APPENDIX E.8

Combined Technical Advisory Group (TAG) and Stakeholder Advisory Group (SAG) Meeting #5

Advisory Group Meeting #5

December 2, 2021









MASTER PLAN 2040



Webinar Features

- Presentation/interactive format
- Questions and comments
 - Q&A
 - Raise Hand
- Distribute presentation following meeting

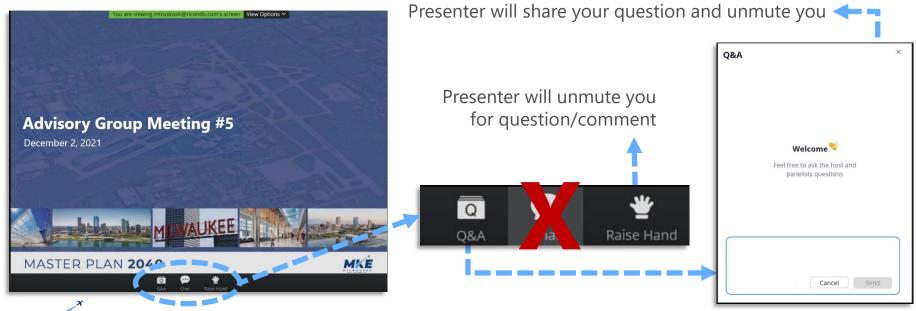
Presenters

- Colleen Quinn, Ricondo
- Michael Truskoski, Ricondo

Panelists

- Brian Dranzik, MKE
- Kim Berry, MKE
- Anna Walker, FAA

GOAL: Engage as interactively as possible given the webinar format



Agenda and Objectives

Agenda

- Review project status
- Overview Public Open House #4 (Virtual)
- Preferred Airport Development Plan
- Master Plan 2040 Implementation
- **Environmental Overview**
- Noise Overview
- Airport Layout Plan Process
- Next Steps



Objectives

- **Share Project Conclusions**
- Respond to questions/concerns
- Project Wrap-Up





ANALYZE

- Capacity Evaluation
- Facility Requirements
- Quantitative
- Qualitative
- Market Analysis
- Facility Condition



CRAFT

- Alternatives
- Alternatives Evaluation
- Selection Refinement



Airport Layout

- CIP
- Financial Plan
- Implementation Plan
- Documentation

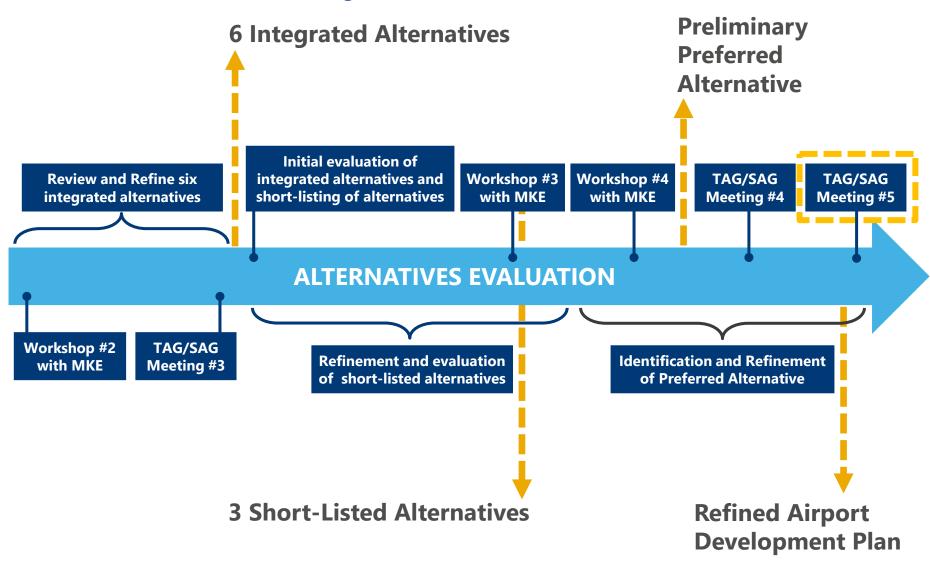
STAKEHOLDER INVOLVEMENT



FOCUS: Final stakeholder meeting -> questions and comments are critical



Alternatives Analysis and Refinement Process





Public Involvement Summary



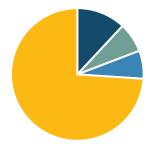


Public Open House #4 (virtual)

- www.mkeplan.com
- Meeting-specific (does not replace project website, www.mkeupdate.com)
- Duration: 9/14 through 10/10
- Unique visits: 1,559
- Total comments received: 42



PUBLIC MEETING ATTENDANCE



- PUBLIC MEETING #1 PUBLIC MEETING #2
- PUBLIC MEETING #3 PUBLIC MEETING #4

COMMENTS RECEIVED



- PUBLIC MEETING #1 PUBLIC MEETING #2
- PUBLIC MEETING #3 PUBLIC MEETING #4



Alternative Selection and Refinement

Preferred Airport Development Plan





Shortlisted Alternatives Evaluated

Alternative A

(previously Alternative 1)



Alternative B

(previously Alternative 2)



Alternative C (previously Alternative 3)

NEW PROPERTY OF THE PROPERTY O

- Three Runway Alternative1L-19R | 13-31 | 7R-25L
- Deicing: Northwest | West
- Cargo: Southeast
- GA: Northeast
- Parking/RAC: Terminal Core with Layton/Howell Parcel

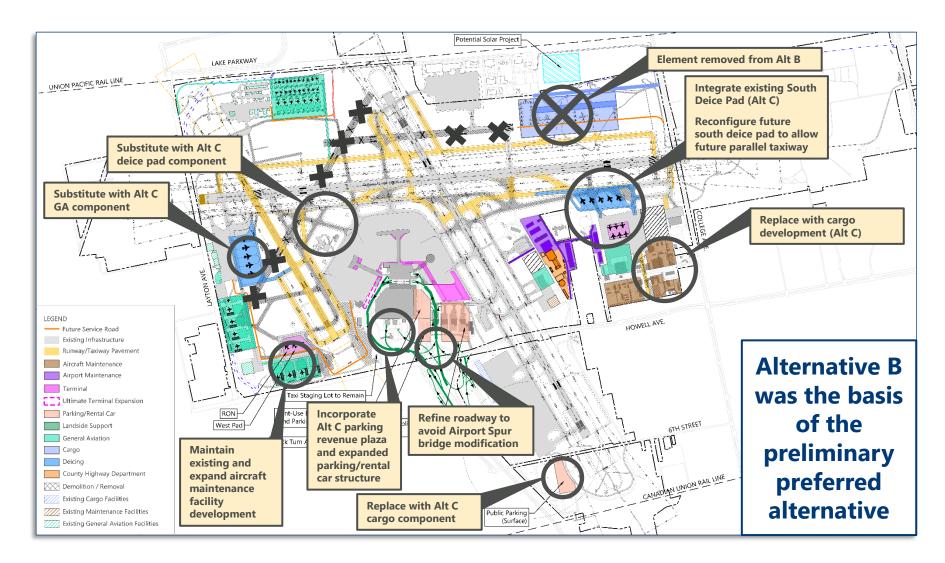
- Three Runway Alternative
 1L-19R | 7L-25R | 7R-25L
- Deicing: North | South
- Cargo: Southeast
- GA: Northeast | Northwest
- Parking/RAC: Terminal Core
- 7L-25R extended 300 ft west

- Three Runway Alternative
 1L-19R | 1R-19L | 7R-25L
- Deicing: Northwest | West
- Cargo: South
- GA: Northeast | Northwest
- Parking/RAC: Terminal Core with Layton/Howell Parcel
- RW 1R-19L extended (variable)



All short-listed alternatives account for an additional 10 feet on Runway 1L-19R (10,000 ft runway length)

