

Technical Advisory Committee Meeting

October 6, 2016

Mead
& Hunt



DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

Agenda

- **Current Project Status**
- **Aviation Projections Recap**
 - *FAA forecast approval*
- **Summary of Facility Needs**
 - *Presentation of runway length needs*
- **Review of Alternatives**
 - *Recommended runway length alternative*
- **Next Project Steps**
 - *Capital improvement plan & project implementation schedule*
- **Questions**



Current Project Status

Current Project Status

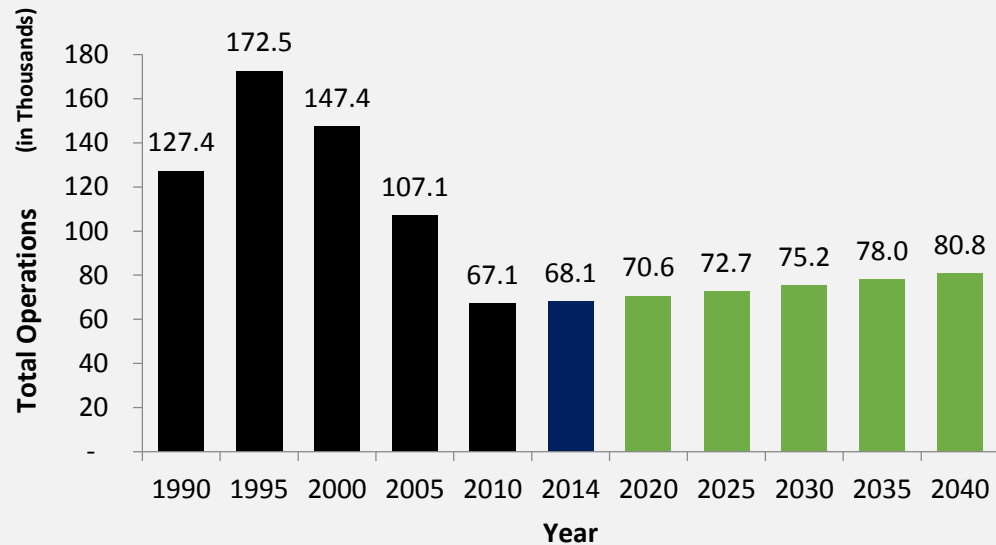
- **Inventory – complete**
- **Forecasts of aviation demand**
 - *Original forecasts submitted November 2015*
 - *Forecasts approved August 29, 2016 – complete*
- **Review of facility requirements – complete**
- **Finalize alternatives – in process**
- **Review of environmental considerations – in process**
- **Preparation of CIP & project implementation – in process**



Aviation Projections Recap

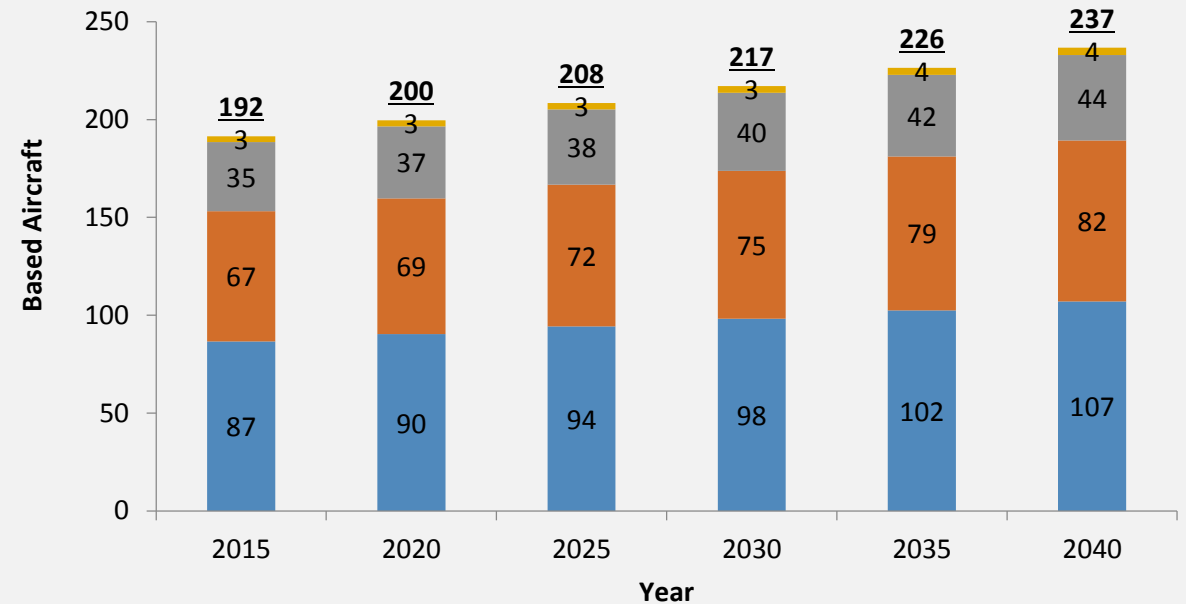
Aviation Projections Recap

Total Operations



2014-2040 CAGR: 0.82%

Based Aircraft



■ Single Engine ■ Jet ■ Multi-Engine ■ Helicopter

Critical Aircraft

✈ Existing critical aircraft

- *DC-9-30*
- *727-200*
- *MD-80*

✈ Potential critical aircraft

- *CRJ-200*
- *737 (-400,-500,-600,-700,-800)*
- *757-200*
- *767-300*

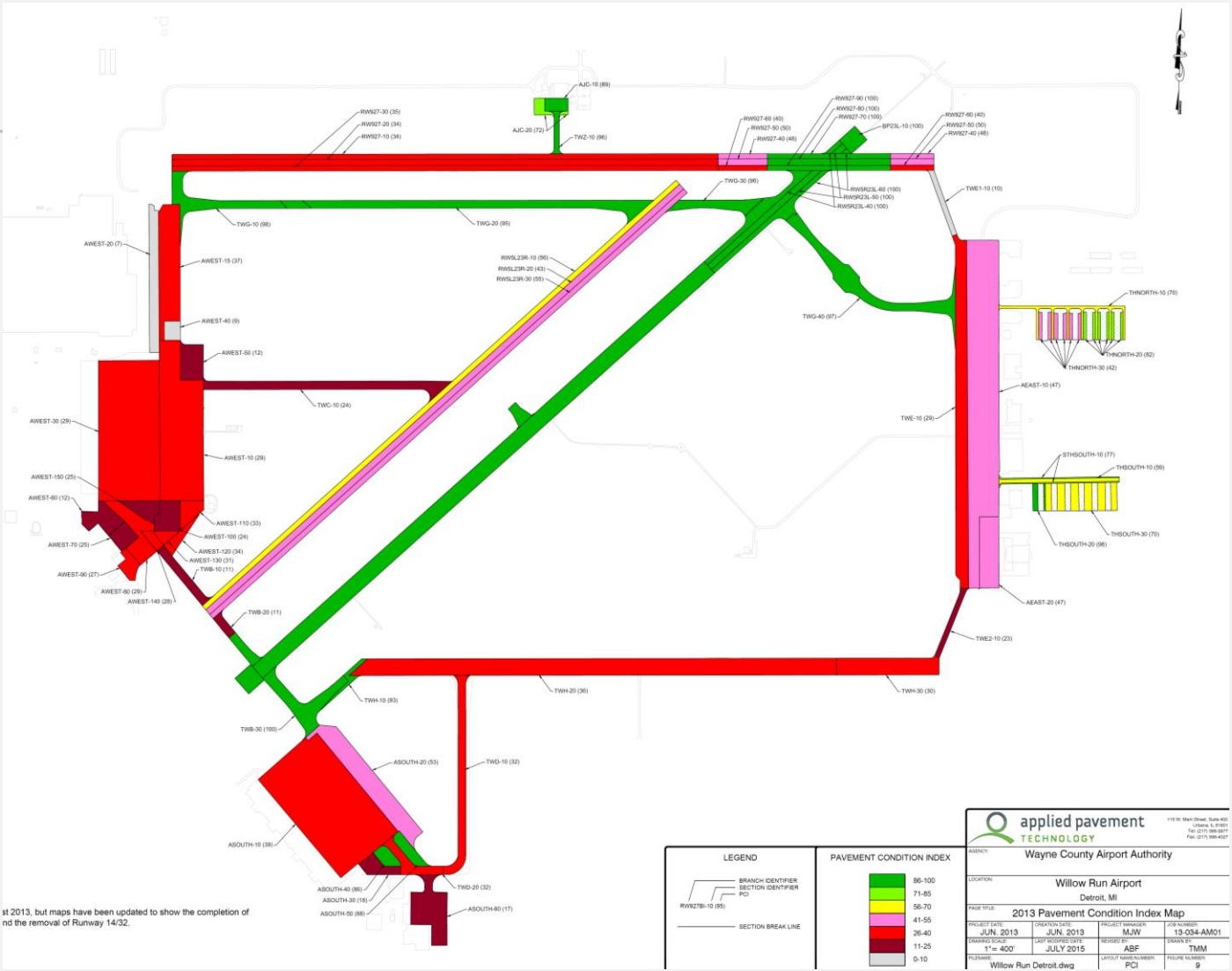


Summary of Facility Needs

Infrastructure Needs

➤ **Existing infrastructure in poor condition**

- *Airfield pavements*
- *Landside pavements*
- *Utilities*



st 2013, but maps have been updated to show the completion of and the removal of Runway 14/32.

LEGEND BRANCH IDENTIFIER SECTION BREAK LINE		PAVEMENT CONDITION INDEX 	applied pavement TECHNOLOGY 11000 10000 10000 10000 Wayne County Airport Authority LOCATION: Willow Run Airport, Detroit, MI PROJECT DATE: JUN 2013 CREATION DATE: JUN 2013 LAST MODIFIED: JULY 2015 PROJECT MANAGER: M.J.W. DESIGNED BY: ABF CHECKED BY: TMM DRAWING NUMBER: 13-034-AM01 SHEET NUMBER: 9
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Runway Length Needs

→ Runway length

- Additional runway length needed for some aircraft types and haul lengths

Aircraft Type	Max Allowable Takeoff Weight (LB)	Percent of Max Takeoff Weight Allowed	Haul Length Available with Full Payload (NM)
Current Runway Length = 7,543 feet			
DC9-30	103,000	95%	600
MD83	150,000	94%	1,200
B737-800	157,000	90%	800
B727-200	180,000	91%	1,000
B757-200	234,000	92%	1,300
B767-300	367,000	89%	1,700

Notes: Runway Length Required on Hot Day, YIP Elev = 716

Source: Manufacturer Airport Planning Manuals



Maximum range available from current runway length

Current runway length (7,543 feet)

Hot day runway length requirements

Full payload

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

(Source: 2015 FAA Traffic Flow Management System Counts data)

