JOURNEY TO »

SUSTAINABILITY

ECONOMIC | ENVIRONMENTAL | SOCIAL

SUSTAINABILITY MANAGEMENT PLAN

— ATTACHMENTS —

MKE

GENERAL MITCHELL INTERNATIONAL AIRPORT

This document compiles the attachments to Journey to Sustainability, the Sustainability Management Plan completed by Milwaukee County's Mitchell International Airport in 2018. These attachments support the SMP and provide details on the planning process and the technical analyses completed during the development of that plan. They are not intended to be understood independently or in any context other than their relation to the overall Sustainability Management Plan.

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Attachment 1

Stakeholder and Public Involvement Summary

1. Public Involvement Summary

1. PUBLIC AND STAKEHOLDER INVOLVEMENT PLAN

1.1 Introduction

Effective stakeholder and public involvement is a key element of the SMP process. By incorporating the views, priorities and creative thinking of a broad spectrum of internal and external stakeholders, the SMP can address issues that are of critical importance for success. A stakeholder and public involvement plan was developed to provide ample and effective opportunity for engagement. Key elements of the plan include:

- Regular convening of a technical advisory group (TAG) comprised of key internal stakeholders to guide the planning process;
- Regular convening of a stakeholder advisory group (SAG) to enable focused representation by a broader cross section of community and business interests;
- Key staff interviews to capture ideas for improvement from a cross section of airport employees, tenants and staff at all levels;
- Public meetings;
- Creative outreach to travelers and the public, including electronic surveys, social media, smartphone interactions.

The following summary will be continuously updated throughout the course of the plan to summarize all stakeholder and public involvement activities.

The stakeholder involvement plan for the MKE Sustainability Management Plan called for outreach to airport staff, elected and appointed officials, businesspeople, airport neighbors, travelers and the general public. The purpose of this outreach effort is to enable the plan to be responsive to the priorities and concerns of the greater community served by MKE, and to capture the broadest representation of potential initiatives to improve the sustainability of airport operations. This document outlines initial steps in engaging the internal and external stakeholders and the public in the SMP. It includes a mix of interviews, facilitated workshops, electronic outreach, and other initiatives.

1.2 Stakeholder Involvement Activities Summary

1. **Tech Advisory Group (TAG)**
    - Key internal decision makers from MKE, tenants, MKE County, agencies. Could also include local officials, key businesses and other select external stakeholders.
    - Meet at project milestones. Four meetings.
        - Introductory charrette – issues and opportunities, plus Vision, Mission, Focus Areas
        - Results of baseline, including presenting of baseline report, discuss Goals and Objectives
        - Sustainability actions – prioritizing plus input to Implementation Plan
        - Draft Sustainability Management Plan (SMP)

2. **Stakeholder Advisory Group (SAG)**
    - Citizens, neighbors, other important external, non-airport stakeholders.
    - Develop roster with MKE, TAG.
    - Meet at project milestones. Three meetings coordinated with TAG and Public Open Houses.
        - Results of public outreach and development of Vision, Mission and Focus Areas, results of baseline, including presenting of baseline report, discuss Goals and Objectives
        - Sustainability actions – prioritizing plus input to Implementation Plan
        - Draft SMP

3. **Other Internal Stakeholders**
    - Select airport and tenant staff
        - Select key staff not included on TAG interviewed to support the definition of Vision, Mission and Focus Areas for Task 1 (plan framework)
        - Staff interviewed to identify data for baseline analysis, Task 2
        - Staff interviewed or participating in focus groups to support Task 4 (Sustainability Actions) to identify initiatives and actions.
    - As identified by MKE, TAG.

4. **General Public**
    - Open Houses
        - Anyone interested in attending / participating
        - Meet at key point of the project: Draft SMP
    - Speakers Bureau
        - Offer speaker to address any organization in the region to discuss SMP and solicit input.
        - Publicize to neighborhood groups, business and environmental organizations.
    - Non-traditional outreach
        - Traveling public, airport neighbors, business people, MKE e-lists
        - Ongoing electronic outreach in three phases
            - Issues and Opportunities, Focus Areas
            - Baseline results, goals, objectives and actions for sustainability
            - Draft plan
        - Combination of electronic surveys, smartphone interactions, access to plan documents

5. **Communications**
    - Website
    - Newsletter articles in Mitchell Memo
    - Dedicated email account
    - News releases for input opportunities
    - Social media content, content calendar

6. **Outreach opportunities**
    - Guided tours (Doors Open?)
    - Interactive kiosk
    - Web/smartphone surveys

7. **Deliverables**
    - SMP Framework
        - Vision/Mission and Values
        - MKE Definition of Sustainability
        - Focus Areas
    - Baseline Report
        - Compilation of historical data and trends for the Focus Areas analyzed
        - Baseline Inventory Tool
    - Goals and Objectives Report
        - Goal and Objective for each Focus Area
    - Actions and Targets Report
        - Ranked Actions and Targets for each of them
        - Interactive Sustainability Action table
    - Implementation Plan
        - Implementation and Monitoring Plan based on Actions and Targets
        - Tools, Resources and Guidelines supporting the Implementation Plan
    - SMP
        - SMP – Draft Version
        - SMP – Final Version

1.3 Public Outreach Activities

Public Information Meetings	
Audience	Airport neighbors, general public
Engagement timeframe	One correlation point to overall involvement structure: 1. Draft plan
Engagement outcomes	Inform of planning process and outcomes; elevate awareness of MKE operations and values; refinement of plan elements and creative ideas; testing of tolerance for changes at the airport that affect customer experience.
Engagement tools	Open house coordinated with TAG and SAG meetings to celebrate draft plan
Timeframe	Early autumn 2016 – summer/early autumn 2017
PIM 1 Activities	1. Determine PIM location and date in coordination with TAG/SAG meetings 2. Develop invitation list with TAG/SAG members 3. Coordinate with MKE social media lists 4. Coordinate with MKE press relations 5. Develop meeting materials 6. Host PIM following TAG/SAG meetings

Electronic Outreach / Surveying	
Audience	Traveling public, business stakeholders, MKE e-list subscribers
Engagement timeframe	Continuous opportunities, with three correlation points to overall involvement structure: 1. Issues and Opportunities, Focus Areas 2. Baseline evaluation review, sustainability actions 3. Draft plan
Engagement outcomes	Inform of planning process and outcomes; elevate awareness of MKE operations and values; refinement of plan elements and creative ideas; testing of tolerance for changes at the airport that affect customer experience.
Engagement tools	Contact via email lists from partners; simplified online surveying targeted toward audience; eventual focus group possible.
Timeframe	Phase 1- Fall 2016 Phase 2 – early 2017 Phase 3 – late spring 2017
Phase 1 Activities	1. Reach out to business orgs for email contact lists, newsletter inclusion 2. Reach out to SAG members for email contact lists 3. Coordinate with MKE social media lists 4. Develop survey tool a. Two tier – business and general b. Simplified questions / fun and engaging 5. Draft introduction to SMP, likely outcomes. Simple and engaging examples 6. Field business survey 7. Field general public survey 8. Work with MKE to alert travelers to survey

Speakers Bureau	
Audience	Airport neighbors, business organizations, environmental organizations
Engagement timeframe	Throughout planning process
Engagement outcomes	Inform of planning process and outcomes; elevate awareness of MKE operations and values; refinement of plan elements and creative ideas; testing of tolerance for changes at the airport that affect customer experience.
Engagement tools	Provide speaker at organization meetings, presentation, facilitated feedback
Timeframe	Ongoing
Activities	1. Prepare standard presentation 2. Publicize availability in coordination with MKE outreach tools 3. Prepare facilitation tools appropriate to planning phase 4. Update presentation as needed

1.4 MKE – SMP Stakeholder Involvement Plan + Schedule

Activity	Start Date	Activity / End Date	Activity Planning	Activity Outcomes
TAG 1	05 Jul 2016	05 Aug 2016	• Confirm TAG list • Identify meeting location • Develop invitation materials/1 pager • Distribute invitations • Develop meeting plan • Develop meeting materials • Distribute meeting reminder • Facilitate meeting • Follow up	• Establish sense of project ownership for TAG • Introduce project • Introduce airport sustainability factors • Gather input on issues and opportunities • Define Vision and Mission • Define Focus Areas • Gather input on goals and objectives • Establish list of community stakeholders
TAG 2	01 Nov 2016	02 Dec 2016	• Identify meeting location • Develop invitation materials • Distribute invitations • Develop meeting plan • Develop meeting materials • Distribute meeting reminder • Facilitate meeting • Follow up	• Review issues and opps analysis • Present and review baseline results • Gather input on final goals and objectives • Preview of sustainability actions development process

Activity	Start Date	Activity / End Date	Activity Planning	Activity Outcomes
SAG 1	01 Nov 2016	02 Dec 2016	• Confirm SAG list • Identify meeting location • Develop invitation materials • Distribute invitations • Develop meeting plan • Develop meeting materials • Distribute meeting reminder • Facilitate meeting • Follow up	• Present results of public outreach and development of Vision, Mission and Focus Areas • Review issues and opps analysis • Present and review baseline results • Gather input on final goals and objectives • Preview of sustainability actions development process
INT 1 – Interviews	01 Oct 2016	01 Jan 2017	• Develop interview list • Reserve meeting area • Schedule interviews (doodle) • Prepare interview questions • Conduct interviews over 2-3 days • Compile and organize notes	• Establish sense of project ownership for internal stakeholders • Present analysis of issues and opportunities • Present analysis of focus areas and baseline results • Gather input on sustainability actions

PUB 1	09 Nov 2016	01 Feb 2017	• Develop interactive tools
			  ○ Online survey
			  ○ Smartphone survey
			• Develop public info materials
			• Implement survey
			• Develop and implement social media plan
				• Alert travelers and general public to project
				• Present baseline and focus areas results
				• Gather input on sustainability actions and implementation plan

TAG 3	01 Apr 2017	28 Apr 2017	• Identify meeting location • Develop invitation materials • Distribute invitations • Develop meeting plan • Develop meeting materials • Distribute meeting reminder • Facilitate meeting • Follow up	• Review final goals and objectives • Gather input on draft actions and implementation plan

Activity	Start Date	Activity / End Date	Activity Planning	Activity Outcomes
SAG 2	01 Apr 2017	28 Apr 2017	• Confirm SAG list • Identify meeting location • Develop invitation materials • Distribute invitations • Develop meeting plan • Develop meeting materials • Distribute meeting reminder • Facilitate meeting • Follow up	• Review final goals and objectives • Gather input on draft actions and implementation plan
INT 2 – Report Back	01 Feb 2017	28 Apr 2017	• Develop interview list • Reserve meeting area • Schedule interviews (doodle) • Prepare interview questions • Conduct interviews over 2-3 days • Compile and organize notes	• Report back to internal stakeholders and interview participants • Maintain internal momentum • Build plan support
PUB 2	01 Mar 2017	26 May 2017	TBD	• Alert travelers and general public to project progress • Gather input on finalized actions and implementation plan • Announce imminent draft report
TAG 4	01 Sep 2017	29 Sep 2017	TBD	• Present progress update • Discuss details of draft plan • Gather feedback on plan to guide final edits
SAG 3	01 Sep 2017	29 Sep 2017	TBD	• Present progress update • Discuss details of draft plan • Gather feedback on plan to guide final edits

Activity	Start Date	Activity / End Date	Activity Planning	Activity Outcomes
PIM 1	01 Sep 2017	29 Sep 2017	TBD	• Present progress update • Discuss details of draft plan • Gather feedback on plan to guide final edits

2. Technical Advisory Group Members

ADVISORY MEMBER	TITLE	AFFILIATION
ERICK SHAMBARGER	Director of Environmental Sustainability	City of Milwaukee
SEAN HAYES	Managing Engineer	MKE Airport
KIM BERRY	Noise Program Manager	MKE Airport
TOM STASTNY	Deputy Director of Operations	MKE Airport
PAT ROWE	Marketing and Communications Director	MKE Airport
JEFF TRAPP	Landside Operations	MKE Airport
KATHIE DAVID	Airside Operations	MKE Airport
CHRIS LUKAS	Maintenance	MKE Airport
RANDY BIALCIK		Delta
MARY TURNER, PE	Electrical Engineer	MKE Airport
KAREN FREIBERG	Deputy Director – Finance	MKE Airport
MIKE FERRY	ADO	FAA
VINCENT ALFORD		FAA
GORDIE BENNETT	Sustainability Director	Milwaukee County
STEVE KEITH	Environmental Services Lead	Milwaukee County
RANDY LENZ	Traffic Control Specialist	MKE ATC
JAY BAILEY	Airspace and Procedures	MKE ATC
JARED RUTOWSKI		FAA
TIM PEARSON	GIS Manager	MKE Airport
GREG FAILEY		MKE Airport
DOUG RUTLEDGE		SWA
MARK LENDVAY	Security Director	TSA
LAWRENCE WILEGAL		TSA
JOHN LOTZER		Timmerman Airport

3. Stakeholder Advisory Group Members

ADVISORY MEMBER	TITLE	AFFILIATION
STEVE BRACHMAN		1000 Friends of Wisconsin
TODD BRENNAN	Watershed Manager	Adopt – a – Beach
TERRY WITKOWSKI	13th District Alderman	City of Milwaukee
CHRIS ABELE	County Executive	Milwaukee County
JOHN HOHENFIELDT	Mayor	City of Cudahy
BEN BENNINGHOFF		WI – DNR
MIKE HOWARD	Tower Chief	FAA
CORRY JOE BIDDLE	Executive Director	Fuel MKE
LEIF OTTESON	Executive Director	Gateway BID
AMY JENSEN	Director of Finance and Operations	Global Water Center
KIM BERRY	Noise Program Manager	MKE Airport
SEAN HAYES	Managing Engineer	MKE Airport
ELLEN GILLIGAN	President and CEO	Greater MKE Foundation
BRYAN SIMON	Chair	Green Corridor Steering Committee
MICHAEL STEVENS	President and CEO	Lake County Partners
GALE KLAPPA	Chairman	M7
MAKR FELSHEIM	Vice President – Oak Creek	MATC
GINNY ROUTHE	MATC Sustainability	MATC
DAN BOEHM	Managing Director	MCTS
TIMOTHY SHEEHY	President	Metropolitan Milwaukee Association of Commerce
TOM BARRETT	Mayor	City of Milwaukee
GORDIE BENNETT	Sustainability Director	Milwaukee County
STEVE KEITH	Environmental Services Unit Leader	Milwaukee County
MARK RAMPANT	Facilities Assessment Group	Milwaukee County
JIM TARANTINO	Economic Development Director	Milwaukee County

BRIAN ENGEL	Contact Coordinator	Milwaukee County, CBDP
JASON HAAS	District 14 Supervisor	Milwaukee county
STEVE TAYLOR	District 9 Supervisor	Milwaukee County
DAN SEBRING	District 11 Supervisor	Milwaukee County
DAVID SATORI	District 8 Supervisor	Milwaukee County
JOHN RODGERS	Senior Compliance Manager	Milwaukee County
CHERYL NENN	Executive Director	Milwaukee River Keeper
SEAN LOWE	Investment Client Services Specialist	Milwaukee Urban League Young Professionals
IZZY BONILLA	Airport Director	MKE Airport
MARK KASS	Chief Editor	MKE Biz Journal
GREG FAILEY		MKE Airport
KAREN SANDS	Director of Planning, Research and Sustainability	MMSD
JEREMY FOJUT	Co-Founder / Chief Idea Officer	Newaukee
STEVE SCAFFIDI	Mayor	Oak Creek
ANNA CLEMENTI	Operations Supervisor	Racine Area Manufacturing and Chamber of Commerce
DAVE GIORDANO	PR Rep Root Pike	Root-Pike Watershed Initiative Network
TAMARA MAYZIK	City Administrator	City of South Milwaukee
LINDA REID	Executive Director	Southeastern Wisconsin Watersheds Trust
MARK JOHNSRUD	City Administrator	City of St. Francis
WENDY HOTTENSTIEN		State DOA
KORINNE HAEFFEL	Director of Community Advancement	U.S. Green Building Council
NANCY FRANK	Associate Professor	UWM
CAROLYN ESSWEIN	Director of Community Design Solutions	UWM
PAUL UPCHURCH	President and CEO	Visit MKE
DAVE SCHLABOWSKI	Deputy Director	WI Bike Federation
DAVID GREENE	Director	WI Bureau of Aeronautics
SHERI SCHMITT	Deputy Director	Wisc. DOT
EMILY WRIGHT	President	Wisconsin Business Travelers

		Association
LORRIE LISEK	Executive Director	Wisconsin Clean Cities
KURT BAUER	President and CEO	Wisconsin Manufacturers
JOHN LOTZER		Timmerman Airport

4. TAG – Meeting August 1, 2016

4.1 Meeting Minutes

MKE Sustainability Management Plan – Technical Advisory Group (TAG) Meeting #1

August 1,2016 9:30 – 12:00(noon)

MKE – Sijan Room

- Project background and introductions.
  Sean Hayes kicked off the meeting and indicated this technical advisory group would help shape what sustainability means for the airport. There will be four meetings at key points during the study when direction is needed.
- Introduction to Airport Sustainability and Sustainability Management Planning
  Craig Riley of AECOM presented on the topic of airport sustainability and outlined the sustainability management planning process.
- Defining a Sustainability Vision Statement for MKE
  - Nathan Guequierre of AECOM and Karen Baker of Bay Ridge Consulting led a discussion leading into a vision statement for the airport and sustainability. Advisory group members shared key sustainability efforts already underway and indicated why they are being done. The list below highlights the discussion, and includes supplemental notes. Although there are clear areas of overlap, the efforts are roughly categorized into environmental, social and economic initiatives.