Preliminary Preferred Alternative





Refinement – Preferred Airport Development Plan



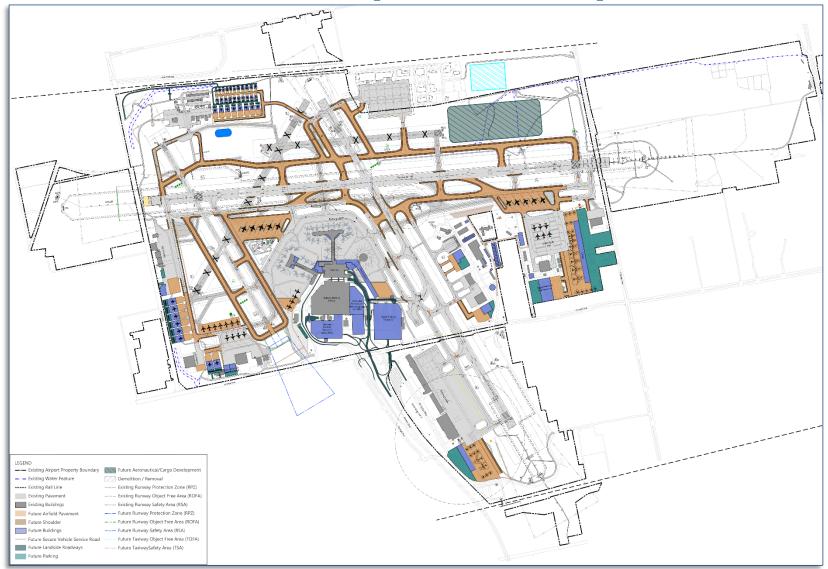


Preferred Alternative Refinements

Concept Element	Driver for Refinement
North Deice Pad – adjusted location	 Proximity to terminal area without runway crossing Utility of north GA area
Expand North GA development	Consolidation of corporate/larger GA development
Cargo Development in Southeast Quadrant	 Dedicate to support future aeronautical or cargo development as opportunities may arise Forecast cargo demand can be accommodated in defined facilities
South Deice Pad – reconfigured	 Allow ultimate dual parallel taxiway (TW Q) south of RW 7R-25L Continued use of existing South Pad for RON aircraft parking
Cargo Development – MKE Regional Business Park	 Accommodate cargo development removed from southeast quadrant; meet future cargo facility requirements
Airport Access Road (Spur) – reconfigured	Avoid modification of Airport Spur bridge over Howell Avenue
Parking Structure Revenue Plaza Relocation and Future Parking Structure Expansion	 Improve weave distance and sight lines for vehicles existing parking Allow development of area currently occupied by existing revenue plaza
Expansion of West Cargo Area (in place of public parking)	Meet future cargo facility requirementsFlexibility in development phasing
Maintain/Expand Aircraft Maintenance Facilities in Northwest Quadrant	Consolidate aircraft maintenance facility development into an expanded maintenance campus



Refined Preferred Airport Development Plan





Implementation Plan





Implementation Planning

What is the Implementation Plan?

Based on FAA-approved forecast

- Plan to support the organized and logical implementation of identified projects, when warranted
- Encompasses master plan-derived and MKE-identified projects necessary to maintain existing assets, preserve existing capacity, and meet future demand
- Capital Improvement Program (CIP) foundation

How is the Implementation Plan defined?

- Demand-triggered projects
- Balanced by funding availability/constraints

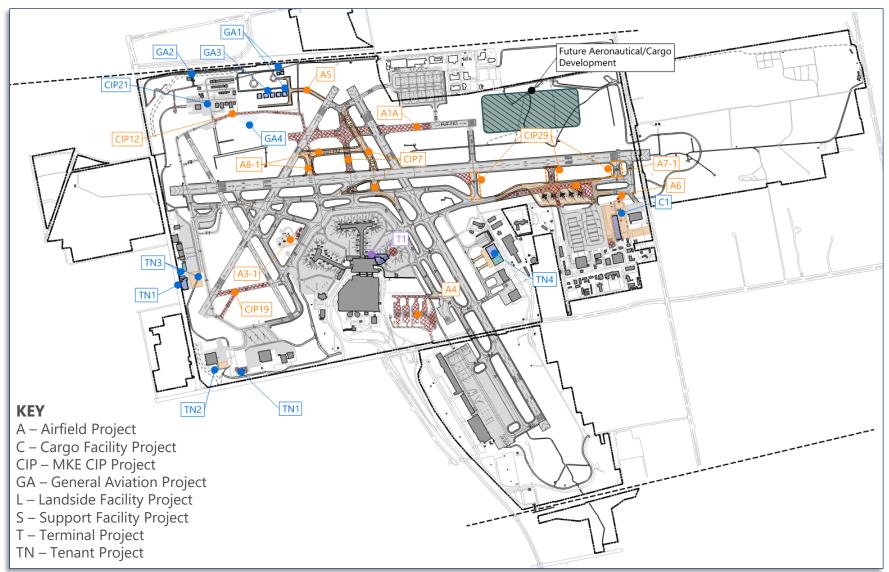
Development actions will be taken in response to specific triggers – project implementation may shift

- Influenced by agency and tenant approvals, business issues, environmental issues, and related
- How is the Implementation Plan Used?
 - Financial analysis
 - Resource planning (fiscal, staff, schedule, etc.)
 - Pursuit of FAA funding (establishes priority of AIP-eligible projects)

Plan is intended to be dynamic, evolving with changing conditions, and regularly updated.

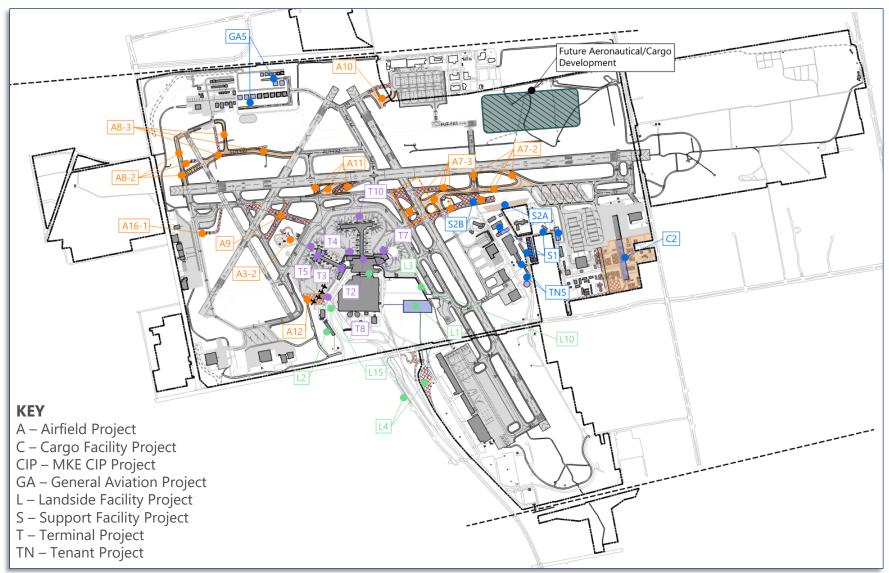


Implementation Plan: Near-Term



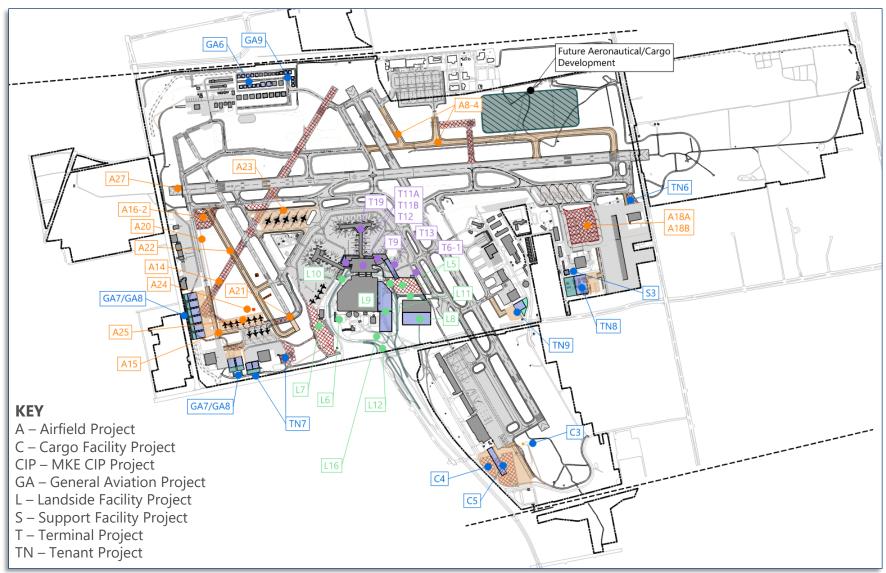


Implementation Plan: Mid-Term





Implementation Plan: Long-Term





Environmental Overview





Environmental Overview

Documents the presence of environmental features in the vicinity of MKE

Representative resource categories: wetlands, floodplains, water quality, threatened and endangered species, incompatible land uses, related resources

- Environmental features are considered in the alternatives analysis: avoid and minimize impact
- Environmental Overview (EO) provides a preliminary assessment of the significance of any environmental consequences
- EO can be used to define future environmental coordination needs under the National Environmental Policy Act (NEPA)
 - Categorical Exclusion (CATEX)
 - Environmental Assessment (EA)
 - Environmental Impact Statement (EIS)
- NEPA processing undertaken closer to future project implementation
 - will be subject to a detailed review of potential environmental impacts
 - mitigation of identified impacts where possible and required.