Runway Length Needs



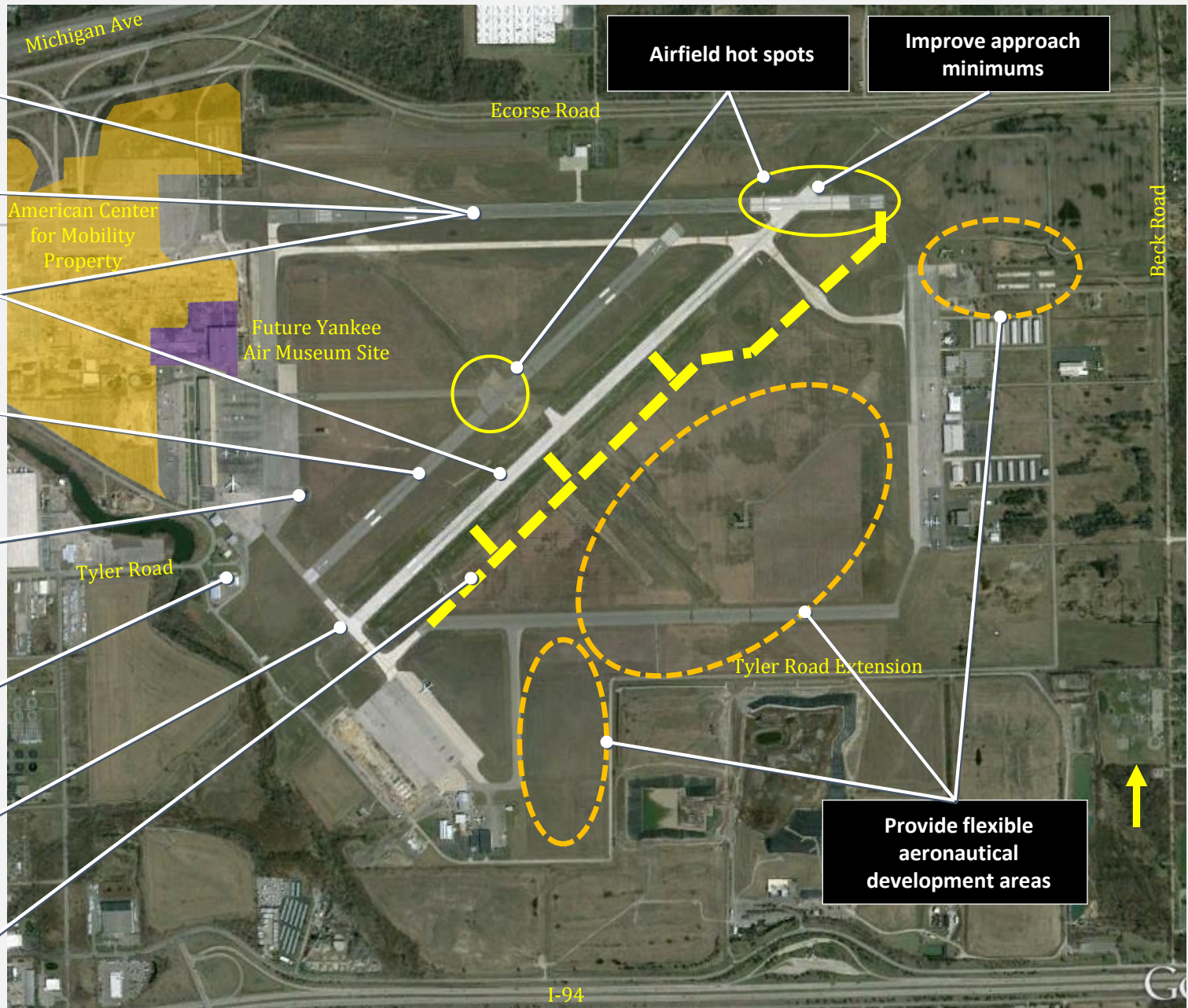
✈ Runway length

- *446 Operations conducted in 2015 that were over the efficient haul length limit*
- *Does not currently meet FAA funding criteria for runway extension (500 operations required)*
- *Recommend YIP continue to plan for additional 2,000 feet of runway length in the future*

Aircraft Type	2015 Total Operations	Haul Length Available with Full Payload from Ex Rwy Length (NM)	2015 Operations to/from Destination Over Haul Length Limit
DC9-15	1,284	750	0
DC9-30	652	600	156
B727-200	495	1,000	183
MD83	272	1,200	70
B737-400	171	750	28
B737-800	36	800	5
B737-300	30	1,250	2
B737-200	16	600	2
A320	14	1,800	0
B737-700	13	1,400	0
B737-900	4	600	0
B757-200	0	1,300	0
B767-300	0	1,700	0
Total Large Jet Operations	2,987		446

Facility Needs

- Existing infrastructure in poor condition
- Runway to be designated as 10/28
- Crosswind runway recommended for smaller aircraft
- Possible plan for add'l runway length on either 5R/23L or 9/27
- Parallel runway not needed for capacity, could be maintained for traffic separation
- ARFF station improvements or replacement recommended
- Improvements to snow removal equipment storage facilities recommended
- Improve approach minimums
- Future parallel taxiway to Runway 5R/23L is on the FAA approved ALP



Review of Alternatives

Alternative Cost Estimates

→ Important notes to consider:

- *Order of magnitude cost estimates*
- *Cost estimates prepared without preliminary engineering*
- *Current dollars*
- *Based upon unit costs for similar projects*



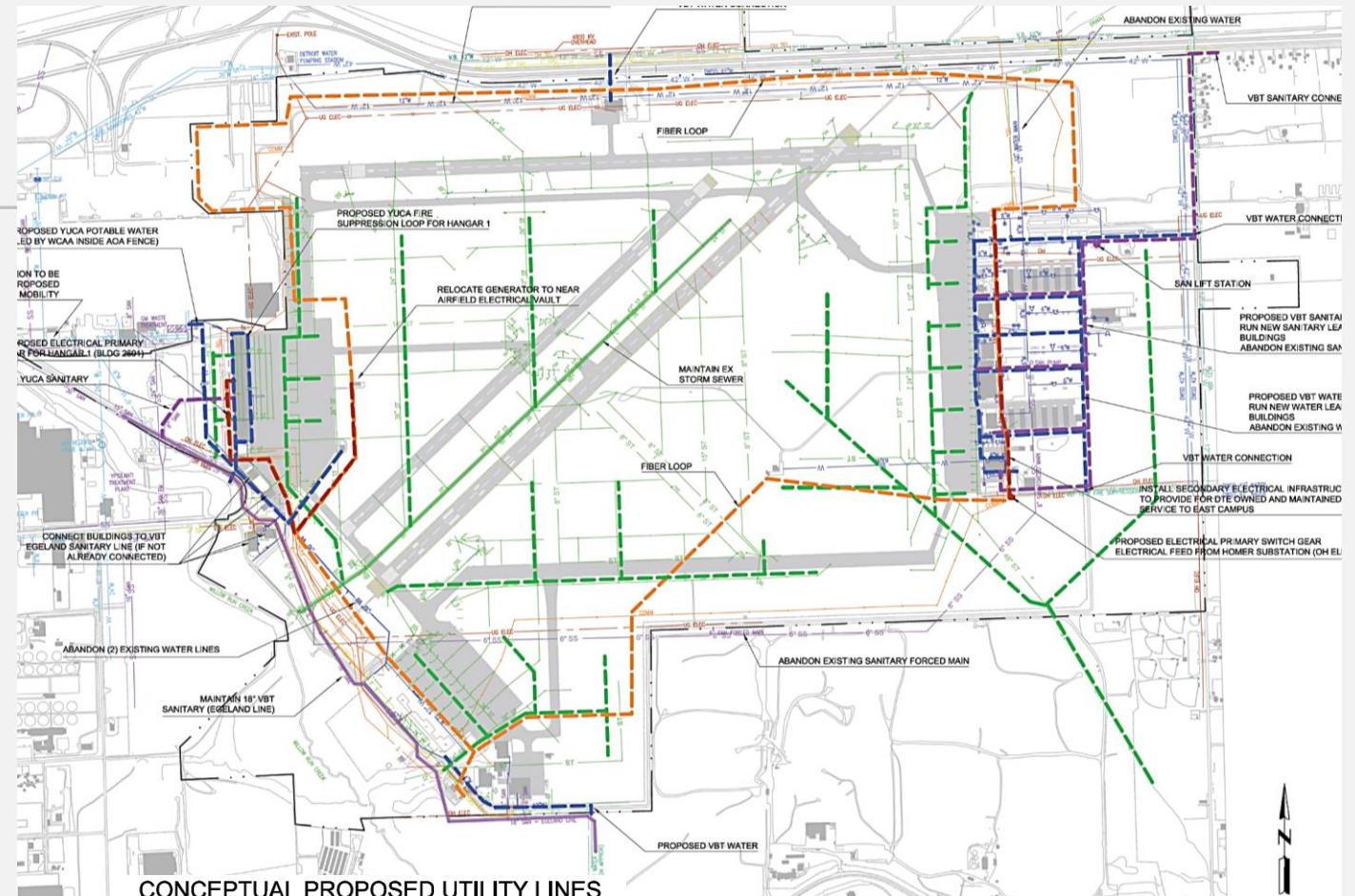
Outline for Review of Alternatives

- **Infrastructure / Utilities**
- **Landside Pavements**
- **Buildings and Hangars**
- **Airside Infrastructure**

Alternatives – Infrastructure / Utilities

Utilities Cost Summary

Item	Total Cost
Storm Sewer Ph1	\$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 Ph1	\$25,040,000
Storm Sewer Ph2	26,000,000
GRAND TOTAL	51,040,000



CONCEPTUAL EXISTING UTILITY LINES TO REMAIN

- Sanitary Sewer Lines
- Storm Sewer Lines

- Water Lines
- Sanitary Sewer Lines
- Storm Sewer Lines
- Fiber Lines
- Electric Lines



