

Joint Airport Board Meeting

CWA Terminal Area Master Plan | December 12, 2023

fly **CWA**



Opening Remarks

Brian Grefe / Mark Cihlar

TAMP Project Milestones Recap

Recap of TAMP Deliverables

- **Final Drafts of the following have been reviewed by FAA:**
 - Inventory/Facility Requirements
 - Forecasts
 - Alternatives Analysis
- **Drafts of the following were delivered for FAA review December 1:**
 - Sustainability Plan Chapter
 - Implementation Plan Chapter
 - Airport Layout Plan Drawing Set
- **Following FAA comment, the final TAMP report and ALP drawing set will be prepared for Board adoption.**

Stakeholder Engagement

- **Local Stakeholder interviews**
 - November 2022, March, May 2023
- **Local Stakeholder group meetings**
 - February, April, August, December 2023
- **Public open house**
 - August 14, 2023
- **FAA in-person meetings**
 - February, April, June, October 2023
- **Joint airport board presentations**
 - February, July, August, December 2023

Central Wisconsin Airport (CWA) Terminal Area Master Plan (TAMP)

Projected Timeline

Task	Responsible Party	2023																								2024						
		July					August				September				October					November				December				January				
		3	10	17	24	31	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	31
Alternatives Analysis																																
Prepare Draft Alternative Concepts	Mead & Hunt/CWA																															
Review & Refine Draft Alternative Concepts	Mead & Hunt/CWA																															
Prepare Draft Alternatives Analysis working paper	Mead & Hunt/CWA																															
Review Draft Alternatives Analysis working paper	BOA/FAA																															
Finalize Alternatives Analysis TAMP chapter	Mead & Hunt/CWA																															
Review/Approve Alternatives Analysis TAMP chapter	BOA/FAA																															
Sustainability Plan																																
Prepare Draft Sustainability Plan TAMP chapter	Mead & Hunt/CWA																															
Review Draft Sustainability Plan TAMP chapter	BOA/FAA																															
Implementation Plan																																
Prepare Draft Implementation Plan working paper	Mead & Hunt/CWA																															
Review Draft Implementation Plan working paper	BOA/FAA																															
Airport Layout Plan																																
Prepare Draft ALP Update	Becher Hoppe/CWA																															
Review Draft ALP Update	BOA/FAA																															
Finalize ALP Update	Becher Hoppe/CWA																															
ALP Airspace Review	BOA/FAA																															
TAMP Report																																
Finalize TAMP Report	Mead & Hunt/CWA																															
Review/Approve TAMP Report	BOA/FAA																															
Meetings																																
Stakeholder Interviews	Meetings																															
Stakeholder Group Meetings	Meetings																															
BOA/FAA Coordination Meetings	Meetings																															
Public Meetings	Meetings																															
Airport Board Updates	Meetings																															

Schedule dependent on timely FAA, BOA, and Airport reviews, and assumes no unforeseen issues. Subject to change.

Mead & Hunt responsibility

BOA/FAA responsibility

Becher Hoppe responsibility

Meetings



Implementation Plan

Preferred Near-Term Concept



LEGEND		
●	Concept-Specific Project	
1	ARFF	A
2	SRE	B
3	GA Terminal	C
4	Existing Transient Hangar	D
5	New Transient Hangar	E
6	Refurbished T-Hangars	F
7	Baggage Extension	G
8	Ranch Hangars (50'x50')	H
9	Executive Hangars (60'x60')	I
10	T-Hangar Expansion	J
A	Commercial Apron Expansion	
B	GA Apron Extension	
C	Deice Location	
D	Deice/Flex Location	
E	New Connector	
F	Helicopter Parking	
G	Fuel Truck Parking	
H	GSE Parking/Storage	
I	Self-Serve Fuel	
J	Airport Beacon	

