

Willow Run Airport

Master Plan

Public Information Meeting



DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

Welcome!

Please sign in and pick up handouts

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What is a Master Plan?

- **20 year infrastructure development plan**
- **Assess and determine facility needs**
- **Provides development options to address needs**
- **Provides a timeline and financial schedule for implementation**
- **Conducted in combination with Airport Layout Plan (ALP) update**
 - *Graphical depiction of existing and future airport development*
 - *Facilities must be shown on the ALP to be eligible for FAA funding*



Overview of the Master Plan

Status

Components

Ongoing

→ Public Involvement

- Community Advisory Committee (CAC)
- Technical Advisory Committee (TAC)
- Public information meetings

Completed

→ Data Collection / Inventory

- Airport facilities, services, and infrastructure

Approved by FAA

→ Forecasts of Aviation Demand

- 5-, 10-, and 20-year forecasts of aeronautical activity

Completed

→ Facility Needs

- Assess capacity of Airport to support forecasted demand

Ongoing

→ Alternatives Analysis

- Options to meet facility needs

→ Environmental Overview / Land Use Analysis

- Identify environmental / surrounding land use conditions

→ Financial Analysis / Capital Improvement Plan

- Develop schedule and funding means

→ Airport Layout Plan Update

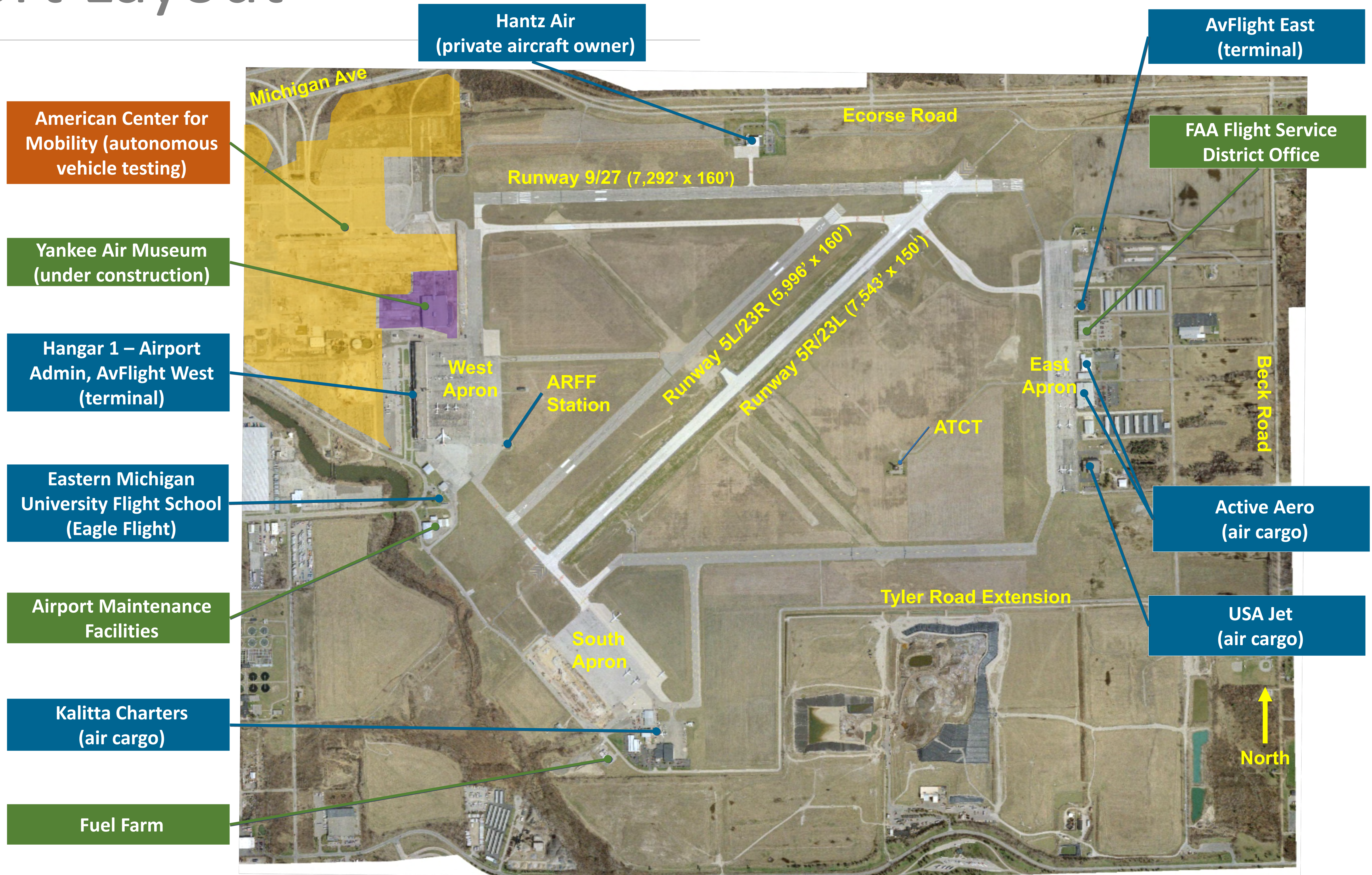
- Update drawing sheet set



Airport Layout

Key

- Airfield
- Landside
- Other



American Center for Mobility (autonomous vehicle testing)

Yankee Air Museum (under construction)

Hangar 1 – Airport Admin, AvFlight West (terminal)

Eastern Michigan University Flight School (Eagle Flight)

Airport Maintenance Facilities

Kalitta Charters (air cargo)

Fuel Farm

Hantz Air (private aircraft owner)

AvFlight East (terminal)

FAA Flight Service District Office

Active Aero (air cargo)

USA Jet (air cargo)

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Evolving Roles of the Willow Run Airport

→ Willow Run Airport continues to evolve to serve the needs of Southeast Michigan

- *Bomber Production for World War II (1940s)*

- Almost 8,700 B-24 Liberators built
- Bomber plant employed 42,000 people



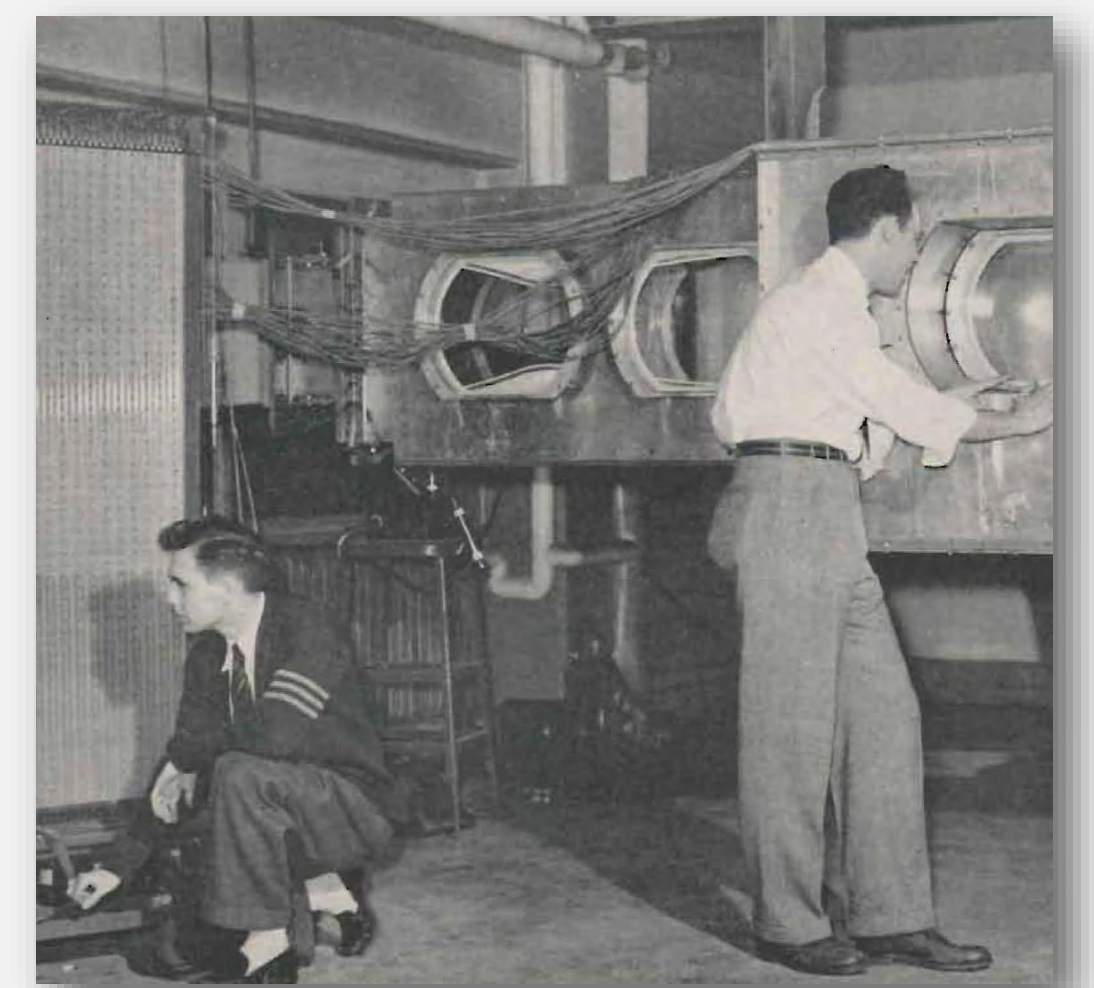
- *Commercial Airline Service Airport (1947-1958)*

