ramps"	-1
COSTS	
Operations & Maintenance	+1
Capital	-1

Family 3 – Concept 5

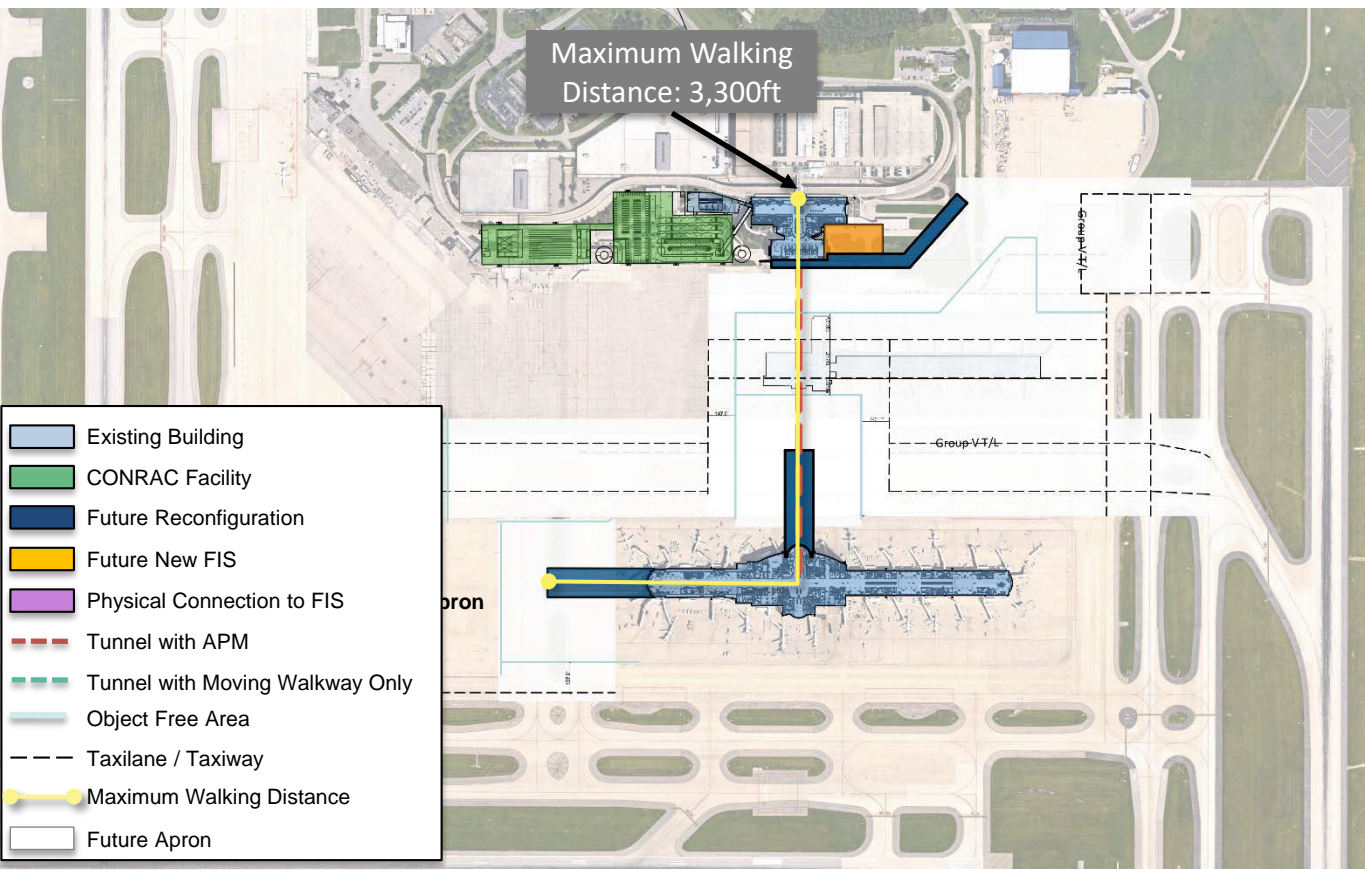
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AIRSIDE	
Airside Circulation/Operations	-1
TERMINAL	
Passenger Journey	-1
APM Needed	+1
Baggage Operations	+1
International Passenger Arrivals	0
Future Flexibility	-1
IMPLEMENTATION	
Impact to Existing Facilities	0
Infrastructure Re-Use	0
Phasing	+1
Project "Off-ramps"	+1
COSTS	
Operations & Maintenance	0
Capital	0