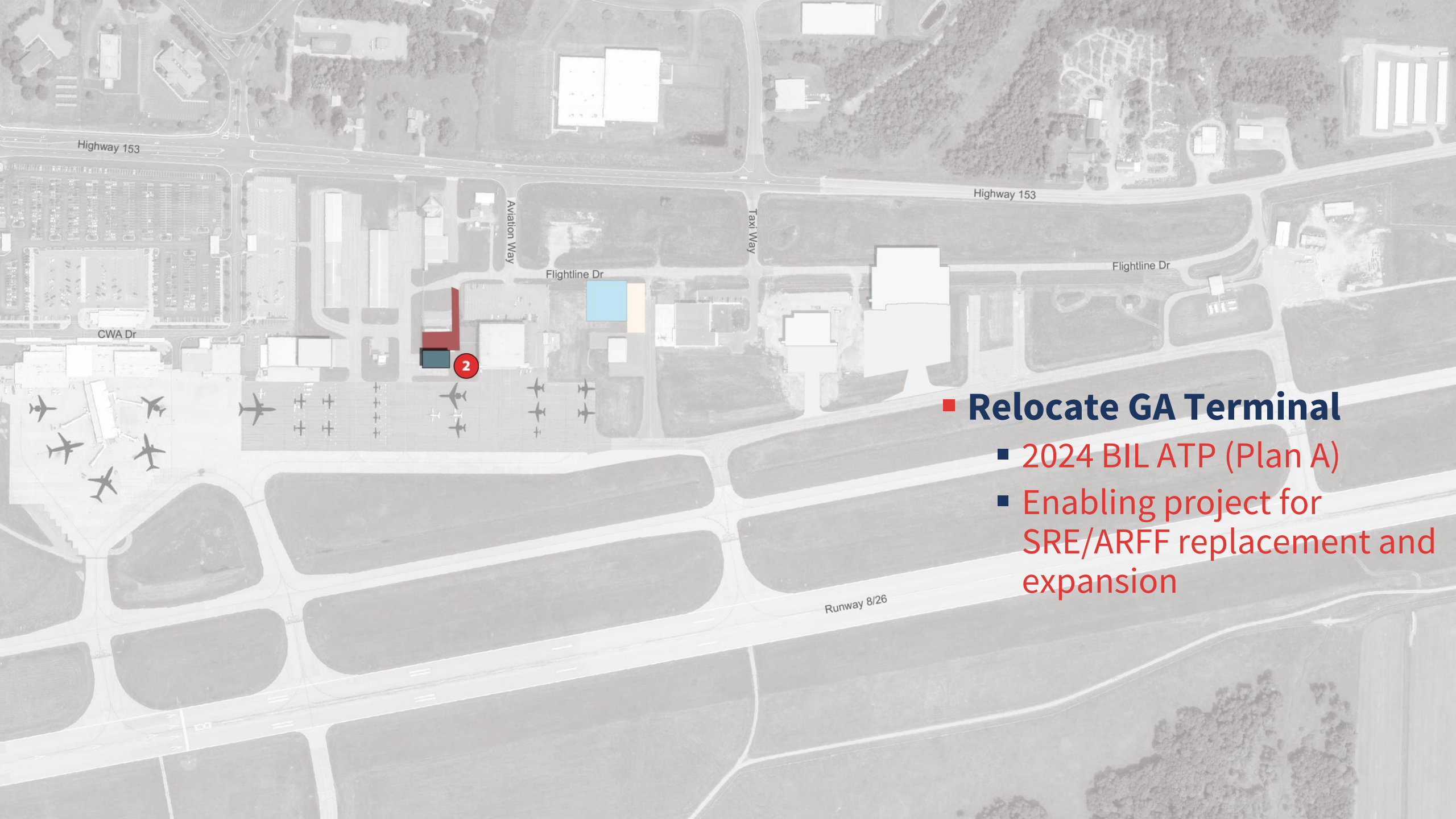


 APPROXIMATE SCALE 1" = 200 feet



- **Construct ADG-III Transient Hangar**

- 2024 BIL AIG
- Enabling project for SRE/ARFF replacement and expansion



- **Relocate GA Terminal**

- 2024 BIL ATP (Plan A)
- Enabling project for SRE/ARFF replacement and expansion



■ **Reconstruct GA Apron
(Phase 1 in Concrete)**

- **2025 AIP Entitlement**
- **Supports:**
 - GA Terminal relocation
 - Dedicated deicing location