- Detroit's commercial airline service airport until 1958



- *Aeronautical Research Center (1947-1970s)*

- Michigan Aeronautical Research Center (MARC), run by University of Michigan
- Rocket motor and propellant research for antiballistic missile defense systems



- *Air Cargo Facility (1980s-1990s)*

- Became successful air cargo airport



- *Today (2000s)*

- On-Demand Air Cargo
- Eastern Michigan University flight training
- Reliever to Detroit Metropolitan Wayne County Airport



Airport Roles

	Willow Run (YIP)	Detroit Metro (DTW)
Role	Reliever Airport	Commercial Airport
Users	 On-demand air cargo  General aviation flight training  Corporate and recreational general aviation  Aircraft maintenance	 Large hub passenger operations  Integrated logistics carriers  High-end corporate general aviation  Aircraft maintenance
Actions	Preserve land areas for: (1) Maintenance, Repair, and Overhaul (MRO) operators (2) Commercial development (3) Alternative aviation-related markets not yet realized	Seek opportunities to maximize revenue generation and allow DTW to serve as a catalyst for local and regional economic growth & development

Economic Impact of Willow Run Airport

- Generates both aeronautical and non-aeronautical related jobs
- Economic impact throughout Michigan
- Businesses are attracted to air cargo capabilities of Airport
- Continued capital improvements at Airport is vital to area economy
- Supports the \$10.2 billion economic impact of Detroit-Wayne County Metropolitan Airport

Activity	Direct Spending	Economic Impact	Income Impact	Jobs Impact
Cargo Transportation	\$22.3 million	\$44.4 million	\$14.4 million	306
Visitors	\$1.1 million	\$2.1 million	\$0.6 million	21
General Aviation	\$9.4 million	\$18.7 million	\$6.1 million	129
Education	\$1.4 million	\$3.1 million	\$1.1 million	37
Airport Enhancement (2014)*	\$25.0 million	\$54.9 million	\$18.2 million	457
TOTAL ANNUAL IMPACTS	\$59.4 million	\$123.1 million	\$40.5 million	950

Notes:

Due to rounding, stated numbers may not add to stated totals

* Airport Enhancement dollar amounts represent infrastructure investment made in 2014 and will vary by year

Source: *The Economic Impact of Willow Run Airport 2014*, The University of Michigan – Dearborn College of Business (2014)