Family 4 – Concept 1

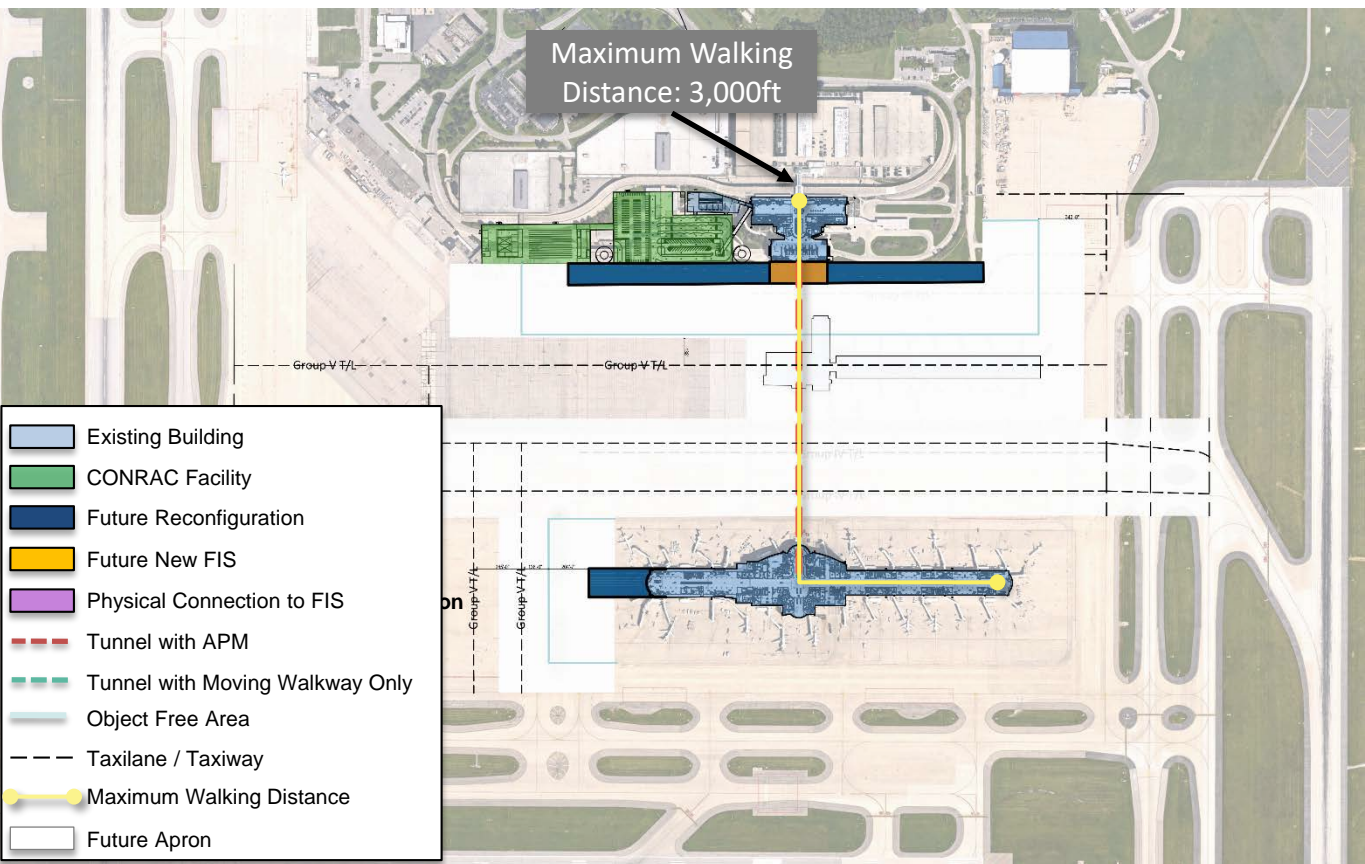
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AIRSIDE	
Airside Circulation/Operations	0
TERMINAL	
Passenger Journey	0
APM Needed	-1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	0
IMPLEMENTATION	
Impact to Existing Facilities	-1
Infrastructure Re-Use	+1
Phasing	+1
Project "Off-ramps"	0
COSTS	
Operations & Maintenance	0
Capital	0