Environmental

- City Works – Asset Management
  - Logging, maintenance, KPI, reporting, GIS, SMS, data
  - Total asset management centralized data system. Why: Improved reporting, workflows and KPIs. Tied to GIS. Improved reporting capabilities, reporting to FAA, better grasp of systems and labor and O&M costs. Saved costs.
- Waste recycling programs, consumer products, construction waste, batteries, public transit subsidizing for employees
- Watershed monitoring program. Regulated by stormwater permit. Helps understands where need to focus. It is regulatory driven but helps address water quality issues. Delta doing containment.
- Tech based energy upgrades – lighting, motors, controllers, electric car chargers, solar study
- Voluntary low emissions program – noise and air quality
- Fuel containment for ground support equipment, focus areas for water quality

- Glycol recovery – waste to energy
- Parking fleet – CNG, cost/emissions
- Car charging.
- Public transportation subsidy system. Why: Reduce emissions, save fuel, keep employees happy.
- Adding meters to monitor electric use
- Noise abatement turns
    - Extensive N.A. program, noise insulated 2400 homes and buildings
    - Ground noise enclosure
- Bicycle to work contest, bike racks
- Relocating de-icing, move airports to de-icing pads. Closing E Concourse. Will have to move glycol treatment. Airlines will move to other Concourses and deicing operations will have to move.

SOCIAL

- Emergency response training and coordination
- Wings for Autism – Delta/Southwest partnership – curb to gate
- Wounded warriors, Honor Guard, passenger support, Honor flight
- Passenger Support Specialists. Why: to provide an enhanced experience for passengers with greater needs.
- Aviation careers education program
    - MPS, 35 students every summer, especially women and minorities. Long standing aviation education careers program. About 28 years. Employs students from local educational institutions. Why: To engage the community, introduce people to the aviation industry and jobs.
- Volunteers at info desk
- Fear of flying program
- Partner MPS/CAC? – “Be the spark”
    - Adopt a pilot
    - Stuff the suitcase
- Safety management system, airport-wide hazard reporting, monitoring. Getting whole airport onboard with safety program.
- VALE program. Electrification and ground power/ for jet bridges. Did this for noise and AQ issues.

ECONOMIC

- Coordination with airlines – delays, engines, fuel, passengers
- Green purchasing program. (National TSA program, implemented locally – this is procurement program driven by Executive Order, GSA program).
- Amtrak station

Why: Environmental, Social, Economic

- Storm water regulation/permits
- Water quality issues
- Enhanced experience for all traveling public
- Support military through airport
- Introduce women and minorities to careers in aviation
- Engage community
- Focus on community

- Improve workflows, communications, reporting, maintenance management, better understanding of assets, saves $
- Fuel efficiencies, save on de-icing, social responsibility
- Keep out of landfill, cost savings
- Encourage bus/carpooling
- Reduce emissions
- Save fuel
- Keep employees happy/fit/clean
- Right thing to do
- Stay up-to-date with environmental technology
- Reduce energy use and cost
- Noise, air quality benefits
- Centralize storage… reduces cost
- Operation efficiencies
- Connect to other modes
- Protect local watershed
- Economical way to reduce waste
- Generate energy
- Economic value
- Save money on diesel fuel with CNG
- Emissions benefit
- Evaluate what areas use energy
- Neighbor concerns – noise
- Noise abatement = good neighbor
- Safety – reduce risk

The visioning discussion concluded with members indicating what in the future of the airport would make them the most proud. Responses included the following:

- Use MKE, not ORD
- Max volume with max safety (air traffic perspective)
- Electric bill lower (right now it's $250K/month)
- Screening: effective and efficient, short wait times
- Zero waste

- **Break**

- **Focus Areas**

  The group discussed focus areas and did a ranking exercise with colored dots. For environmental considerations, energy, water, transportation and green building scored well. For social sustainability, the customer service/passenger experience rated the highest. For economic issues, the highest valued response was operational efficiency/optimization. The full results of the ranking are in the table below.

Focus Area Ranking Results

Focus Area	Points	Category
Customer Service / Passenger Experience	32	Social
Operational Efficiency/Optimization	31	Economic
Energy Consumption/Conservation	17	Environmental
Health and Safety	13	Social
Passenger and Cargo Volume	12	Economic
Revenue Generation	11	Economic
Community Engagement	9	Social
Green Building / Sustainable Infrastructure	7	Environmental
Business Continuity / Infrastructure Resiliency	7	Economic
Financial success of Tenants/Concessions	6	Economic
Passenger and Community Accessibility	6	Social
Diversity / Equal Opportunity / Retention	6	Social
Water Consumption/Conservation	5	Environmental
Compliance & Liability	5	Environmental
Market Positioning and Branding	5	Economic
Energy Resiliency	5	Environmental
Water Quality	4	Environmental
Stormwater Management	4	Environmental
Intermodal Transportation	4	Environmental
Other (Reduce airport debt)	4	Economic
Support Tenants / Concessions / Local Business	4	Social
Training and Education	4	Social
Air Quality	3	Environmental
Recycling / Landfill Diversion	3	Environmental
Industry Engagement and Participation	3	Economic
Employment Programs and Benefits	3	Social
Public Transportation	2	Environmental
Alternative Fuels	2	Environmental
Improving tenant / concession performance	2	Environmental
Arts and Culture	2	Social
Land Management	1	Environmental
Employee Relations	1	Social
Noise	1	Social

Focus Area	Points	Category
Other (Job Opportunities, community)	1	Social
Renewable Energy	0	Environmental
Low Emission Vehicles	0	Environmental
Greenhouse Gas Emissions and Reduction	0	Environmental
Climate Change Adaptation	0	Environmental
Materials Use Optimization and Reduction	0	Environmental
Natural Resource Conservation	0	Environmental
Preserving Ecosystems and Habitats	0	Environmental
Biodiversity	0	Environmental
Solid Waste Management	0	Environmental
Hazardous Materials	0	Environmental
Impact on Local Economy	0	Economic
Sustainability Disclosure / Marketing	0	Economic
Sustainable Procurement	0	Economic

Additional comments:

Environment

- Water should be a focus and worked into the vision statement
- Energy costs are a huge issue. Energy use reduction must be a focus area. Monthly energy costs = $250K
- There is a lot of waste in unopened/full water bottles as people go through security. Can we talk about zero waste?
- Air traffic control commented that awareness of what are the main issues could greatly affect which areas people feel are most important.
- Mission and goals must be specific to MKE: Lake Michigan is our number one environmental asset.

Social

- Under the social category, a member commented they would like to see “succession planning” box, meaning how to train and retain people as a strong investment for the organization. Institutional sustainability from an employment perspective.
- Related to health and safety, considerable effort related to active shooter scenarios, weather plans, and aircraft accident response is an important airport function. Note that Milwaukee also covers other airports (i.e. Green Bay)
- Customer experience is the key. It was noted that airports are “windows to the city” and this should be added in some way to the social impacts. For example, passengers walking outside in the winter to board.

Economic

- Concessions and tenants need to be happy to create a good passenger experience.
- Efficiency = low costs for airlines, concessions = lower costs for passengers = attracting more airlines, destinations. Profitability is related to customer experience.
- Debt reduction is important to help keep overall costs low
- One person asked whether this sustainability initiative guiding the Master Plan? Sean replied that with the Master Plan coming next year, the plan will run parallel with the sustainability initiative

What's next? Sustainability Baseline, Goals, and Actions

Craig indicated that the focus area priorities will help direct the study team with respect to priorities as they embark on the sustainability management plan. It is expected that this group will meet again sometime in November 2016.

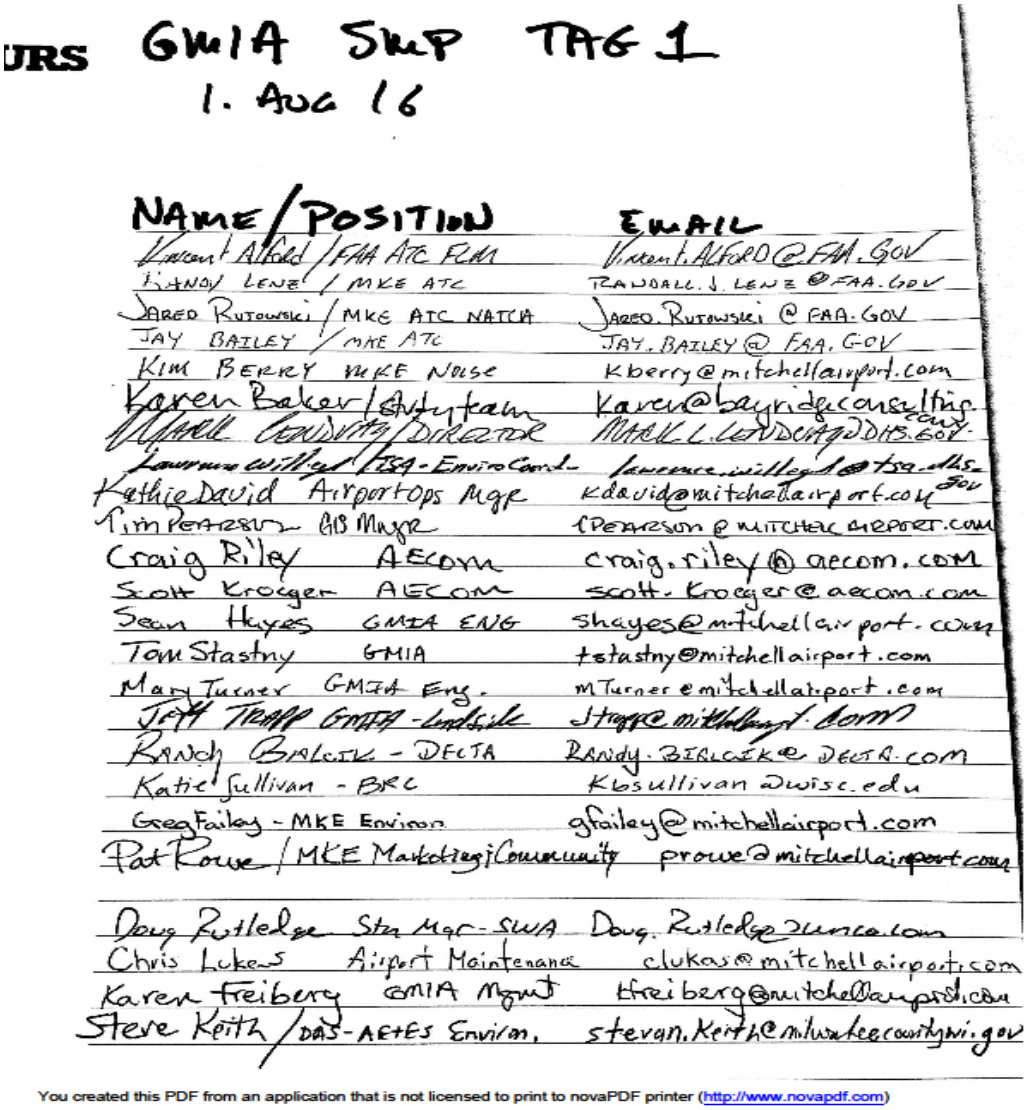
Stakeholder Advisory Group Invite List Ideas

The group brainstormed a list of stakeholders to engage in this process. Groups mentioned are listed below.

- Gateway BID (Gateway to MKE)
- Wisconsin Business Travelers Association
- Visit MKE
- Northern Illinois stakeholders
- Mayor
- Neighboring municipalities
- County Executives
- Cargo airlines
- Concessions (invited to TAG)
- Airport noise advisory committee
- Wildlife biologist
- Regulatory agencies: USGA, DNR, MMSD
- Airport properties
- Racine, Kenosha manufacturers
- MMAC
- Racine chamber
- Lake Co. Partners
- There are committees for municipalities… but should have broader representation
- CPB – customs boarder protection
- Sheriff, fire depts.
- WI Bureau of Aeronautics (should they be on the TAG?)
- National Weather Service
- Greater Milwaukee Association of Manufacturers and Commerce
- Military installation
- Fuel MKE
- M7
- Newaukee
- UWM
- Tenants that are not here but are wanted: JetBlue, Spirit (they want lower cost)
- EAA
- Hotels

- Nearby businesses
- Aviation college
- MATC
- Focus on Energy
- Waste haulers
- Signature

4.2 Meeting Sign – in sheet



URS GMIA SMP TAG 1
1. Aug 16

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5. TAG – Meeting November 30, 2016

5.1 Meeting Minutes

MKE Sustainability Management Plan – Technical Advisory Group (TAG) Meeting #2

November 30, 2016 1:00 – 3:00

MKE Business Park Building 102 Auditorium

I. Welcome Back!

Sean Hayes provided an introduction to the meeting and thanked the advisory group members for their participation, including providing data. Craig Riley of AECOM then welcomed the group and provided a safety briefing.

II. Sustainability Management Plan updates and Baseline data analysis results

Craig Riley, Patrick Cellie and Nathan Guequierre of AECOM presented on the SMP progress to date and an overview of the baseline results formulated from data and information, some of which was generated by the TAG members themselves.

III. Breakout Session

Following the presentation all members of the technical advisory group were divided into 4 separate groups. Each group rotated through four smaller discussions (world café style). These conversations were led by Nathan Guequierre, Craig Riley, Scott Kroeger/Kevin Carlson and Patrick Cellie of AECOM. Each section focused on results from the baseline analysis for a set of Focus Areas; the four sections included: waste and water, energy, social and economic.
Each group got 10 – 15 minutes to engage in discussion at each section including the results of the baseline analysis. The breakout groups also focused on generating ideas for how MKE could improve on sustainability within each Focus Area. Groups formulated smaller action items as well as larger goals that the airport could work to achieve. Below is a list of comments generated during these discussions.

Technical Advisory Group (TAG) – Breakout Groups	
Blue Group	Pat Rowe, Andy Shoemaker, Sean Hayes, Steve Keith
Orange/Red Group	Randy Bialick(Delta), Erick Shambarger, Greg Failey, Randy Lenz
Yellow Group	Margaret Thormond, Kim Barry, Mary Turner, Kathy David, Tim Peterson, Jay Bailey
Green Group	Jared Rufowski, Chris Lubus, Gordie Bennett, Tom Stastny

Economic		
Type	**Comment**	**Group**
Feedback	LEED is important for new builds, but less important and more difficult for renovation projects	N/A
Feedback	Cityworks has been a very positive experience	N/A
Action	How do we leverage the Amtrak station?	N/A

Action	Incorporate the Timmerman business plan (upcoming project)	N/A
Action	Is economic separation and/or separate study warranted for MKE, MCW, and the Business Park	N/A
Feedback	Take care in conveying negative trends (decreasing passenger counts, etc) to the general public, especially when they are driven by airline decisions out of MKE control	N/A
Feedback/Action	Can advertising have an impact	N/A
Action	Perception / sustainability message – can it be delivered to arriving passengers through ads or posters?	N/A
Data or Goal/Action?	Business Park occupancy and performance	N/A
Feedback	Revenue from parking (what is the impact of off sites and ride shares)	N/A
Feedback	Parking capacity / percent used	N/A
Action	LED lighting prevalence	N/A
Feedback	Occupancy – how many empty spaces do we have	N/A
Feedback	Airline occupancy / gate use	N/A
Feedback	Ground Service Equipment (GSE) – what percent is still diesel	N/A
Feedback	Snow melting equipment cost and use	N/A
Goal/Action	International flights / new air service	N/A
Feedback	Passenger costs – Cost per enplanement and revenue per passenger	N/A
Feedback	Facility value (facility condition index as implemented across the County)	N/A
Feedback / Action	Deicing time / related environmental impact	N/A
Feedback	Airline load factors	N/A
Feedback	Average airfare and relationship to passenger counts	N/A

Energy		
Type	**Comment**	**Group**
Feedback	Presentation met expectations.	Green Group
Feedback	Natural Gas pricing doesn't follow patterns... costs don't always reflect usage (large fluctuations). Can't lock-in rate	Green Group
Feedback	2014 Natural gas commodity rates spiked	Green Group
Feedback / Action	More LED usage planned for terminals	Green Group
Feedback	Older buildings in business park are less efficient	Green Group
Action	Demolish business park? Many buildings have been empty for years or have very specific uses that were meant for the military base… allow reuse of space or redevelopment	Green Group

Action	Air traffic could do more with airfield lighting…. No incentive to turn off lights when not in use. Often lights not needed especially during the day	Green Group
Action	Create sub meters on airfield lights to lower usage	Green Group
Feedback	Need more information on what lighting requirements are	Green Group
Action	Could sensors or timers be installed on airfield lights?	Green Group
Goal / Action	Are there geothermal opportunities? Green Bay airport uses geothermal energy for maintenance building?	Green Group
Feedback	Energy use reduction will support the reduction of GHG	Blue Group
Feedback	Electricity and fuel source data needs to be broken down and qualified.	Blue Group
Action	Could we get broken down electricity and fuel source data? How? Sub metering best option. It should be priority	Blue Group
Feedback	Use consistent measurement units for graphs/reports. One graph showed energy usage per month, others per year.	Blue Group
Action	Not enough alternatives for staff to avoid driving personal vehicles. Example: Bus route 122 stops at MKE airport but doesn't start early enough for early shift (4am). Talk to MCTS to accommodate first shift	Blue Group
Feedback	Need a table listing existing energy efficient fixtures (lighting) and inefficient fixture	Blue Group
Feedback / Action	Need list of energy efficient initiatives, cost and energy savings	Blue Group
Feedback	It would be helpful to have a pie chart showing energy consumption by source. (i.e. renewables, natural gas, propane, etc). Also where energy being used.	Blue Group
Action	Need sub metering to understand where energy being used.	Blue Group
Feedback	Building management plans might provide this data?	Blue Group
Feedback	New LEED Building has dashboard	Orange Group
Feedback	WE Energies may have an energy analysis tool to help provide data for this study	Orange Group
Action	Revisit We energies proposal re solar power. A public-private partnership may be necessary to make it work.	Orange Group
Goal / Action	Cogen and/or microgrid at business park should be considered	Orange Group
Feedback	Business park buildings not built to code and expensive to update	Orange Group
Feedback	City of MKE has framework – coalition of mayors – for data and airport data would assist their purposes too	Orange Group
Feedback	Check delta.com for clean green skies initiative	Orange Group
Feedback	Taxi time goals directed by airlines	Orange Group
Action	HVAC is biggest user. Building envelops need to be prioritized: securing windows, fixing holes in walls, closing doors.	Yellow Group
Action	Need improvement to management controls… heat still on in spring, A/C on in Nov.	Yellow Group
Action	Turn runway lights off at night when not in use. Currently left on for	Yellow Group

	fear of human error… use timers/sensors?	
Action	Runway lights not allowed to be LED yet, but taxi way lights can be LED	Yellow Group
Action	Cityworks could be connected to any airport monitoring systems – could provide the framework for data collections and organizing, taking readings, configuring and accessing application.	Yellow Group

