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

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alternatives Analysis</strong></td>
<td></td>
</tr>
<tr>
<td>Prepare Draft Alternative Concepts</td>
<td>Mead &amp; Hunt/CWA</td>
</tr>
<tr>
<td>Review &amp; Refine Draft Alternative Concepts</td>
<td>Mead &amp; Hunt/CWA</td>
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<tr>
<td>Prepare Draft Alternatives Analysis working paper</td>
<td>Mead &amp; Hunt/CWA</td>
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<tr>
<td>Review Draft Alternatives Analysis working paper</td>
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<tr>
<td>Finalize Alternatives Analysis TAMP chapter</td>
<td>Mead &amp; Hunt/CWA</td>
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<tr>
<td>Review/Approve Alternatives Analysis TAMP chapter</td>
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<tr>
<td><strong>Sustainability Plan</strong></td>
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<td>ALP Airspace Review</td>
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<td><strong>TAMP Report</strong></td>
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<tr>
<td>Stakeholder Interviews</td>
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<td>BOA/FAA Coordination Meetings</td>
<td>Meetings</td>
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<tr>
<td>Public Meetings</td>
<td>Meetings</td>
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<tr>
<td>Airport Board Updates</td>
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Schedule dependent on timely FAA, BOA, and Airport reviews, and assumes no unforeseen issues. Subject to change.

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<tr>
<td><strong>Meetings</strong></td>
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</table>
Implementation Plan
Preferred Near-Term Concept
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
- Expand GA Apron
  - Demand driven
  - Necessary to meet forecast apron demand
Preferred Mid-Term Concept
Preferred Long-Term Concept
Sustainability Plan
Sustainability Plan Process

Sustainability Visioning Session
- Sustainability Drivers and Priorities
- Sustainability Definition
- Sustainability Statement
- Identification of Focus Areas

Plan Development
- Data Collection
- Research and Analysis
- Goals, Metrics, and Initiatives Development

Deliverables
- Sustainability Chapter
- Electric Vehicle Planning Study
- Solar Feasibility Study
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

<table>
<thead>
<tr>
<th>Charger Type</th>
<th>Charging Duration*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 (AC)</td>
<td>23-31 hours</td>
</tr>
<tr>
<td>Level 2 (AC)</td>
<td>2.5-9.5 hours</td>
</tr>
<tr>
<td>DC Fast Charger</td>
<td>10-55 minutes</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Parking Location</th>
<th>Number of Charging Ports</th>
<th>Charger Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Passenger Lot</td>
<td>10</td>
<td>Level 1</td>
</tr>
<tr>
<td>Rental Car/Public Lot</td>
<td>4 / 2</td>
<td>Level 2 / DC Fast</td>
</tr>
<tr>
<td>GA Terminal</td>
<td>2</td>
<td>Level 1</td>
</tr>
</tbody>
</table>
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
- REM #2: Parking Lot Carports
- 10 Level 1 EV Chargers
- 4 Level 2 and 2 DC Fast EV Chargers
- Utility Meter #3
- REM #1: SRE Rooftop
- REM #4c: GA Terminal Ground Mounted
- REM #4b: GA Terminal Parking Lot Carports
- REM #4a: GA Terminal Rooftop

LEGEND
- Electric Vehicle (EV) Infrastructure
- Renewable Energy (RE) (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

- REM #3 Ground Mounted
- New Electrical Service
- REM #2 Parking Lot Carports
- 10 Level 1 EV Chargers
- 4 Level 2 and 2 DC Fast EV Chargers
- Utility Meter #3
- REM #1 SRE Rooftop
- REM #4c GA Terminal Ground Mounted
- REM #4b GA Terminal Parking Lot Carports
- REM #4a GA Terminal Rooftop

LEGEND
- Green: Solar Arrays (PV/Module Areas)
- Green Shade: Additional Available Photovoltaic (PV) Sites
- Blue: Electrical (E/V) Infrastructure
- Red: Renewable Energy Marine (REM) Array Areas
- Orange: Future Rooftop
- Purple: Future Road and Parking
- Yellow: Future Building

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

## Renewable Energy Measure Analysis

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

### 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

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

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

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<tr>
<td>REM #4a GA Terminal Rooftop</td>
<td>49,500</td>
<td>$2,700</td>
<td>$100,000</td>
<td>$30,000</td>
<td>$93,000</td>
<td>26</td>
<td>2.6</td>
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<tr>
<td>REM #4b GA Terminal Parking Lot Carports</td>
<td>171,000</td>
<td>$9,400</td>
<td>$476,000</td>
<td>$143,000</td>
<td>$443,000</td>
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<td>3.5</td>
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<tr>
<td>REM #4c GA Terminal Ground Mounted</td>
<td>56,000</td>
<td>$3,000</td>
<td>$83,000</td>
<td>$25,000</td>
<td>$77,000</td>
<td>19</td>
<td>1.9</td>
</tr>
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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!