■ Expand Outbound Baggage Handling Room

- 2025 BIL ATP (Plan A)
- Necessary for:
 - Legacy air carrier w/CRJ-900
 - New air carrier w/Boeing 737



- **Replace/Expand ARFF/SRE Storage & Maintenance Facility (2026)**
 - **AIP Discretionary or Supplemental**



■ **Expand Air Carrier Apron**

- 2027 AIP Discretionary
- Resolves three non-standard conditions
 - TLOFA
 - Direct access
 - Apron grade



■ **Other landside projects**

- **Potential BIL AIG**
 - T-hangar rehab/expansion
 - Executive hangars
- **Funding/demand driven**
 - Cargo apron relocation
 - Other hangar development
 - Beacon replacement
 - GSE storage
 - Self-serve fuel



- **Reconstruct GA Apron (Phase 2 in Asphalt)**
 - 2026/7 AIP Entitlement

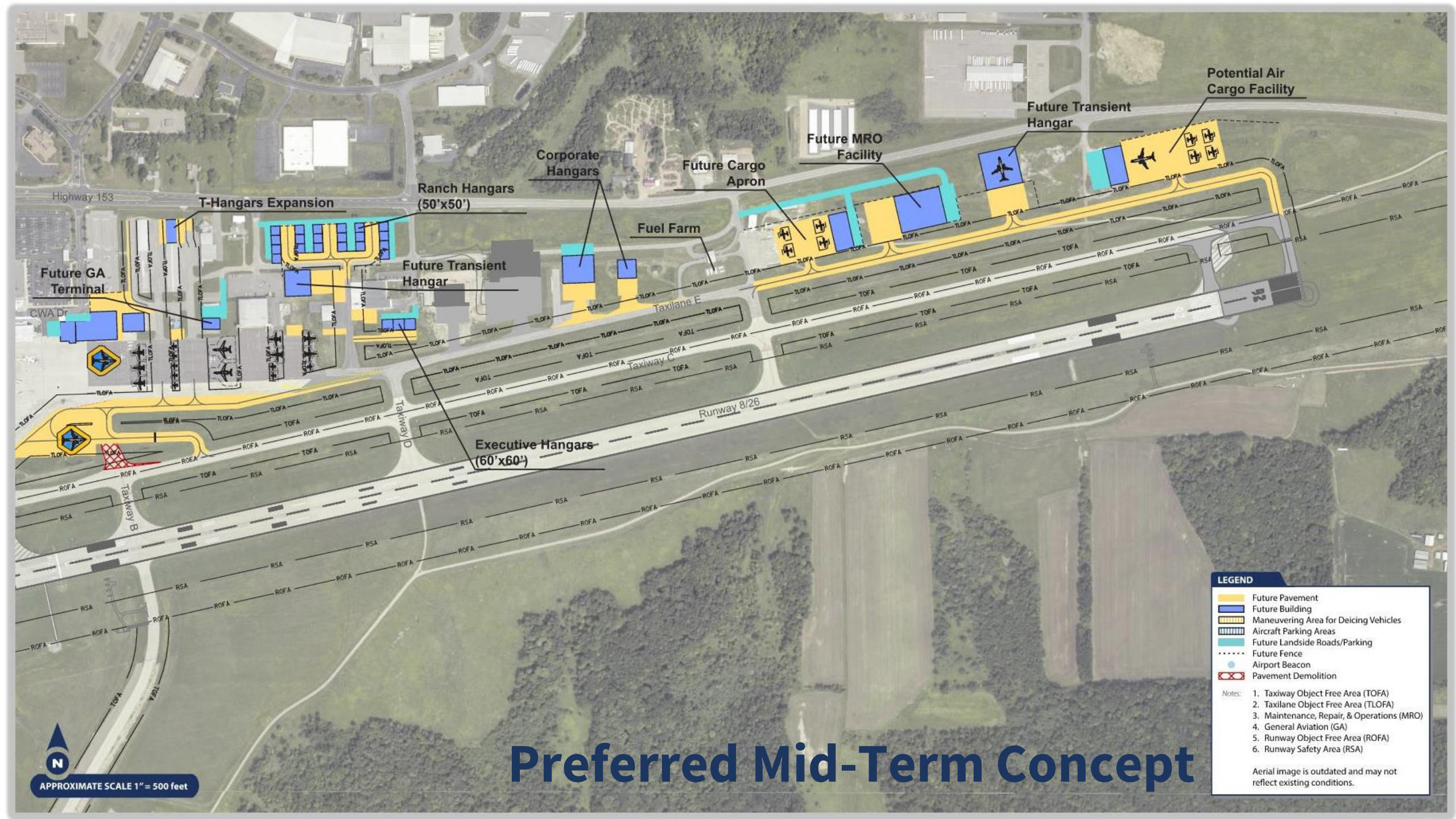
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Reconstruction