Waste and Water		
Type	**Comment**	**Group**
Feedback	Make clear where baseline data is coming from	Blue Group
Feedback	Metrics used to track data must be simple and replicable	Blue Group
Action	Create tool, spreadsheet? To give to MKE for future data tracking/entry	Blue Group
Feedback	Look at 'Keep Greater MKE Beautiful' – County wide study on recycling – uses for baseline?	Blue Group
Action	How to close gaps in waste data? Need tool	Blue Group
Feedback	What is a reasonable goal? What is achievable? What are other airports doing? Who is the model? What is the median? Where does MKE stand?	Blue Group
Action	Water bottle filling stations right after security (airport doesn't have any now but will implement in future as existing water fountains need replacing)	Blue Group
Feedback	Who is using water? $ for water has increased but more efficient fixtures has also increased.. why? How?	Blue Group
Feedback	Baseline data hard to compile	Orange Group
Action	Lack of public message/education – add kiosks of information around airport	Orange Group
Feedback	Closed moving sidewalks and took flak from public; should have 'gotten ahead' by educating public of high energy usage/$ spent to operate sidewalk (general comment regarding need for improved public education and communication)	Orange Group
Action	Add dumping station before security for people with liquids; many currently pour liquids in trash. More challenging for custodial staff	Orange Group
Action	Create MKE branded water bottles to give out after security… 'Reward' for going green in other ways. 'Thanks' to passengers…	Orange Group
Goal	Brand MKE as 'water hub' – team up to brand with City, water council, etc.	Orange Group
Feedback	Recycle Glycol (deicer) – Not accounted in baseline data – MMSD takes to create methane for nominal fee	Orange Group
Feedback	Storm water at MKE Good! Monitored daily – minor issues in winter	Orange Group
Feedback	Ban coal tar based sealants on pavement (Appears to already be banned by FAA)	Orange Group

Action	Add more live plants / living walls?	Orange Group
Action	Plans to work with MMSD / KK to remove concrete lined channels	Orange Group
Feedback	How do you know when to invest (green infrastructure) and when not to? Water is cheap in MKE – is it worth investing $ to save in the long run?	Yellow Group
Feedback	Waste> Water priority – wise	Yellow Group
Action	Improve recycling stations – make bigger differences so more easily distinguished	Yellow Group
Goal	Formalize recycling program and create trackable data – airport needs to see/know benefits in order to advertise / 'brag' to community	Yellow Group
Action	Advertise MKE's recycling and water saving benefits at water fill stations	Yellow Group
Action	Ask in customer survey about priority for water filling and dumping stations	Yellow Group
Goal	MKE should capitalize on MKE being water tech hub	Green Group
Feedback	Water biggest commodity in the future	Green Group
Action	MKE will replace broken drinking fountains with dual unit including water bottle filling stations	Green Group
Feedback	How much water are concessions using?	Green Group
Feedback	MKE airport uses no irrigation (Great!!)	Green Group
Action	Where should MKE focus water conservation?	Green Group
Action	Meter water for tenants?	Green Group
Feedback	MKE currently replaces fixtures that fail with high efficiency ones	Green Group
Feedback	MKE Water works rate scale is backwards – the more you use the lower the rate – encourages higher water usage (bad – needs to change!)	Green Group
Feedback	Waste is a commodity that needs to be managed	Green Group
Feedback	MKE has dump truck that uses natural gas – contracts with local dump for trash and other places for recycling	Green Group

Social		
Type	**Comment**	**Group**
Action	Provide free Wi-Fi (MKE first 20 min free after cumbersome process)	Yellow Group
Feedback	Airport has 4,000 badges (includes contractors not in LEHD data)	Yellow Group
Feedback	TSA has 275 – 300 employees	Yellow Group
Feedback	MKE has 350 allotted positions, not all are filled (ACI #'s)	Yellow Group
Feedback	County level employees peak at 290 in the winter	Yellow Group
Feedback	FAA has additional 80 employees	Yellow Group
Feedback	MKE doing well on 'noise program' – planes also getting quieter - could measure noise by # of complaints	Yellow Group

Action	Ground noise at the fringe of airport could be improved using proper use of ground noise procedures	Yellow Group
Action	Concessions geared toward men? Few healthy options	Yellow Group
Action	Improve wayfinding by better, balanced signage (remove clutter) – add directional info on floors?	Yellow Group
Feedback	250 MKE County employees at the airport	Green Group
Feedback	Not surprised by positive Canmark ratings – compared to nearby airports (i.e. O'Hare)	Green Group
Goal	Create expectation that all staff at the airport works well with the public – can ask anyone for help and they will provide good assistance	Green Group
Action	Does the airport help employees advance?	Green Group
Feedback / Goal	Track wage earnings by educational attainment – goal of $15/hour by 2021	Green Group
Feedback	MKE doesn't have employees coming from areas of MKE that most need jobs/work	Green Group
Action	Barrier to employment: must pass background checks – can this be addressed by hiring temp employees?	Green Group
Feedback	MKE County no longer has a residency requirement for airport employees	Green Group
Goal	Limited transit access could affect employment – 3rd shift employees most hurt by lack of transit – how can this be addressed?	Green Group
Goal	MKE workforce should mirror community	Green Group
Action	Airport has jet restrictions for noise but not prop restrictions	Green Group
Feedback	Future runway configurations could impact noise – review during master plan	Green Group
Action	Create more apprenticeship programs and professional development to help increase middle income jobs at MKE	Green Group
Action	Improve advertisement and notification of job openings. Create partnerships to get word out.	Green Group
Feedback	Many of the nighttime positions require commercial driver licenses	Green Group
Action	How does MKE improve wayfinding during construction?	Blue Group
Feedback	In order to get a badge for MKE must view customer service video	Blue Group
Feedback	Only four major airlines remain at MKE – led to loss of jobs	Blue Group
Feedback	Employees earning < $15,000 annually – part time positions	Blue Group
Feedback	Loss of jobs may be due to > efficiencies in employment. Check # of jobs per enplanement.	Blue Group
Feedback	MKE County has little influence over private sector jobs	Blue Group
Action	More jobs that create more $ for the County are desirable, but don't create jobs to create jobs and have more County staff.	Blue Group
Feedback / Action	Does the MKE Airport have an economic development plan?	Blue Group
Goal	Maintain high customer satisfaction rates – or improve!	Blue Group

Action	Track satisfaction with a Net Promoter Score system	Orange Group
Feedback	Baseline data interesting – thoughts on vendor food?	Orange Group
Action	Improve transit connections to underserved zip codes	Orange Group
Feedback	ACE program – great for underserved youth in MKE – Airport hires 50 high school students a year	Orange Group
Goal	MKE become more user friendly (like Indianapolis)	Orange Group
Action	Improve wayfinding, customer service and parking facilities	Orange Group
Action	Increase number of vendors after security	Orange Group
Action	Create business center or conference room past security	Orange Group
Action	Waiting area spaces could be improved (live plants, better TV's, more charging stations, cleanliness, more natural light)	Orange Group
Action	Adding more local vendors adds to the uniqueness of the airport (cheese curds, Harley Davidson)	Orange Group
Goal	Highlight Airport as gateway to MKE – 'water hub'	Orange Group
Action	Add Instagram photo booth for people to take selfies at airport with MKE landmarks and logo's	Orange Group
Goal	Clarify Airports relationship to Lake Michigan – best neighbor to Lake	Orange Group

IV. Recap – Thank you!

Following the breakout sessions the group reconvened to discuss next steps of the project. Craig Riley reviewed the upcoming task items including finalizing the baseline data and turning it into a report and beginning Task 3: Sustainability Goals and Objectives and Task 4: Sustainability Actions and Targets. Craig informed the group that they would be asked to meet two more times before the SMP was finalized.
Craig and Sean thanked the group for their time, data and ideas.

5.2 Meeting Sign in Sheet

GMIA Sustainability Management Plan
Project No. A209-16014
November 30, 2016

Technical Advisory Group

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GMIA Sustainability Management Plan
Project No. A209-16014
November 30, 2016

Technical Advisory Group

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6. SAG – Meeting November 30, 2016

6.1 Meeting Minutes

MKE Sustainability Management Plan – Stakeholder Advisory Group (SAG) Meeting #1

November 30, 2016 4:30 – 6:30

MKE Business Park Building 102 Auditorium

I. Introductions

As stakeholders filtered into the room they were greeted by AECOM staff and asked to sign in and were then informed about the MKE SMP project and what their role would be. After receiving this introduction to the project and their role as part of the Stakeholder Advisory Group (SAG) they then visited any of four stations. The stations were staffed with a consultant prepared to go over baseline results and ask the stakeholder for feedback on goals and actions MKE could consider. Stakeholders were given 45 minutes to visit and engage in dialogue at the 4 stations before they were brought together for a brief presentation.

Comments and ideas that were generated at the stations are listed below.

Waste and Water		
Type	**Comment**	**Group**
Feedback / Goal	Net zero waste management systems (USBGC) – lofty for MKE but could use guidelines? More airport friendly than LEED	SAG
Action	Airport composting – at min. concessions level/scale	SAG
Goal	LEED Performance based measure (LDP) – based on tracking/monitoring publically – 'systems thinking' DO NOT need certification	SAG
Goal	LDP is now Arc (12-1-16) performance based tracking platform that can, but does not need to, lead to LEED certification http://arcskoru.com/	SAG
Feedback	MKE on combined sewer? Partially?	SAG
Action	MKE needs more public engagement/outreach/education on stormwater management – Sweet Water can help!	SAG
Feedback / Action	Sustainablesites.org – MKE should check out – currently no projects in WI (USBGC)	SAG
Social		
Type	**Comment**	**Group**
Goal	Economic Development initiatives can be supported by the Fed Gov. Need more international destination to create interest	SAG
Action	Policy changes to provide flexibility and authority in hiring – i.e. conducting background checks	SAG
Action	Work with MMSD on watershed restoration projects	SAG

II. Introduction to Airport Sustainability and Sustainability Management Planning

Craig Riley, of AECOM began the presentation by introducing the topic of airport sustainability and sustainability management plans. Patrick Cellie and Nathan Guequierre of AECOM then presented on project progress to date including the baseline analysis. The presentation was completed with discussion of next steps in the project and how the stakeholders will be engaged as the project develops.

III. Conclusions and Breakout

Following the presentation, stakeholders were free to leave or could stay to ask follow up questions at the four stations or give additional comments or suggestions.
The group was also asked to continue participating as part of the Stakeholder Advisory Group and informed there would be two more SAG meetings before the SMP was finalized.

6.2 Meeting Sign in Sheet

GMIA Sustainability Management Plan
Project No. A209-16014
November 30, 2016

Stakeholder Advisory Group

Name	Organization	Email	Phone
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KORINNE HAEFFEL	USGBC	KHAEFFEL@USGBC.ORG	414-224-9422
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7. TAG Meeting – April 19, 2017

7.1 Meeting Minutes

MKE Sustainability Management Plan – Technical Advisory Group (TAG) Meeting # 3

April 19, 2017 2:00pm – 4:00pm

MKE Milwaukee Room

I. INTRODUCTION

- Sean Hayes, MKE Project Manager, welcomes the group. He explains that this is the third of four meetings we have scheduled for the TAG and thanked everyone for their participation so far. Sean reports to the group that this meeting is to discuss the goals and actions which will be included in the final Sustainability Management Plan for the airport.
- Nathan Guequierre, from AECOM, welcomes the group and introduces the project team (Craig, Patrick, Elliot, Kevin, Kayla, Ellen from 2story and Karen Baker from Bay Ridge Consulting).
- Craig Riley, from AECOM, introduces where the team is with the project and what has been done since the last meeting in November. Craig reads through the sustainability vision statement and reminds the team this is open to being revised throughout the process. Craig discusses where the team is at with the baseline report, that it is done but some comments from the airport still need to be addressed.
- Karen Baker, from Bay Ridge Consulting, goes over the results of the first public survey. The survey was taken by over 200 individuals and a second survey has been created to get feedback on actions and goals. The second survey will be live within a week.
- Craig takes over again and introduces the workshop portion of the meeting, explaining how the list of actions and goals has been filtered by the team already but needs more revisions today.

II. GENERAL ACTIONS

- Craig introduces list of *general actions*.

  - G1: Gordie notes that a more general comment should be added that the sustainability management plan should be included/adopted as part of the upcoming master plan revision.
    - Craig suggests a tactic be added to formally integrate the SMP into the Airport master plan
  - G4: include measures, KPI's

III. ENERGY GOALS AND ACTIONS

- Patrick introduces the *energy goals and actions*.

a. Air Quality and Climate Change

- AC1 (Airport carbon accreditation): Tom asks what ACA accreditation is. Patrick explains each of the levels and what ACA is (through ACI)

- Tom notes that is encouraging that the program is through ACI as it would allow for a comparison between peer airports

b. Energy management

- Steve notes that the energy management goal should be changed to intensity, not an overall reduction as the airport would like to grow which would result in more energy consumed.
- Kevin notes that a tactic should be added for the airport to consider a larger procurement strategy (add to strategic energy management plan or efficiency) this would help the airport save overall $$. Tying systems together.
    - Procurement should consider occupancy sensors

c. Waste Management

- WS1 (Develop a monitoring and tracking plan for airport waste): Chris notes airport should create contracts that require vendors to tell airport amount of waste being hauled away. (add as tactic?) – Waste management and others may not want to share this information with MKE…
- WS2 (Collaborate with tenants waste management): Airlines have programs, too – integration is possible
    - Chris notes that the airport needs a stronger alignment between the airport and its tenants

d. Water Management

- Chris notes that the goal should be changed to measure reduce water use by intensity, allowing airport to continue growth
- Greg comments that MKE can support MMSD's removal of concrete channel linings on tributaries to the Kinnickinnic River
- Gordie notes that a water feature could be implemented at the airport – help establish MKE water hub. Could be public art and/or informational; a splashy statement
- WA2 (Water management efficiency program) - Standards
- WA7 (Comprehensive stormwater management plan – review and update) – Tom asks if this is Greg's program? Should be spelled out more… stormwater permitting

IV. SOCIAL

- Nathan introduces the *social goals and actions*.

a. Employee Engagement

- EE1 (Improve transportation options for employees) : Gordie asks if it makes sense for the airport to focus on transit in the SMP when they have no control over it
    - AECOM team explains where the action came from – Greg and Chris agree it is an issue for first and third shift
    - County has existing transit options (cheaper fares through MCTS, etc.)
    - Other solutions may be available: ride sharing for example

- Gordie asks the TAG if there is any interest in apprenticeships at airport
    - Chris and Mary note that they are difficult at the airport because there isn't enough diverse work
- Chris asks if goal 1 should instead be about attracting workers from throughout SE WI as you no longer have to live in MKE county to work at the airport.
- Tom notes that the sense of place will likely improve with new vendors as HMS contract is up and looking to bring in a new contract for food

b. Health and Safety

- HS3 (Maintain comfortable environment for smokers and nonsmokers): Tom wants to eliminate this action – why support bad habits of customers?
    - Greg agrees it isn't a big enough priority for the airport to keep in SMP
    - This could be more about maintaining separation for non-smokers. No one likes walking through the smoking zone outside the baggage claim doors.

1. Craig notes that there needs to be a conversation about potentially realigning health and safety topic to be more general or specific depending on direction airport would like (include health of employees, etc. or specifically compliance)
2. Add new tactic for healthy food options? (addressed in CX?)
3. Treadmills/stationary bikes to power devices – provide fitness options for travelers and employees
4. Consider employee wellness plan

c. Customer Experience

- CX7 (Consider strategies included in ACRP report 157) : Gordie says the action is too broad – any specific strategies to include?
    - Consider lighting and design as customer experience
- How to optimize goal of sustainability vs. customer preferences? (e.g. hand towels vs blowers)
    - Coordinated / conflicting actions

d. Community Engagement

- Beer garden
- Sense of place, local vendors will be a goal of redevelopment
- CE2 (Develop relationships with community partners) : Increase use of meeting rooms, address parking costs with room rentals

V. ECONOMIC

Craig introduces *Economic Goals and Actions*.

a. Sustainability and Resilient Buildings and Infrastructure

- Greg notes that the airport is supportive of LEED projects if the opportunity presents itself and makes sense financially

- Chris notes often new construction makes the most sense for LEED projects (notes international terminal could be future LEED project)
- SB2 (Adopt airport green building commitment) : Sean notes this should be changed to 'consider' LEED - Chris thinks it can be left as is
- SB2 + SB3 (Green building commitment and sustainable building guidelines) : Chris notes these actions can be combined
- Tom notes that Chicago implemented 'SAM' – own building standards –

b. Economic Prosperity

- EP5 (Life-cycle cost analysis to decision making) : Gordie says unlikely to do at airport as MKE would need an expert that they don't have
- EP5 (Life-cycle cost analysis to decision making) : Greg suggests removing this action or combine with EP1

c. Operational Efficiency

- Craig notes this could all likely be done through cityworks
- OE3 (Develop and implement environmental management system) : Greg suggests adding tactic about using cityworks for this
- OE4 (Complete periodic facility assesments) : Gordie notes existing 4 year building evaluation rotation performed by MKE County
    - Should a specific airport assessment be done including all assets vs. specific items?
- Airports success with city works has spurred MKE County to use it as well

VI. RANKING

- Gordie/Chris: criteria should be ranked by importance (Finances and customer experience are highest on the list – most important)
- Sean: Consider cost as factor – can't implement best action if its $10 million
-

VII. CONCLUSION

a. Craig notes the next steps of the project

- Take feedback from SAG/TAG and refine goals and actions
- Next steps will be to put together ranking of goals/actions and implementation plan
- Will engage SAG/TAG again – once more – during implementation plan process

b. Thanks for coming!

7.1 TAG Sign in Sheet

GMIA Sustainability Management Plan
Project No. A209-16014
Tuesday, April 19, 2016

Technical Advisory Group

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KAYLA REITHMEYER	AECOM		

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8. SAG Meeting – April 19, 2017

8.1 Meeting Minutes

MKE Sustainability Management Plan – Stakeholder Advisory Group (SAG) Meeting # 2

April 19, 2017 4:30pm – 6:00pm

MKE Milwaukee Room

INTRODUCTION

I. Sean Hayes, MKE Project Manager, welcomes the group. He explains that this is the second of three meetings we have scheduled for the SAG and thanks everyone for their participation so far. Sean reports to the group that this meeting is to discuss the goals and actions which will be included in the final Sustainability Management Plan for the airport.