Family 4 – Concept 2

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AIRSIDE

Airside Circulation/Operations	+1
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TERMINAL

Passenger Journey	0
APM Needed	-1
Baggage Operations	+1
International Passenger Arrivals	+1
Future Flexibility	0

IMPLEMENTATION

Impact to Existing Facilities	+1
Infrastructure Re-Use	+1
Phasing	+1
Project "Off-ramps"	+1

COSTS

Operations & Maintenance	0
Capital	0

Evaluation Results and Recommendations



Evaluation Criteria and Descriptions

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AIRSIDE	
A	Airside Circulation / Operations Does the configuration of the concourse(s) maintain or improve the taxiing of aircraft from east to west without creating significant numbers of gates that have independent pushback operations?
TERMINAL	
B	Passenger Journey The configuration of the concourse(s) minimizes the number of level changes and the potential unassisted walking distance required for passengers to flow from the main terminal to their gate and from their gate to the main terminal.
C	APM Needed Does the concourse configuration eliminate the need for an APM (train/people-mover)?
D	Baggage Operations Does the concourse configuration allow for the implementation of a simplified baggage handling system with consolidated baggage screening?
E	International Passenger Arrivals Does the concourse configuration allow for international arriving passengers to exit the Customs and Border Protection facility directly to the landside without having to be rescreened?
F	Future Flexibility Does the concourse configuration support both future hubbing operations and flexibility O&D operations and airline gate allocations?
IMPLEMENTATION	
G	Impact to Existing Facilities Does the concourse configuration limit the impact to existing non-passenger related structures.
H	Infrastructure Re-Use Does the concourse configuration reduce the need to construct new facilities by providing the ability to re-use existing concourse/gate infrastructure?
I	Phasing Is it feasible to phase the construction of the concourse configuration in a way that limits the impacts to existing gate operations and does not require the construction of temporary gates?
J	Project "Off-Ramps" Allows for incremental facility expansion that provides for flexibility in modifying the plan at project milestones. The ultimate configuration is able to be modified over time to adjust to changing conditions at the airport.

Criteria Weighting

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CRITERIA	SUGGESTED RANK	WEIGHT
Airside Circulation/Operations	1	15%
Project “Off-ramps”	2	12.5%
Passenger Journey	3	12.5%
International Passenger Arrivals	4	12.5%
Phasing	5	10%
Baggage Operations	6	7.5%
Future Flexibility	7	5%
APM Needed	8	5%
Infrastructure Re-Use	9	5%
Impact to Existing Facilities	10	5%
Operations & Maintenance Costs	11	5%
Capital Costs	12	5%
		100%

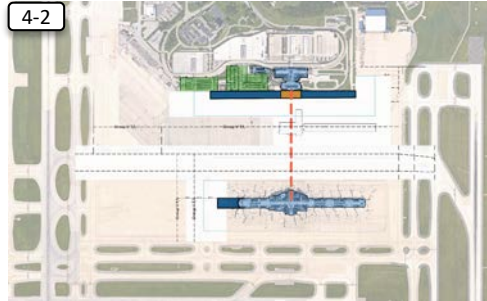
Evaluation Matrix (Weighted)