➤ Example of Economic Impact Spending

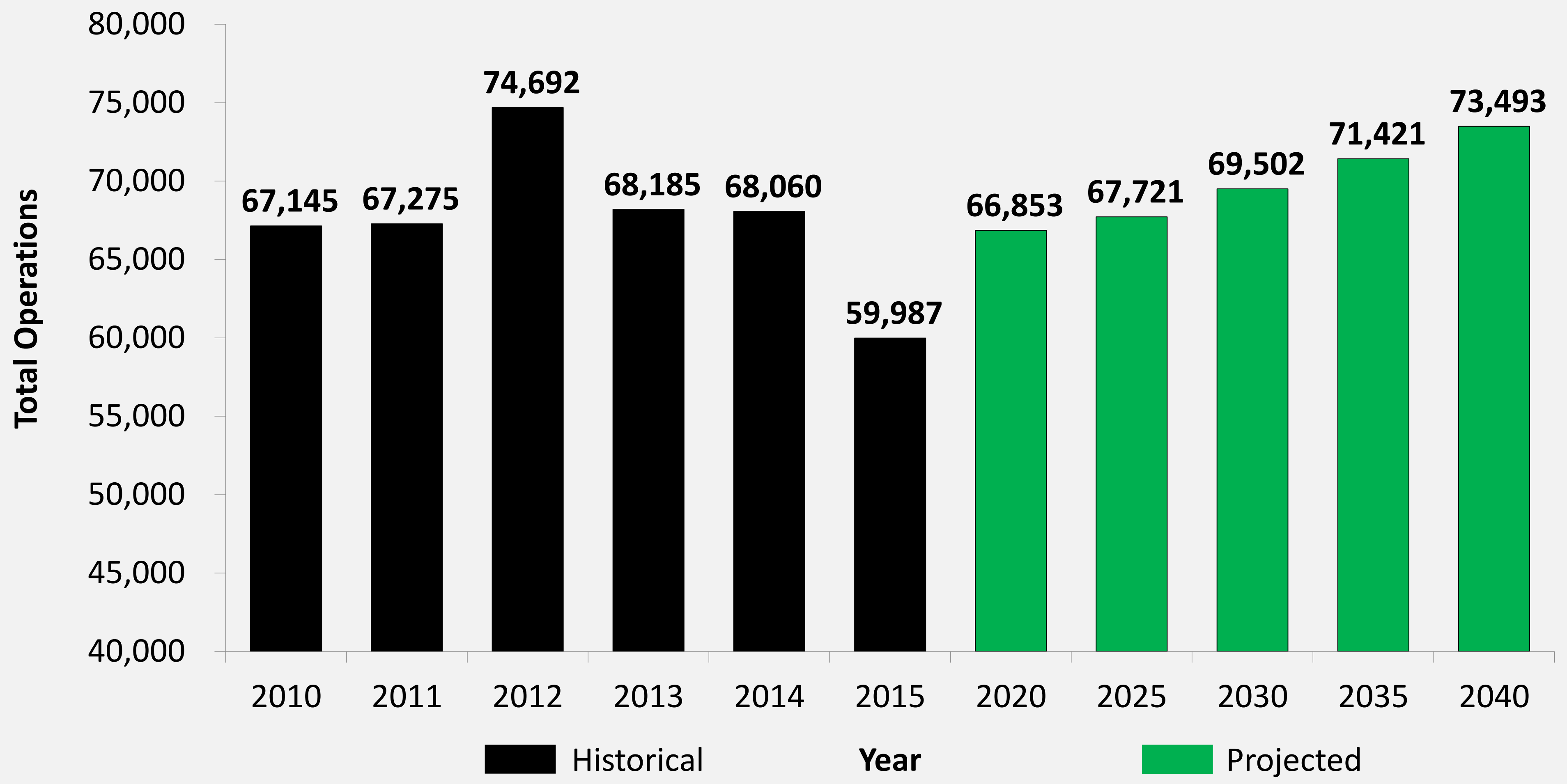


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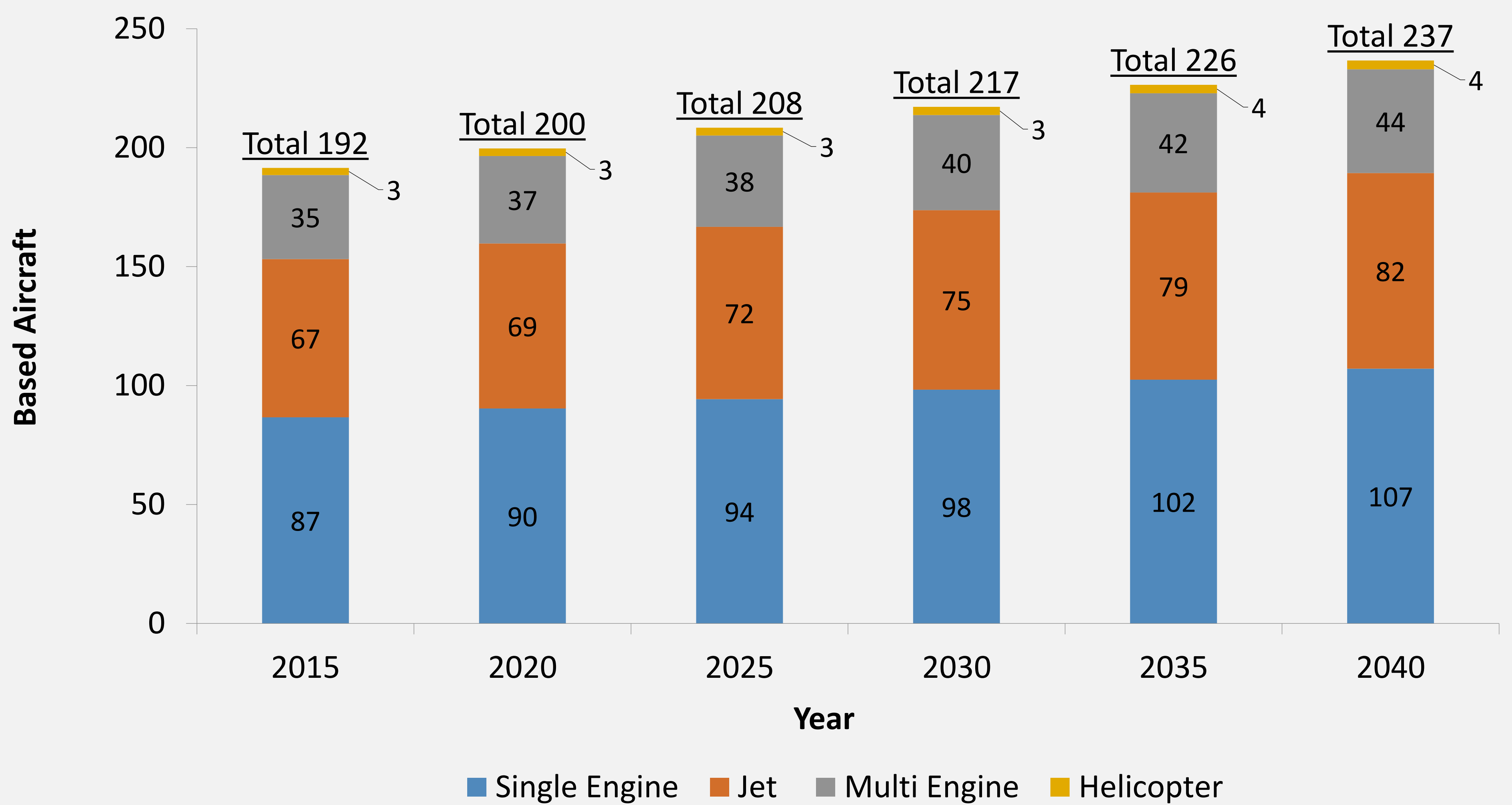
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Forecasts of Aviation Demand

✈ Aircraft Operations (total takeoffs and landings)



✈ Based Aircraft



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Goals of the Airport

→ **Maintain safety**

- *Eliminate design standard hot spots and resolve modification of standards*

→ **Improve the financial sustainability of the Willow Run Airport**

- *Reduce operating costs through right-sized facilities and prioritized capital investment*

→ **Optimize the airfield to accommodate the needs of existing and future users**

- *Maximize airfield efficiencies and capacity*
- *Rehabilitate and improve failing infrastructure*
- *Accommodate needs of existing and future users with appropriate runway length*

→ **Support the Airport's role and economic impact within the region**

- *Accommodate and support the local and regional demand for air freight; manufacturing, maintenance, repair, and overhaul (MMRO); corporate aviation; and general aviation*
- *Support opportunities for job creation and local development*

→ **Minimize impacts to quality of life on surrounding community**

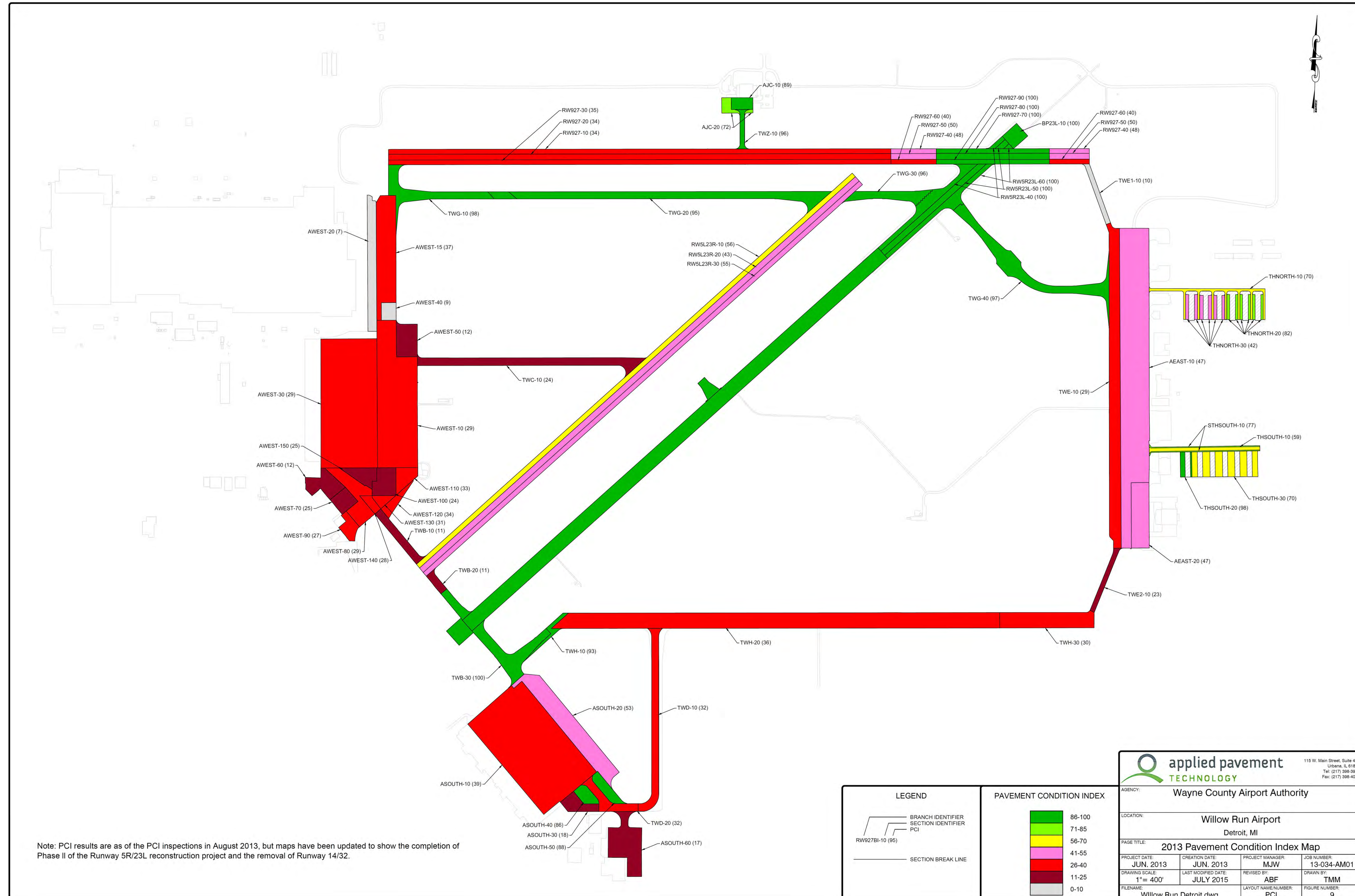
→ **Assure compliance with master planning requirements and regulations**

→ **Engage and collaborate with users and regional stakeholders**

Infrastructure Needs

Existing infrastructure in poor condition

- Airfield pavements
- Landside pavements
- Utilities



Destinations & Aircraft Range



Maximum range available with full payload from current runway length

Current runway length (7,543 feet)

Hot day runway length need

Full payload

Red dots identify top 18 destinations over 1,000 nm that were flown non-stop from YIP in 2014

Current Fleet Mix



→ Current fleet mix is anticipated to continue to operate through the planning period

→ Potential replacement/supplemental cargo aircraft:

- 737-800, 757-200, 767-300

Runway Length Needs

Aircraft Type	2015 Total Operations	Haul Length Available with Full Payload from Existing Runway Length	2015 Operations to/from Destination Over Haul Length Limit
DC-9-15	1,284	750 nm	0
DC-9-30	652	600 nm	156
727-200	495	1,000 nm	183
MD-83	272	1,200 nm	70
737-400	171	750 nm	28
737-800	36	800 nm	5
737-300	30	1,250 nm	2
737-200	16	600 nm	2
A320	14	1,800 nm	0
737-700	13	1,400 nm	0
737-900	4	600 nm	0
757-200	0	1,300 nm	0
767-300	0	1,700 nm	0
TOTAL	2,987		446