II. Nathan Guequierre, from AECOM, welcomes the group and introduces the project team (Craig, Patrick, Elliot, Kayla and Karen Baker from BayRidge Consulting).

III. Craig Riley, from AECOM, introduces where the team is with the project and what has been done since the last meeting in November. Craig reads through the sustainability vision statement and reminds the team this is open to being revised throughout the process. Craig discusses where the team is at with the baseline report, that it is done but some comments from the airport still need to be addressed.

IV. Karen Baker, from BayRidge consulting, goes over the results of the first public survey. The survey was taken by over 200 individuals and a second survey has been created to get feedback on actions and goals. The second survey will be live within a week.

V. Craig takes over again and introduces the workshop portion of the meeting, explaining how the list of actions and goals has been filtered by the team already but needs more revisions today.

GENERAL ACTIONS

VI. Craig introduces list of *general actions*.

- G1 (Integrate sustainability metrics into MKE KPI initiatives): Nancy asks if this action includes management incentives, KPI? - quantify, metrics - Craig notes not all actions will become KPI's
- G2 (Engage local academic institutions on SMP actions): Nancy questions how team defines 'Region'
- G2 (Engage local academic institutions on SMP actions): Izzy asks for clarification on G2 – what are some examples of institutional collaborations
    - Team lists some examples – Corrine says tactics could be examples of partnerships airports have used

ENERGY GOALS AND ACTIONS

VII. Patrick introduces the *energy goals and actions*.

e. Air Quality and Climate Change

a. Corrine asks if there will be more specific #'s measurements used in final report (i.e. MKE will reduce emissions by X)

b. AC5 + AC7 (Consider direct purchase of energy and buy renewable energy certificates): Corrine suggests combining these actions - allow tactic AC7 to stand alone

c. Consider adding action to promote planting trees around airport to improve air quality

f. Energy management

a. Corrine notes should follow WELL building standards in conjunction with implementing sustainable measures at MKE – keep people comfortable should be top priority

g. Waste Management

a. Add tactic ban Styrofoam / use compostable products

- Patrick notes that HMA Host is pretty good about reducing waste as a cost saving measure – but could do more and make it a standard practice (manual)
- Airport could work to set stricter standards in leases to reduce waste and use environmentally friendly products

h. Water Management

- Corrine notes something should be added about water quality – i.e. action to test water quality every X years/months

- Greg notes that MKE has constant stormwater permit with DNR that is renewed annually

- Lots of positive changes to stormwater run off at MKE (Corrine notes this should be advertised in final plan
- WA4 and WA7 (Install GI and revise comprehensive stormwater management plan): address water quality. Is it enough?
- Gordie agrees drinking water quality has become issue worth noting (flint,etc.)
  - Sean agrees should be included as Action item
- Nancy comments that more green infrastructure should be mentioned – not just about meeting standards but going above and beyond them
- WA7 (Revise comprehensive stormwater management plan) : Corrine notes to reuse existing aviation standards if available – don't reinvent the wheel

SOCIAL

VIII. Nathan introduces the *social goals and actions*.

e. Employee Engagement

- EE2 (Build awareness of airport job openings): Nancy mentions a coordinated effort with all vendors in conjunction with MKE job efforts (post jobs for all vendor positions available in addition to MKE airport jobs)
- County supervisor notes MKE should do a better job of attracting nearby residents
- Sweet water suggests taking employees to outdoor activities and learning about wellness and the environment
- Challenged by criminal background checks to hire local employees

f. Health and Safety

- Studies available that show employers with better employee benefits have a better chance of higher retention rates.

g. Customer Experience

- Wayfinding at airport is difficult – glad to see it is an action item
  - Include parking garage signage
- CX4 (Improve travel and wait): Get rid of additional TV's tactic – already too many tv screens
- Add another tactic for TV free spaces/zones
- WE Energies model solar powered power stations – potentially make use of them at the airport

h. Community Engagement

- CE1 (Develop a communication plan for sustainability information): Corrine asks if this will be effective – does the airport have enough of a media following?
- Nancy mentions an action should be added speaking to MKE relationship with MKE Gateway
- Corrine mentions that all employees should receive sustainability education so that they are able to speak to sustainability efforts at MKE

- Leverage signage/art exhibits at the end of concourse where people are 'trapped' vs. putting them in the main concourse where they will get lost
- Nancy notes that any communication efforts are best kept to short facts or tidbits of information.
- Corrine noted that a decal on the doors of the baggage claim noted its LEED silver status may be more visible than plaques.
- Corrine reminded everyone that the audience is both adults and children – could make use of sustainability scavenger hunt games for kids to play at each concourse.

ECONOMIC

Craig introduces *Economic Goals and Actions*.

c. Sustainability and Resilient Buildings and Infrastructure

- SB3 (Develop sustainable planning, design and construction guidelines): Gordie – include best practices for demo/renovation waste guidelines
  - Corrine – Waste CAP tracking tool app would be useful for airport to use
- SB2 (Develop airport-specific green building commitment): Nancy – be more clear on what SB2 includes to help reader understand what types of projects would be potentially be LEED

d. Economic Prosperity

e. Operational Efficiency

General comment: County supervisor - MKE needs more greenery/trees/plantings surrounding airport to help brighten space as welcome/exit through airport. Make use of medians along streets surrounding airport

RANKING

CONCLUSION

f. Craig notes the next steps of the project

- Take feedback from SAG/TAG and refine goals and actions
- Next steps will be to put together ranking of goals/actions and implementation plan
- Will engage SAG/TAG again – once more – during implementation plan process

g. Thanks for coming!

GMIA Sustainability Management Plan
Project No. A209-16014
Tuesday, April 19, 2016

Stakeholder Advisory Group

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8.2 SAG Sign in Sheet

9. TAG Meeting November 15, 2017

11.1 Meeting Minutes

1. Welcome

a. Sean welcomed the Technical Advisory Group (TAG) for the 4th and final meeting. Sean noted that there are some new faces in the group since the first TAG meeting in August of 2016.

2. Introduction to Sustainability Actions and Implementation Planning

a. Nathan, AECOM, introduced the meeting outline and discussed where the team is in the SMP process.

b. Craig, AECOM, talked through the steps the team has taken to bring the project to the final steps, implementation and final plan. Craig discussed how the breakout groups later in the workshop will help the team fill in the implementation plan for each of the top actions.

c. Nathan discusses how the team has incorporated input throughout the entire SMP process. First, from the technical advisory group (TAG), the core team (Sean, Gordie, Steve and Greg), the stakeholder advisory group (SAG) and finally the multiple surveys used to engage the general public.

d. Nathan then told the group what they can expect from the final documents and quickly reviewed the vision statement before the group split to discuss specific action items.

e. Limited comments from TAG however the new MKE CFO asked about goal setting and whether MKE would publish any public goals. She gave reference to DFW, and potentially was referencing DFW's recent carbon commitments.

3. Implementation Workshop (Breakout groups) – Implementing Priority Sustainability Actions

The group broke out into two groups discussing a total of 4 actions – each group spent the next 40 minutes discussing 2 of the 4 action items. After the 40 minutes were up the two groups swapped and reviewed the previous groups ideas on the 2 action items.

a. **Action: Involve airport business and community stakeholders in the development and implementation of MKE's sustainability program**

- Get on agenda for the MKE sustainability roundtable business outreach
- MBJ breakfasts twice a year
- Aerotropolis Milwaukee – formal meetings St. Francis, Greenfield, South Milwaukee, SEWRPC – also a good place to reach businesses. Have formal meetings for Aerotopolis, can include up to 150 attendees. Ted Torcivia is active with Aerotropolis and offered to reach out regarding MKE SMP and sustainability program as a stakeholder engagement opportunity. Ted is on board for Gateway to MKE. Could use SMP or Aerotropolis as a way to reach out to local businesses.
- Gateway Business Improvement District (BID): Gateway to Milwaukee
- Who is champion of this area? Has been Harold, MKE Director – Ted has taken on getting on station managers agenda
- Could get on Airport and Airline affairs committee meetings (AAAC) – Have regular meetings - get SMP on their agenda to present to committee.
- Noise committee – add sustainability as a topic to reorganize? 14 member board (airport director, citizens, officials) – new committee or just add topic? Established by ordinance
- Travelers Aid Volunteers – interested in status
- Greg and Sean have already presented to local watershed group – take the video on the road?
- Find regularly scheduled events – have a presence – send representatives – wear identifying apparel
- Watershed committee
- People are surprised, appreciative – can inspire
- Press release of key points externally and internally also messaging, social media – add highlights to monitors and in break rooms
- BARRIERS TO ACTION IMPLEMENTATION:
    1. Concern about losing momentum
    2. Add bullet point to existing meetings – who is responsible?
    3. Keep TAG group going with quarterly meetings?
    4. Keep SAG group going too?
    5. Targeted efforts such as amending leases to address sustainability
    6. Write sustainability into contracts to keep it a priority
    7. Using existing reporting tools
    8. Topic is broad and community interests are varied
    9. Limited internal resources

b. **ACTION: Enhance waste management and recycling program and develop education/training on waste management**

- Room for improvement with recycling
- Delta – sorting paper and cardboard in station on planes – single stream
- Delta – habitat for humanity service – establish single stream recycling build playgrounds – involves multiple groups

- Airport evaluate current system and how it supports tenant needs – would single stream work?
- Bottle filling stations add to employee areas in addition to making available for traveling public – more numerous? Would it reduce concession revenue? Who decides the priority? Produce a MKE water bottle
- Champions: Gordie can help one day a week to advise, Greg and Sean are willing to help as available
- When purchasing replacement equipment consider alternative fuels – balanced with potential increase cost of replacement parts (Clean diesel used in Houston)
- Finance team can help with cost benefit analysis and grant availability
- BARRIERS TO ACTION IMPLEMENTATION:
    1. Two waste haulers at dock efficiency could be improved
    2. Data – limited data availability because of haulers – change contracts to address data or containers/dumpsters more terms, requirements for waste
    3. Timelines – budget available for next years – could spend some $ - Add bottle filling stations to operating budget could be good for community engagement cooperate with school of Freshwater Sciences or similar for sponsorship

c. **ACTION: Involve employees in the SMP and airport sustainability program**

- Better understand airlines vision of sustainability – how can MKE's vision mesh w/ airlines – how can MKE and airlines work together?
- Update employee training videos to include sustainability topic – videos are outdated as is and need to be redone
- Provide knowledge/education of sustainability to all employees
- Encourage all staff (tenants, etc.) to watch orientation/sustainability video described above
- Employee newsletter to improve communication on all topics – including sustainability
- Promote sustainability success on TV's, throughout terminal, etc.
- Give out sustainability award as part of the employee recognition program
- Work to empower individuals to create more tactics
- Each department have a designated sustainablility representative
- Replicate county risk management 'find it fix it' program
- Allow employees to contribute on airport comment tablets/forms
- Advertise cost/energy saving projects to employees and customers
- BARRIERS TO ACTION IMPLEMENTATION:
    1. Lack of universal communication system
    2. Hard to implement something that has no measurable goal
    3. Limitations as government entity – cant offer monetary incentives
    4. Hard to create goals for tenants, depts. On some topics. For example, there is no way to keep track of energy use without sub metering
    5. Not all employees have designated work emails
    6. How do my actions make a difference? – attitude – need education
    7. Not all motivated by sustainable goals – focus on beautification in addition to sustainability

d. **ACTION: Develop an airport-specific sustainable planning, design and construction guidelines including green building commitment or policy and consider pursuing LEED certification for appropriate airport buildings.**

- MKE has seen success in the baggage claim LEED certification
- Could include sustainability and green building as a factor in RFP proposal reviews – could ask consultants to design as sustainable as possible and explain any limitations
- Potentially easier to set up sustainability guidelines for tenants/concessions for any buildouts, etc.
- Have sustainability review early in the process for all projects

- Guidelines may need to be specific to type of project and location (tenant or county owned property, etc.)
- Utilize monthly meetings with airlines for future collaboration

4. Discussion: institutionalizing sustainability

a. Next the group comes together and Nathan asked everyone to consider how sustainability can be integrated in various airport departments and functions including planning and design, operations and maintenance, procurement, real estate and legal. Comments are below:

- Follow LEED/ENVISION for capital projects. Sean indicated he could look at potentially using Envision on projects he is involved with.
- Replace vehicles and equipment with hybrid options
- Limit use of De-Icing materials (saves $ and more sustainable). Gregg indicated he will look at BMPs and potentially engage regulators on how regulators can incentivize MKE to advance BMPs.
- Create work group to search for grants to help fund sustainable initiatives. Kim brought this idea up as a way to help fund more sustainability projects.
- BARRIERS TO ACTION:
    1. Departments dis-incentivized to improve efficiency if it saves $ their budget will shrink going forward
    2. Difficult to change established mindset – offset with education
    3. Reluctance to be the first to try something – public sector tends to want to make sure something is tried and true before trying and potentially making a mistake (new technologies)
    4. No incentive to go above and beyond

5. VIDEO Preview

a. Sean introduced the video and discussed how it can be used in the terminal and on the airports website.
b. Some comments from the group include: adding language on cargo volumes and having PR give look to approve language.

6. Other priority actions for sustainability

a. Craig briefly discussed the remaining top actions discussing the large variety of topics covered and the range of accessibility.

7. Thank you and closing

a. Nathan talked about next steps, ‘Thank You’ to the group for their contributions
b. Sean closed by asking everyone to continue participating through bi monthly or quarterly meetings going forward.

11.2 Meeting Sign in sheet

GMIA Sustainability Management Plan
Project No. A209-16014
11-Nov-17

Technical Advisory Group

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SHEET 1 OF 3

GMIA Sustainability Management Plan
Project No. A209-16014
11-Nov-17

Technical Advisory Group

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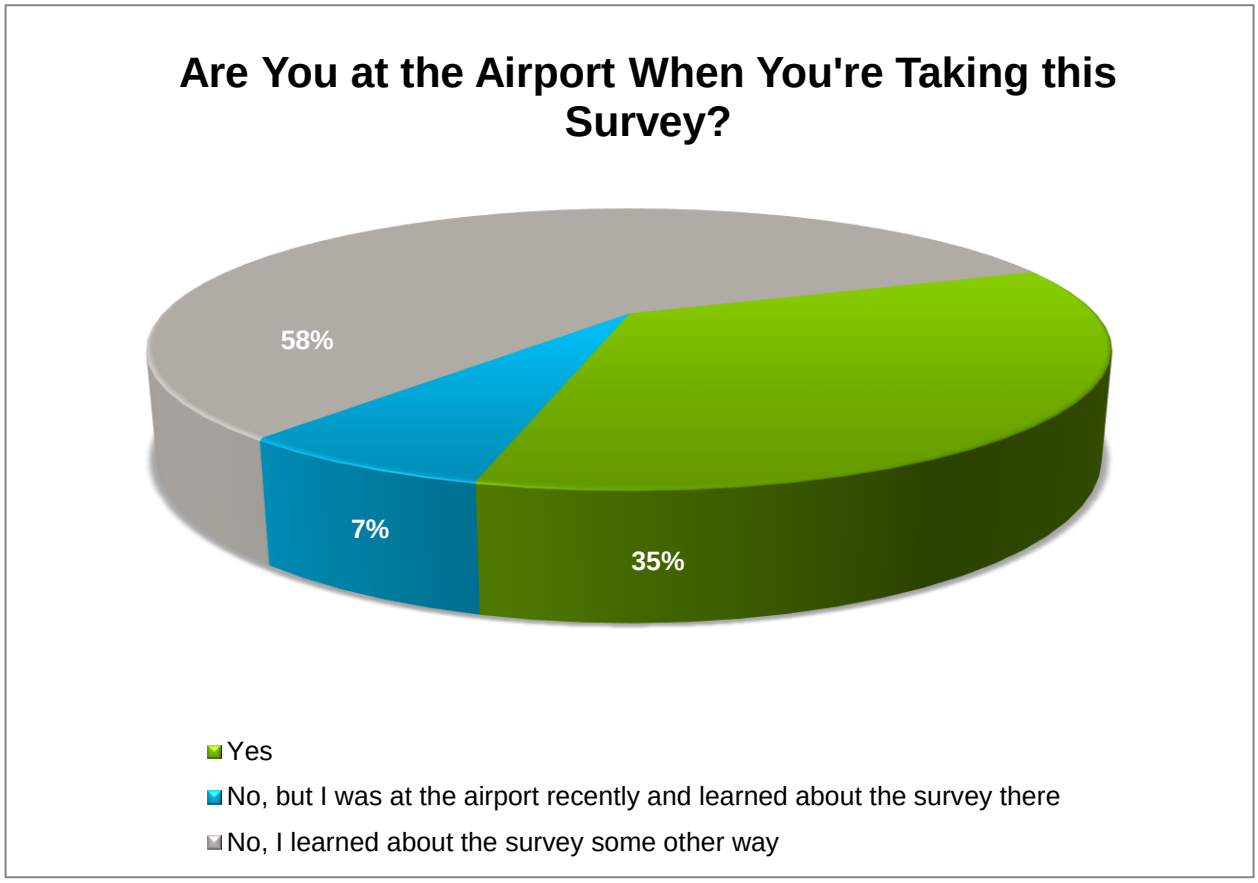
SHEET 2 OF 3

10. Public Survey 1 Results Overview

Over 200 people took part in the first online survey for MKE's Sustainability Management Plan. Their participation will help the airport determine focus areas, goals and objectives for reducing the its carbon footprint, waste, and energy use and to help improve the airport experience for travelers, tenants, employees, and neighbors. Here's what we've learned so far…

People are paying attention at the airport, and even more are interested in what goes on there.

One third of the people taking the survey were at the airport when they learned about and took the survey. Another 58% of respondents learned about it through County Supervisor newsletters or through social media. Milwaukeeans care about MKE.