(-1) Negative	(0) Neutral	(+1) Positive
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FAMILY	WEIGHT	1 – STATUS QUO			2 – CLEAN SLATE				3 – A ONLY					4 – B ONLY	
		1	2	3	1	2	3	4	1	2	3	4	5	1	2
AIRSIDE															
Airside Circulation/Operations	15%	0	+1	0	-1	-1	-1	-1	0	0	+1	0	-1	0	+1
TERMINAL															
Passenger Journey	12.5%	0	0	0	+1	+1	+1	+1	0	-1	0	0	-1	0	0
APM Needed	5%	-1	-1	-1	+1	+1	+1	+1	+1	+1	+1	+1	+1	-1	-1
Baggage Operations	7.5%	0	-1	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
International Passenger Arrivals	12.5%	+1	-1	0	+1	+1	+1	+1	+1	0	+1	+1	0	+1	+1
Future Flexibility	5%	-1	0	0	+1	0	0	0	-1	0	-1	-1	-1	0	0
IMPLEMENTATION															
Impact to Existing Facilities	5%	+1	+1	+1	+1	+1	+1	+1	-1	+1	-1	-1	+1	-1	+1
Infrastructure Re-Use	5%	+1	+1	+1	0	-1	-1	-1	0	0	-1	-1	0	+1	+1
Phasing	10%	+1	+1	+1	0	-1	-1	-1	+1	+1	-1	-1	+1	+1	+1
Project “Off-ramps”	12.5%	+1	+1	+1	+1	-1	-1	-1	+1	0	-1	-1	+1	0	+1
COSTS															
Operations & Maintenance	5%	-1	-1	-1	1	1	1	1	0	0	+1	+1	0	0	0
Capital	5%	1	1	1	-1	-1	-1	-1	0	0	-1	-1	0	0	0
SCORING															
Rank	100%	4	8	5	2	10	10	10	3	7	13	14	9	6	1

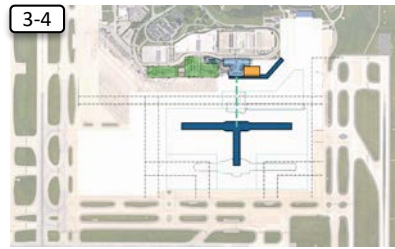
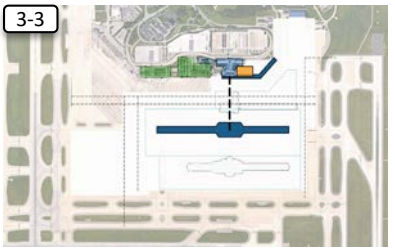
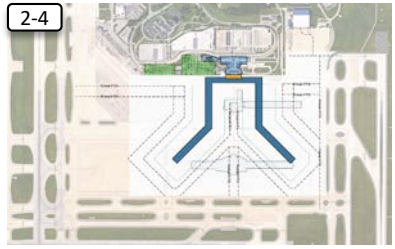
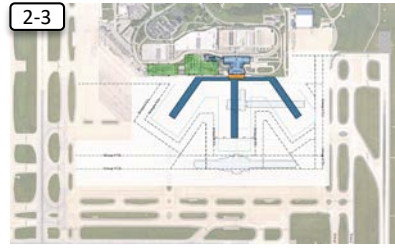
Carried Forward (with weighting & staff input)

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Eliminated (with weighting & staff input)

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Next Steps



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- Engage the airlines
 - Solicit feedback on progress to date
- Develop costs for capital improvements and O&M (*underway*)
 - All-inclusive
 - Planning Level
- Level 2 Evaluation (6 shortlisted concepts)
 - Refinement of selected 6 concepts
 - Better define geometry and aircraft parking (*underway*)
 - Provide for 2050 demand
 - Recommend 2 concepts to carry forward
- Level 3 Evaluation (final shortlist of 2 concepts)
 - Financial modeling
 - O&M + Capital Costs

CVG

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Thank you!



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