✈️ Runway length needs

- *446 operations conducted in 2015 that were over the efficient haul length limit*
- *Does NOT currently meet FAA funding criteria for runway extension (requires at least 500 annual operations)*
- *Recommend long-term planning for additional 2,000 feet of runway length*

Preliminary Facility Needs

Key

- Airfield
- Landside
- Other

Existing infrastructure in poor condition

- Runway
- Taxiways
- Aprons
- Buildings
- Roads
- Utilities

Crosswind runway recommended for light general aviation traffic

Possible plan for add'l runway length on either 5R/23L or 9/27

Improve or replace fire station

Improve maintenance facility

Parallel runway not needed for capacity, could be maintained for traffic separation

Improve approach minimums

Parallel taxiway to increase capacity and safety

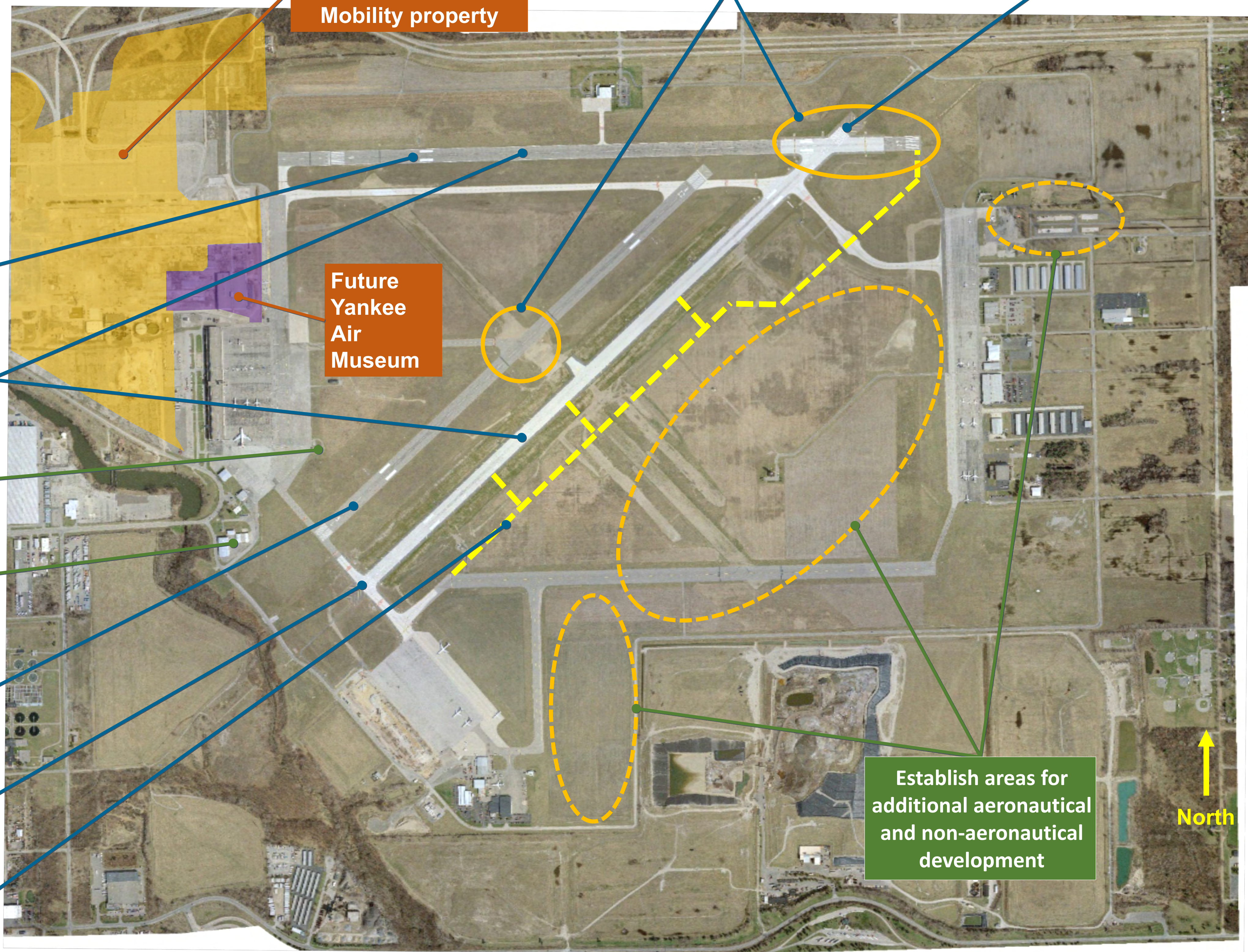
Development of the American Center for Mobility property

Future Yankee Air Museum

Correct airfield hot spots

Improve approach minimums

Establish areas for additional aeronautical and non-aeronautical development



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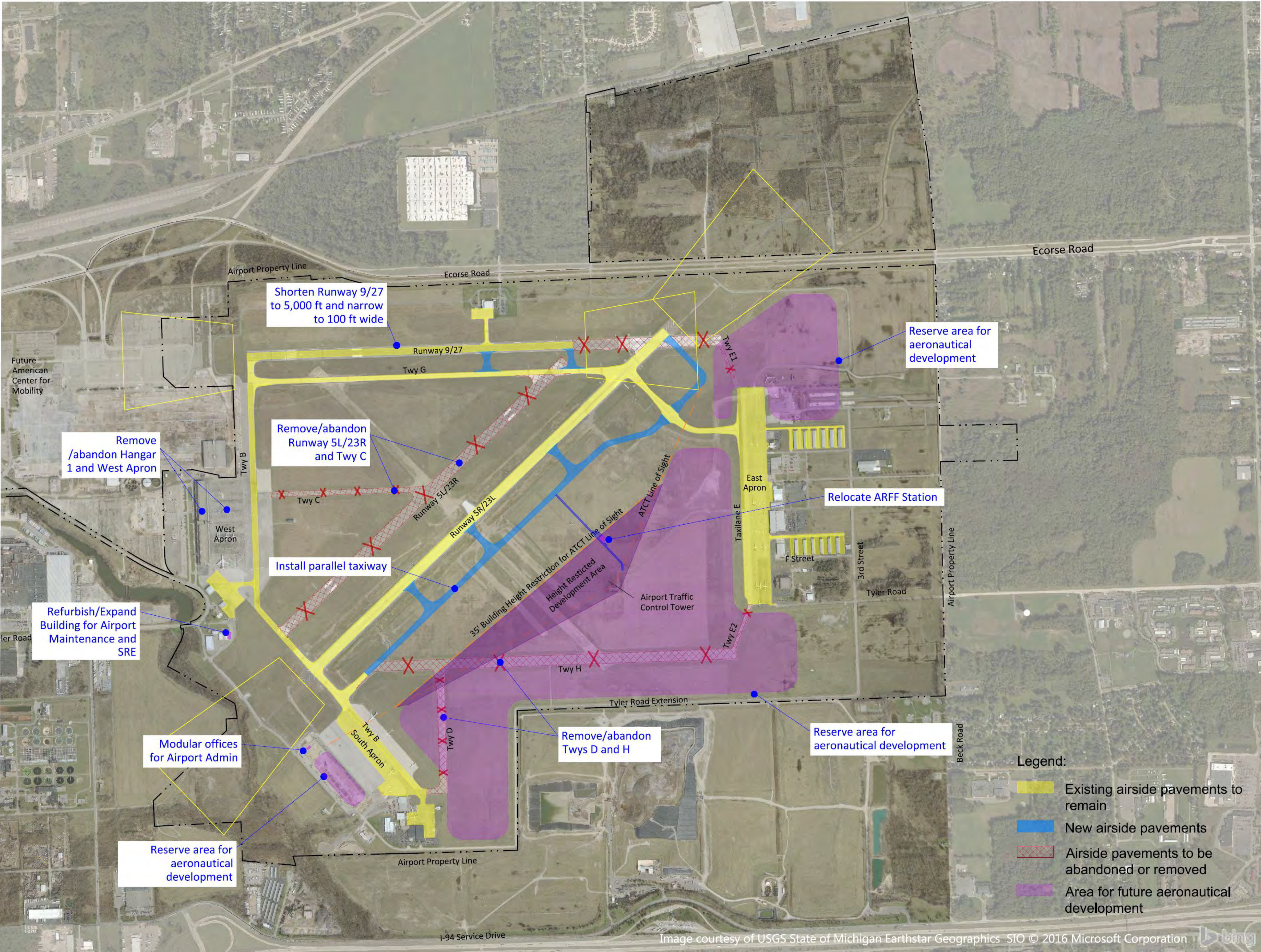
Recommended Near & Mid-Term Facilities