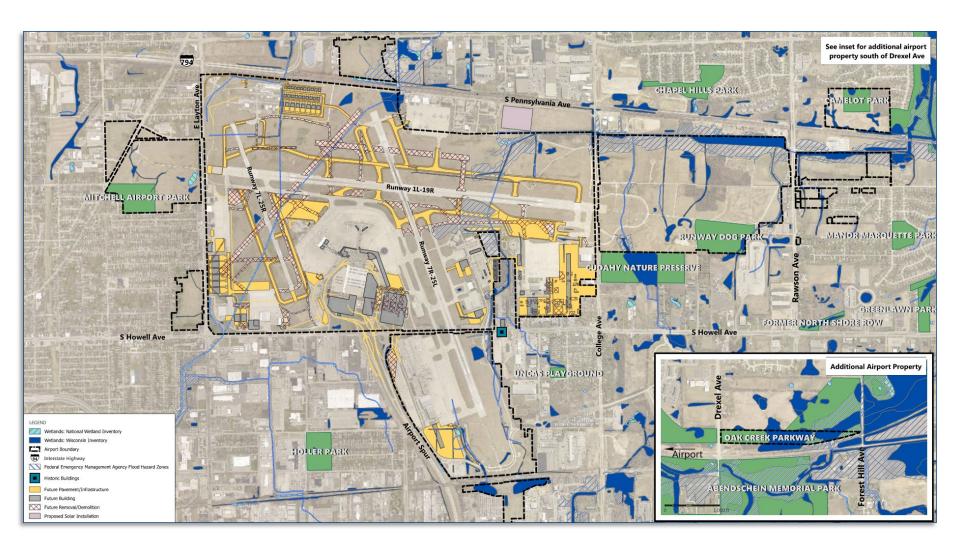


EO does not replace National

processing requirements.

Environmental Policy Act (NEPA)

Environmental Resources





Noise Exposure Analysis





Noise Exposure Analysis

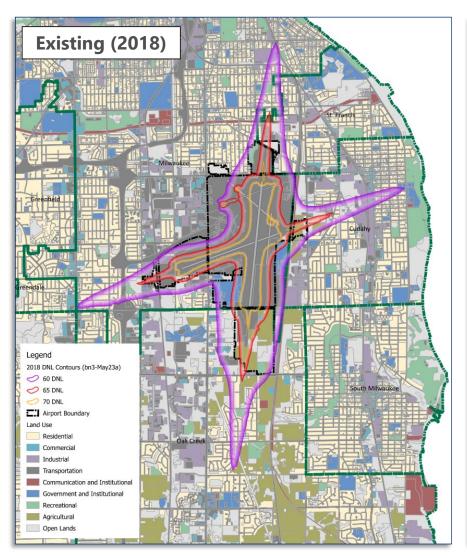
- Evaluation of relative increase in noise, comparing noise impacts of activity growth
 - 2028 Horizon (10-year)
 - Existing airfield ("no action" alternative)
 - Future airfield ("with project" alternative)
- FAA considers noise exposure of 65 decibels or greater to be significant
- Based on FAA guidance, an increase of more than 1.5 decibels is significant
- Noise is simulated using FAA-approved Aviation Environmental Design Tool (AEDT), based on FAA-approved forecast of activity

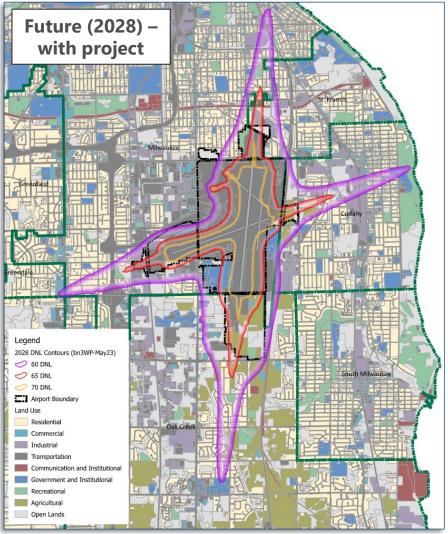
Aircraft Noise Exposure is influenced by multiple variables

- Aircraft fleet
- Aircraft engine and airframe technology
- Air traffic procedures
- Activity levels



Noise Exposure Contours







Conclusion





Master Plan Process

FAA-guided process



The goal of a master plan is to provide the framework needed to guide future airport development that will cost effectively satisfy aviation demand, while considering potential environmental and socioeconomic impacts.

FAA AC 150/5070-6B, Airport Master Plans

- Unique to the issues and challenges faced by MKE
- Objectives
 - Forecast activity
 - Define and justify proposed development
 - Provide effective graphic representation of development (ALP Drawing)
 - Establish realistic implementation schedule
 - Propose an achievable financial plan
 - Establish a flexible framework for continued planning and decision-making



Master Plan Process



- ENGAGE
- Project Initiation
- Define Vision, Priorities, Critical Issues
- Define and Initiate Communication and Outreach



UNDERSTAND

- Existing Conditions
- Data Collection and Analysis
- Operationa
- Physical
- Environmenta
- Financia
- Planning Foundation



ANALYZE

- Forecasting
- Capacity Evaluation
- Facility Requirements
- Quantitative
- Qualitative
- Market Analysis
- Facility Condition Assessment



CRAFT

- Alternatives Analysis
- Alternatives
- Evaluation
- Selection
- Refinement



DELIVER

- Airport Layout Plan
- CIP
- Financial Plan
- Implementation Plan
- Documentation

STAKEHOLDER INVOLVEMENT



Next Steps

- Finalize Implementation Plan
- Complete financial analysis and finalize Capital Improvement Program (CIP)
- Finalize land use assessment of non-aeronautical development areas
- Local (County) approval to proceed
- Prepare ALP Drawing Set and Narrative Report (FAA signs and approves ALP)
 - FAA ALP review period: up to 180 days
 - Finalize and submit Master Plan report
- WisDOT (State) and FAA (Federal) Approval of Master Plan

TAG and SAG input has been critical to the planning process – your participation in the MKE Master Plan Update is greatly appreciated

APPENDIX E.9

Public Open House #1



MAPPING MKE'S FUTURE

Milwaukee County's General Mitchell International Airport (MKE) has launched a two-year project to update the Airport Master Plan that will guide future development of the Airport. This plan will define a roadmap for incremental development to meet future aviation demand and other airport needs.

MKE will host the first of four Airport Master Plan public meetings on

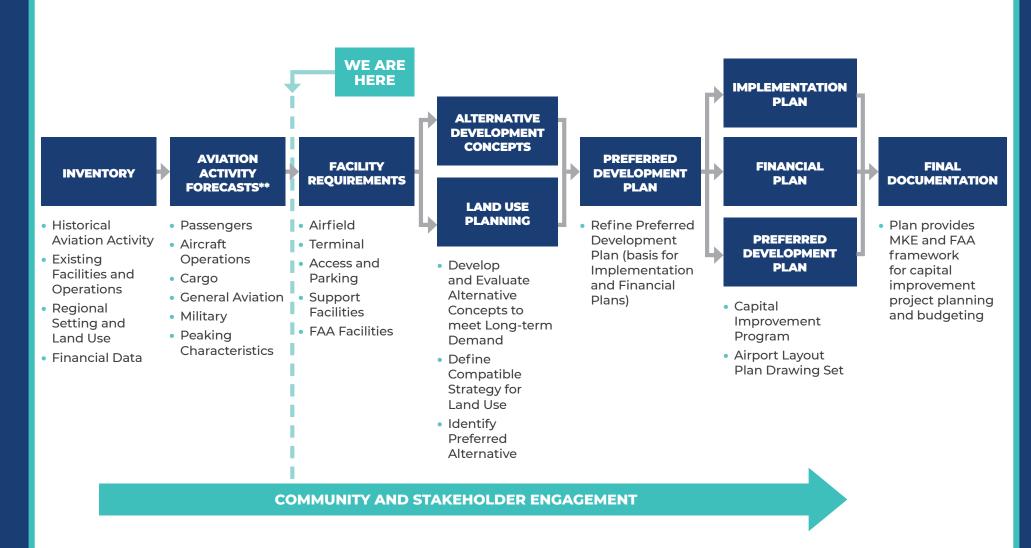
JANUARY 16, 2019 FROM 3:00 P.M. TO 7:00 P.M.

IN BALLROOM C AT THE SHERATON FOUR POINTS | 5311 S. HOWELL AVE.

Community members are encouraged to attend this and future meetings to learn about the planning effort and to provide input for consideration during the master plan update preparation.