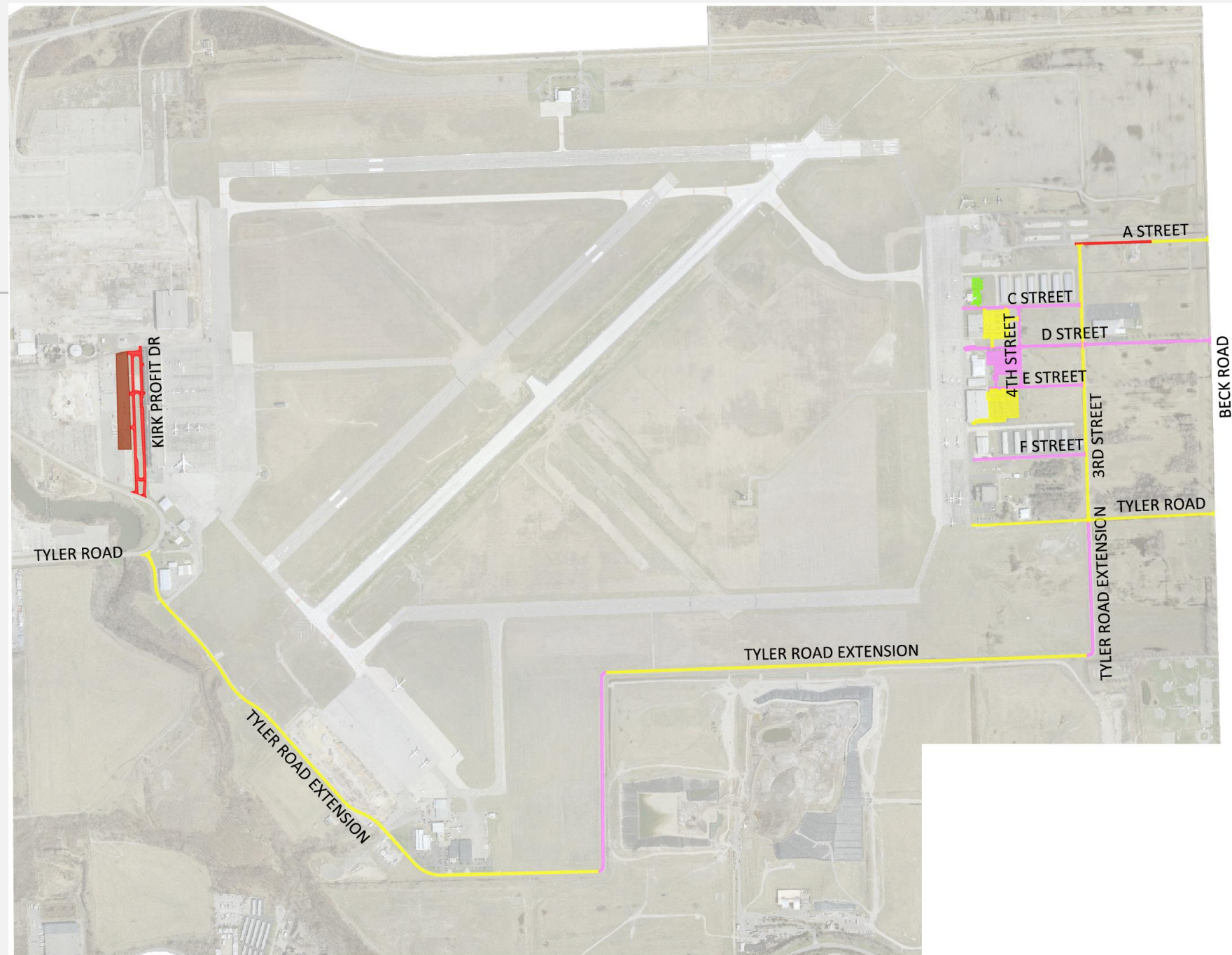
Alternatives – Landside Pavements

Landside Pavement Needs

Total cost for all landside pavement reconstructions: \$7,520,000

GENERALIZED CONDITION

- EXCELLENT
- GOOD
- FAIR
- POOR
- VERY POOR
- FAILED



Source: Windshield survey conducted by Mead & Hunt (January 26, 2016) using approximation of PASER rating system

Alternatives – Buildings & Hangars

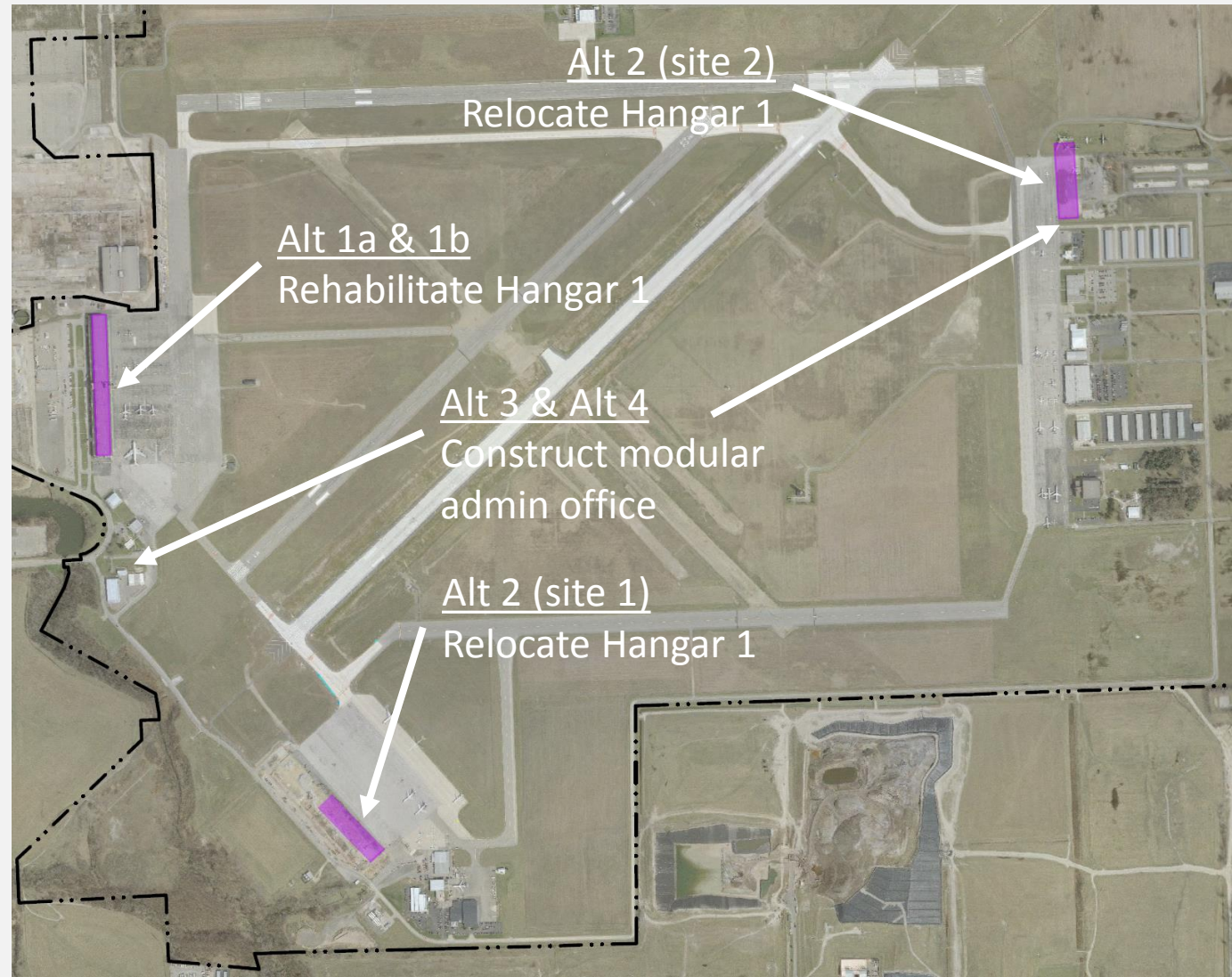
Hangar 1 / Administrative Offices

Alt	Item	Cost
1a	Rehabilitate Hangar 1 (10 year useful life)	\$22,000,000
1b	Rehabilitate Hangar 1 (30 year useful life)	\$56,000,000
2	Relocate Hangar 1 (6 of 8 bays)	\$38,500,000
	Construct new admin office	\$1,000,000
3	Transfer Hangar 1 to private entity & construct modular admin office	\$250,000
4	Demolish Hangar 1 & construct modular admin office	\$4,250,000

PREFERRED

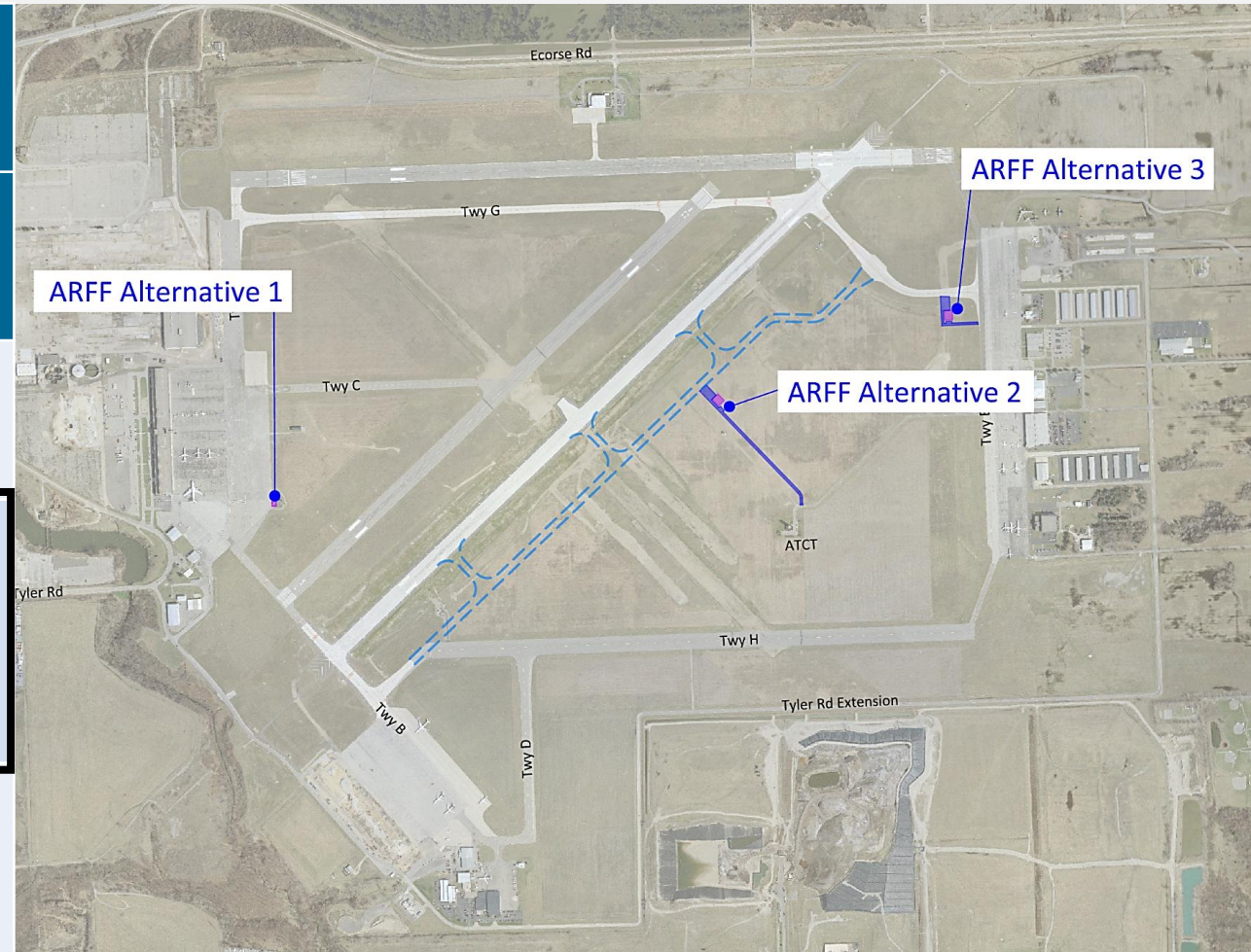
Approximate annual revenue generated from
Hangar 1: \$835,000

(Note: includes leases, rents, landing fees, and fuel sales associated with
Hangar 1 activity)



ARFF Facility

Item	Total Cost	Response Time (in minutes)	
		Rwy 5R/23L	Rwy 9/27
<u>ARFF Alt 1</u> Refurbish (3,300 sq ft) & expand existing ARFF bldg	\$ 2,500,000	2:38	2:54
<u>ARFF Alt 2</u> New ARFF building & associated landside pavements (requires parallel taxiway)	\$ 4,300,000	1:39	2:45
<u>ARFF Alt 3</u> New ARFF building & associated landside pavements	\$ 4,000,000	2:22	2:42



SRE/Maintenance Facility

Item	Total Cost
<u>SRE/Maint Alt 1</u> Refurbish (13,600 SF @ \$100/SF) & expand (3,000 SF @ \$250 SF) Bldg 2620	\$ 2,200,000