WILLOW RUN AIRPORT MASTER PLAN UPDATE

Recommended Near & Mid-Term Facilities

NOTES

- Resolves airfield hot spots
- Reduces airfield pavements needed to be maintained
- Provides parallel taxiway to Runway 5R/23L for safety and capacity purposes



Runway	Existing	Future	Change
5R/23L	7,543'	7,543'	-
5L/23R	5,996'	Closed	Closed
9/27	7,292'	5,000'	-2,292'

- Legend:**
- Existing airside pavements to remain
 - New airside pavements
 - Airside pavements to be abandoned or removed
 - Area for future aeronautical development

Prepared by: Mead & Hunt
Date: October 14, 2016

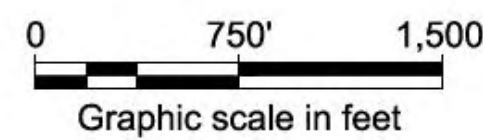


Image courtesy of USGS State of Michigan Earthstar Geographics SIO © 2016 Microsoft Corporation

Recommended Near & Mid-Term Facility Needs

→ Utility Improvements

Improvement	Cost
Storm Sewer – Phase 1	\$5,000,000
Water Main	\$6,760,000
Sanitary Sewer	\$4,030,000
Electrical Utilities	\$3,740,000
Fiber Optic Utilities	\$5,510,000
SUBTOTAL	\$25,040,000

→ Landside Pavements

Improvement	Cost
All needed landside pavement reconstructions	\$7,520,000

→ Buildings and Hangars

Improvement	Cost
Demolish Hangar 1 & construct modular admin office	\$4,250,000
Construct new aircraft rescue and firefighting (ARFF) facility	\$4,300,000
Snow removal equipment (SRE)/maintenance facility improvements – Refurbish & expand Building 2620	\$2,200,000
SUBTOTAL	\$10,750,000

→ Airside Pavements

Improvement	Cost
Shorten & reconstruct Runway 9/27 (5,000 ft. by 100 ft.)	\$16,100,000
Close & remove Runway 5L/23R	\$1,700,000
Construct parallel taxiway to Runway 5R/23L	\$22,700,000
Taxiway system improvements (reconstruction & closures)	\$24,100,000
Reconstruct West Apron adjacent to Eagle Flight Centre & ARFF facility	\$3,300,000
Reconstruct & expand East Apron	\$41,600,000
Reconstruct portion of South Apron to the west of Taxiway B	\$13,400,000
SUBTOTAL	\$122,900,000

→ Total Near & Mid-Term Facility Needs Cost:

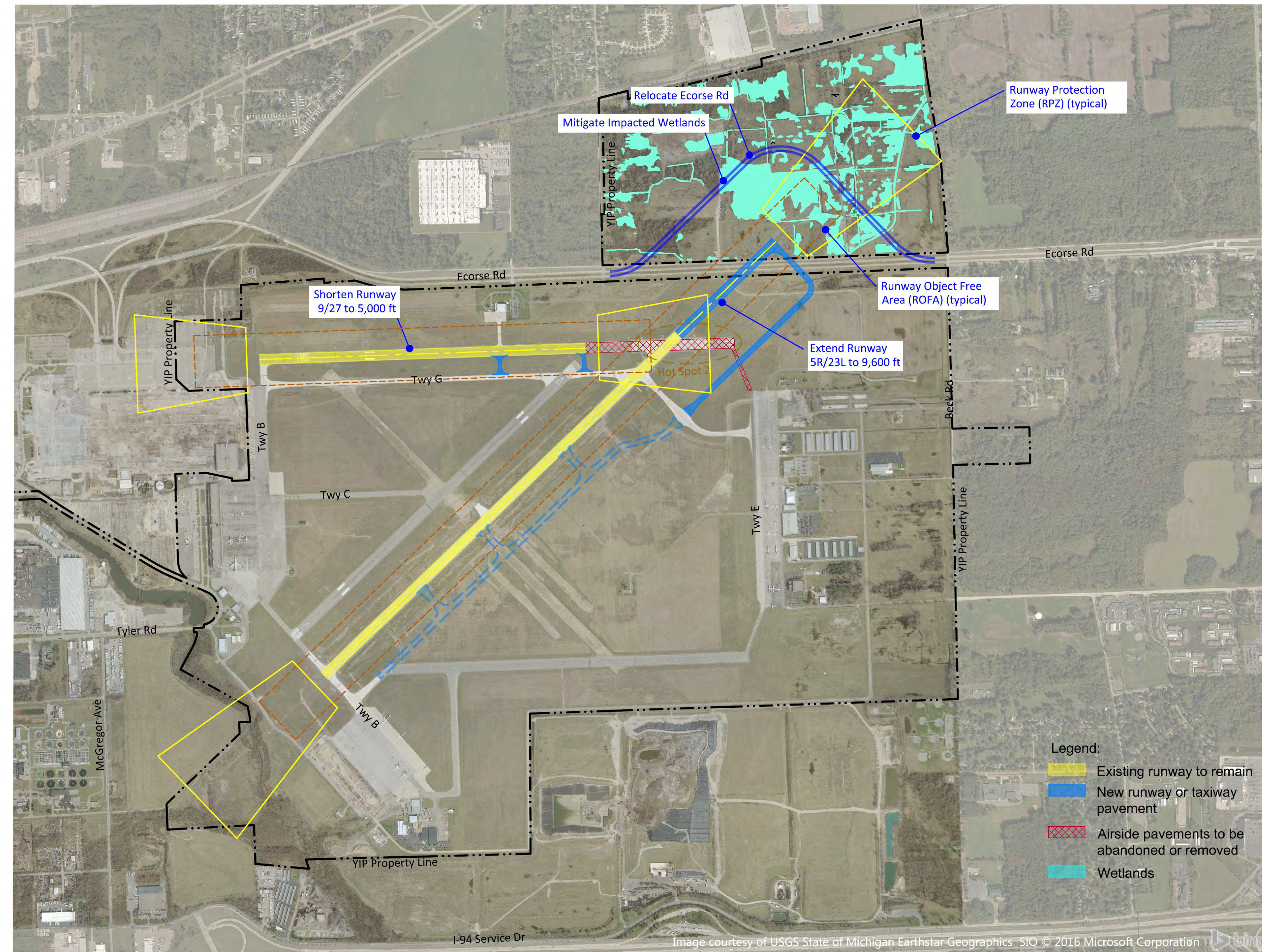
▪ \$166,210,000

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Long-Term Runway Extension – Alternative 1

- ➔ **Extend Runway 5R/23L to north**
- ➔ **Estimated cost:**
 - \$40,000,000



Runway Extension Alternative 1

- PROS**
- Provides recommended long-term runway length
 - Opens up development area east of Runway 9/27
 - Provides partial parallel taxiway to Runway 5R/23L
 - Resolves hot spots
 - Reduces impact to the east of Beck Rd
 - No impact to the southwest
- CONS**
- Requires relocation of Ecorse Road
 - Ecorse Road within RPZ
 - Aircraft potentially 100' lower on approach from the northeast