STAY CONNECTED ONLINE: WWW.MKEUPDATE.COM

Master Planning Process



About MKE

- Purchased in 1926 → First terminal building opened in 1927
- Five runways
- Experienced 9.3% passenger growth from 2015-2018
- Only airport in Wisconsin or Illinois with service from all four major domestic airlines
- 44 Non-stop destinations; 160 one-stop international destinations
- Largest airport in Wisconsin
- Located 6 miles south of downtown
- Bus, rail, port, aviation facilities within 3 mile radius
- Substantial economic benefit (2017 data)
 - MKE generates over 26,000 jobs for residents of the Milwaukee area
 - More than 1.5M visitors through MKE spent over \$1.4B locally
 - MKE generates \$900M in personal income locally

What is a Master Plan Update?

It is the comprehensive study of an airport's short-, medium-, and long-term development needs to meet future aviation demand. A master plan provides the framework for future development to safely and cost-effectively satisfy aviation demand while considering potential environmental and socioeconomic impacts.

What does a master plan do?

- Supports strategic decision-making by MKE in response to demand
- Establishes an organized and efficient concept for MKE development

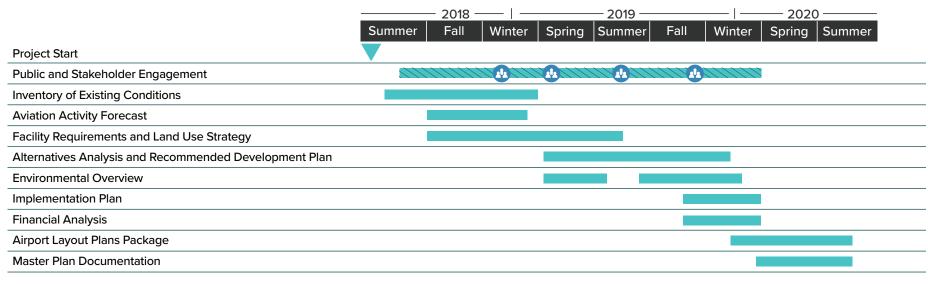
What is evaluated as part of the Master Plan?

- Airfield safety, capacity, and efficiency
- Passenger volumes and aviation activity
- Cargo operations
- Terminal space needs

- Airport access and parking
- Support facilities
- Infrastructure needs
- FAA requirements
- Revenue generating opportunities

Master Plan Schedule

- Overall 24-month Study
- Anticipated Completion: Summer 2020



Legend: Public Meeting

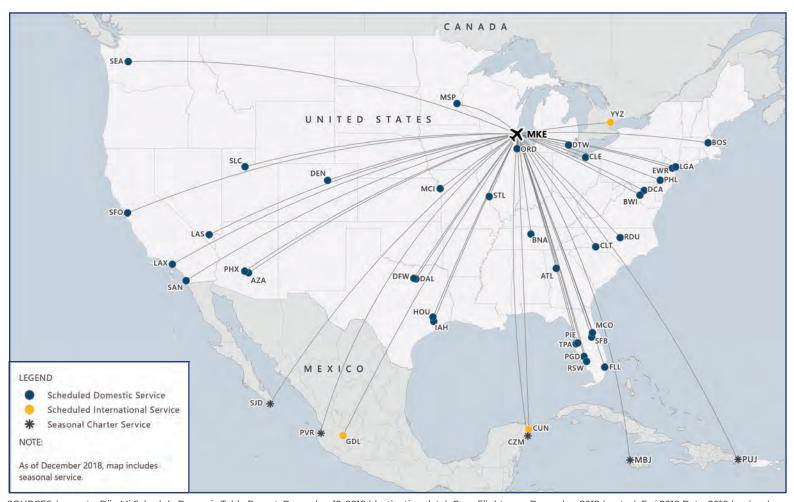
Note: Approximate Timing

What is an Inventory?



The inventory is the foundation for subsequent analyses and concept planning.

Route Network



SOURCES: Innovata, Diio Mi Schedule Dynamic Table Report, December 12, 2018 (destination data); OpenFlights.org, December 2018 (routes); Esri 2010 Data, 2010 (regions).

Non-Stop Destinations

36 Domestic 8 International

Airlines

9 Mainline17 Affiliate (Regional)5 Cargo

WE VALUE PUBLIC INVOLVEMENT

Your comments are important to the planning of MKE's future.

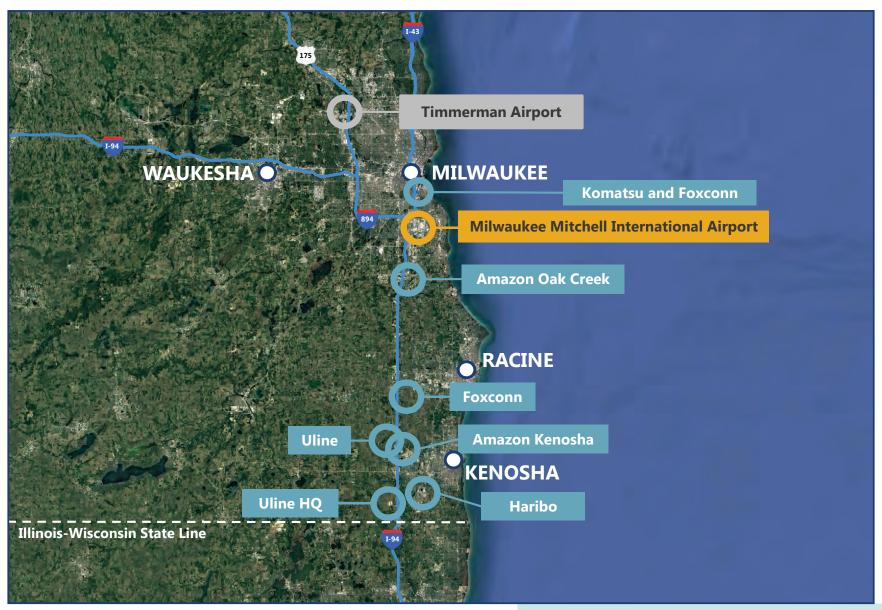
Please connect with us on our website: mkeupdate.com

Comment forms are also available on tables located near the exit.

Major MKE Facilities



Southeast Wisconsin Regional Growth



Forecasts of Aviation Activity



Influences on Aviation Demand

- National and global economy
- State of the airline industry
- Competing airports
- Aviation fuel costs
- Regional economic development
- Airport service area



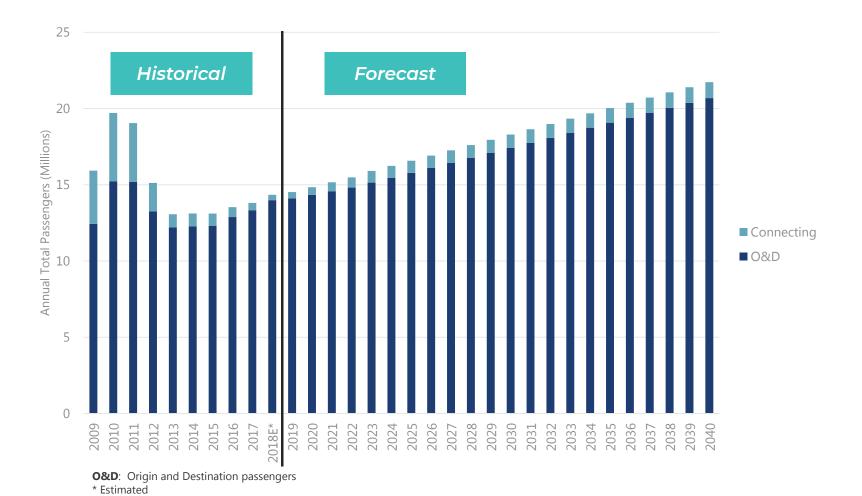
Forecasts Prepared

- Passenger (originating, connecting, domestic, international)
- Aircraft operations (airline, cargo, general aviation, military)
- Cargo tonnage
- Aircraft fleet (size/type of aircraft)
- Based aircraft.
- Peak activity characteristics

The FAA reviews and approves Master Plan Forecasts.