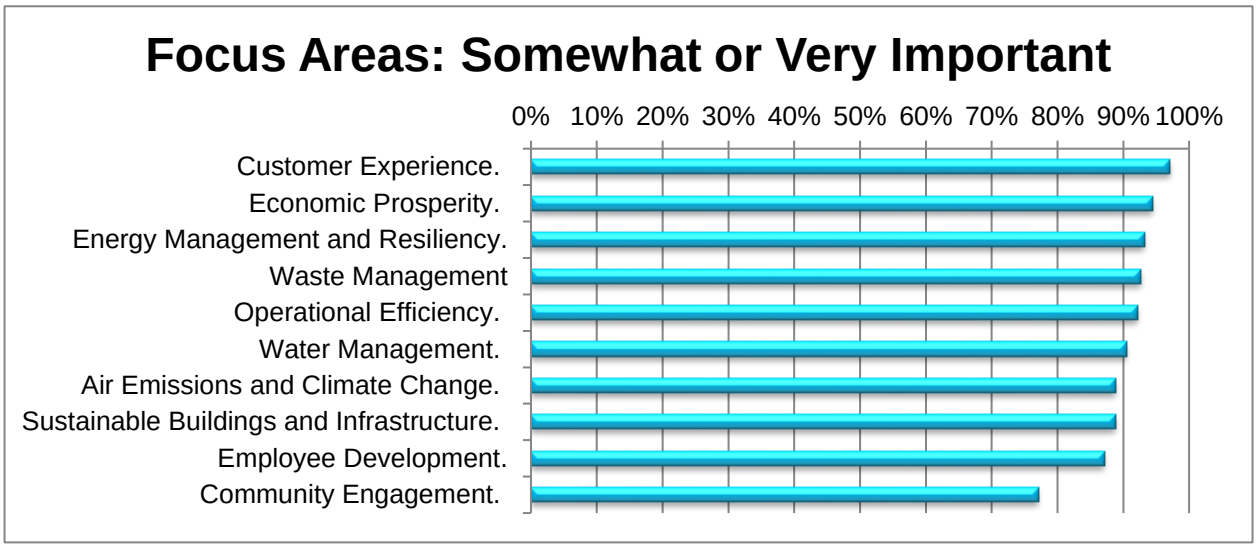
People know that MKE is already working on becoming more sustainable.

The airport has undertaken many initiatives to reduce its impact on the environment and to be a good neighbor. Some of these are public and relatively high-profile, and some take place behind the scenes. Recycling is the main initiative of which respondents are aware, with 88% saying that they were familiar with recycling in the terminals. Over half of respondents are aware of bicycle parking & transit options (65%); noise modifications to nearby homes (64%); the baggage claim building's green roof (59%); and the baggage claim building's LEED certification (53.5%). The program of which respondents are least aware is the recycling available to airlines (21.2%). MKE can build on this awareness to tell its sustainability story.

MKE is already taking steps to support the environment, the economy and the community. Are you familiar with these MKE sustainability initiatives? Check all that apply.	
Answer Options	**Response Percent**
Recycling is available throughout the terminals for passengers, visitors and staff.	88%
Bicycle parking and transit – including the airport Amtrak station and Milwaukee County Transit System – reduces the need for single passenger motor vehicle trips.	65%
Modifications are provided to nearby homes reduces indoor noise.	64%
A green roof on the baggage claim building captures stormwater.	59%
The newly renovated baggage claim building is LEED-certified , meaning it meets strict requirements for reduced energy consumption and incorporates other sustainable features.	54%
De-icing fluids are captured to keep pollutants out of streams and Lake Michigan.	44%
Airport shuttles operate with natural gas, reducing emissions.	44%
A run-up enclosure is provided to dampen airplane noise for nearby neighborhoods.	42%
The airport sponsors community programs such as teaching about aviation careers and overcoming fear of flying.	38%
Airlines are notified of weather delays early so planes may delay warming up, saving fuel and reducing greenhouse gas emissions.	33%
On-site recycling facilities are made available to airlines when cleaning aircraft.	21%

Customer Experience, Economics and Energy and Waste Management top the list for Sustainability Focus Areas.

The MKE Sustainability Management Plan will make recommendations for improving performance across numerous areas. Respondents told us what is most important to them – focusing on customers, contributing to the local economy (including maximizing local employment), sound financial management and energy use and waste. Keeping our water clean and reducing air emissions were also important. These Focus Areas will be important to the Plan.



Knowing what's important to the people of Milwaukee will help guide the development of the MKE Sustainability Management Plan. Another survey will be available in the spring, asking for opinions and specific ideas to address these key topics for the environment, economy and our community.

11. Public Survey 2 Write up

During the summer of 2017, the General Mitchell International Airport Sustainability Management Plan conducted a second, very brief survey asking people about environmental, economic, and social goals and initiatives. The environmental focus included *Water Management, Energy Management, Waste Management*, and *Air Quality and Climate Change*. The economic focus included *Operational Efficiency*, *Sustainable Buildings*, and *Economic Prosperity* categories. The social focus included *Employee Engagement*, *Customer Experience*, and *Community Engagement* categories. There were 94 respondents: 48 (51%) completed the survey while inside the airport; 14 (15%) completed it elsewhere but learned about it at the airport recently; and 32 (34%) completed it elsewhere having learned about it some other way (this ranged from emails, Facebook posts, a supervisor newsletter, and Traveler's Aid). 64 (69%) respondents opted to take the longer survey, while 29 (31%) chose the shorter survey.

Overall, categories in the economic focus and social focus, particularly *Economic Prosperity* and *Customer Experience* were ranked the highest on average. For example, both Question 4 and 5 include the *Economic Prosperity* and *Customer Experience* categories in their top three. However, *Water Management, Waste Management*, and *Sustainable Buildings* were close behind. Installing storm water management systems and environmentally friendly plumbing was strongly preferred. Based on several comments, enhancing the customer experience (comfort, mood, feeling) seems to be tied with competition with other airports and regional economic prosperity. There is also a sense that sustainability initiatives affect customer perception and experience, which leads to a more competitive, "modern" airport. Comments demonstrated a mix of preferences between sustainability initiatives and customer/employee experience enhancements.

Question #3 asks the respondent to rank a set of 18 sustainability goals. Only 36 out of the 94 respondents answered this question. The host of the survey, Survey Monkey, generates a score for each goal that reflects the most

preferred choice. For the most part, responses to this question indicated a preference for goals in the *Economic Prosperity* and *Customer Experience* categories, followed by the S*ustainable and Resilient Buildings and Infrastructure* and *Energy Management* categories. However, no more than 2 respondents ranked any of the environmental focus categories as their top priority. “Build the airport’s role as an economic engine in the region” generated the highest score (13.60), but “Maintain or improve high customer satisfaction”, which scored second best (12.94), was ranked first by the most respondents (12 respondents). “Enhance MKE’s economic performance by developing cost containment strategies and increasing revenue streams” scored third highest (11.60). Close behind were the categories “Adopt sustainable design and construction practices for MKE’s buildings and infrastructure” and “Reduce MKE’s energy consumption by developing a formal energy management program that relies both on energy efficiency and renewable energy”, scoring fourth (11.46) and fifth (11.08) best respectively, but were ranked most important by only 2 and 1 respondents respectively. “Ensure MKE is prepared to face emergencies by improving resiliency through mitigation and adaptation strategies” scored sixth best (10.86). This could also be connected to customer satisfaction, on-time flights. Water Management and Employee Engagement categories scored low. Scoring the lowest (5.94) was the goal “Communicate airport’s leadership related to sustainability”. However, several comments throughout the rest of the survey indicate that communication of goals and initiatives with the community is seen as important.

Question #4 asks the respondent to rate a list of sustainability initiatives on a scale of ratings from very important to not important. 35 respondents completed this question. Unlike the previous question, the *Water Management* category scored highest with a score of 4.26 for the initiative “Install rain gardens, bioswales, infiltration features, and other storm water management facilities…”. The *Energy Management* and Economic Prosperity categories tied for second: “Install photo-integrated light sensors to dim artificial lights…” and “Demonstrate that a variety of sustainability initiatives are economically viable…” each scored 4.20. Again, we see the *Customer Experience* category: “Enhance passenger waiting areas with more plants and maximum natural light” scored third highest with 4.09. The Waste Management initiative “Install water bottle filling stations after security…” scored fourth highest with 4.03, but it stands out as having been rated *very important* by more respondents (19) than for any other initiative. It is also the most commented on initiative. Comments are supportive. Several comments suggest not including the bottle giveaway (one suggests a “Bring Your Own Bottle” campaign). Similarly, this initiative scored highest in the short survey version of this question, Question #9. The “Speakers Bureau” initiative scored lowest, but had supportive comments and 12 respondents that rated it somewhat important.

Question #5 prompts the respondent to suggest other ideas for goals or initiatives with an environmental focus. These suggestions include supporting a large scale solar project, a more robustly organized recycling program, environmentally friendly plumbing, runoff management, and zoning environmental controls inside the airport. A preference for government, business, and institutional partnerships is also present. Included at the end is a list of responses for this question.

Question #6 prompts the respondent to suggest other ideas for goals or initiatives with an economic focus. Respondents’ suggestions include looking into solar/wind energy, adopting “green” technology, and reducing MKE’s carbon footprint. Other responses focus on customer satisfaction and suggest adding shops and food options, better ventilation, and enhancing interior design and airport aesthetics. Included at the end is a list of responses for this question.

Question #7 prompts the respondent to suggest other ideas for goals or initiatives with a social focus. These suggestions include enhancing transportation options for the south side, day care options for employees, enhancing visitor info desk with maps and tourism materials, enhancing Concourse C with more healthy food options and other customer experience issues, and enhancing the employee experience (bikes from employee parking lot, communication regarding sustainability initiatives). Included at the end is a list of responses for this question.

The short survey, interestingly, produced different results than the long survey. Categories in the environmental focus scored highest. The main question in the short survey asks the respondent to rate 11 sustainability goals. As mentioned previously, the Waste Management initiative “Install water bottle filling stations after security and substitute traditional drinking fountains with dual units including bottle filling stations” scored the highest, tying with the Energy Management initiative “Install photo-integrated light sensors to dim artificial lights when sufficient daylight is penetrating the building”. Second highest was the initiative “Require LEED or equivalent building standard and green

operating commitment…" from the Economic Prosperity category. Third highest was "Install rain gardens, bioswales, infiltration features…" from Water Management, which previously scored high in the long survey.

Responses to open-ended questions

Q5

Do you have other ideas for goals or initiatives with an environmental focus (water, energy, waste/ recycling, air/greenhouse gases) that MKE could undertake to improve sustainability? Tell us!

- zone the environmental controls…there are times when the sun is heating parts of the airport terminal that do not need it, other times it is too cold in parts of the building
- Can't there be more greenery at or bordering the ports? Noise reduction?
- More recycling bins
- Reduce noise; this is important for wild life and human life
- Have more recycling containers around and design them in such a way that you cant mix garbage with recyclables. The folks who come around and empty the garbage containers at all of the southwest gates empty them far too often - wasting garbage bags. The tall gray rectangular garbage containers should have a top on them that clearly states " No Paper" - put all paper in the paper recycling container only . And the paper recycling containers should have the words on the top of it not on the side that say paper only
- If this route is undertaken, it must be through partnerships with the community, as well as State and local political leaders. This would be difficult at best if attempted by ourselves. I would determine what was to be done (goals), put together the plan, implement, tweak along the way, then perform an annual critique of the plan, and determine what could be done better. Incorporate an effective multidisciplinary team. Recruit people that think differently from each other. There are always different answers to questions. Make sure we do not simply institute AN answer, when we could be initializing THE BEST answer.
- Partner with local businesses who are sustainability leaders
- Reinvestigate a large scale solar power project. The costs have significantly gone down.
- Adding environmentally friendly toilets, urinals, sinks, water fountains. Adding new LED lighting that auto turns off when it's bright enough in the terminal building. Using solar/thermal heat. Add more recycling bins that are clearly marked for what they are to be used for and ensure everyone knows WHAT they can recycle. Implement policies to turn off jet bridge lights/power when not in use and shut the roll up doors when aircraft aren't at gate.
- Passive glycol collection system that doesn't depend on pumping, storage, and trucking.
- Airport can have more plants inside of the airport, it will also help deviate angry passengers we can make the setting right from the start.
- Work with the Fresh water science Institute for ideas and implementation.

Q6

Do you have other ideas for goals or initiatives with an economic focus (operational efficiency, sustainable buildings, regional prosperity) that MKE could undertake to improve sustainability? Tell us!

- The airport should be a huge magnet for development. Solar and wind power could reduce expenses and generate revenue. There is an incredible amount of treated airspace in the terminal that does not need to be. Recirculate air from the dead spaces to help regulate temperatures throughout the building. Turn off lights when not needed
- I wish the passenger pick-up area was expanded. I hate short parking times.
- Concentrate greatest efforts around reducing carbon footprint and adopting "green" technology.
- Chines [sic] healthy restaurant option
- Economically speaking when you take down the Econcourse building you should auction off a great deal of it to raise money - so many people would like a piece of that nostalgia - just like they did with County Stadium - Aviation Enthusiasts in MKE would love that .

• Working with tenants as a team!

• Better availability to shops and food venues on all concourses once people have gone thru secutity- one checkpoint covering all concourses.

• Community job fairs or high school career fairs

• Need to initiate dialogue with certain experts. What is viable? What is cost efficient? What would be the reward in the end?

• Reinvestigate a large scale solar power project. The costs have significantly gone down.

• Passengers travel, they will go to ORD or MDW if the ticket is cheaper. Make MKE the airport they WANT to fly out of no matter the ticket price. Update the look, remove the caret, add natural light. The ticketing area is depressing; there is no light the carpet is ugly and the overall look make its seem like it's from the 70s or 80s. Improve the landscaping around the terminal and terminal drive make passengers and whoever is picking them up feel welcomed and enjoy coming to he airport. Make passengers WANT to come to the airport early for food or to walk around. Whenever I fly I will always choose the longer layover in Minneapolis no matter the price because of the airports look and shopping and dining. At MKE I'd rather show up 40 minutes before the flight to get through security and board right away

• Solar Panels on Parking Garage roof and Parking Lots Solar on roof of terminal.

• Better airflow here in the airport, and better ventilations.

• Rent out rooms/other things for conferences

• Work with the County and surrounding municipalities to increase transportation opportunities to MKE. Check the feasibility of bus rapid transit, street car extension, etc. in order to connect the airport to areas of high unemployment.

Q7

Do you have other ideas for goals or initiatives with a social focus (employee development, customer experience, community engagement) that MKE could undertake to improve sustainability? Tell us!

• The airport should take the initiative to get transportation improvements to the entire southside area. There is no excuse for the continuing problem of early morning access. There must be a way to match job seekers with no wheels with jobs at the airport (not just terminal, but all businesses that serve the travelling public - hotels, parking, gas stations, restaurants). The flights begin at 0530, TSA wants to have time to work, people get here at 0400 and have no place to go. (How many survey cards were passed out in phase 1 to those passengers using the airport before 0800?)

• Enforcement of carry-on size. There's too much being stored above heads on all carriers. This is a safety issue as well as courtesy to others concern. I feel this is airport responsibility as much as the carriers'.

• Offer day care on site for employees. Offer classes on site for employees.

• Enhance the visitor information desk, have county maps available and Visit Milwaukee materials. • Smiles on employees goes a long way in making MKE welcoming and (I want to Return to MKE feeling) - from cleaning staff to restaurant employees

• Add more healthy alternative restaurants to the C concourse - there are empty offices and other empty spaces on the lower level that could be utilized for social gathering places just like they did on the D concourse - with the moving walkway and the escalators and elevators to take passengers up and down that level. Create a space at C just like D.

• Create a unity amongst airlines. We are in this together to maybe hosts airport wide celebration or gathering

• Create a civilian traffic enforcement program to generate revenue that remain within airport. Currently all revenue generated from the issuance of traffic and parking citations by the sheriffs remain with the sheriffs dept. Revenue generated from parking violations alone can fund minor airport projects.

• Easier access to USO for military families- outside of security. They don't come with all the correct id needed. Have electronic restaurant boards for all restaurants that include their menus and Better signage by

north skywalk for elevater- people look for an upper level to get on the elevator to get to baggage. People are easily confused.

• More research.

• Inform the information desk of special events and related details, which we can then provide the public when asked.

• More activities for passengers to do while they wait.

• Ensuring employees are kept up to date on projects and "happenings" around the airport would make employees feel like they are part of something and not just a worker coming in to do a single job task but are working towards making MKE the best it can be.

• Have bikes we can take to and from the employee parking lot by using our SIDA IDs…

• Set up a community of businesses in the Milwaukee area that focuses on the sustainability of the region. I don't believe it is MKE's responsibility to be in charge of it, but someone needs to start it. The group can discuss what can be done by businesses throughout the Milwaukee area to improve the environmental and economical sustainability of the region. This survey and its initiative is a good start, and MKE can be a leader. But it has to be a collaborative effort if sustainability is really to be improved.

Attachment 2

Energy Survey

2. Energy Survey

2.1.2 Executive Summary

As a supplement to the Milwaukee County's General Mitchell International Airport (MKE) Sustainable Management Plan, AECOM has prepared an energy survey covering all airport facilities including the Business Park. This survey included a brief site visit to review the existing systems and operations, and interview maintenance staff. Following the site visit utility data was collected and analyzed. The utility analysis collected overall data going back to the beginning of 2013 through the middle of 2016. This data showed the energy use as steady in 2013 and 2014 with reductions in energy use toward the end of 2015 mainly driven by reductions in natural gas use. A list of Energy Conservation Measures (ECMs) was also developed. These ECMs were categorized by estimated simple payback term; short term (0-2 years), medium term (2-6 years), and long term (6-10 years). Below is a table with the list of ECMs and the payback category for each one.