■ **Expand GA Apron**

- Demand driven
- Necessary to meet forecast apron demand



Highway 153

T-Hangars Expansion

Ranch Hangars (50'x50')

Corporate Hangars

Future Cargo Apron

Fuel Farm

Future Transient Hangar

Future MRO Facility

Future Transient Hangar

Potential Air Cargo Facility

Future GA Terminal

Executive Hangars (60'x60')

Runway 8/26

Taxiway E

Taxiway C


LEGEND

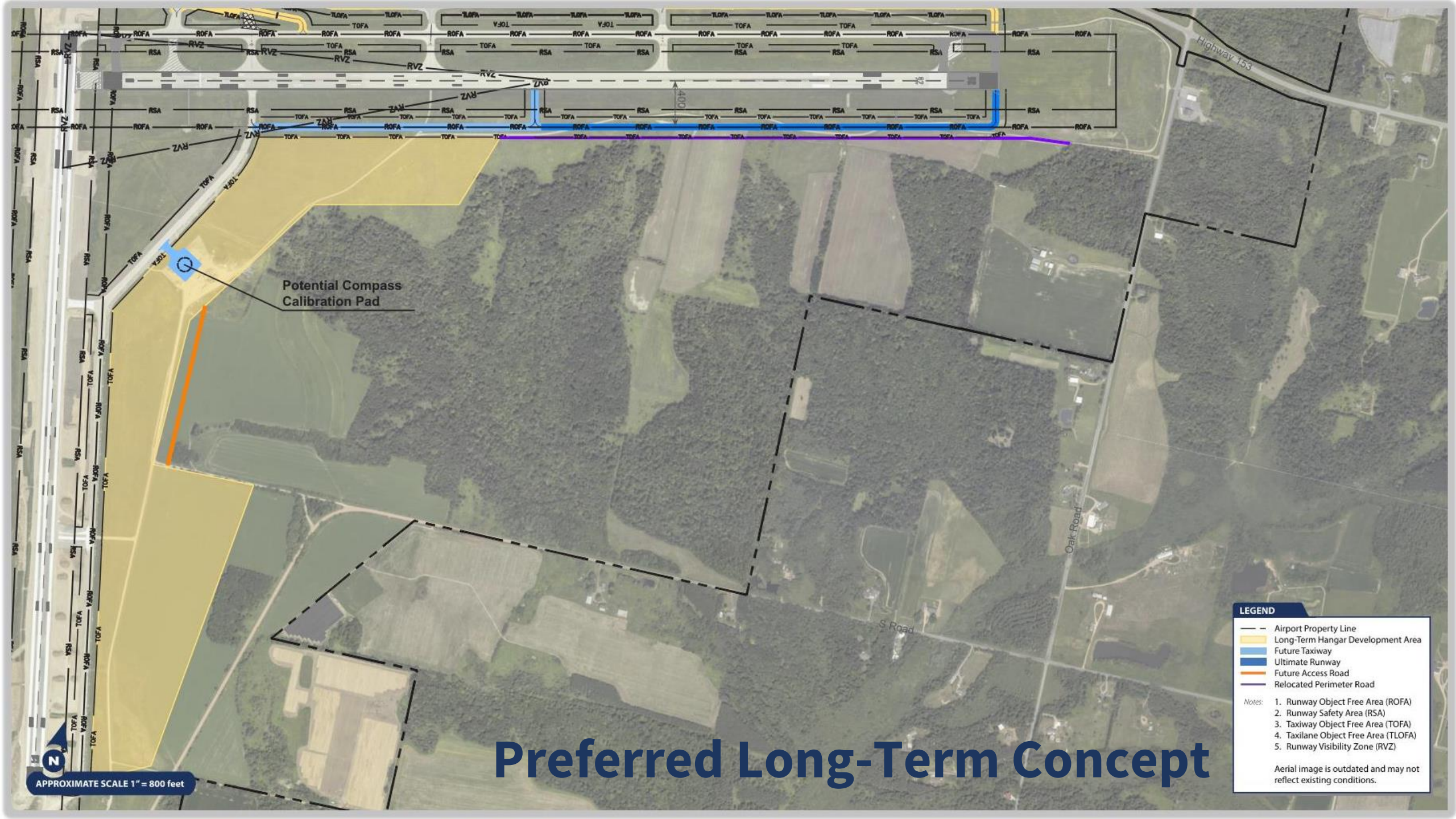
-  Future Pavement
-  Future Building
-  Maneuvering Area for Deicing Vehicles
-  Aircraft Parking Areas
-  Future Landside Roads/Parking
-  Future Fence
-  Airport Beacon
-  Pavement Demolition