Baseline Total Passenger Forecast

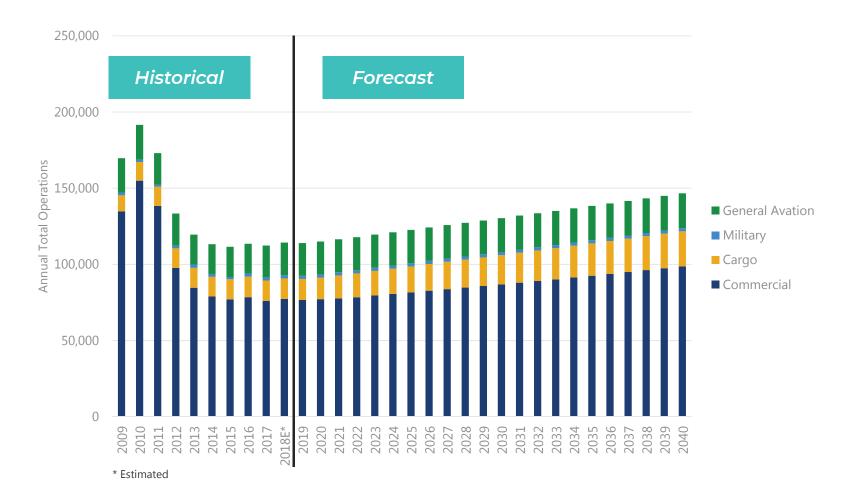
(total passengers = arriving and departing passengers)



SOURCES: U.S. DOT T-100 and DB1b Survey (historical); Milwaukee General Mitchell International Airport (historical); Ricondo & Associates, Inc. (Forecast), November 2018.

Baseline Aircraft Operations Forecast

(Operations = takeoffs and landings)



SOURCES: Milwaukee General Mitchell International Airport (historical); FAA OPSNET (historical); Ricondo & Associates, Inc. (Forecast), November 2018.

Baseline Air Cargo Forecasts Integrated, All-Cargo, and Passenger



SOURCES: Milwaukee General Mitchell International Airport (historical); U.S. DOT T-100; Ricondo & Associates, Inc. (Forecast), November 2018.

High Scenario Forecast is in Development

 High Scenario Forecast adjusts Baseline Forecast to account for uncertainties and to incorporate flexibility into planning conclusions

Increased Airline Service

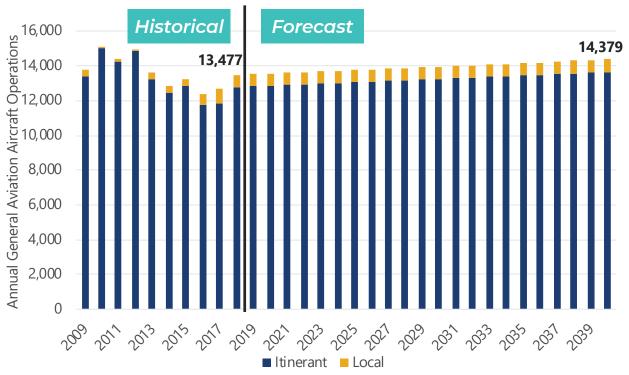
- Increased airline connecting activity
- Enhanced development-related socioeconomic factors
- Increased passenger capture from counties between Milwaukee and Chicago

Cargo

- New bi-directional demand to accommodate increased manufacturing
 - freighter flights from Asian cargo carriers
 - potential cargo flights to Europe and other international destinations
- Additional DHL activity to accommodate e-commerce/Amazon cargo demand patterns and to support new distribution center in Oak Creek
- Additional FedEx/UPS flights to support expanding e-commerce activity

Baseline GA and Military Operations Forecast

GENERAL AVIATION OPERATIONS FORECAST

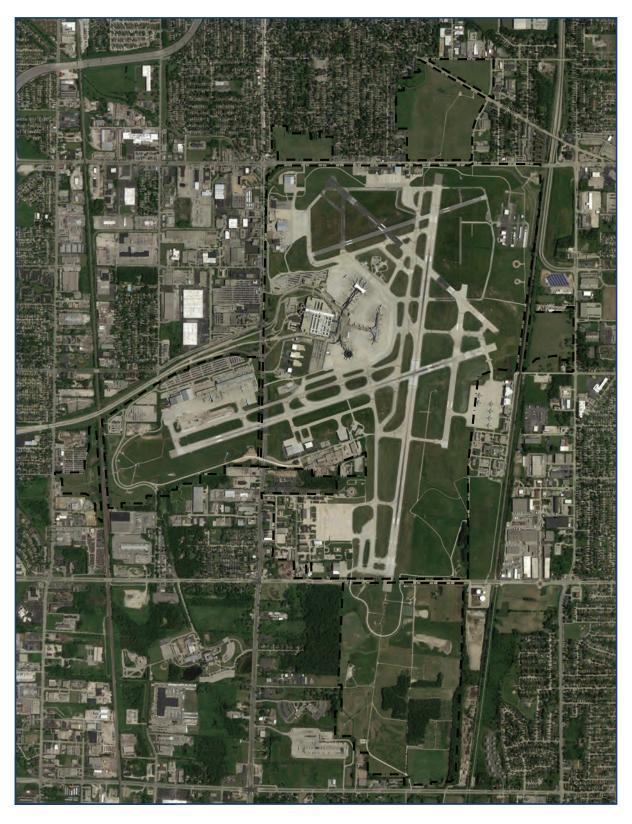


Itinerant: Aircraft visiting MKE **Local**: Aircraft based at MKE

MILITARY OPERATIONS FORECAST



Milwaukee Mitchell International Airport



APPENDIX E.10

Public Open House #2



MAPPING MKE'S FUTURE



High Growth Scenario Aviation Activity Forecast

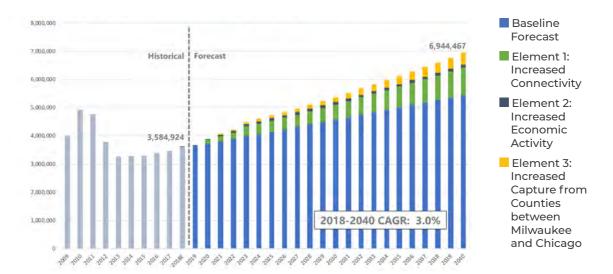
Passenger Component

- Three Enplaned Passenger High Scenario Forecast elements (modeled independently)
 - Increased connecting activity
 - Increased economic activity in Southeastern Wisconsin
 - Greater capture of passengers residing in counties between Milwaukee and Chicago (Kenosha and Racine Counties, Wisconsin; Lake and McHenry Counties, Illinois)

Cargo Component

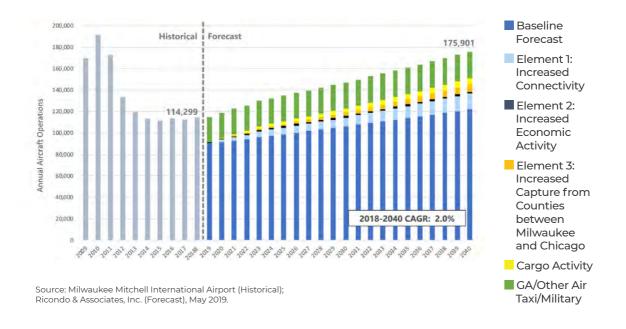
- Three Cargo High Scenario Forecast elements
 - New bidirectional demand to accommodate regional manufacturing
 - Additional DHL activity to accommodate e-commerce and recent Amazon demand patterns, and to support new Amazon Oak Creek fulfillment center
 - Additional FedEx/UPS activity to support expanding e-commerce

High Growth Scenario Passenger Forecast

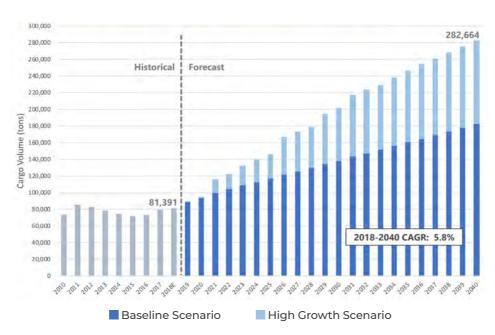


Source: Milwaukee Mitchell International Airport (Historical); Ricondo & Associates, Inc. (Forecast), May 2019.

High Growth Scenario Aircraft Operations Forecast

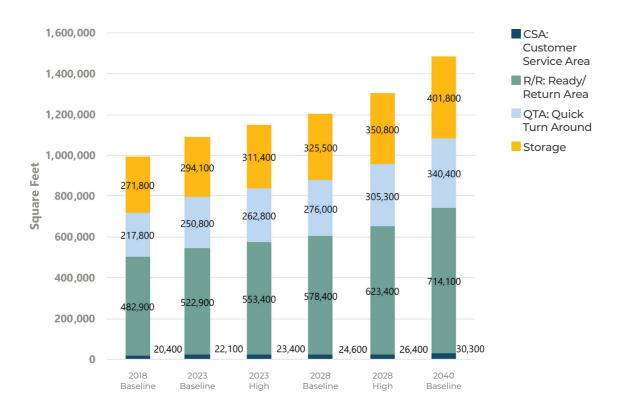


High Growth Scenario Cargo Volume Forecast

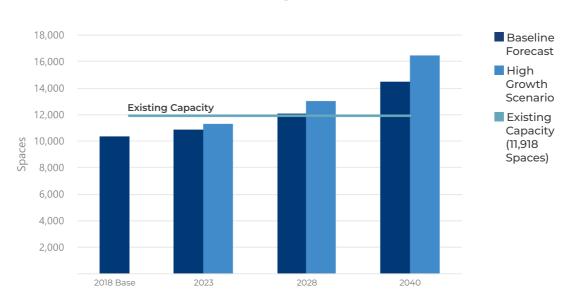


Source: Milwaukee Mitchell International Airport (Historical); Ricondo & Associates, Inc. (Forecast), May 2019.