Alternatives – Airside Pavements

Runway 9/27

Item	Total Cost
Reconstruct Runway 9/27 (7,292 x 150')	\$32,400,000

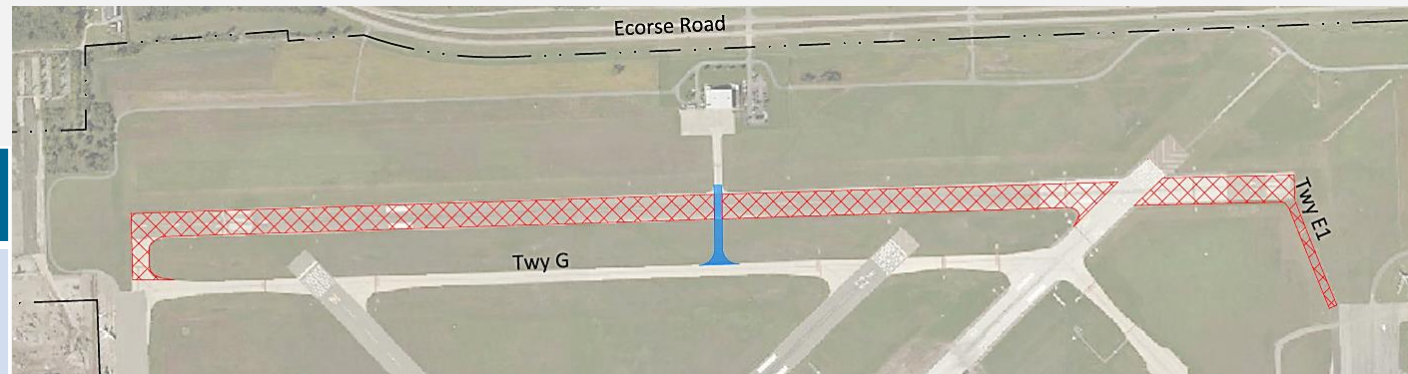


PREFERRED

Item	Total Cost
Shorten & Reconstruct Rwy 9/27 (5,000' x 100')	\$16,100,000

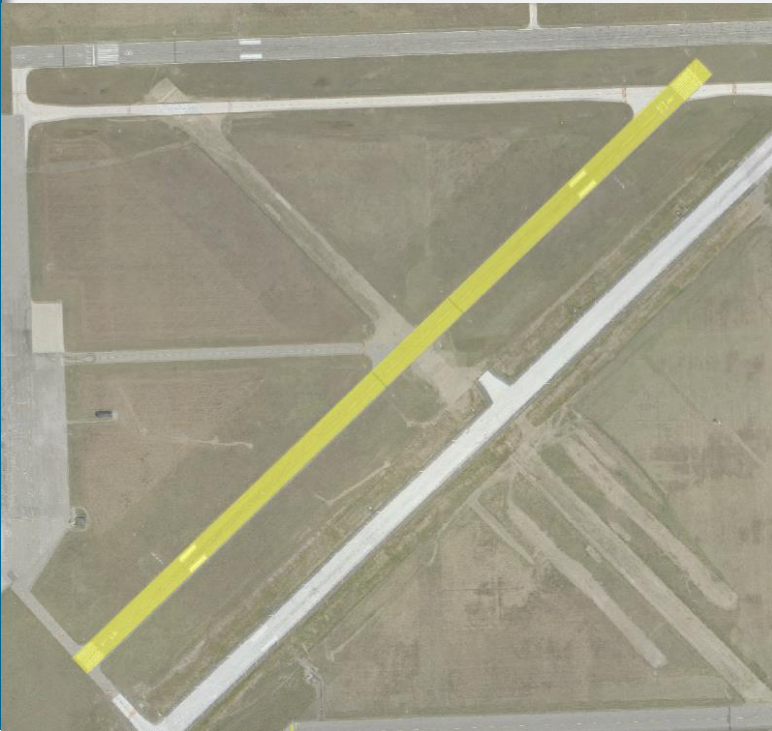


Item	Total Cost
Close and Remove Rwy 9/27 (7,292 x 150')	\$ 2,100,000

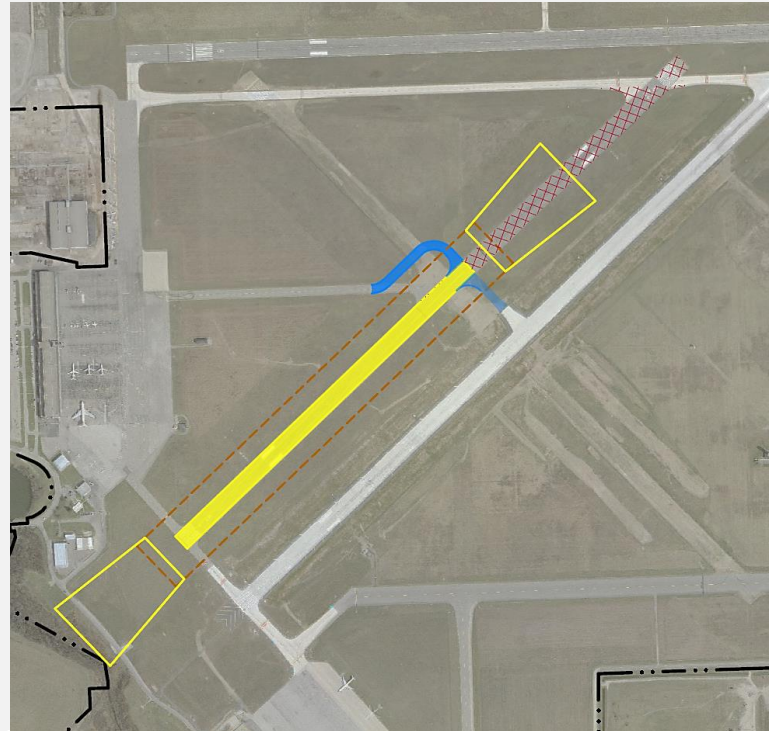


Runway 5L/23R

PREFERRED



Item	Total Cost
Reconstruct Runway 5L/23R (5,996' x 150')	\$26,500,000

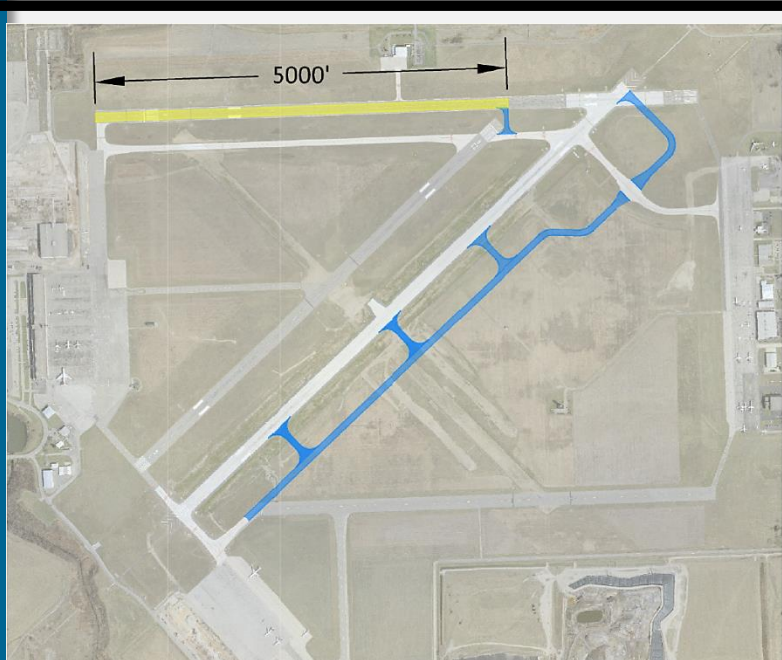


Item	Total Cost
Shorten & Reconstruct Rwy 5L/23R (3,500' x 75')	\$ 5,500,000

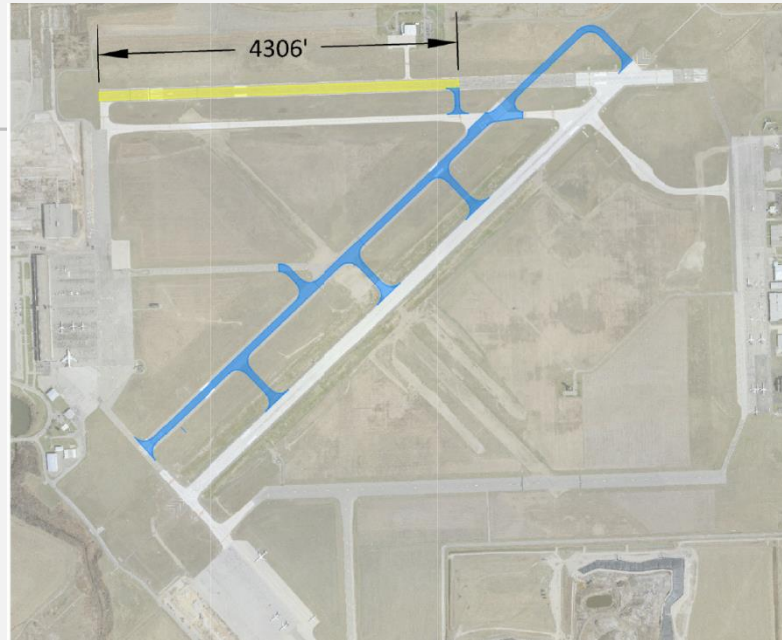


Item	Total Cost
Close and Remove Rwy 5L/23R (5,996 x 150')	\$ 1,700,000

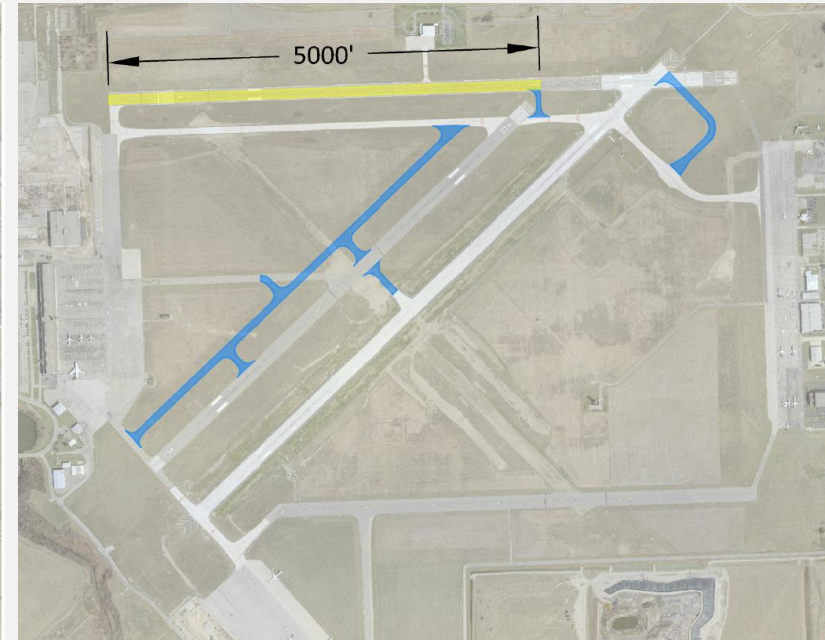
Parallel Taxiway to Runway 5/23



Item	Total Cost
East Side Parallel Taxiway (85,000 sq. yds.)	\$22,700,000



Item	Total Cost
Convert Runway 5L/23R to Parallel Taxiway (102,000 sq. yds.)	\$27,100,000