- Notes:
1. Taxiway Object Free Area (TOFA)
 2. Taxiway Object Free Area (TLOFA)
 3. Maintenance, Repair, & Operations (MRO)
 4. General Aviation (GA)
 5. Runway Object Free Area (ROFA)
 6. Runway Safety Area (RSA)

Aerial image is outdated and may not reflect existing conditions.

Preferred Mid-Term Concept


 APPROXIMATE SCALE 1" = 500 feet



Potential Compass Calibration Pad

Preferred Long-Term Concept

LEGEND

- Airport Property Line
- Long-Term Hangar Development Area
- Future Taxiway
- Ultimate Runway
- Future Access Road
- Relocated Perimeter Road

Notes:

1. Runway Object Free Area (ROFA)
2. Runway Safety Area (RSA)
3. Taxiway Object Free Area (TOFA)
4. Taxilane Object Free Area (TLOFA)
5. Runway Visibility Zone (RVZ)

Aerial image is outdated and may not reflect existing conditions.

APPROXIMATE SCALE 1" = 800 feet

Sustainability Plan

Sustainability Plan Process



Drivers for Airport Sustainability

- **FAA funding positioning: FAA's goal of Net Zero by 2050 may provide opportunities**
- **Increase operational efficiencies**
- **Reduction in operating expenses through potential cost savings**
- **Implement measures that make sense in a variety of ways, including sustainability**
- **Improve how current achievements are highlighted, thus improving public perception of sustainability at CWA**
- **Improve airport resilience**

Sustainability Plan

■ Sustainability Definition

- Customized definition based off the ACI-NA definition
- *A holistic approach to managing an airport to ensure the integrity of the economic viability, operational efficiency, resource conservation, and the Airport's responsibility to the communities we serve.*

■ Sustainability Statement

- Clarifies the vision and direction CWA wants to move in terms of sustainability
- *CWA aims to preserve and improve the Airport as an economic engine, responsible community partner, and a resilient resource.*

Sustainability Plan

■ Focus Areas

- Air Quality
- Climate
- Water
- Airport Finance
- Waste
- Natural Resource Management
- Land Use and Transportation
- Planned Development
- Resilience
- Operations and Maintenance
- Community Relations
- Adjacent Land Use Compatibility
- User Experience
- Energy

Sustainability Plan

■ Focus Areas

- Air Quality
- Climate
- Water
- **Airport Finance**
- Waste
- Natural Resource Management
- Land Use and Transportation
- Planned Development
- **Planning and Resilience**
- Operations and Maintenance
- Community Relations
- Adjacent Land Use Compatibility
- User Experience
- **Energy**
 - Electric vehicle planning study
 - Solar feasibility study

Sustainability Goals and Initiatives

- **Goals: Desired results within each focus area**
- **Initiatives: Specific actions or measures that can be implemented to help attain a goal**
 - Purpose of Sustainability Initiatives is to make progress toward reaching or maintaining the Sustainability Goals
 - Integrates sustainability into Airport culture/day-to-day activities

Airport Finance

- **Goal 1: Maximize local, state, and federal grant funding opportunities.**
 - Integrate sustainability measures in projects based on current grant funding opportunities that require meeting sustainable criteria. (For example, roof-mounted solar on newer buildings.)
 - Explore sustainability-specific grant options. (For example, Zero Emission Vehicle program funds, Section 512 Energy Efficiency grants.)