Energy Conservation Measures			
	Payback Category		
	Short Term	Medium Term	Long Term
General Energy Conservation Measures			
Develop Building Design Standards		X	
Incentivize Tenant Energy Reduction	X		
Shut Down International Terminal AHU	X		
Implement Night Setback for Lighting and HVAC	X		
Implement Standard Energy Tracking Program	X		
Commission an ASHRAE Level Two Energy Audit		X	
Mechanical Energy Conservation Measures			
Implement Retro Commissioning Report Recommendations		X	
Install Modulating Condensing Boilers for Summer Operation	X		
Perform Water Side Retro Commissioning		X	
Install Variable Frequency Drives on Cooling Towers	X		
Upgrade Controls Systems			X
Install Dedicated Domestic Hot Water Heaters		X	
Convert AHUs to Variable Volume	X		
Electrical Energy Conservation Measures			
Continue Implementing Lighting Upgrades		X	
Install Occupancy Sensors	X		
Install Daylight Harvesting Controls		X	

2. 1.3 Scope

AECOM has been tasked with preparation of an energy survey of Milwaukee County's General Mitchell International Airport (MKE) as a supplement to the Sustainable Master Plan. This energy survey covered the major energy using facilities that make up the overall airport. These facilities included the Main Terminal Building, Concourses C, D, & E, Skywalks, Parking Garage, Surface Parking Lots, Central Plan / Operations building, International Terminal, and the Business Park. For the Airport and Business Park the utility data was reviewed, along with the building plans and on-site reviews of the building systems for the Airport. These systems included the building heating, ventilation and air-conditioning (HVAC) and lighting systems. For the parking garage and surface lots only the lighting was reviewed.

Based on the reviews of the overall airport energy profile and systems, several energy conservation measures (ECMs) were identified. Descriptions for each of these ECMs are presented within this report, with each broken into one of three categories (general, mechanical, and electrical). Further detailed

analysis would need to be performed to identify the potential energy savings, and projected costs associated with each of the ECMs.

2.1.3 Locations Included

As part of the Energy Survey a walkthrough was conducted at the airport to review the existing conditions, talk with airport staff, and identify some potential energy conservation measures that could be implemented following further investigation. The walkthrough only included the following locations; the Main Terminal Building, Concourses C, D, & E, the parking garage and skywalks, the central plant / operations building, and the International Terminal. The Business Park was not included, however the utility information for the Business Park was reviewed (see Utility Information Summary section).

The Main Terminal Building and Concourses were originally opened in 1955 with 23 total gates. In the 1970s the building was renovated and expanded (specifically the ticketing and baggage claim areas). The next large expansion was in 1990 when 16 additional gates were added to Concourse D for a total airport capacity of 42 gates. In 2007 eight more gates were added to Concourse C, currently the airport has 48 gates spread across the three concourses. Most recently in 2015 the lower level baggage claim area of the main terminal was renovated and was LEED certified.

The **Main Terminal Building** has two levels; the lower level contains the ticketing / check-in area as well as baggage claim. The upper level has several retail shops and restaurant tenants, the Mitchell gallery of flight aviation history museum, conference / banquet rooms, and connections to the three concourses and parking garage. The two levels are heated and cooled by numerous indoor air handling units (AHUs) with heating hot water and chilled water coils (served by the central plant equipment). These AHUs have a variety of control strategies and configurations but are primarily variable air volume (VAV) systems, meaning they can vary the amount of supply air provided based on space conditions in order to reduce energy use. Exhaust is provided primarily by roof mounted exhaust fans for restroom exhaust and restaurant kitchen hood exhaust. Additional pressurization relief is provided by relief air fans in some of the AHUs, relief air fans in the baggage claim area (though these have been turned off due to noise complaints) and gravity relief air hoods on the roof with motorized control dampers. The lighting for the upper level and the baggage claim area has been upgraded to high efficiency fixtures.

Three concourses branch off the main terminal building, concourses C, D, & E.
Concourse C has 15 gates and serves Air Canada, Southwest, and United Airlines. In addition to the gates it contains dining and retail tenants and airport administrative offices and conference rooms. The concourse HVAC is provided mainly from indoor AHUs with hot water heating and chilled water cooling coils. Most of the AHUs have variable frequency drives (VFDs) on the fans which allow the speed of the fans to modulate, however these VFDs have been used for maintaining constant airflow supply rather than varying it to meet demand which would save energy. Exhaust fans are located on the roof to serve the restroom exhaust and kitchen hood exhaust. The lighting is primarily standard efficiency fluorescent fixtures.

Concourse D is the largest concourse with 23 total gates serving Alaskan Air, American Airlines, Delta, Frontier Airlines, and OneJet. The concourse also has dining and retail tenants as well as an USO lounge, and the Delta Sky Club. The HVAC is served by a mix of indoor and roof mounted AHUs with more of these units being full VAV units that vary airflow based on demand. However most open areas of the concourse are served by constant volume AHUs. Exhaust fans are located on the roof to serve the restroom exhaust and kitchen hood exhaust. The lighting is primarily standard efficiency fluorescent fixtures.

Finally **Concourse E** is the smallest of the three concourses with only 10 gates. It has been proposed to potentially renovate the concourse with the goal of using it to house international flights in addition to domestic eliminating the need to operate the International terminal during parts of the year. HVAC for the concourse is mainly roof mounted AHUs primarily constant volume with a few VAV units. In addition a handful of the units have electric heating which can be very expensive to operate, especially compared to hot water heating as is used in the rest of the airport. Like the other concourses there are exhaust fans for restroom exhaust, and standard efficiency lighting fixtures.

Attached to the Main Terminal building via two (2) two-level skywalks is a **multi-level parking garage**. The parking garage has six levels for rental cars, hourly and daily parking. The skywalks have four (4) large two speed exhaust fans with associated air intake louvers with motorized control dampers. The intent appears to be for the exhaust fans to run during the summer when the skywalk temperatures gets out above set point, however it appears the fans have been running continuously with the air intake dampers closed. The parking garage lighting is in the process of being upgraded to LED.

The **Central Plant** (Operations) building houses the central chilled water and hot water systems that serve the airport as well as some offices for maintenance staff. The chilled water plant consists of four (4) 485 ton water cooled chillers with three (3) 150 hp variable speed chilled water pumps and four (4) cooling towers. The central hot water plant consists of two (2) newer large boilers and one (1) older existing large boiler with variable speed hot water pumps. In addition to the airport heating loads the hot water plant also serves domestic hot water heat exchangers.

In addition to the above locations the **International Terminal** was also reviewed during the walk through. This building is spate from the main terminal and only used seasonally for international flights. Discussion has taken place recently regarding the possibility of eliminating the use of the terminal and moving operations to concourse E. The terminal has an indoor AHU which serves the terminal.

Finally the buildings within the business park were not included in the walk through but they were included in the utility analysis.

2.1.4 Completed Energy Management Projects

Several energy related projects have been completed in recent years with the goal of reducing airport energy use through energy efficient design, energy efficiency upgrades, and correction of operational issues. A list of these completed energy projects is below.

- The airport completed a renovation of the baggage claim area which achieved LEED (Leadership in Energy and Environmental Design) Certification, becoming the first building owned by Milwaukee County to become LEED certified. To achieve certification under LEED, a project must be more energy efficient than the applicable energy code. The baggage claim project incorporated daylighting controls and energy efficient lighting and HVAC systems. The project was completed in 2015 and became LEED certified in 2016.
- A retro-commissioning project was completed for the main terminal building including the concourses and skywalks. The project was aimed at the air side systems (air handling units [AHUs], exhaust and relief fans, outside air, building pressurization) in order to identify deficiencies and make recommendations on corrective actions. The report identified several deficiencies and facility improvement measures. The project was completed in 2014.

- One of the deficiencies identified in the above retro-commissioning report was that finned tube radiant heaters and hot water unit heaters in concourse C were not equipped with control valves. As a result, whenever hot water was being produced these areas were heating even if not needed. Because the central hot water plant serves the domestic hot water system, it runs continuously throughout the year which means that even in summer the above systems were operating. Since this study was completed this has been corrected by adding control valves to these systems so they only operate when needed, reducing heating energy use.
- Finally lighting upgrade projects are ongoing through the airport in several locations to install more energy efficient lighting fixtures (either high efficient fluorescent or LED). According to airport staff, partial lighting upgrades have been completed for the parking garage, site lights, and the airfield lights.

Airport Summary (MBTUs)					
Year	Electricity	Natural gas	Total	Electricity	Natural gas
2013	134,367	102,470	236,837	57%	43%
2014	135,180	104,176	239,356	56%	44%
2015	133,883	93,874	227,757	59%	41%

Business Park Summary (MBTUs)					
Year	Electricity	Natural gas	Total	Electricity	Natural gas
2013	12,798	15,830	28,628	45%	55%
2014	13,713	17,822	31,535	43%	57%
2015	13,208	14,198	27,406	48%	52%

2.1.5 Utility Data Analysis

AECOM was provided overall utility data from the County's utility billing management system (EnergyCAP) for the airport and MKE Business Park for review and analysis. The data covered a period from the beginning of 2013 through the middle of 2016 and included both electricity and natural gas use and cost data. There is incomplete sub-metered data beyond this level, as select electrical services and tenants have sub-meters and other areas do not have sub-meters. AECOM did not evaluate data at the sub-meter level for the baseline assessment.

For the overall airport complex and MKE Business Park, the airport accounts for approximately 90% of the total combined energy use (electricity and natural gas) and the MKE Business Park accounts for the remaining 10% of energy use. Separating and comparing natural gas and electricity consumption, the airport uses 91% of the total electricity use and approximately 85% of the natural gas use with the MKE Business Park accounting for the remainder.

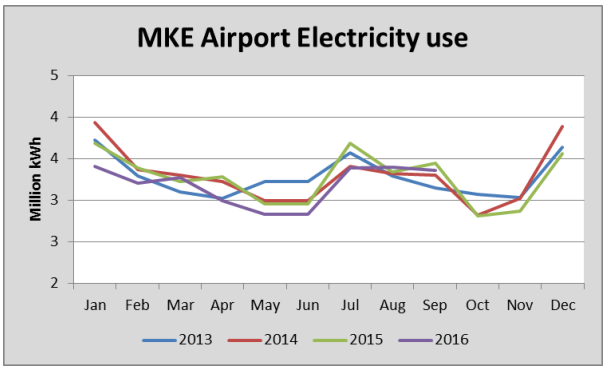
The combined utility use of the airport and Business Park is split with approximately 55% of the total energy being electricity and the other 45% being natural gas use. In 2015 there has been a shift towards electricity usage which accounted for 68%of the total. However, for the airport specifically, the electricity use percentage is higher at around 60% electricity to 40% natural gas, while the business park uses more natural gas than electricity (45% electricity and 55% natural gas).

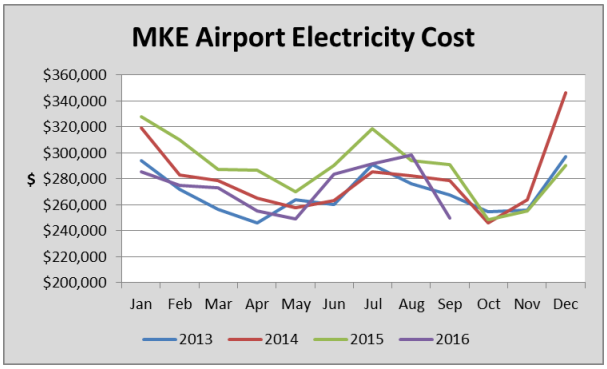
Total Energy Use (MBtu)					
Year	Electricity	Natural gas	Total	Electricity	Natural gas
2013	147,164	118,300	265,464	55%	45%
2014	148,893	121,999	270,892	55%	45%
2015	147,092	108,071	255,163	58%	42%

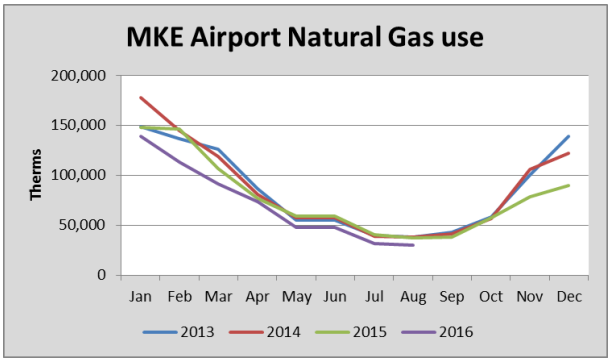
Since the airport complex consumes significantly more energy than the MKE Business Park and was the focus of the site walk through, the remainder of the utility analysis will concentrate on energy use trends and electricity and natural gas use at the airport. Since this utility data analysis covers all airport locations visited during the site visit (see Airport Walkthrough section above) combined and there was not sub-metering data available for review, AECOM recommends evaluating the potential to add location-specific sub-metering in the future. This would provide greater insight into energy use by identifying wasteful areas and allow for troubleshooting and identification of efficiency opportunities.

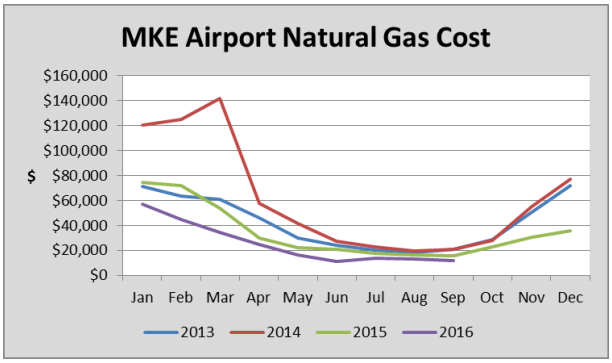
Airport electricity use has been fairly stable from 2013 through 2015 and the data included for the first half of 2016 indicates electricity use to be similar. From 2013 through 2015, the total electricity use was between 39 and 40 million kilowatt-hours (kWh) at a cost between $3.0 and $3.5 million dollars per year. The year to year variations were minor (i.e., within one percent) and likely result from differences in weather and airport usage.

A closer evaluation of monthly energy use trends indicates that energy use and cost show a consistent peak in electricity use in December and January with a second, slightly smaller peak, in July and August. This energy use profile is consistent across the time period of data evaluated (i.e., 2013 through mid-2016). The winter peak is somewhat inconsistent with a typical cold weather airport energy profile. There, it is recommended that further investigation be conducted on this pattern. Based on the electricity data and that electricity accounts for a majority of the overall airport energy use, there is a relatively large potential for reducing energy use by implementing ECMs that reduce the electricity use of the airport.

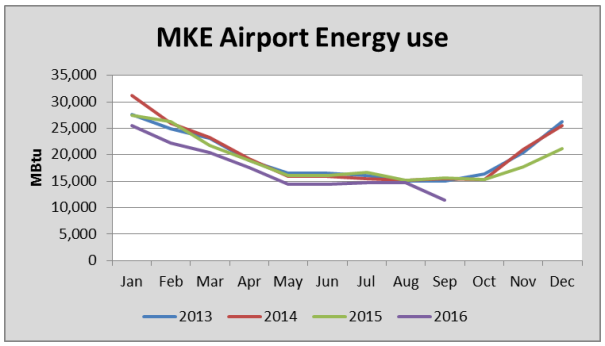


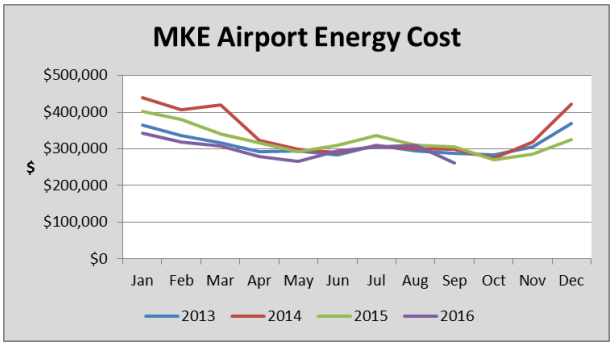






Natural gas use and cost was fairly stable from 2013 through October of 2015; however, natural gas use has declined since then by 15% to 20% compared to the same month in the previous year. This reduction is likely due to the implementation of corrections to operational issues identified in the air side retro-commissioning report. In 2013 and 2014 the natural gas use was just over 1 million therms at a cost of just over $500,000 in 2013 and over $700,000 in 2014. It is unclear why the cost was higher in 2014. AECOM recommends further investigation into the bills for these months and potential discussions with the utility provider. In 2015 the natural gas use was reduced to just fewer than 940,000 therms and just over $400,000. Based on data from the first half of 2016, natural gas use was on pace to be lower than 2015.





The yearly natural gas use profile shows peak usage in the winter months with a minimum summer month use that is about 30% of the winter peak use. This yearly energy use profile is fairly typical of heating-driven natural gas use for a typical cold weather airport. That said there is likely some potential to reduce the minimum summer use to a smaller percentage of the peak use by implementing select ECMs described in the next section even if some ECMs reduce the airport peak use in winter as well.

Combining the electricity and natural gas energy into a total airport energy use profile, the energy use was fairly stable in 2013 and 2014. However, in 2015 the total energy use was reduced by 4% compared to the 2013 baseline for a total use of just over 225 million British Thermal Units (BTUs), while the total energy cost for the airport in 2015 was just under $3.9 million dollars. The yearly use profile shows a peak in the winter months of December and January and a flat use in the middle of the year from May through October. The winter peak is the result of the winter electricity peak which requires further investigation combining with the normal winter natural gas peak in winter. Meanwhile in the spring through fall months as the natural gas use decreases the electricity use increases leading to a flat overall profile. This minimum energy use is approximately 15 million BTUs per month at a cost of around $300,000 dollars per month.

Further evaluation of these numbers was completed by putting them in relative terms (i.e., energy cost or consumption relative to a specific factor of interest). By evaluating the utility data in relation to number of passengers and total airport square footage it is possible to calculate results in relative terms, or intensity factors, by dividing energy consumption by either number of passengers or square footage.

Year	Total Passengers	Total sq ft	Total Energy Use (MBtu)		Energy Intensity MBtu/passenger		Energy Intensity Mbtu/sq ft	
2013	6,525,181	880,666	263,798		0.040	-	0.30	-
2014	6,554,152	880,666	269,752	2.3%	0.041	1.8%	0.31	2.3%
2015	6,549,353	880,666	254,745	-5.6%	0.039	-5.5%	0.29	-5.6%

The values show how percentage changes each year from 2013 to 2015 are aligned to those in energy consumption. This can be explained by the fact that square footage remained constant since 2013 and so did the number of passengers (besides a slight changes in the order of plus/minus 0.4%), consequently the increases or decreases of the intensity factors reflect, almost to a full extent, those in energy use, the numerator of the ratio.

2.1.6 Recommended Energy Conservation Measures

AECOM staff was on site for a one day airport walk through in order to review the current facility conditions and operations as well as interview staff to gain their insight into the existing conditions and potential improvements. This walk through was meant to be a high level review in order to identify potential energy conservation measures (ECMs). The ECMs below are based on this site visit and staff discussions and will require further detailed evaluation in order to determine potential energy savings, implementation costs, and simple payback.