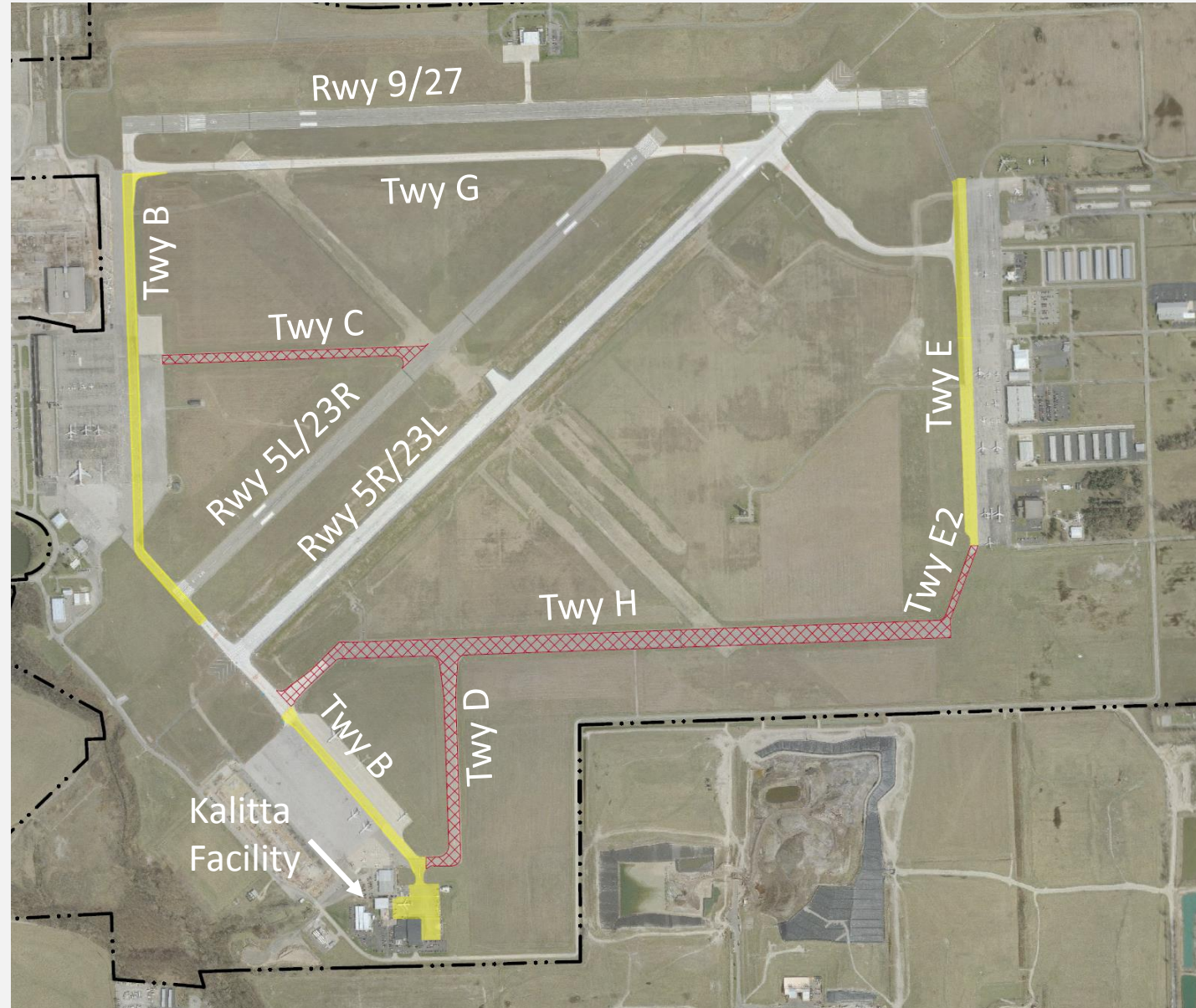
Item	Total Cost
West Side Parallel Taxiway (74,000 sq. yds.)	\$19,700,000

PREFERRED



Taxiway System Improvements

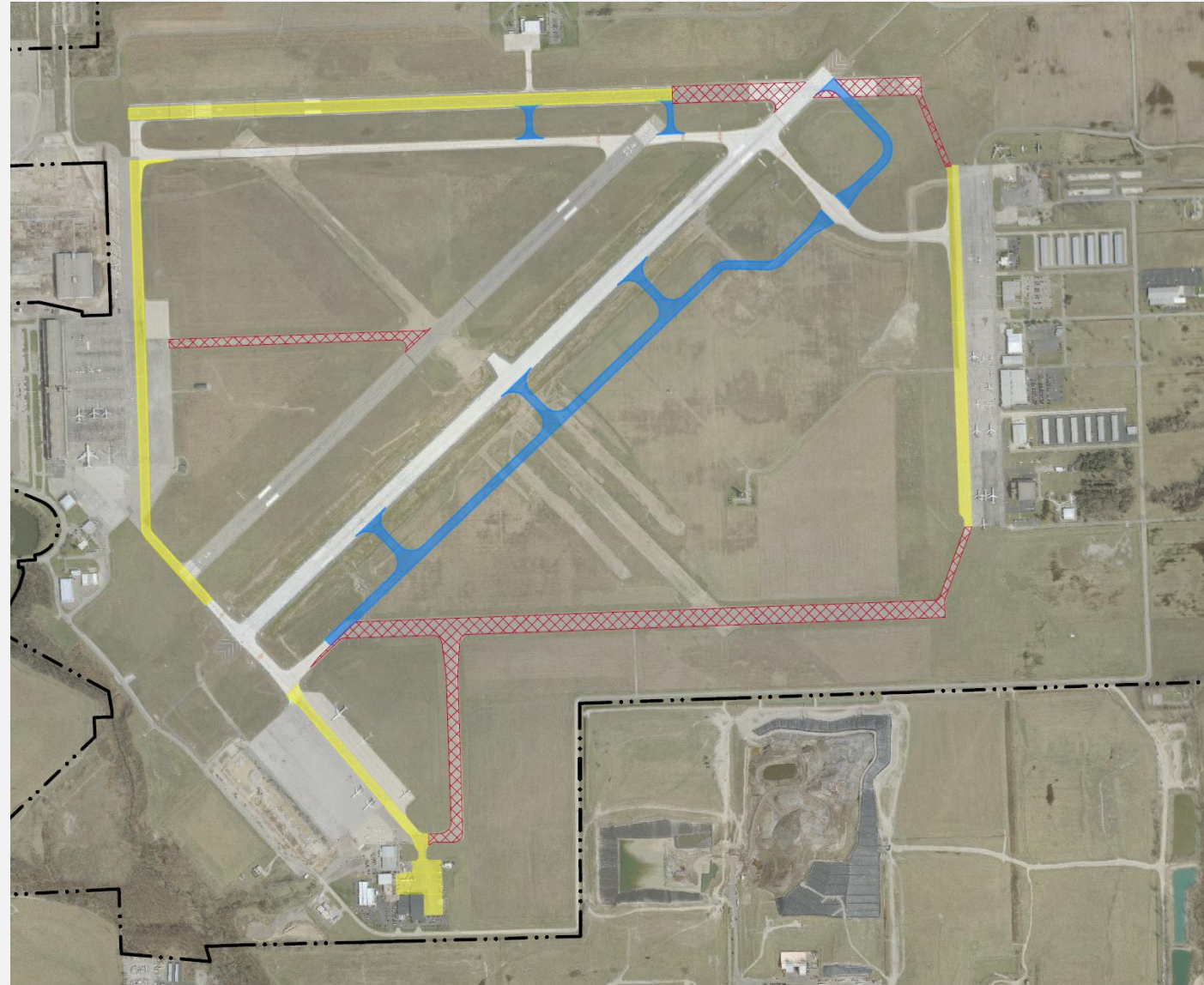
Item	Total Cost
Reconstruct Twy B (Rwy 9/27 to Rwy 5R/23L)	\$9,900,000
Reconstruct Twy B (Rwy 5R/23L to Kalitta)	\$4,300,000
Reconstruct Taxiway E	\$7,200,000
Remove Twy D	\$500,000
Remove Twy C	\$400,000
Remove Taxiway H and E2 completely	\$1,800,000
Total	\$24,100,000



Taxiway System Improvements Summary

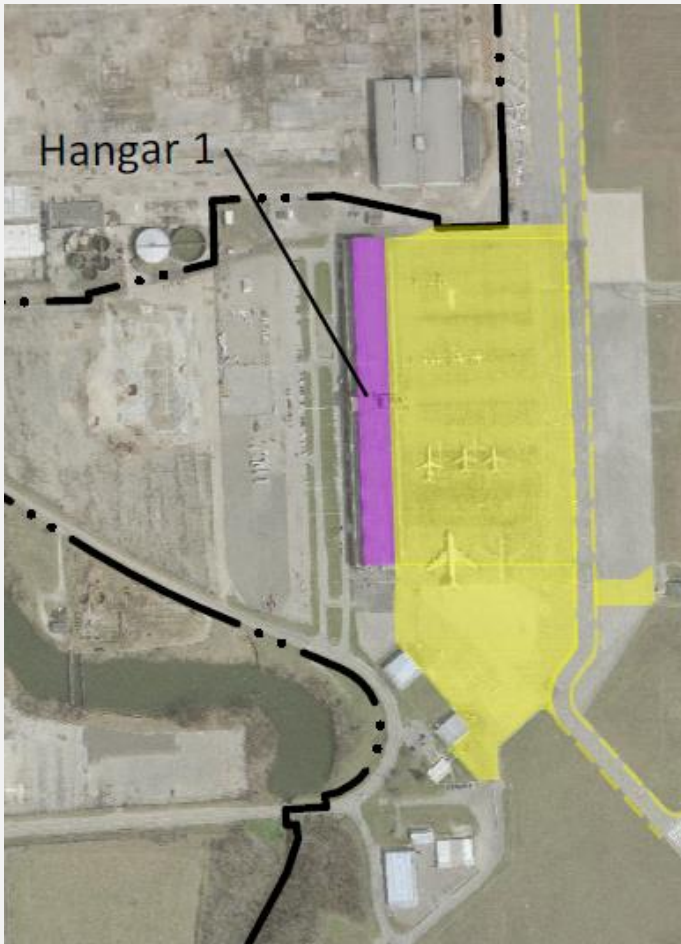
Item	Alt 1 (remove abandon pavement)	Alt 1A (no removal of abandon pavement)
Reconstruct Twy B (Rwy 9/27 to Rwy 5R/23L)	\$9,900,000	\$9,900,000
Reconstruct Twy B (Rwy 5R/23L to Kalitta)	\$4,300,000	\$4,300,000
Reconstruct Twy E	\$7,200,000	\$7,200,000
Remove Twy D	\$500,000	*\$80,000
Remove Twy C	\$400,000	*\$85,000
Remove Twy H & E2	\$1,800,000	*\$85,000
Construct East Side Parallel Twy	\$22,700,000	\$22,700,000
Total	\$46,800,000	\$44,350,000