Airport Finance

- **Goal 2: Increase revenue.**

- Evaluate fee structure for parking, including when incorporating covered or EV charging options.
- Evaluate hangar rents, especially for new facilities.
- Promote the value of CWA through marketing campaigns and public relations to bolster community and stakeholder support.
- Publicize advertising opportunities at the Airport.

Airport Finance

- **Goal 3: Reduce operating expenses.**

- Incorporate energy saving measures to reduce costs of power and fuel.
- Consider energy efficiency criteria in design of new facilities. (For example, occupancy sensors and daylighting in new and updated buildings to reduce energy use.)
- Review HVAC controls and set points.
- Evaluate potential to leverage geothermal field for future cooling and heating needs.
- Enhance airport staff training to reduce duplication of efforts and long-term maintenance costs.
- Reuse materials wherever possible.

Planning & Resilience

- **Goal 1: Improve operational and infrastructure resilience.**
 - Consider efficient snow removal in facility layout and design.
 - Incorporate resilience into planning and design. (For example, considering maintenance impacts of underlying soils on new pavements, accommodating future growth in facility design, and reserving space for future needs such as alternative fuel sources.)
 - Continue to consider opportunities to create redundancies. (For example, optimal generator placement and capacity.)
 - Co-locate snow removal and maintenance equipment with the maintenance facility in a central location to preserve fast response times to snow events, etc.
 - Prepare (or regularly review and update) a crisis communication plan outlining roles, responsibilities, and protocols during IROPs.

Planning & Resilience

- **Goal 2: Develop public awareness of sustainability measures.**
 - Develop sustainability accomplishments report.
 - Develop a marketing and communications plan to report on progress and initiatives. (For example, provide social media or newsletter updates on sustainability efforts and successes.)

Energy

- **Goal 1: Implement practices that reduce energy usage.**
 - Track and evaluate energy usage annually.
 - Integrate required energy efficiency measures in contracts.
 - Collaborate with tenants to implement energy-saving measures.
 - Integrate energy-efficiency standards in planning and design to reduce operational costs while reducing energy use, such as occupancy sensors and daylighting to reduce use of interior lighting systems.
 - Co-locate snow removal and maintenance equipment with the maintenance facility in a central location to minimize vehicle and equipment miles travelled to access the airfield.
 - Design new General Aviation terminal to achieve net-zero emissions.

Energy

- **Goal 2: Incorporate electric vehicle (EV) planning into future projects.**

EV Charger Types

Charger Type	Charging Duration*
Level 1 (AC)	23-31 hours
Level 2 (AC)	2.5-9.5 hours
DC Fast Charger	10-55 minutes

Note: *Assuming charging from 20 percent to 80 percent of the battery size of 78kWh, which is the median battery size of vehicles available on the US market in April 2022.

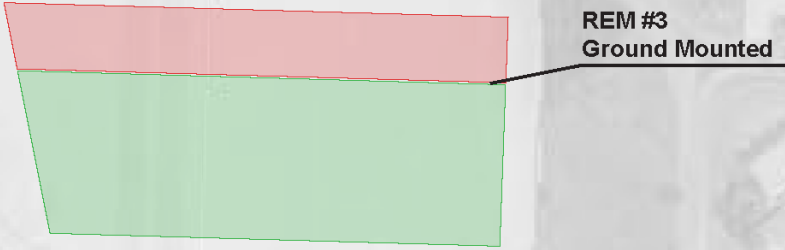
Recommendations

Parking Location	Number of Charging Ports	Charger Type
West Passenger Lot	10	Level 1
Rental Car/Public Lot	4 / 2	Level 2 / DC Fast
GA Terminal	2	Level 1

Energy

- **Goal 2: Incorporate electric vehicle (EV) planning into future projects.**
 - Establish a new electrical service to power the recommended chargers in the West Passenger and Rental Car lots.
 - Install recommended EV chargers
 - Work with WPS to take advantage of special utility rate for EV charging when it becomes available.
 - Track how much electricity is used for EV charging.
 - Develop a policy addressing fees for usage of the Level 2 and DC Fast EV chargers.