Rental Car Requirements

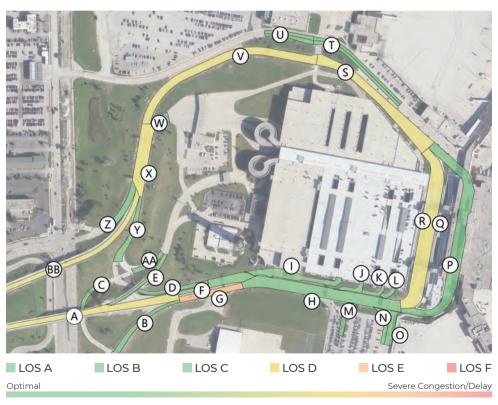


Public Parking Requirements



Terminal Roadway Requirements

High Growth Scenario



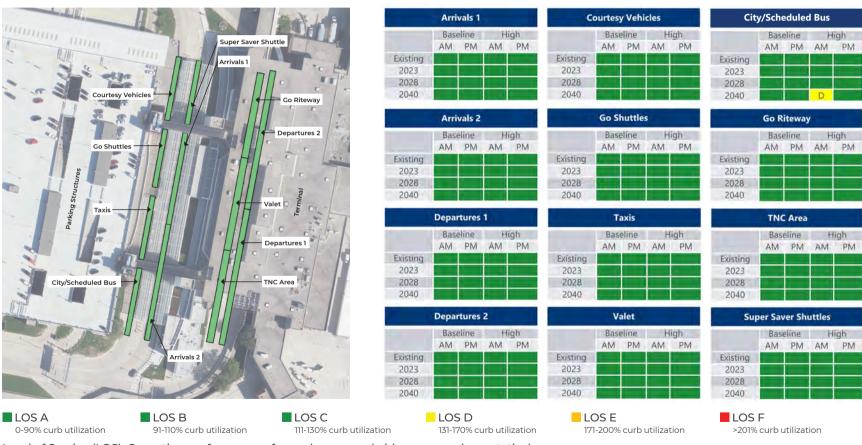
Summary

- Morning Traffic Peak: All links operate at LOS C or better
- Afternoon Traffic Peak: All links operate at LOS C or better (except where noted)

Link	Roadway Segment	PM 2023	PM 2028	PM 2040
A	Airport Spur EB inbound	С	С	D
G	Inbound Roadway to Terminal after ramp from Howell Road	С	D	Е
Q	Arrivals Inner Curb	С	С	D
S	Outbound Roadway Leaving Curb	С	С	D
V	Outbound Roadway after IAB Enter/Exit	С	С	D
X	Outbound Roadway after Parking Exit	С	С	D
BB	Airport Spur Outbound Split Towards I-94	С	С	D

Level of Service (LOS): Operating performance of a roadway or curbside, measured quantatively.

Terminal Curbfront Requirements



Level of Service (LOS): Operating performance of a roadway or curbside, measured quantatively.

Gate Requirements Summary

 Gate requirements presented as a range reflecting the needs under various operating scenarios

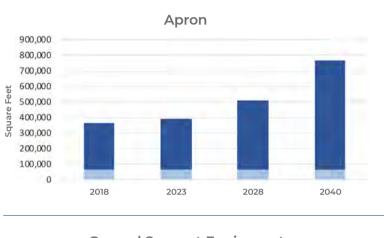
REQUIREMENT	GATING SCENARIO 1		GATING SCENARIO 2		GATING SCENARIO 3	
	Baseline Forecast	High Growth	Baseline Forecast	High Growth	Baseline Forecast	High Growth
2023	35	35	33	33	35	35
2028	36	37	35	35	36	36
2040	39	42	35	35	36	36
TOTAL NEW GATES REQUIRED	+7	+10	+4	+4	+4	+4

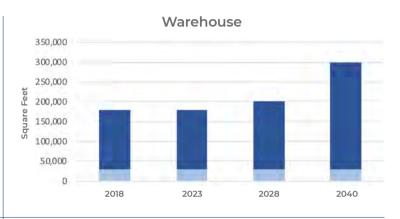
Summary 2040 Gate Requirements

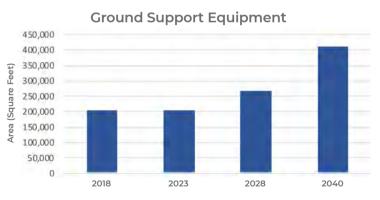
- Baseline: 4 to 7 additional gates over existing
- High Scenario: 4 to 10 additional gates over existing
- Concourse E Redevelopment will meet a portion of this gate need

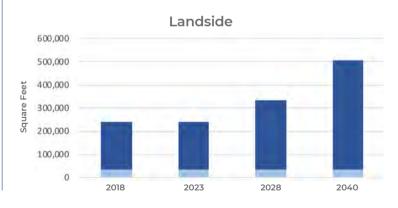
Note: Gating scenarios defined to reflect varying operational and gate allocation assumptions

Cargo Facilities - High Growth Scenario





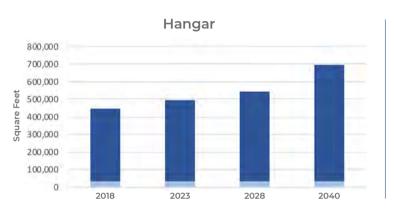


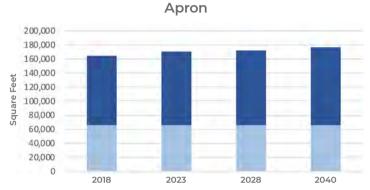


2018 Space Demand

■ Total Requirements

General Aviation Requirements

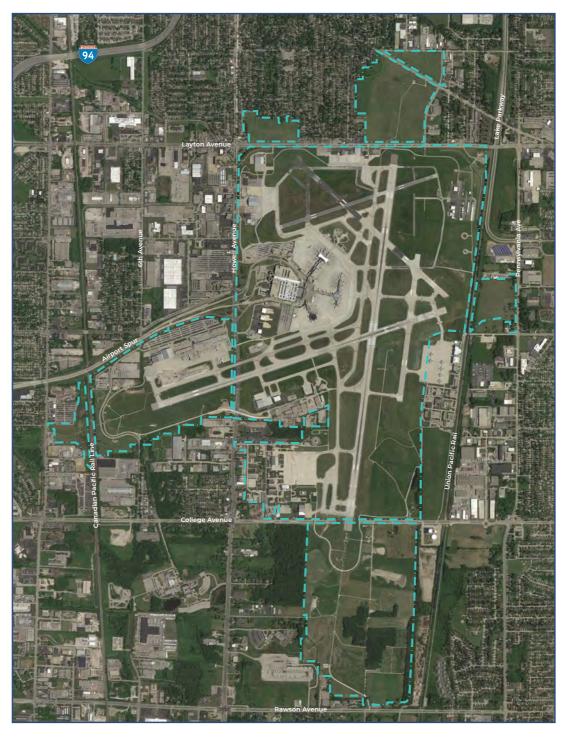






Note: General aviation activity does not change in the High Scenario Forecast.