Currently the airport HVAC systems are a mix of variable air volume (VAV) systems and constant air volume systems (CAV). In addition to the mix of CAV versus VAV the air handling units serving different parts of the airport vary in terms of included accessories such as economizers, sound attenuators, types of controls, etc. All but a few of the AHUs provide cooling from chilled water cooling coils and heating from hot water heating coils. The chilled water and heating hot water for these coils are provided from the central cooling and heating plant located within the Central Plant (Operations) building. The central cooling plant has four (4) equally sized water cooled chillers with four (4) cooling towers and three (3) chilled water pumps. The overall chilled water system is meant to operate as a variable primary system which varies the flow of the chilled water to the AHUs and through the chillers; however the system is currently being run manually by airport maintenance staff. The heating hot water plant consists of three (3) large boilers; two (2) of which are newer boilers, and the system also includes variable speed heating hot water pumps. In addition to the AHU heating coils the heating hot water plant also provides hot water for VAV box reheat coils and a domestic hot water heat exchanger for non-heating hot water use. Because VAV box reheat and domestic hot water is needed year round the boiler plant must also run year round, which can be inefficient because the large boilers designed for larger peak loads in winter will have to run at low load conditions. Finally the airport mainly uses standard efficiency fluorescent lighting throughout the buildings with select areas that have been or are in the process of being upgraded to either high efficiency fluorescent or LED light fixtures. There are also many areas where lighting is left on at all times, or has manual controls rather than automatic controls designed to turn off lights when not needed.

Based in the walk through and the current airport operation we feel that there is a large opportunity for improving the energy efficiency of the airport, and there are numerous potential ECMs that could be executed to aid in the energy improvement effort. Below is a list of the ECMs identified during our site visit along with a brief description. These ECMs have been grouped into three types; general ECMs that deal with the overall airport energy improvement, mechanical ECMs dealing with improvements to the HVAC and plumbing systems, and electrical ECMs primarily those relating to the lighting and lighting controls. In addition each ECM has been given a general expected simple payback rating based on past experience

(please note that these ratings may end up different when a more detailed analysis is performed based on site specific factors). These ratings are short term for ECMs with an estimated simple payback of two years or less, medium term for ones with an estimated payback of two to six years, and long term for ones that would be six to ten year paybacks.

2.1.7 General Energy Conservation Measures

Develop Building Design Standards

While most of the energy conservation measures included in this section focuses on reducing current energy use at the airport it is also important to ensure that future improvements, additions, and renovations will also be energy efficient. One way to ensure that energy efficiency is considered for these projects is to develop building standards prior to beginning design and construction projects that include specific energy efficiency and sustainability requirements. These building design standards can establish standard lighting fixtures that are energy efficient and this would also allow for standardization of replacement bulbs. Additionally the standards can address the types of HVAC systems to be used for different project types to ensure consistency. Our recommendation would be to develop these standards with the input of all affected parties from the airport including engineering and maintenance staff, construction administration and airport managers. By creating these standards and investing in energy saving systems and equipment this ECM is estimated as a medium term type.

Incentivize Tenant Energy Reduction

When evaluating overall airport energy performance it is important to also keep in mind tenant energy use. Often tenant agreements do not include any language or incentives regarding energy use with tenants being charged on a per square foot basis. As a result the tenant does not have a financial incentive to be energy efficient because the airport is paying for their energy use. As a result tenant energy use may remain steady even as energy use in the rest of the airport is decreased with the implementation of ECM initiatives. There are several different options available for creating an incentive for tenants to reduce energy use, though some may not be feasible depending on the location and utility regulations. For most of these options the first step is to ensure that tenant energy use is being sub-metered and tracked to monitor performance. Once that is done then the airport could include language to charge the tenant directly for energy use, adjust the rent to account for energy use, provide rebates and rewards for reducing energy, or other options that rely on monitoring and tracking the energy use. This ECM is considered short term as the main cost to the airport is for the installation of the sub-metering while the tenants would be responsible for the cost of energy conservation measures.

Shut Down International Terminal AHU

The International Terminal is a separate building from the Main Terminal that is only used seasonally for international flights at the airport. During our site visit the International Terminal was not in use but the AHU was operating. We would recommend adjusting the temperature set points for the terminal when not being used such that the AHU will only run if the building gets to be extremely hot or too cold where there is a risk of damage by freezing pipes. We also recommend that maintenance staff periodically check on the system to make sure the unit is not running continuously. This would ensure energy is not be wasted to fully condition a space that is not occupied. We rate this ECM as a short term payback.

Implement Night Setback for Lighting and HVAC

During overnight hours when there are no arriving or departing flights energy can be saved by turning off lights and adjusting temperature set points. Typically flight schedules are consistent enough to identify select hours overnight when this automatic night setback could be implementing without leading to

complaints from staff or visitors. In addition occupancy sensors could be installed to ensure that in the situations where there happen to be late night occupants the lighting and HVAC systems will recognize this occupancy and revert back to normal operation. Implementing this ECM may require some education of staff, and trial and error to identify the correct set points and setback hours but it is a low cost ECM to implement which could provide quick energy savings and as a result is categorized as short term.

Implement Standard Energy Tracking Program

As ECMs are implemented it is important to track energy use to ensure that the ECMs are performing as expected and also be able to show results to decision makers. This program can be tailored to the specific airport needs and staff availability but at a minimum should include standardization of utility data collection both for the overall airport complex and any sub-meters as well as tracking the energy use trends. By tracking and monitoring the energy use issues can be identified for investigation and correction early before they linger causing wasted energy use and higher utility costs. It can also identify potential energy cost mistakes when the utility costs do not match the energy use. Finally this program can help to lead to identification of future energy conservation measures to be studied and potentially implemented. We rate this ECM as short term as it can be implemented with current staff and may yield quick energy savings as issues are identified and corrected.

Commission an ASHRAE Level Two Energy Audit

An energy audit is a valuable tool to review operations and identify methods for reducing energy use. A more detailed energy audit would allow for the airport to make informed choices with more detailed data on what ECMs should be implemented and in what order to meet energy reduction targets. ASHRAE defines three energy audit levels. An ASHRAE level one audit, also known as a walk through audit, is similar to this energy survey in that is also done at a high level based on a brief site visit, but a level one audit would also include rough order of magnitude implementation costs and savings for each ECM. A level two audit, also called a comprehensive audit, is more detailed than a level one as it involves more time on site and greater analysis of current operation and utility data in order to develop a comprehensive set of energy conservation measures with estimated cost savings, implementation costs, and simple paybacks. A level three audit further builds upon the level two audit by going into even greater detail on specific ECMs that are often more capital intensive by developing calibrated energy models and detailed cost estimates that could be used to develop a project implementation budget. After performing this energy survey it makes the most sense in our recommendation to move onto a level two audit that can take the ECMs within this survey, add in additional ones after further site investigations, and provide airport decision makers energy savings and cost information so that informed decisions can be made to reach the airport energy reduction goals.

2.1.8 Mechanical Energy Conservation Measures

Implement Retro Commissioning Report

An airport retro commissioning project focused on air systems and ventilation was completed in 2014. Within that report were recommendations for correcting deficiencies and also for facility improvement measures. Some of the deficiencies have been corrected since the issuing of the report, specifically control valves have been added to fin tube and unit heaters so that they are not operating year round when the heating plant is running. After reviewing the report we recommend correcting the following deficiencies identified within: incorrect economizer operations for AHUs, removal of unnecessary sound attenuators, and correction of the skywalk ventilation system operation to original design. We also recommend consider implementing the following facility improvement measures: review and revision of current control sequences, replacement of concourse C duct silencers with acoustic plenums, reworking the outdoor air ductwork serving multiple AHUs so that each AHU has a dedicated outside air duct, and

finally automation of the Concourse D pressurization control based on pressure sensors within the concourse. Each of these recommendations will help improve the airport energy use and in some cases make the building operate in an improved manner for occupants. These recommendations fall into the medium term category.

Install Modulating Condensing Boilers for Summer Operation

During the summer months there is no need for building heating but there is a need for reheat in some spaces to ensure they are not overcooled and also there is still a need for domestic hot water, both of these needs are served by the existing central heating hot water plant. The central heating hot water plant currently has three (3) large boilers sized to handle the peak winter month loads. During the summer one (1) of the three boilers must operate in order to provide heating hot water for the reheat and domestic hot water needs of the airport. Because of the size and type of these boilers they operate very inefficiently at the low load conditions they see during these summer months. A better way to operate would be to put in modulating condensing boilers specifically sized to handle the summer loads.

High-efficiency modulating condensing boilers feature advanced heat exchanger designs and the ability to extract heat from flue gases, which allow for efficiencies above 90%. Water vapor (steam) is a by-product of the gas-fired combustion process and this vapor contains a significant amount of energy. For every pound of water vapor that is forced back into its liquid state, some 1,000 BTUs of latent energy in the form of heat are released. This change of state from vapor to liquid is called "condensing" and occurs naturally when water vapor is cooled below its dew point (135°F). A condensing boiler takes advantage of this natural phenomenon by flowing cold water (<130°F) into the heat exchanger, thus causing condensing and releasing the latent heat. With about 12% of the input energy of a gas-fired boiler tied up as latent heat, this represents a significant energy-savings potential.

It is important to note that in order for the water vapor in the flue gases to condense, the temperature of the flue gas must be reduced to below the water dew point of the flue gas. For this to occur, the return water temperature to the boiler must be below 140°F. If there are no heat exchange surfaces at the back of the boiler below this dew point, condensing will not occur, and this energy opportunity will be lost, even if the boiler claims to be a “condensing” boiler. However in the case of summer reheat and domestic hot water loads there is not a need for high temperature heating hot water as there is during winter months, which means condensing boilers for these operations are an attractive option.

Modern condensing boilers have energy efficiencies of 90% to 96%. New conventional non-condensing models have energy efficiencies of only 70% to 85%. Many boilers over 20 years old typically operate at only 60% to 70% efficiency, making them good candidates for upgrade or replacement. Because of the large improvement in efficiency these boilers provide compared to older boilers and the amount of time operating during the summer we classify this ECM as a short term payback.

Perform Water Side Retro Commissioning

Retro commissioning is the process of inspecting, testing, and evaluating existing systems to identify problems in operation, and develop solutions to bring them back to their original design operating state and/or most efficient operating condition. A recent retro commissioning effort was enacted at the airport focused on air side equipment such as AHUs and exhaust, we recommend a similar effort be completed focused on the water side systems and equipment such as the chillers, boilers, cooling towers, and pumps. Currently per airport many of these systems are operating manually by the maintenance staff rather than automatically by a control sequence. As a result it is likely the systems are maintaining chilled water and heating hot water discharge set points but not in an efficient manner. By performing retro commissioning deficiencies that may be preventing the systems from operating properly can be identified

and corrected so that the systems can operate as designed and at high efficiency. We recommend this be included in the medium term payback category.

Install Variable Frequency Drives on Cooling Towers

Currently only one of the four cooling towers at the central chilled water plant has a variable frequency drive on the fan. Providing variable frequency drives on the cooling tower fans allow the fans to adjust the airflow to meet changing ambient air and load conditions. As a result the cooling tower can operate at its most efficient point while using the least energy. Without a VFD the cooling towers would use on/off, two speed or variable pitch fan blades for control. Each of these options uses more energy at partial load conditions than VFD-controlled fans. The power use of a fan varies proportionally with the cube of its speed, so using VFDs to reduce fan speed even a small amount can have significant energy savings. For example, a fan speed reduction of 20 percent decreases energy consumption by approximately 50 percent. In addition, VFDs can act as soft starters by slowly ramping up the speed when the fan motor is first started, which decreases wear on the fan motor, increases system life, and reduces maintenance costs. By installing VFDs on all cooling tower fans that currently do not have them will yield notable energy savings. The estimated payback is in the short term category.

Upgrade Controls Systems

The controls systems at the airport at the time of the site visit are a mix of direct digital controls (DDC), pneumatic, and equipment specific controllers that are not all communicating with each other. Upgrading the airport controls to DDC with a central building automation system can provide improvements in efficiency, greater consistency in system operations, and improved tracking of energy use and operational trends. In addition, by eliminating pneumatic controls the associated air compressors can also be eliminated along with the associated energy use. Eliminating the air compressors can also have maintenance benefits as tracking down and repairing air leaks is no longer necessary. One last benefit of the DDC systems is they allow for greater flexibility in programming systems and troubleshooting issues which leads to improved occupant comfort. Overall this ECM is a long term payback though it has many ancillary benefits in favor of implementing.

Install Dedicated Domestic Hot Water Heaters

Currently domestic hot water is provided from a heat exchanger served by heating hot water from the central heating plant. Because domestic hot water is needed year round it provides a reason to run the heating plant year round as well (in addition to reheating needs). By decoupling the domestic hot water from the heating plant, the load on the heating hot water plant in summer is reduced and energy could be saved since the heating plant is producing hot water at temperatures well above those required for domestic hot water. In addition, if smaller domestic hot water heaters are installed near to the end use it can reduce the need for a domestic hot water recirculating pump. This ECM is rated as medium term.

Convert AHUs to Variable Volume

Several AHUs within the Main Terminal building have VFDs on the supply fans but they are only used for balancing the unit airflow and not for varying the airflow to meet the space load. Because the VFDs are already installed, the costs to convert these units from constant volume to variable volume is reduced. Once the unit is converted to VAV it will use less energy since the supply airflow will vary with the space load which means less fan energy and also less heating and cooling required. The fan energy reduction is particularly beneficial as the fan power used varies with the cube of the fan speed, meaning even a 20% reduction in fan speed can lead to a 50% reduction in fan power use. Because of the lowered expected implementation cost for this ECM, it is believed to potentially be a short term payback.

2.1.9 Electrical Energy Conservation Measures

Continue Implementing Lighting Upgrades
As part of the ongoing energy improvement plan at the airport, lighting upgrades have been performed in several areas of the airport including the Main Terminal building, parking garage, site lights, and airfield. By continuing to upgrade to high efficiency fluorescent and LED fixtures the lighting power density for the airport can be reduced and also as an added bonus many of these fixtures have improved longevity which reduces maintenance associated with bulb replacement. Finally these lights in many cases provide a higher quality lighting output. This ECM is categorized as a medium term payback.

Install Occupancy Sensors
Occupancy sensors are a simple yet effective means of reducing lighting energy use in spaces that are not in constant operation such as conference rooms, private offices, and small restrooms. The occupancy sensors can be mounted either on the wall or ceiling, and use infrared and/or ultrasonic sensing technology to detect motion. When motion is detected the occupancy sensors turn on the lights and keep them on until no motion has been detected for 5-30 minutes depending on the setting. The use of occupancy sensors ensures that only the minimum required lighting is being used during off hours when spaces are unoccupied or very lightly occupied, and also turns off lights during regularly occupied hours during stretches when a room is empty.

Installation of occupancy sensors in all support office areas where there are conference rooms, private offices, small restrooms, and any electrical and mechanical rooms is recommended. These spaces offer the greatest energy savings as compared to other areas such as corridors, open offices, large restrooms, or public areas. It is important once the sensors are installed that they are calibrated and commissioned in order to ensure the maximum energy savings while avoiding disrupting the normal business operations. It is important to select the right type of sensor for the correct application and adjust the time delay and sensitivity settings. Since this ECM has a low implementation cost the payback is short term.

Install Daylight Harvesting Controls
Several areas at the Main Terminal and Concourses have large windows which allow substantial daylight to enter the open space during the day. Often this daylight is enough to meet the minimum lighting levels required within the airside buildings. Daylight harvesting sensors can be installed to detect when there is sufficient daylight for the space, and in response dim or turn off the lighting in areas with enough sunlight, to reduce energy use. The Main Terminal Building has less daylighting available than the concourses; therefore, daylight harvesting may not be a viable option for reducing energy use in that space. Using sources such as LED that are inherently dimmable would provide the ability to dim the lights over time to a lower level that consumes less energy but is still acceptable for function. Dimming is the preferred method to control fixtures on a daylight harvesting system. The estimated simple payback for this ECM is the medium term.

Attachment 3

Waste/Recycling Opportunities Assessment Report

3. Waste/Recycling Opportunities Assessment Report

3.1.1 Executive Summary

This Waste/Recycling Opportunities Assessment Report is part of the ongoing Sustainability Management Plan project and is being completed to document current waste management information and provide recommendations for increasing waste diversion at the General Mitchell International Airport (MKE). Waste diversion is defined as the volume of waste that is diverted from entering the waste stream through methods that may include source reduction or reuse, recycling, mulching, and composting.

Milwaukee County and MKE staff provided background information on solid waste and recycling following a data request submitted by AECOM. The information was reviewed prior to conducting a site visit at MKE, which was conducted in September 2016. The site visit included the following activities:

- A waste assessment task kickoff meeting;
- A tour of the facilities to observe waste and recycling accumulation points;
- Collecting information to prepare a waste stream inventory; and
- Conducting interviews with personnel with waste/recycling responsibilities.

Following the site visit, over 30 documents were reviewed. Information collected during the site visit and document reviews were used to estimate quantities of solid waste generated and materials diverted for recycling and to prepare a Waste Stream Inventory. Using information included in the Waste Stream Inventory, waste streams were prioritized (i.e., high, intermediate, or low) to identify where recycling efforts should be improved based on a set of criteria. Findings and recommendations were developed based on the collected information, the recycling/solid waste calculations, and the inventory.

Below is a list of the key assumptions and clarifications:

- Estimates and inventory included all passenger and cargo terminals, the airfield and other buildings within the airport boundaries to the extent the information was available. Timmerman airport was not included in the inventory.
- When weight data was not available from invoices, weights were estimated using the number of containers, container size, content, pickup frequency, pickups per year, estimated percent full at pickup, and a weight conversion factor obtained from the U.S. Environmental Protection Agency Volume-to-Weight Conversion Factors and other sources.
- Waste streams on the inventory were prioritized (i.e., high, intermediate, or low) based on the following criteria: Not Currently Recycled, Marketable Quantity, Marketable Condition, Market Exists, and Market Location to the extent that information was available.