Proposed EV Infrastructure



REM #3
Ground Mounted

New Electrical
Service

153

REM #2
Parking Lot Carports

10 Level 1
EV Chargers

4 Level 2 and 2 DC
Fast EV Chargers

Utility Meter #3

CWA Dr

REM #1
SRE Rooftop

REM #4c
GA Terminal
Ground Mounted

2 Level 1
EV Chargers

REM #4b
GA Terminal
Parking Lot Carports

REM #4a
GA Terminal Rooftop

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Aviation Way

Flightline Dr

LEGEND

- Electric Vehicle (EV) Infrastructure
- Renewable Energy Measure (REM) PV Array Areas
- Additional Available Photovoltaic (PV) Sites
- Future Pavement
- Future Road and Parking
- Future Building

Notes: Aerial image is outdated and may not reflect existing conditions.

Energy

- **Goal 3: Incorporate solar power into future projects.**
 - Solar Feasibility Study



Ground-Mounted PV Example



Roof-Mounted PV Example



Parking Lot Carport PV Example

Energy

■ Key considerations for PV sites

■ Return on Investment

- First cost
- Payback
- Utility rates

■ PV System Efficiency

- PV module and inverter efficiencies
- Transmission losses
- Tilt and azimuth
- Shading

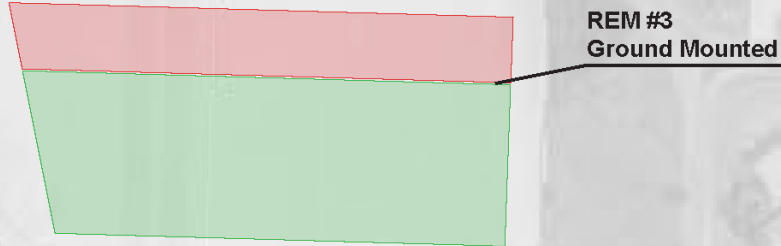
■ Physical Considerations

- Serviceability, accessibility, maintenance
- Distance from end use
- Structurally able to support PV arrays
- Avoids underground utility lines
- Avoids Runway Protection Zones (RPZs)
- Located at least 500 feet from any navigational aids (NAVAIDs)

Potential Solar Sites

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APPROXIMATE SCALE 1" = 300 feet



REM #3
Ground Mounted

New Electrical
Service

153

REM #2
Parking Lot Carports

10 Level 1
EV Chargers

4 Level 2 and 2 DC
Fast EV Chargers

Utility Meter #3

CWA Dr

REM #1
SRE Rooftop

REM #4c
GA Terminal
Ground Mounted

2 Level 1
EV Chargers

REM #4b
GA Terminal
Parking Lot Carports

REM #4a
GA Terminal Rooftop

153

Aviation Way

Flightline Dr

LEGEND

- Electric Vehicle (EV) Infrastructure
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Notes: Aerial image is outdated and may not reflect existing conditions.

Energy

■ Renewable Energy Measure Analysis

Renewable Energy Measure (REM)	Approximate Array Area (SF)	Annual Production (kWh)	Photovoltaic (PV) Capacity (kW-DC*)	% Reduction in Electrical Usage
REM #1 SRE Rooftop	32,000	396,000	320	18%
REM #2 Parking Lot Carports	90,000	1,891,000	1,530	85%**
REM #3 Ground Mounted	275,000	1,891,000	1,402.5	85%**

Notes:

* Kilowatts calculated on the basis of direct current.

** To avoid oversizing the arrays, the reduction in electrical usage was capped at 85% of annual consumption drawn from 2022 full year meter data (2,225,400 kWh). There is more space available in REMs #2 and #3 if more capacity is desired.