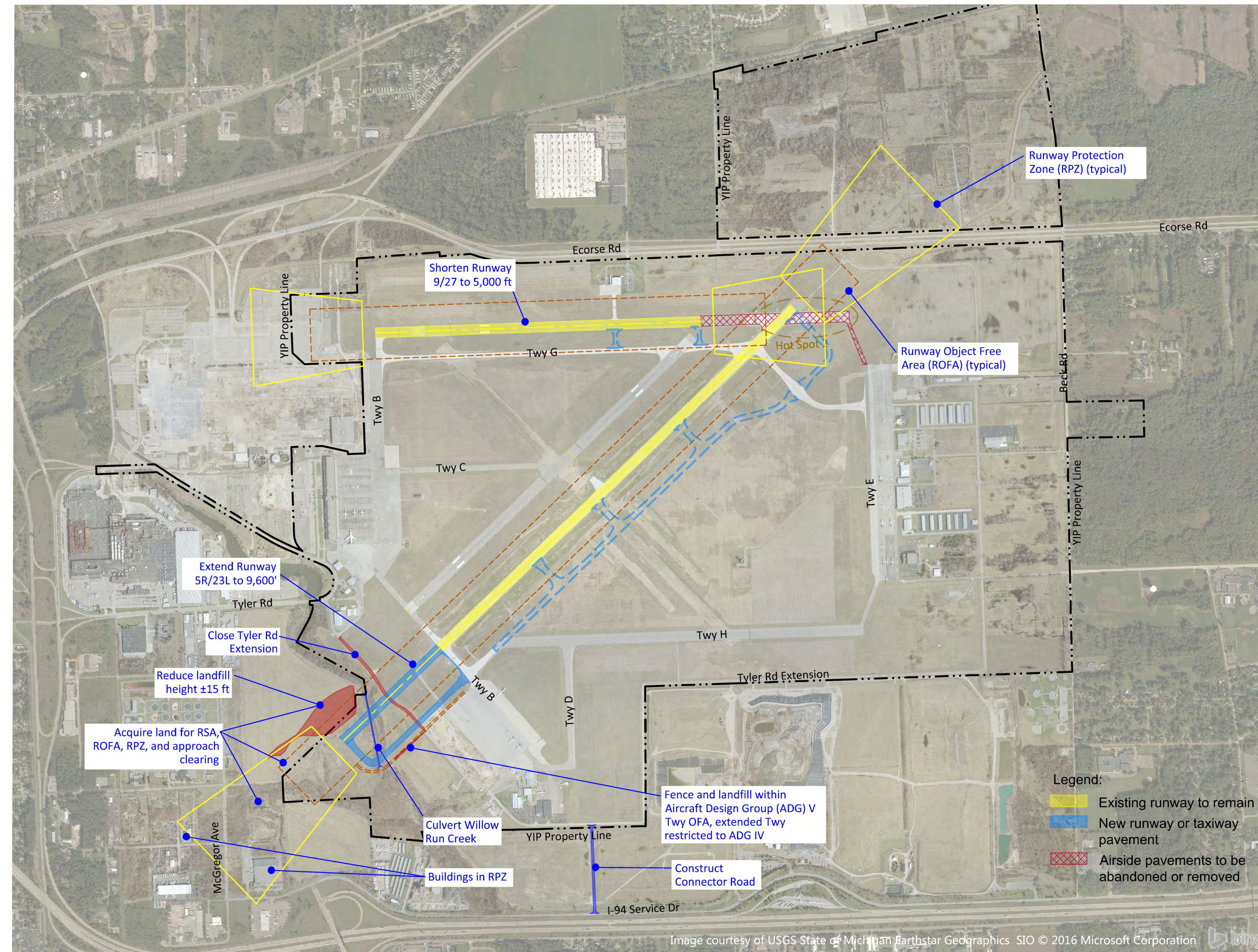
Runway	Existing	Future	Change
5R/23L	7,543'	9,600'	+2,057'
5L/23R	5,996'	5,996'	-
9/27	7,292'	5,000'	-2,292'

Prepared by: Mead & Hunt
Date: October 4, 2016



Long-Term Runway Extension – Alternative 2

- **Extend Runway 5R/23L to south**
- **Estimated cost:**
 - \$56,000,000



Runway Extension Alternative 2

PROS

- Provides recommended long-term runway length
- Opens up development area east of Runway 9/27
- Provides partial parallel taxiway to Runway 5R/23L
- Resolves hot spots
- Reduces impacts to the east of Beck Rd
- Keeps Ecorse Rd in place
- Avoids impacts to northeast

CONS

- Impacts Tyler Rd Extension
- Impacts Willow Run Creek
- Impacts landfill
- Land acquisition required for RSA, ROFA, RPZ, approach clearing, and landfill height reduction
- Aircraft potentially 100' lower on approach from the southwest

Runway	Existing	Future	Change
5R/23L	7,543'	9,600'	+2,057'
5L/23R	5,996'	5,996'	-
9/27	7,292'	5,000'	-2,292'

Legend:
█ Existing runway to remain
█ New runway or taxiway pavement
▨ Airside pavements to be abandoned or removed

Prepared by: Mead & Hunt
Date: October 4, 2016

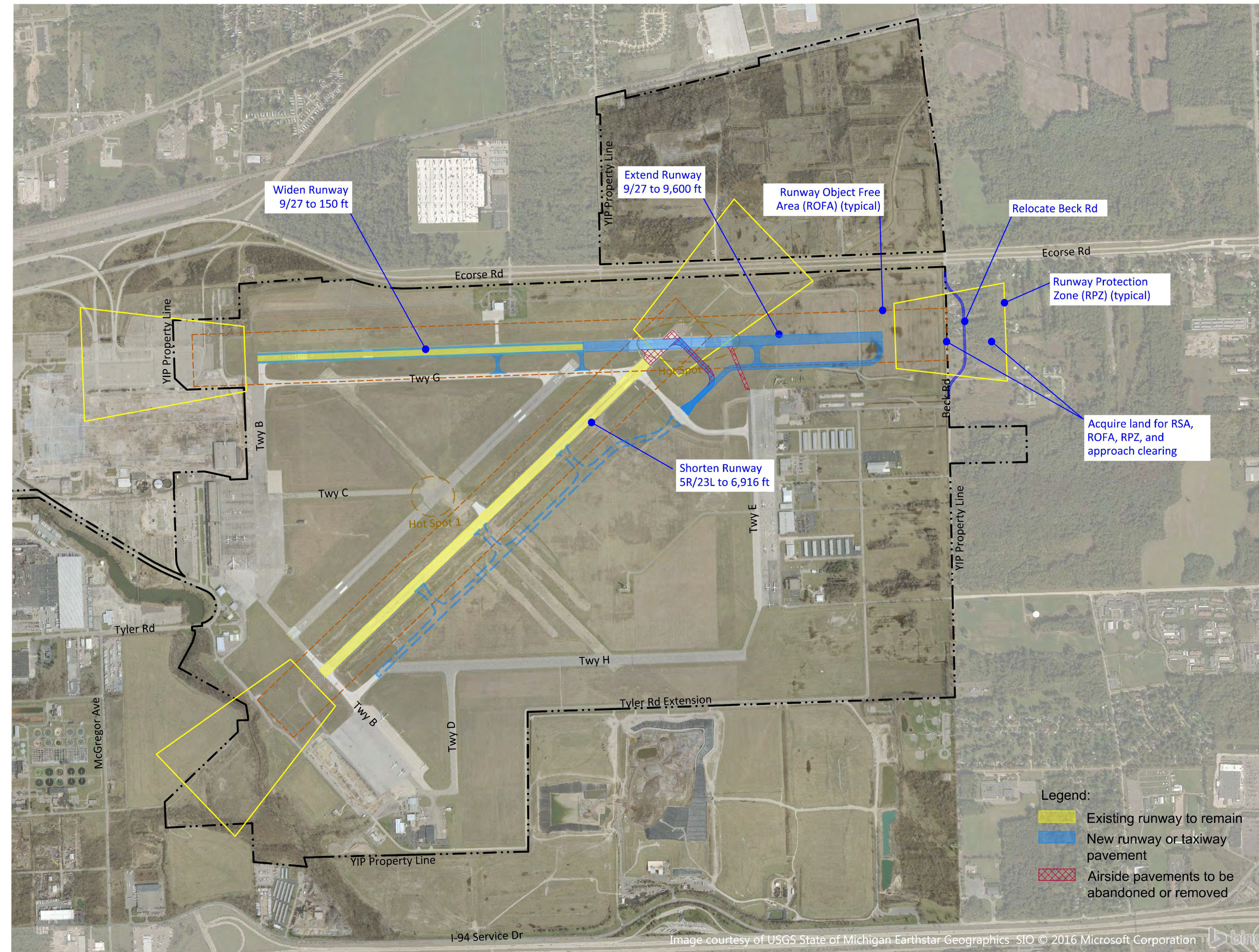


0 750' 1,500'
Graphic scale in feet

Preferred Alternative

Long-Term Runway Extension – Alternative 3

- ➔ **Extend Runway 9/27 to east**
- ➔ **Estimated cost:**
 - **\$47,000,000**



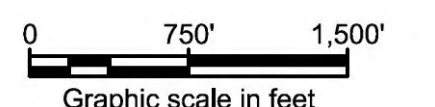
Runway Extension Alternative 3

- PROS**
- Provides recommended long-term runway length
 - Provides parallel taxiway to Runway 9/27
 - Resolves hot spots
 - No impacts to Ecorse Rd
 - No impacts to southwest

- CONS**
- Shortens primary Runway 5R/23L
 - Runway 27 arrivals and Runway 9 departures limited by DTW airspace
 - Requires relocation of Beck Rd
 - Land acquisition required for RSA, ROFA, RPZ, approach clearing, and Beck Rd relocation
 - Beck Rd within RPZ

Runway	Existing	Future	Change
5R/23L	7,543'	6,916'	-627'
5L/23R	5,996'	5,996'	-
9/27	7,292'	9,600'	+2,308'