* Note: Includes removal of small section of pavement at intersections with active taxiways to delineate closed surfaces



West Apron Improvements

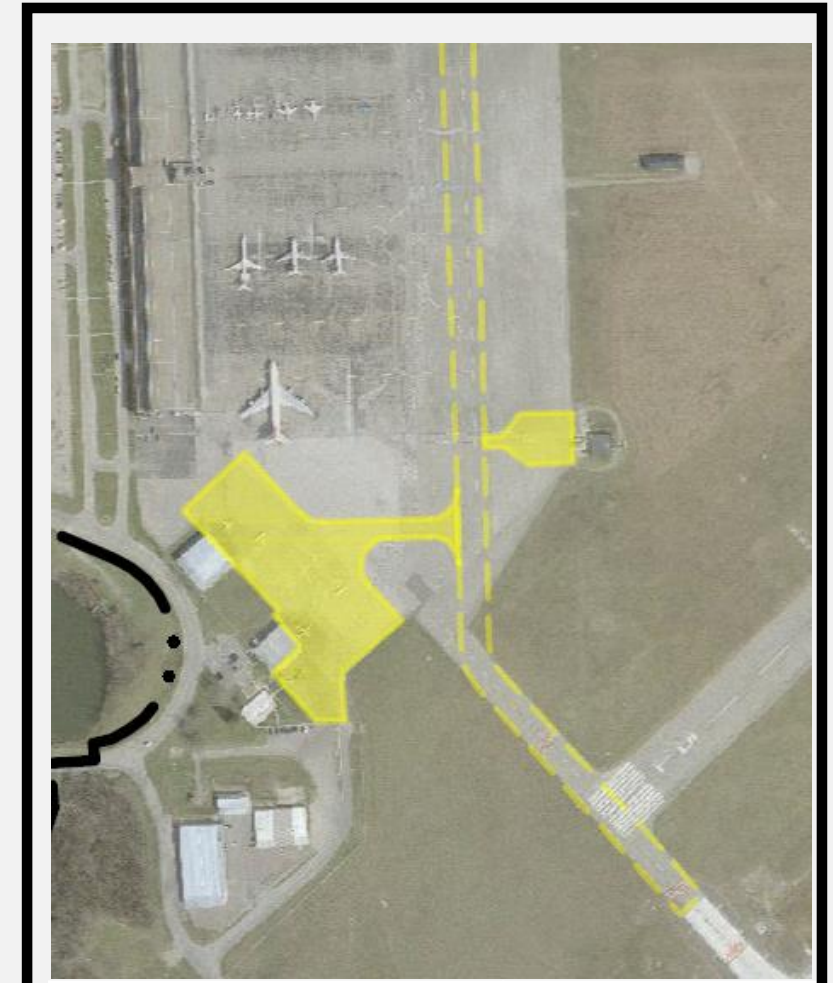
PREFERRED



Item	Total Cost
Reconstruct West Apron (incl Eagle flight)	\$28,100,000

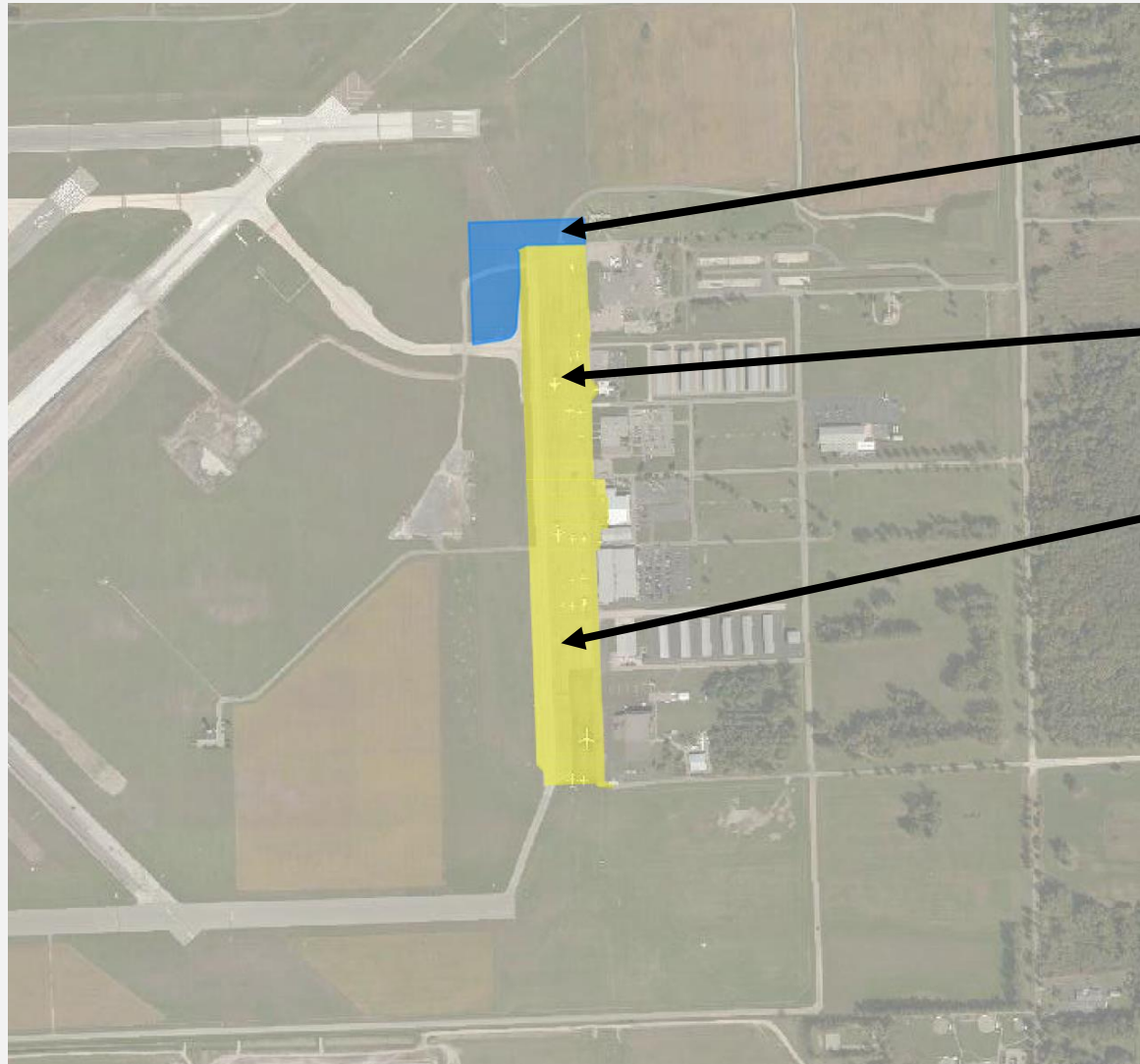


Item	Total Cost
Reconstruct West Apron at 75% size & reduced strength	\$22,400,000



Item	Total Cost
Reconstruct West Apron (Eagle flight)	\$ 3,300,000

East Apron Improvements



Item	Total Cost
Expand East Apron for Hangar 1 relocation	\$ 8,100,000
Reconstruct East Apron (northern portion @ reduced pavement strength)	\$13,600,000
Reconstruct East Apron (southern portion)	\$19,900,000
TOTAL	\$41,600,000

South Apron Improvements

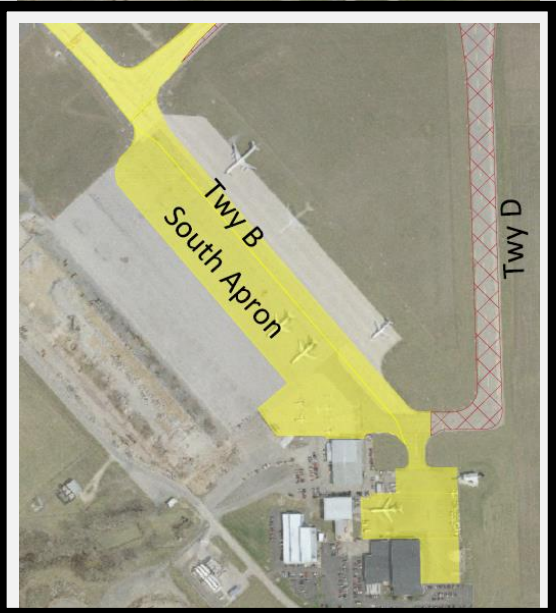
Alt 1
Reconstruct South Apron
\$33,200,000



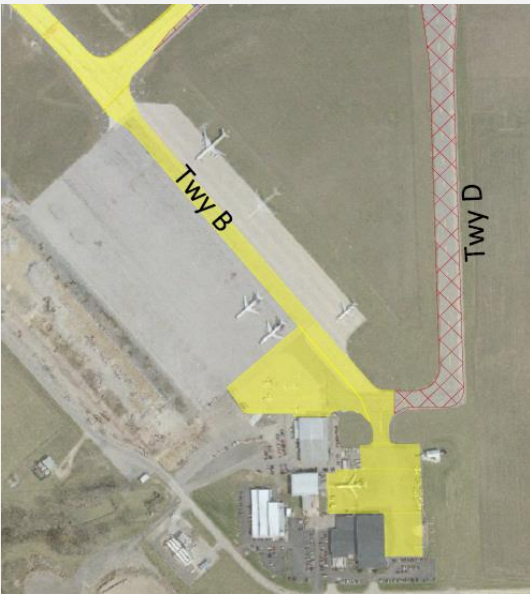
Alt 3
Reconstruct South Apron
(east side of Twy B)
\$6,700,000