Milwaukee Mitchell International Airport



- - Airport Property Line

Baseline Terminal Level of Service



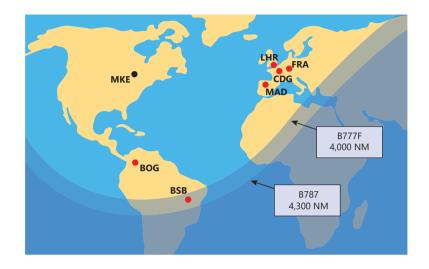
High Growth Terminal Level of Service

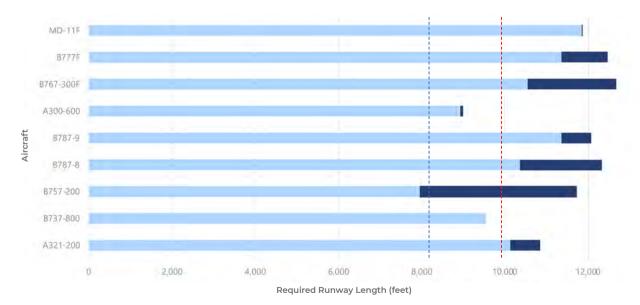
[Required Capacity relative to Existing Capacity]



Airfield Requirements

- Maximum range based on available runway length of 10,000 feet (Runway 1L-19R).
- Takeoff Distance Requirements at Maximum Certified Takeoff Weight - Hot Day





BOG – El Dorado International Airport

BSB – International Airport of Brasilia

CDG – Charles de Gaulle Airport

FRA – Frankfurt Airport

MAD – Madrid-Barajas International Airport

LHR- London Heathrow Airport

■ Takeoff Distance Required at MTOW

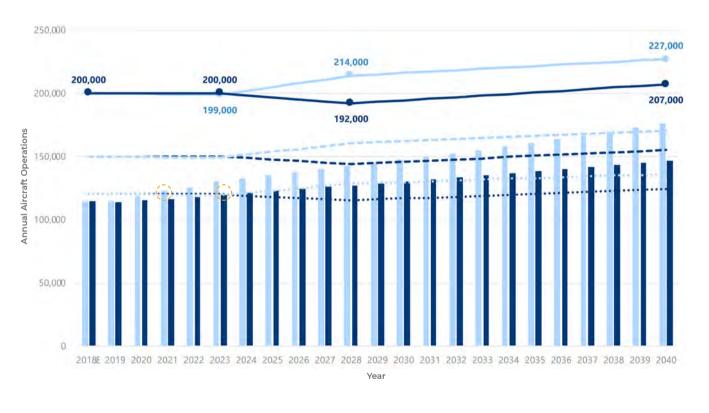
■ Takeoff Distance Variation Based on Engine Type

-- Runway 7R-25L 8,300 ft

-- Runway 1L-19R 9,990 ft

MTOW: Maximum Take Off Weight

Annual Airfield Capacity



- High Scenario
 Operations Forecast
- Baseline Operations Forecast
- High Scenario ASV
- Baseline Scenario ASV
- ···60% Baseline ASV
- -- 75% Baseline ASV
- ··· 60% High Scenario ASV
- -- 75% High Scenario ASV

ASV = Annual Service Volume (estimate of annual airport capacity)

• The FAA recommends capacity development when activity approaches 60 to 75 percent of annual capacity. Capacity development could be in the form of a new runway, runway extension, additional exit taxiways, aircraft parking aprons.

APPENDIX E.11

Public Open House #3



MAPPING MKE'S FUTURE



What is a Master Plan Update?

It is the comprehensive study of an airport's short-, medium-, and long-term development needs to meet future aviation demand. A master plan provides the framework for future development to safely and cost-effectively satisfy aviation demand while considering potential environmental and socioeconomic impacts.

What does a master plan do?

- Supports strategic decision-making by MKE in response to demand
- Establishes an organized and efficient concept for MKE development

What is evaluated as part of the Master Plan?

- Airfield safety, capacity, and efficiency
- Passenger volumes and aviation activity
- Cargo operations
- Terminal space needs

- Airport access and parking
- Support facilities
- Infrastructure needs
- FAA requirements
- Revenue generating opportunities

Draft Master Plan Goals

- Affirm a future-focused airport that supports aviation growth in a safe, efficient, and cost-effective manner through an organized and synergistic long-range development plan.
- Recognize opportunities to enhance the sustainability, resiliency, and environmental sensitivity with continued growth of MKE.
- Seek opportunities for enhanced customer and passenger experience.
- Optimize infrastructure and resources in an operationally, financially, and sustainable manner.
- Protect long range utility of the Airport (post-2040).
- Recognize opportunities for enhanced non-aeronautical revenue generation in the utilization of MKE property and amplify the revenue-generating potential of Airport property.
- Define a long-range development plan that **reflects MKE's role in the community** and recognizes diversity in community stakeholder priorities.

Screening Process

AIRFIELD ALTERNATIVES

Four Runway Alternatives Three Runway Alternatives **Runway Extensions**

TERMINAL ALTERNATIVES

Single Terminal Expansion Terminal Expansion Explored on All Concourses

Connected Terminal between Concourses C and D

Remote Concourse

LANDSIDE ALTERNATIVES

Parking & Rental Car Facilities Location (Remote vs Terminal Core) Type (Structure vs. Surface) **GTC Location Possibilities**

Need for Shuttle

Inter airport Roadway Configuration

SUPPORT FACILITIES ALTERNATIVES

Location of GA Facilities (Utilize Existing Area or Relocate) Location of Cargo Facilities (Utilize Existing Area or Relocate) Consolidated vs. remote Facilities