Energy

Renewable Energy Measure Financial Summary

Renewable Energy Measure (REM)	Energy Use Reduction (kWh/yr)	Energy Cost Reduction (\$/yr)	Photovoltaic Cost	Investment Tax Credit (ITC) (30%)*	AIP Funding** + ITC	Simple Payback With ITC Only (years)	Simple Payback With AIP + ITC (years)
REM #1 SRE Rooftop	721,000	\$21,800	\$800,000	\$240,000	\$744,000	26	2.6
REM #2 Parking Lot Carports	1,891,000	\$104,000	\$5,270,000	\$1,580,000	\$4,909,000	35	3.5
REM #3 Ground Mounted	1,891,000	\$104,000	\$2,800,000	\$840,000	\$2,608,000	19	1.9

Notes:

* Meeting ITC prevailing wages requirement needed to receive 30% tax credit; if not met, credit will be 6%.

** For the purpose of this analysis, AIP funding is assumed to be 90%. AIP funding would be through a competitive grant process and is not guaranteed.

Energy

■ GA Terminal Renewable Energy Measure Analysis

Renewable Energy Measure (REM)	Approximate Array Area (SF)	Annual Production (kWh)	Photovoltaic (PV) Capacity (kW-DC*)	% Reduction in Electrical Usage**
REM #4a GA Terminal Rooftop	4,000	49,500	40	26%
REM #4b GA Terminal Parking Lot Carports	8,100	171,000	138	90%
REM #4c GA Terminal Ground Mounted	8,100	56,000	41.4	29%

Notes:

* Kilowatts calculated on the basis of direct current.

** The GA Terminal was assumed to have an EUI of 130, converting to an annual consumption of about 190,500 kWh.

Energy

■ GA Terminal Renewable Energy Measure Financial Summary

Renewable Energy Measure (REM)	Energy Use Reduction (kWh/yr)	Energy Cost Reduction (\$/yr)	Photovoltaic Cost	Investment Tax Credit (ITC) (30%)*	AIP Funding** + ITC	Simple Payback With ITC Only (years)	Simple Payback With AIP + ITC (years)
REM #4a GA Terminal Rooftop	49,500	\$2,700	\$100,000	\$30,000	\$93,000	26	2.6
REM #4b GA Terminal Parking Lot Carports	171,000	\$9,400	\$476,000	\$143,000	\$443,000	35	3.5
REM #4c GA Terminal Ground Mounted	56,000	\$3,000	\$83,000	\$25,000	\$77,000	19	1.9

Notes:

* Meeting ITC prevailing wages requirement needed to receive 30% tax credit; if not met, credit will be 6%.

** For the purpose of this analysis, AIP funding is assumed to be 90%. AIP funding would be through a competitive grant process and is not guaranteed.

Energy

- **Goal 3: Incorporate solar power into future projects.**

- Compare pros and cons of renewable energy measures and identify preferred/initial PV installation location.
- Coordinate with FAA on potential for discretionary AIP funding.
- Explore the Federal Investment Tax Credit to accelerate ROI.
- Engage with Focus on Energy for financial and implementation support.
- Monitor and track PV annual production, energy use and cost reductions; consider installing additional PV arrays as needed to offset CWA's electrical usage.
- Implement regular monitoring and maintenance of the PV systems to ensure optimal performance and maximize ROI.
- Consider solar and geothermal for all new buildings, including SRE/maintenance facility.
- As roofs are replaced, consider incorporating solar arrays.

Potential Funding Sources

- **FAA Discretionary Airport Improvement Program (AIP) Grants**
- **FAA Bipartisan Infrastructure Law (BIL) Grants**
- **FAA Energy Efficiency AIP Grants (Section 512)**
- **Inflation Reduction Act (IRA) / Federal Investment Tax Credit for Solar Photovoltaics (ITC)**
- **Focus on Energy**
- **Clean Diesel Grant Program**
- **Diesel Emissions Reduction Act (DERA)**
- **WI Office of Energy Innovation – Energy Innovation Grant Program**
- **WPS Business EV Charger Pilot Program**

Questions?



Mead
& Hunt

Thank You!