Alt 2
Reconstruct South Apron
(west side of Twy B &
Kalitta)
\$13,400,000



Alt 4
Reconstruct South Apron
(Kalitta only)
\$4,300,000



PREFERRED

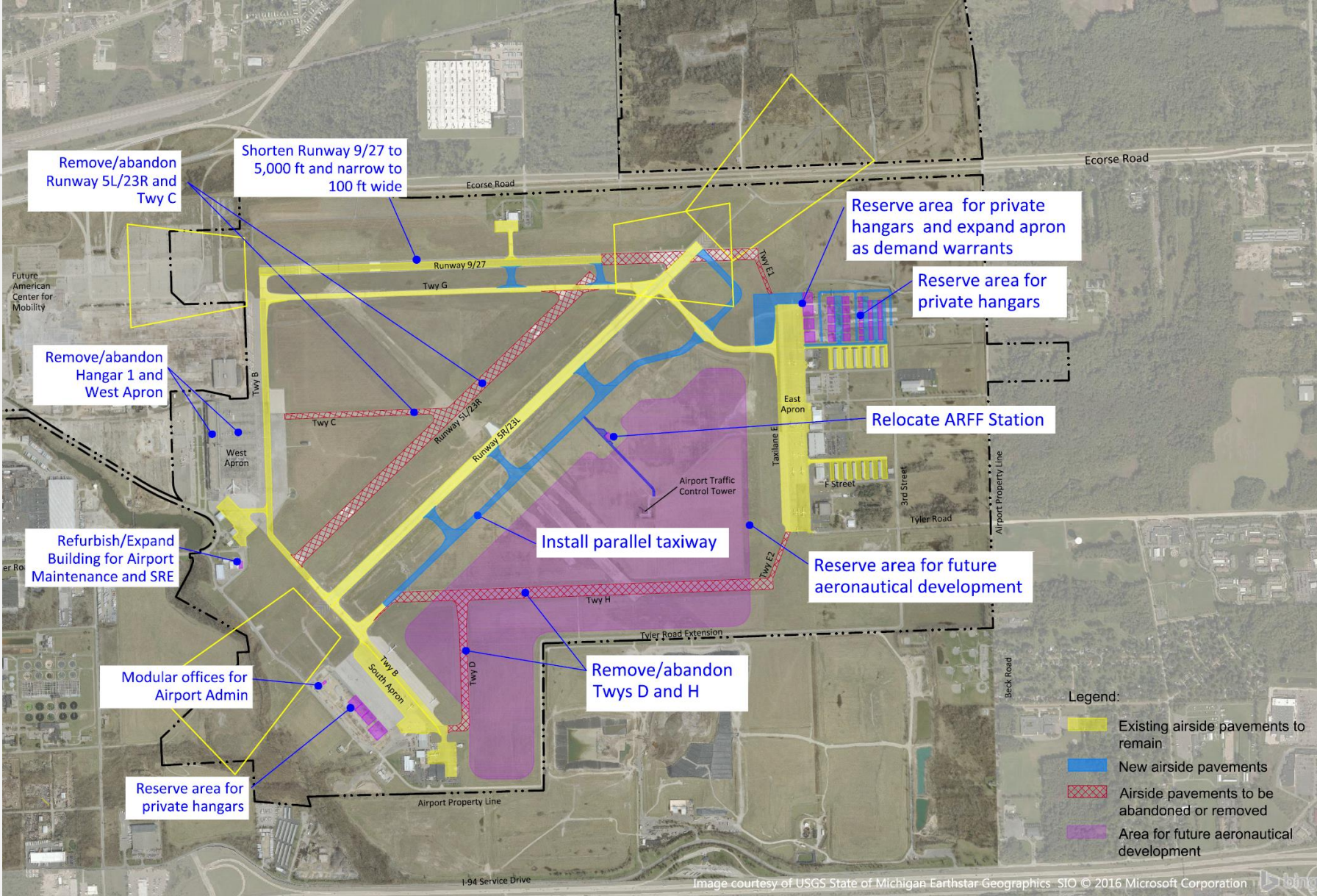
Alternative Concept Drawing



Recommended Near & Mid-Term Facility Needs

✈️ Cost:

- Alt 1
\$166,210,000



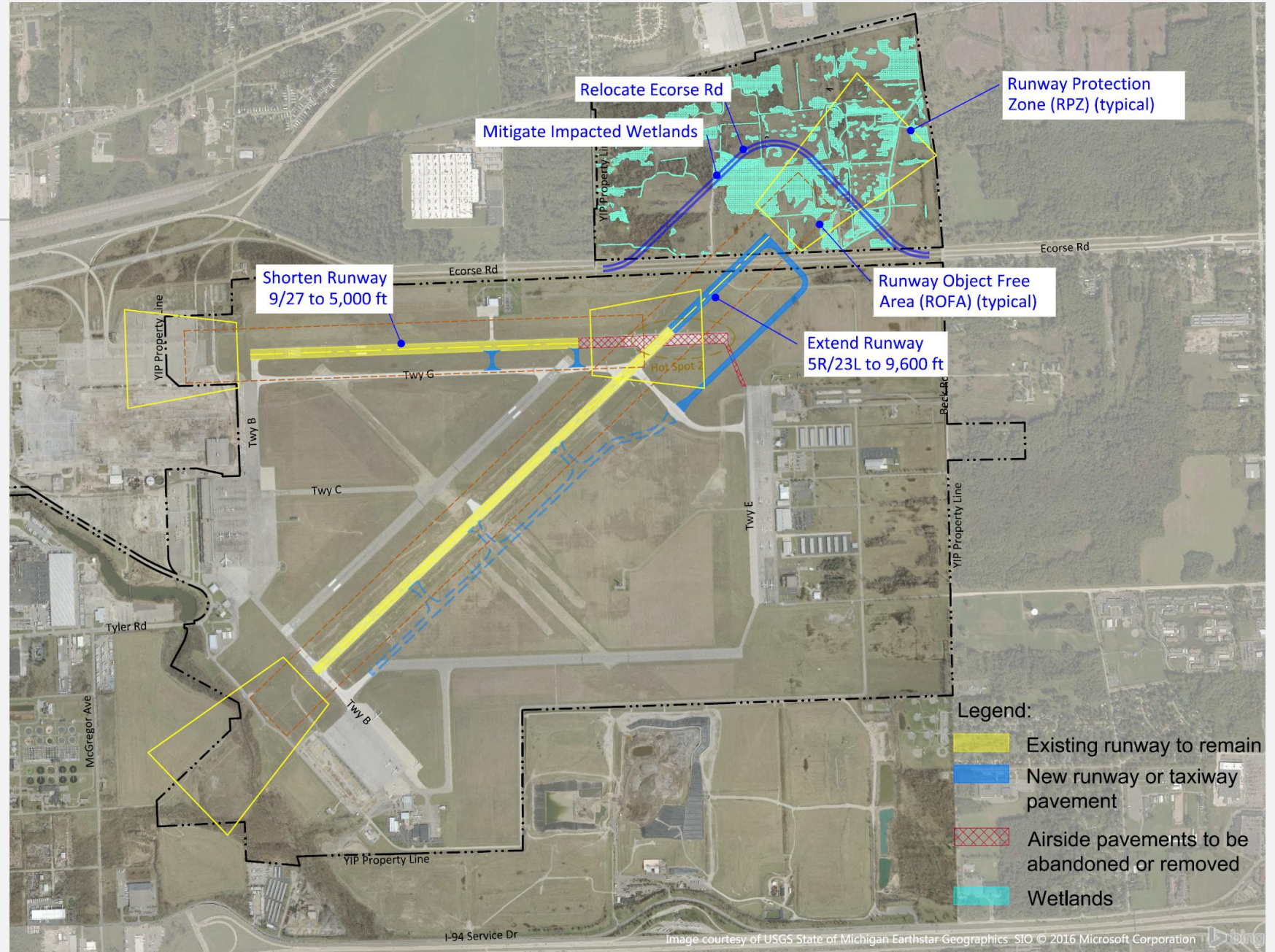
Alternatives – Runway Length Extension

Runway Extension

→ Alt 1

- Extend Runway 5R/23L to north

\$40,000,000

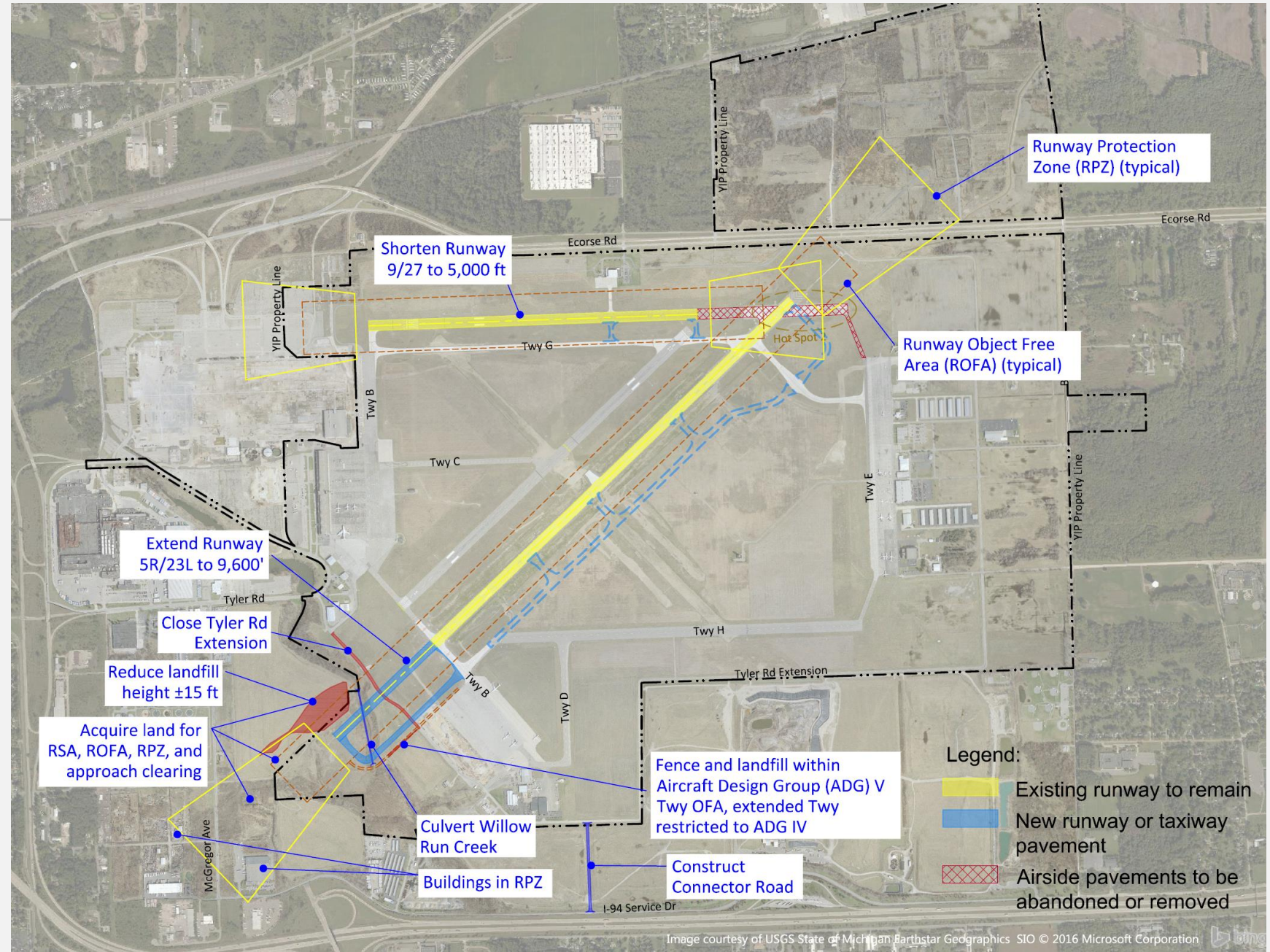


Runway Extension

→ Alt 2

- Extend Runway 5R/23L to south

\$56,000,000

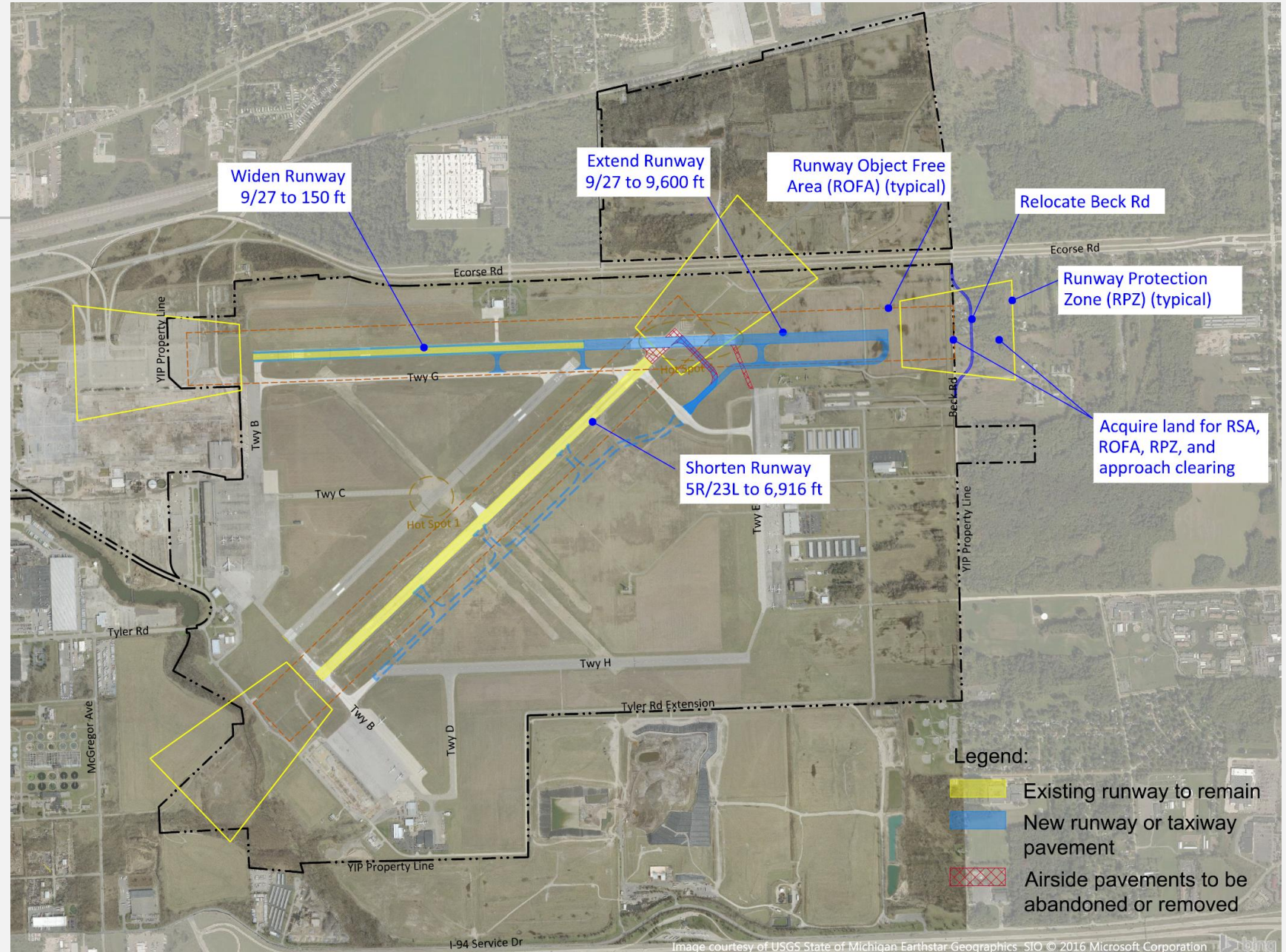


Runway Extension

✈ Alt 3

- *Extend Runway 9/27 to east*
- *Would primarily be used for departures to west*

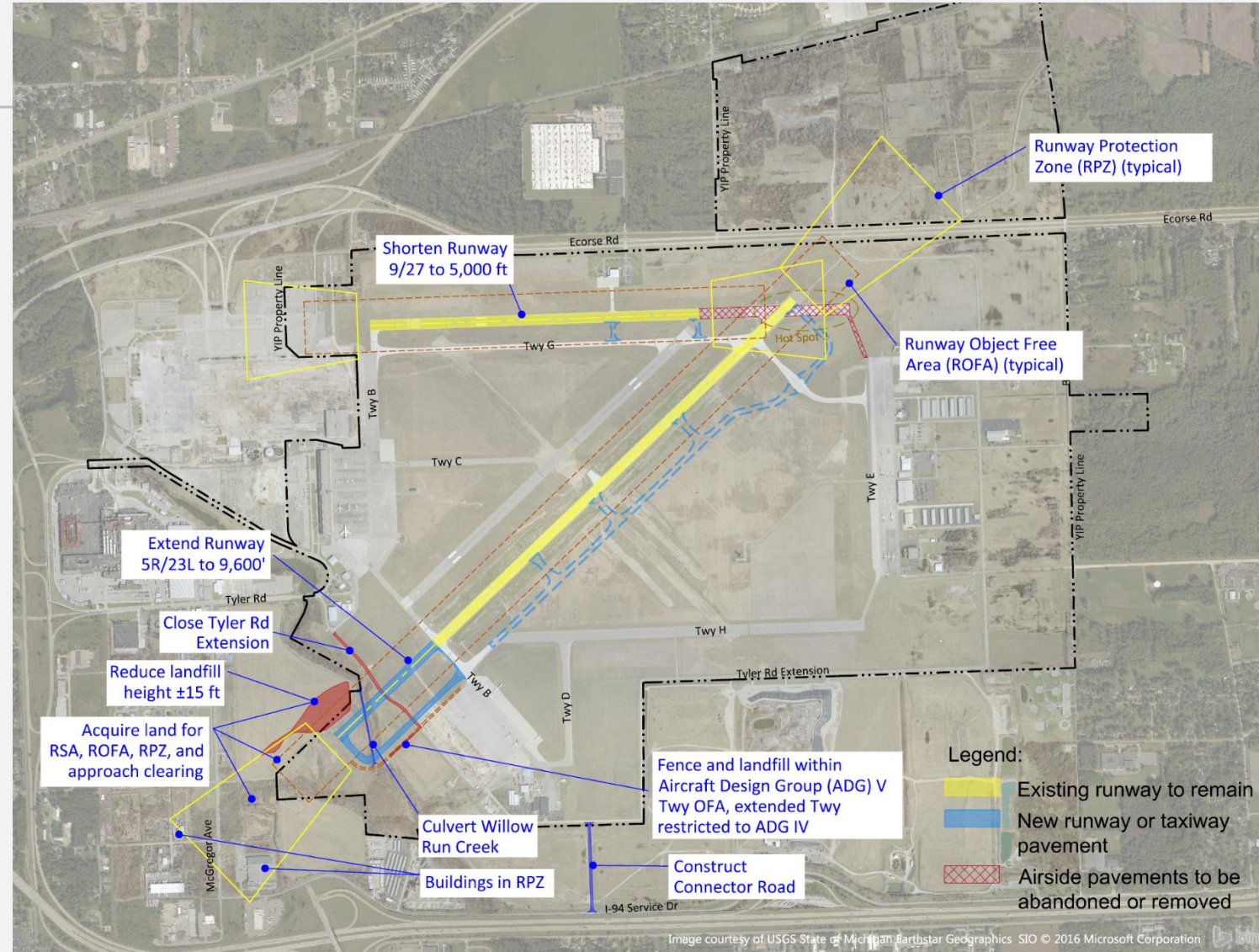
\$47,000,000



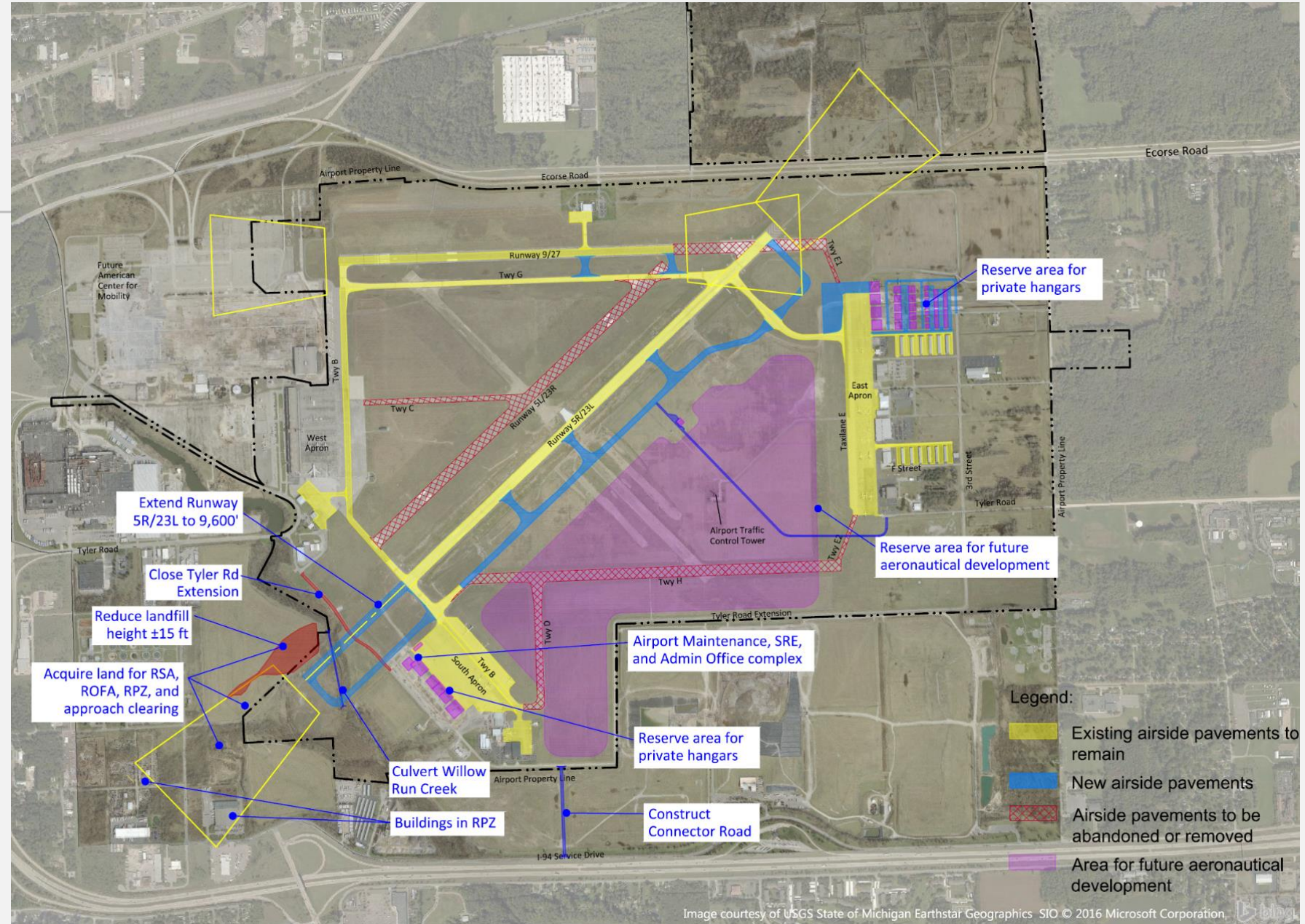
Preferred Long-term Runway Extension Alternative

➤ Alternative 2 – Extension at approach end of Runway 5R

- Provides recommended long-term runway length on primary runway
- Resolves hot spots
- No impacts to Ecorse Road
- No impacts to northeast



Recommended Long-term Airfield Configuration



Next Project Steps

Next Project Steps

- **Next public information meeting**
 - *Tuesday, October 18 – 5-7 pm*
Holiday Inn Express Hotel
Belleville Rd. exit on I-94
- **Finalize recommended development plan**
- **Complete environmental review**
- **Complete capital improvement plan**
- **Complete airport layout plan**



Questions and Open Discussion

✈️ **Thank you for your time!**