COMPONENT **SCREENING CRITERIA**

Land Uses Relative to Airfield Access

Capability to Meet Long-term Demand

> Enabling **Project Need**

Component Compatibility

Facility Organization

Ability to Meet Aeronautical Demand

CONCEPT **SCREENING CRITERIA**

Flexibility

Right-sizing

Relative Cost

Operational Efficiency

Implementation Complexity

Long-term **Expansions Capability**

Component

Alternatives

Collateral Development Potential

Compatibility with Adjacent Land Uses

Landside Way-finding

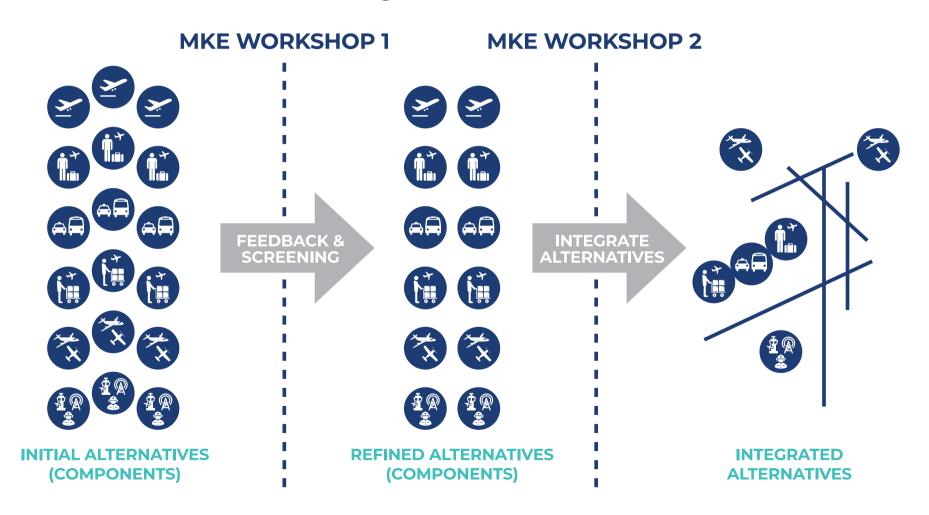
Facility Consolidation

Sustainability

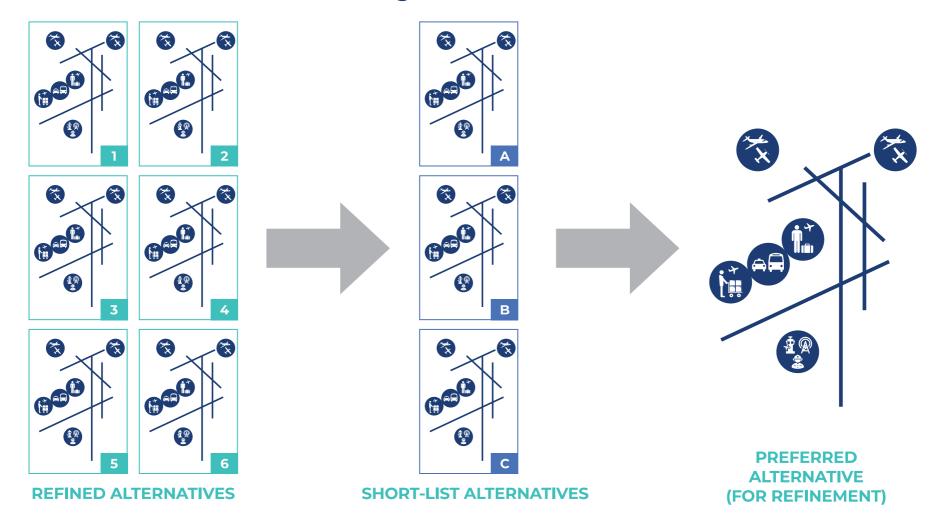
Land Acquisition Requirement

6 Integrated Alternatives

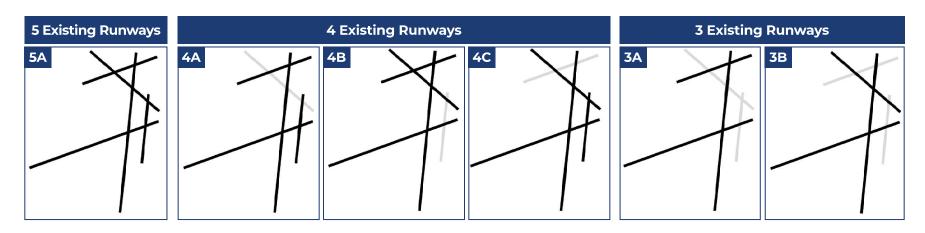
Alternatives Analysis Process

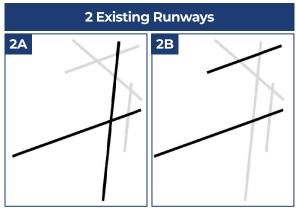


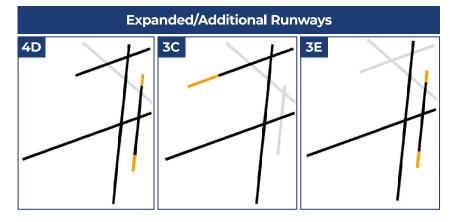
Alternatives Analysis Process



Potential Runway Alternatives







LEGEND

Existing/Retained Runway

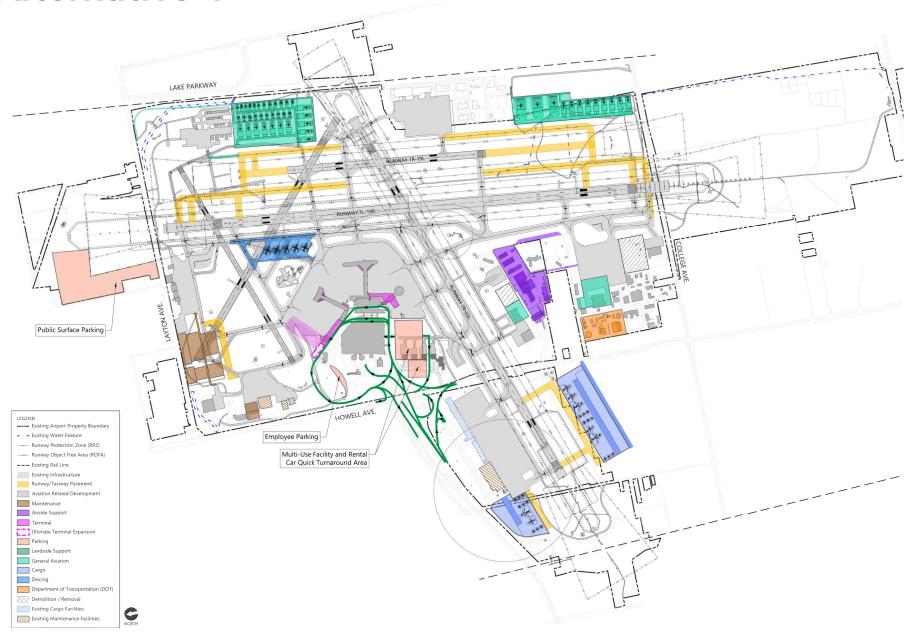
Decommissioned Runway

Runway Extension/Construction





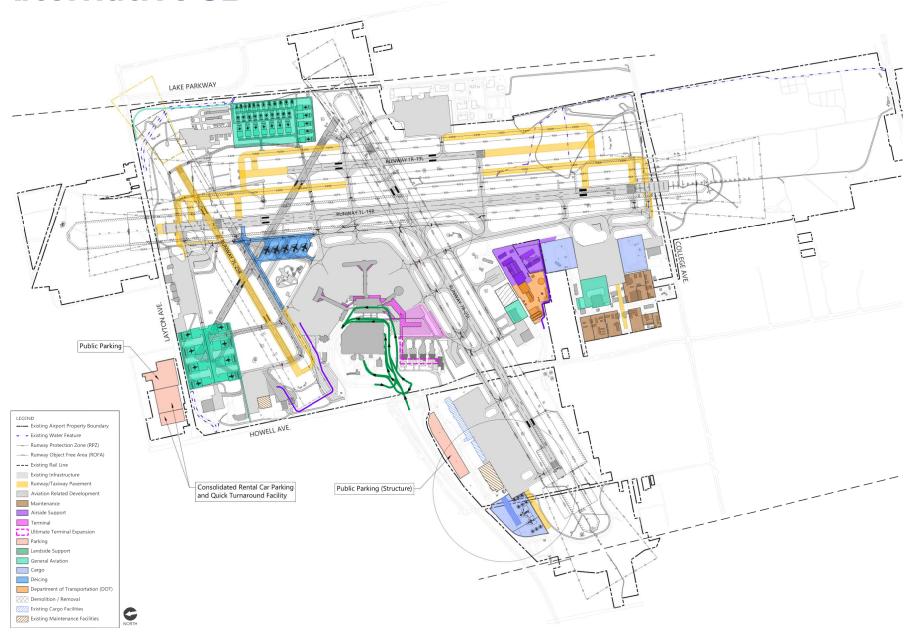




Alternative 5A



Alternative 5B



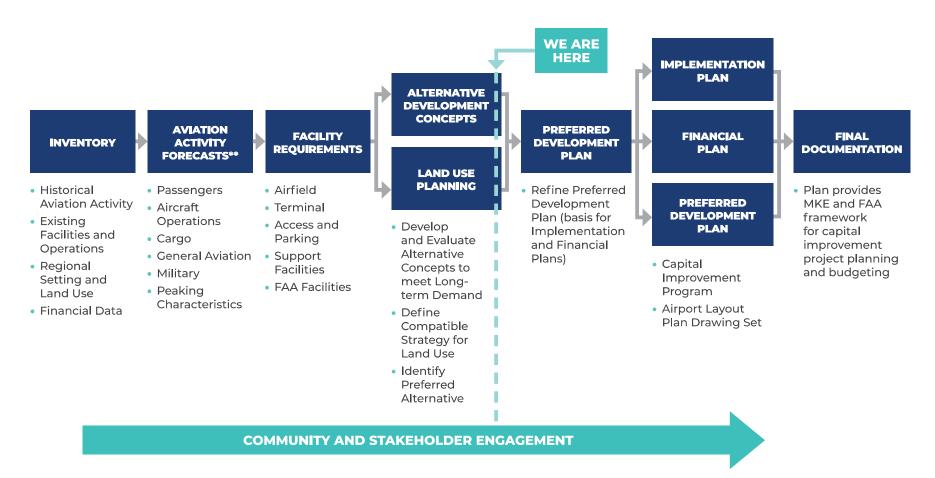
Next Steps

- Refine integrated alternatives (community and stakeholder feedback)
- Host final workshop with MKE staff
- Short-list alternatives (6 alternatives → 3 alternatives)
- Evaluate 3 shortlisted alternatives (qualitative and quantitative)
- Present to stakeholder groups
- Select Preferred Alternative
- Refine Preferred Alternative (per Airport goals and priorities)
- Public Open House #4
- Prepare Final Documentation
 - Initiate Airport Layout Plan Production
 - Implementation Planning
 - Financial Analysis
- FAA Review

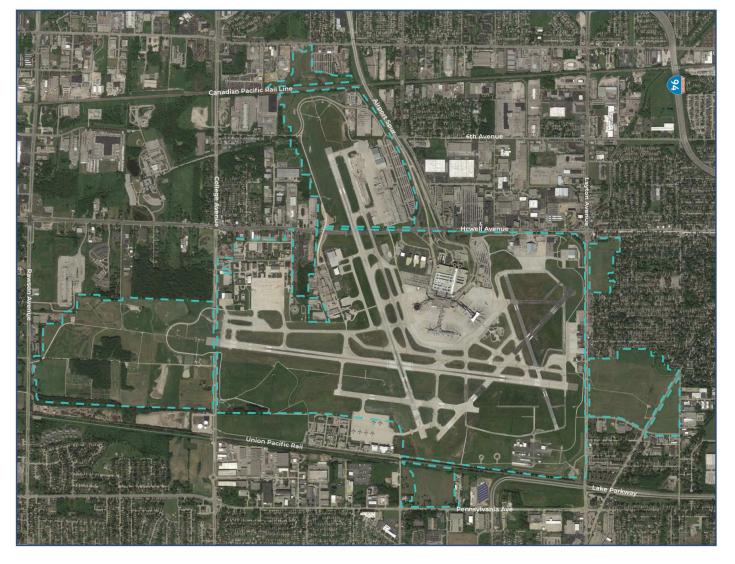
Master Plan Concludes with FAA
Review of ALP and Documentation

- Up to 180 Day Review
- ALP Signature (approval)

Master Planning Process



Milwaukee Mitchell International Airport



WE VALUE PUBLIC INVOLVEMENT

Your comments are important to the planning of MKE's future.

Please connect with us on our website: mkeupdate.com

Comment forms are also available on tables located near the exit.