Prepared by: Mead & Hunt
Date: October 4, 2016



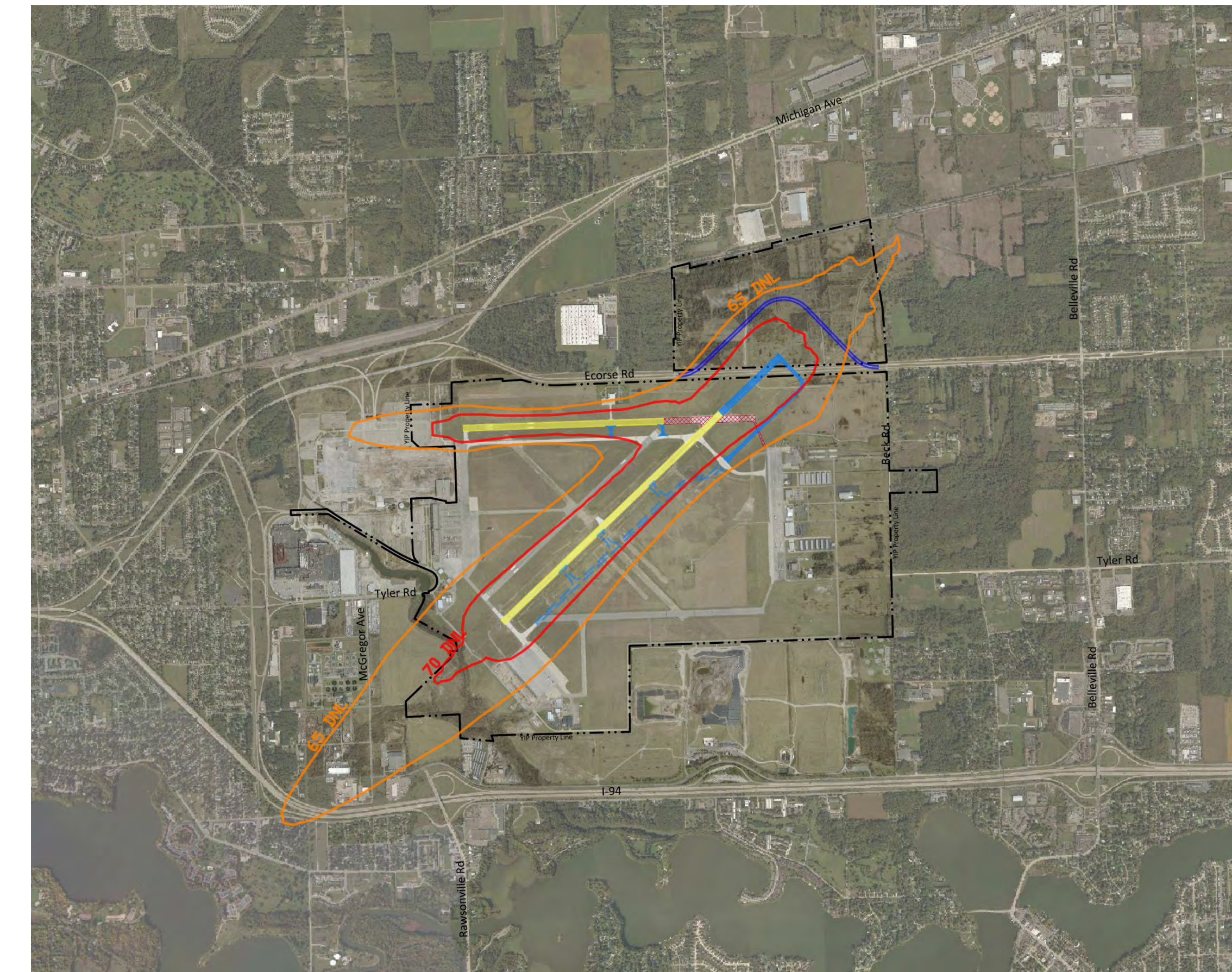
Runway Extension Alternatives

Noise Contours

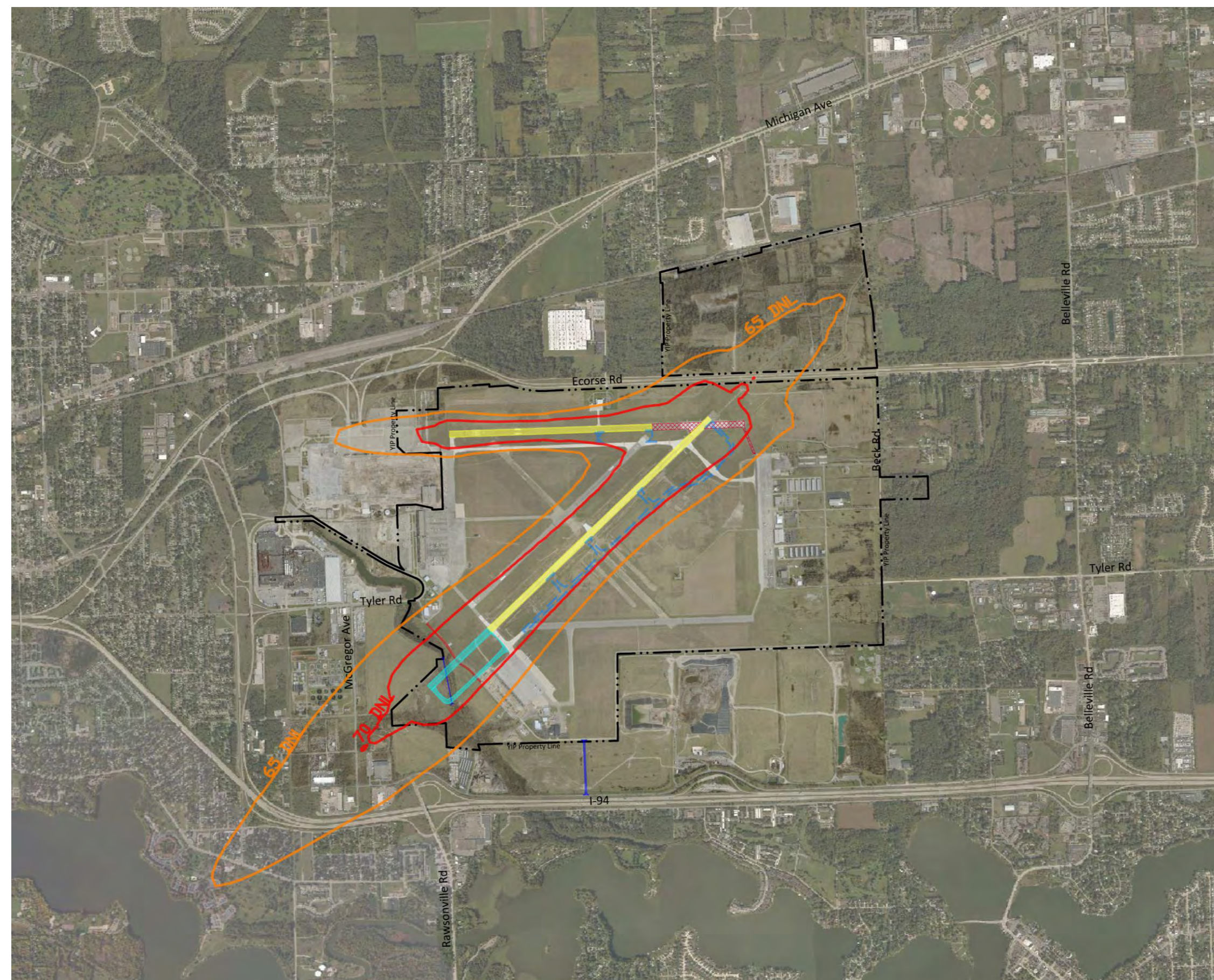
- **Day/Night Average Sound Level (DNL)**
- FAA metric to measure aircraft noise
 - Accounts for
 - Loudness of events
 - Number of events
 - Duration of events
 - Time of Day
 - Noise sensitive uses within the 65 DNL contour are of concern
 - Does NOT indicate people are not affected by aircraft noise outside the 65 DNL noise contour



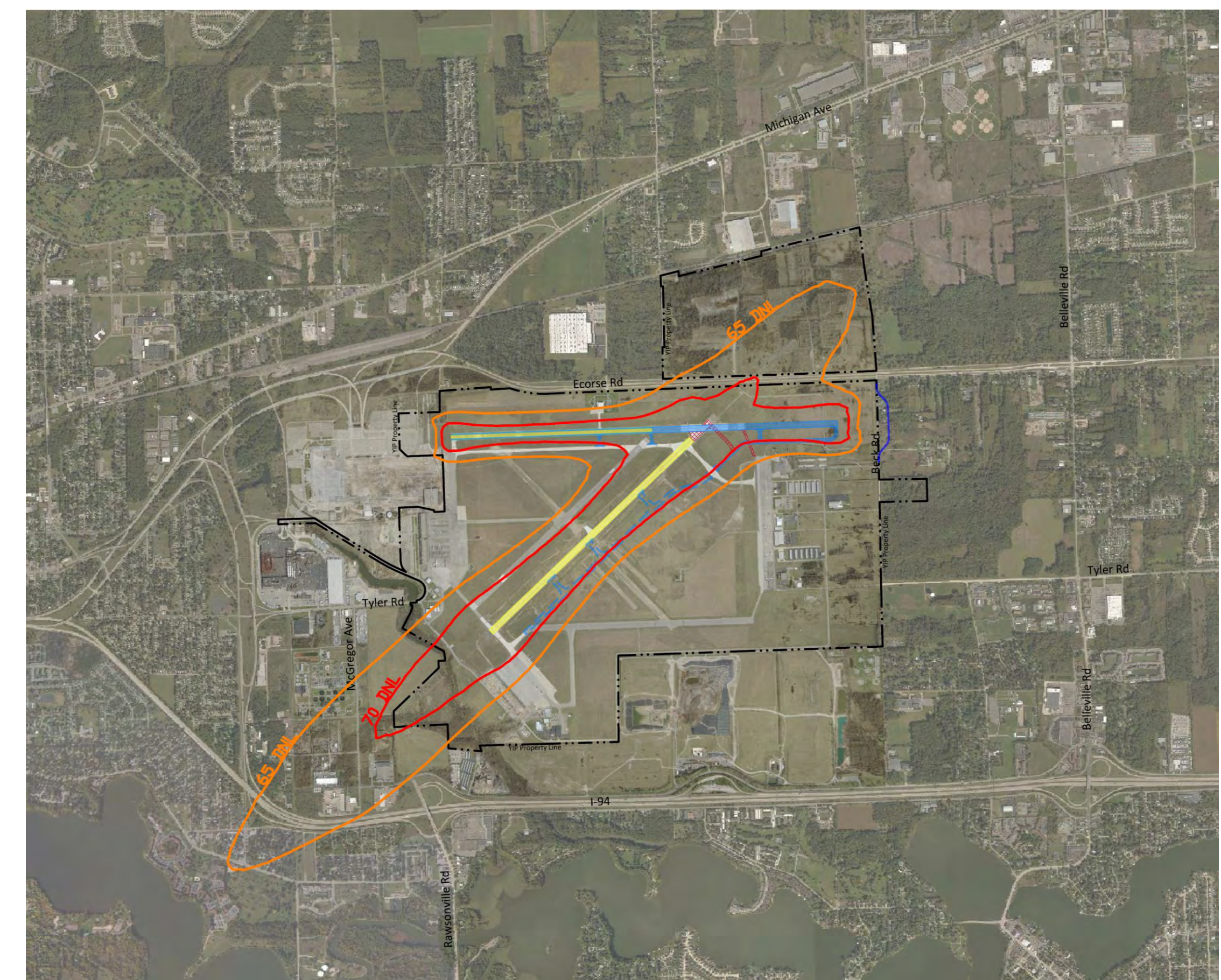
Baseline Existing Airfield



Airfield Alternative 1



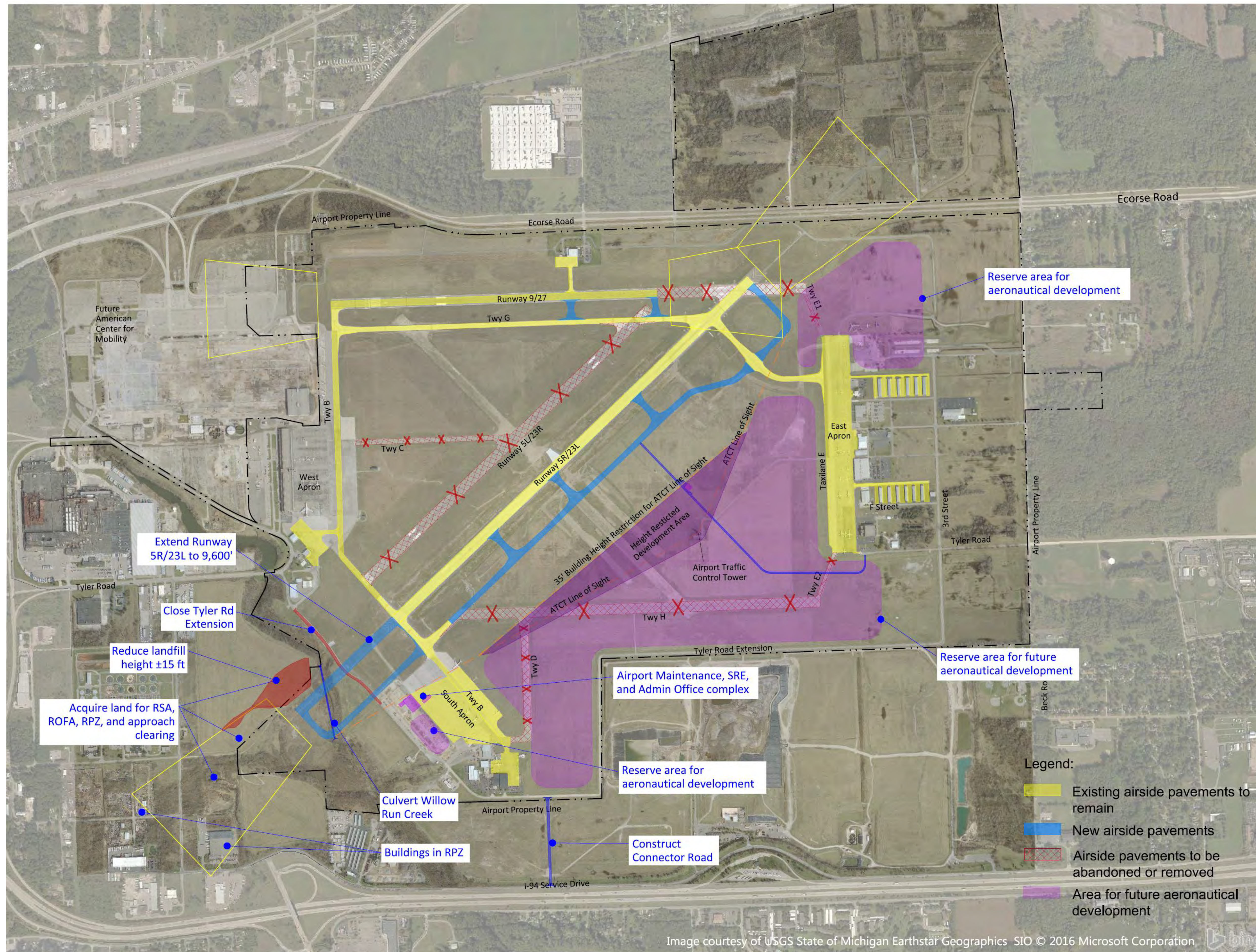
Airfield Alternative 2



Airfield Alternative 3

Recommended Long-Term Airfield Configuration

WILLOW RUN AIRPORT MASTER PLAN UPDATE



Recommended Long-Term Airfield Configuration

NOTES

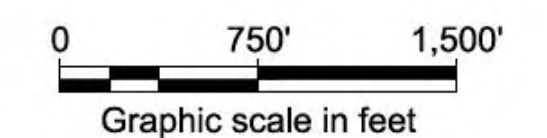
- Provides recommended long-term runway length
- Long-Term Runway Extension Alternative 2 at the approach end of Runway 5R is preferred
- Provides recommended long-term runway length on primary runway
- Resolves hot spots
- No impacts to Ecorse Road
- No impacts to northeast
- Does not move final approach to Runway 23L any closer to DTW airspace

Runway	Existing	Future	Change
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5L/23R	5,996'	Closed	Closed
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Legend:

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- Area for future aeronautical development

Prepared by: Mead & Hunt
Date: October 14, 2016



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Next Project Steps

- **Finalize alternatives based on public comments**
- **Complete Airport Layout Plan**
- **Complete Capital Improvement Plan**
- **Complete environmental overview**



Comments?

Please share with us your thoughts,
comments, ideas, or other suggestions
about the Willow Run Airport

Airport Layout

Key

- Airfield
- Landside
- Other