Table ES-1 presents the estimated annual quantities of recyclable materials and solid waste generated.

Table ES-1. Solid Waste Estimated Annual Generation Rate

	Estimated Total Weight (lbs)	Estimated Total Weight Disposed (tons)
Recycled	181,477	90.7
Disposed	1,602,654	801.3
TOTAL	1,784,131	892.1

Using data in the Solid Waste Estimated Annual Generation Rate spreadsheet; the MKE waste diversion rate was calculated to be 10.2 percent.

Using information presented in the Waste Stream Inventory, the following waste streams received scores that qualified them as high priority target materials for recycling:

- Food waste; and
- Solid waste.

Useable food is being donated; however, food waste is not currently being recycled/composted. Source separation of recyclable items from the solid waste stream could be improved.

3.1.2 Introduction

General Mitchell International Airport (MKE) is a medium-hub airport owned by Milwaukee County and operated by the Department of Transportation, Airport Division, under the policy direction of Milwaukee County Executive and the County Board of Supervisors. This Waste/Recycling Opportunities Assessment Report is part of the ongoing MKE Sustainable Management Plan project.

Purpose

The purpose of this report is to document current waste management information and outline a strategy for increasing waste diversion at MKE.

3.1.3 Waste Diversion Goals

Waste diversion is defined as the volume of waste that is diverted from entering the waste stream through methods that may include source reduction or reuse (including donation), recycling, mulching, and composting. Source reduction (i.e., waste prevention or pollution prevention) is the elimination of waste before it is created and may involve redesigning products, changing manufacturing processes, purchasing more durable goods, or reusing/donating materials and products; the other methods reduce waste after it is generated.

3.1.4 National Waste Diversion Goals

National goals have been established for waste diversion that apply to federal agencies. Federal agencies are required by Executive Order (EO) 13693, Planning for Federal Sustainability in the Next

Decade, to meet the following goals:

- Diverting at least 50 percent of non-hazardous solid waste, including food and compostable material but not construction and demolition materials and debris, annually, and pursuing opportunities for net-zero waste or additional diversion opportunities; and
- Divert at least 50 percent of non-hazardous construction and demolition materials and debris.

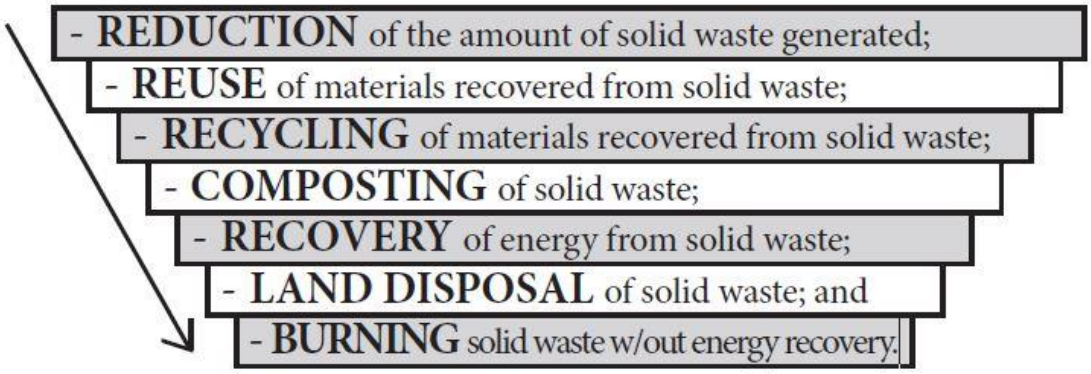
Some companies that do business with federal agencies have voluntarily adopted these goals.

3.1.5 State Waste Diversion Goals

The Wisconsin Waste Reduction and Recycling Law (Wisconsin Statutes, Chapter 287, Solid Waste Reduction, Recovery and Recycling ; and the related administrative rules found in Wisconsin Administrative Code, Chapters NR 542 to 549) was enacted to promote development of waste management structures and encourage reduction, reuse and recycling of Wisconsin's solid waste. The policies of the state concerning the reduction of the amount of solid waste generated, the reuse, recycling and composting of solid waste and resource recovery from solid waste include that maximum solid waste reduction, reuse, recycling, composting and resource recovery is in the best interest of the state in order to protect public health, to protect the quality of the natural environment and to conserve resources and energy; and that solid waste reduction, reuse, recycling, composting and resource recovery projects are encouraged in furtherance of these goals.

The policy outlined in the law established a hierarchy of preferences for solid waste management options. The options ranked from most to least preferred are shown in Figure 1.

Figure 1. Waste Management Hierarchy



The law also instituted bans on landfilling and incineration of certain materials (e.g., containers, paper and cardboard, yard materials, automotive items, appliances, and electronics).

3.1.6 County Waste Diversion Goals

Milwaukee County is required to maintain an approved effective recycling program (as defined in s. 287.11, Wis. Stats., and NR 540 and 542, Wis. Adm. Code). The Milwaukee County Recycling Plan (2011) defines recycling practices being performed at County buildings and facilities, summarizes current

contracting procedures and status of contracts, and identifies potential improvements. The plan included the following example goal statement:

> ***'Green Purchasing and Recycling**: At least 50% of office products purchased will have recycled content. Reduce purchase and consumption of copier/printer paper by 15%. Increase recycling by 50%. Reduce the amount of landfill waste by 30%. Quantitative goals are useful, but also require that the County first quantify the amounts of materials currently being used, disposed of and recycled."*

3.1.7 Airport Waste Diversion Goals

As provided in s. 287, Wis. Stats., businesses and other workplaces must recycle designated materials, as well as provide for the recycling of these materials by their clients or customers. Business and workplace recycling is enforceable under local recycling ordinances. MKE has a recycling program in place and strives to reduce waste generation and increase waste diversion, but does not currently have a documented goal. Many airports have or are considering a zero waste to landfill goal.

3.1.8 Zero Waste

There is no current U.S. Environmental Protection Agency (EPA) definition or an industry standard for the term "zero waste" and definitions vary; however, the Zero Waste International Alliance definition is provided below:

> *"Zero Waste is a goal that is ethical, economical, efficient, and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health."*

The Alliance considers businesses that achieve more than 90 percent diversion of waste from landfills and incinerators to be acceptable in achieving zero waste.

A zero waste approach focuses first on reducing the volume and toxicity of waste by eliminating waste at the source where it is created, often called source reduction; then focuses on reusing materials and products for their original intended uses and for alternative uses, before considering recycling. Once materials have been reduced and reused as much as possible, then zero waste focuses on recycling and composting all remaining materials for their highest and best use. Zero waste encourages public-private partnerships to develop the infrastructure and services needed to accomplish all of these functions. In an optimally functioning zero waste system, any materials that cannot be easily and conveniently reduced, reused, recycled or composted are returned to the manufacturer directly or through retail channels, or these materials are no longer used.

Reducing the generation and disposal of waste has many benefits. It saves money, energy and natural resources; preserves the capacity of existing solid waste disposal facilities; and reduces greenhouse gases and other pollutants generated by landfills and manufacturing processes.

- **Cost Reduction.** One of the key benefits of a zero waste initiative is the opportunity for cost reduction; less waste generated results in less cost to handle and dispose of waste.
- **Improved Material Flows.** A zero waste approach results in the consumption of less energy and fewer new raw materials in production and the elimination of solid waste, which preserve existing disposal facility space. For example, reusable packaging eliminates the need to recycle expendable packaging.
- **Faster Progress.** Zero waste is a more comprehensive, systematic approach than piecemeal initiatives centered on reduction in pollution or solid waste, which leads to faster progress towards overall sustainability performance.
- **Supports Sustainability.** A zero waste strategy can be a key component of a sustainability program and supports the "triple bottom line" sustainability goals of economic, environmental, and social responsibility. Economic performance is enhanced by solid waste elimination, operational cost savings, and improved operational efficiencies. Environmental stewardship is promoted through the consumption of less new raw materials from nature, the elimination of wastes, and the reduction of greenhouse gas and air pollutant emissions. Social wellbeing is increased through improvements that better safeguard society's scarce resources, reduction of disposal facilities that impact communities, as well as through the creation of new jobs in the "closed loop" processing involved with reuse and reprocessing of materials.

3.1.9 Scope and Methodology

Scope
This task addresses the Milwaukee County goal of increasing recycling rates and waste diversion volumes. The Sustainability Management Plan project team conducted a waste and recycling opportunities assessment that reviewed solid waste generation and diversion at MKE and evaluated opportunities to increase recycling performance. The assessment involved analysis of recycling infrastructure and waste diversion approaches.

The scope included the following elements:

- Develop a data collection plan.
- Collect recycling, solid waste generation, and cost information from Milwaukee County and MKE personnel.
- Calculate and compile current solid waste volumes, types, and other waste stream information.
- Identify waste reduction and diversion opportunities and challenges.
- Evaluate waste management contracts.
- Complete a baseline audit/inventory for solid waste generation and diversion.
- Preparing this Waste/Recycling Opportunity Assessment Report for incorporation into the MKE Sustainability Management Plan.

Methodology

In response to a data request, Milwaukee County and MKE staff provided background information on solid waste and recycling to AECOM, as part of the Sustainability Management Plan project. The information was reviewed by Doreen Peters of AECOM prior to conducting a two-day site visit at MKE from September 28-29, 2016. The purpose of the site visit was to collect information to support the identification of waste reduction and recycling opportunities. The site visit included:

- A waste assessment task kickoff meeting;
- A tour of the facilities to observe waste and recycling accumulation points (primarily the central collection points, but some smaller public containers in the terminal as well);
- Collecting information to prepare a waste stream inventory; and
- Conducting interviews with personnel with waste/recycling responsibilities.

The following documents were obtained and reviewed:

- Airport Assets spreadsheet
- Certificate of Recycling for DP Electronic Recycling (2/10/2016)
- Construction Waste Management and Disposal, Summary of Solid Waste Disposal and Diversion (Example form)
- Facilities Management Division Buildings List (10/27/2016 email)
- General Mitchell International Airport Purchase Request Form for DP Electronics (2/17/2016)
- General Mitchell International Airport, Recycling Program Overview (undated)
- MKE Case Study and Waste Management Plan for Baggage Claim project (2015)
- MKE MSW & Recycling Price Agreements spreadsheet (undated)
- MKE MSW & Recycling Spend and Scrap Revenues spreadsheet (2013 through 10-13-2016)
- MKE Recycling Status Report (November 2010)
- Invoice for Advanced Disposal Services (9/30/2016)
- Invoices for DP Electronic Recycling (2/12/2016, 3/30/2016)
- Invoices for Stericycle (8/1/2016, 10/1/2016)
- Invoices for Waste Management (6/1/2016, 9/26/2016, 9/29/2016)
- Lot Mass Balance Report for DP Electronic Recycling (2/10/2016)
- Milwaukee County Certification Regarding Debarment and Suspension (Example statement that County requires bidders/contractors to sign regarding past compliance of haulers with waste disposal laws)
- Milwaukee County Decentralized Purchase Order for Advanced Disposal Services (3/15/2016)
- Milwaukee County Facilities Management Division, Green Cleaning Policy and Green Cleaning Product Calculator, (October 27, 2016 Draft)
- Milwaukee County Green Print Resolution (2007)

- Milwaukee County Master Price Agreement for Advanced Disposal Services (11/30/2015)
- Milwaukee County Master Price Agreements for Waste Management (2/14/2015, 5/29/2015, 10/30/2015)
- Milwaukee County Recycle Plastic Bottles poster (undated)
- Milwaukee County Recycling Plan (2011)
- Milwaukee County Standard Specifications – Construction and Demolition Waste Management and Disposal (5/2015)
- Milwaukee County Terms and Conditions of Purchase (July 2015 Example text)
- Scope of Services, Solid Waste Collection and Removal (Example text, 12-5-11 Draft)
- Service Agreement, Non-hazardous Waste Service Summary for Waste Management (4/1/2016)
- Service Modification Non-hazardous Waste for Waste Management (5/1/2016)
- Status of Implementing Department of Audit Report Recommendations, Audit Title: Additional Structure and Emphasis is Needed to Improve Milwaukee County Recycling Efforts (4/26/2010)
- Waste Cap How To Manual: Set Up Your Successful Recycling Program Today (4/2015)
- Waste Disposal Inventory, Hazardous Waste (2012)

3.1.10 Baseline Information

Solid Waste Management and Recycling Programs

A wide variety of activities that generate waste take place on airport property, including the terminal and airside operations, and numerous tenant operations. In addition, a future construction project is planned for a new international terminal.

MKE provides for its tenants and the general public dedicated trash and recycling receptacles strategically placed throughout the airport terminal to encourage the separation of recyclable materials that have market value. For airline tenants MKE provides a dedicated recycling building containing receptacles for the accumulation of the following recyclable materials:

- Cardboard;
- Mixed Paper; and
- Commingled glass bottles, aluminum cans, plastic bottles, and metal cans.

MKE's Maintenance Department collects and recycles all scrap metals used throughout the airport facility. Revenue generated from the recycling effort is placed into MKE's Operating Budget. The Maintenance Department also collects and recycles rechargeable batteries at no cost.

The Airport Fleet Maintenance Department recycles waste oil generated throughout the facility along with items such as automotive batteries. Items such as vehicle tires are properly disposed of through the City of Milwaukee waste collection sites.

The table below lists type of disposal/recycling service, managing organization, and service provider as of September 2016.

Table 1. Waste Management Services and Providers

Disposal/Recycling Service	Managing Organization	Service Provider Company Name
Antifreeze Recycling	Fleet Maintenance	County Fleet
Battery Recycling	Airfield Maintenance Procurement/Warehouse	Call2Recycle
Cardboard Recycling	HMSHost MKE	Waste Management
Coffee Grounds Composting	HMSHost	Give away to customers for composting
Commingled Recyclables (aluminum cans, glass bottles, plastic bottles, metal cans) Recycling	MKE	Advanced Disposal Systems
Construction & Demolition Waste	MKE	Contractor, WasteCAP (tracking tool)
Cooking Oil Recycling	HMSHost	Sani-max
Electronic/Computers Recycling	Procurement/Warehouse	DP Electronic Recycling
Fluorescent Bulb Recycling	Procurement/Warehouse	LampRecyclers
Food Donation	HMSHost	Milwaukee Hunger Task Force
International Flight Waste, Medical Waste	MKE	Stericycle
Landscaping Waste Mulching	Landscaping	Onsite at Oak Street Storage Area
Oils/Oil Filters/Lubricants Recycling	Fleet Maintenance	County Fleet
Pallet Reuse	Air Cargo HMSHost	Correa Pallets
Refrigerant Recycling	HVAC	Veolia
Scrap Metal Recycling	Airfield Maintenance	Midwest Forman Recycling
Solid Waste Disposal	Airport-wide	Waste Management
Tire Recycling	Fleet Maintenance	County Fleet
Toner Cartridge Recycling	MKE Offices Procurement/Warehouse	Donate to school program
White Paper Recycling	MKE Offices HMSHost	Waste Management

Solid Waste and Recycling Infrastructure

The Main Terminal loading dock is a central collection point for both solid waste (compactor, Figure 2) and recycling (baled cardboard; wood and plastic pallets; paper; glass, aluminum, plastic, and metal containers; and universal waste lamps). On the Airside there is a solid waste compactor (Figure 2) and a Recycling Area that has a cardboard baler, two 2-cubic yard containers for glass, aluminum, and plastic bottles and storage space for baled cardboard and wood pallets. An open top roll-off container is located at the South Shops area for scrap metal.

Figure 2. Solid Waste Compactors at MKE Landside Terminal (left) and Airside (right)

Current public recycling containers are attractive and although they are the same color (silver) as trash containers, do display some visual cues to indicate that they are recycling containers (e.g., labeled on the side with the chasing arrows recycling symbol in black and either a slot top (for newspaper) or a round hole (for bottles and cans); in addition, the bottle/cans recycling container is taller than the trash or newspaper containers. A typical public recycling collection point container is shown in Figure 3.

Figure 3. Typical Recycling Collection Point Container at the MKE Landside Terminal

Solid Waste Disposal Facility

Solid waste picked up from MKE is transported by Waste Management to the Metro RDF Management Facility located at 10712 South 124th Street, Franklin, Wisconsin (EPA ID# WID098547854, Solid Waste Landfill License #1099).

Findings

The following findings are based on information obtained from interviews and observations made during the site visit, as well as documents provided by Milwaukee County and Internet research:

- A recycling program is in place and many wastes are being recycled; however, there is no written waste diversion policy or procedures.
- Data on quantity of waste disposed and recycled is maintained by many parties and is challenging to obtain. There is no centralized tracking system to use in monitoring quantities and progress.
- Waste Management does not provide data on quantities of waste picked up for disposal (although weights are typically available for compacted waste). This data is important for calculating and tracking percent diversion rate.
- Weights are not tracked for several recycled wastes (e.g., batteries recycled through the Call2Recycle Program; however, MKE could weigh the boxes before shipping and maintain/track the data). This data is important for calculating and tracking percent diversion rate.
- Other than recycling container labeling, there is no promotion/training program in place to educate and encourage staff and passengers to recycle.

Waste Generation

A spreadsheet was developed to estimate quantities of recycling and solid waste generated (see Appendix A). The spreadsheet incorporates data provided by Milwaukee County and MKE staff as well as conversion weights obtained from U.S. Environmental Protection Agency references. Table 2 presents the estimated annual quantities of recyclable materials and solid waste generated.

Table 2. Solid Waste Estimated Annual Generation Rate

	Estimated Total Weight (lbs)	Estimated Total Weight Disposed (tons)
Recycled	181,477	90.7
Disposed	1,602,654	801.3
TOTAL	1,784,131	892.1

Waste Stream Inventory

During the site visit, AECOM collected information through interviews with Milwaukee County, MKE, and HMSHost staff on the types and management of waste streams generated at MKE. This information was compiled into a Waste Stream Inventory (see Appendix B). The Inventory includes the following information:

- Waste stream name;
- Locations that typically generate the waste;

- Waste stream type (i.e., non-hazardous solid waste, universal waste, medical waste, or hazardous waste);
- Brief statement describing how the waste is generated;
- Collection and storage methods; and
- Disposition (e.g., reused, recycled, or disposed; onsite or offsite).

Using information presented in the Waste Stream Inventory, waste streams were prioritized (i.e., high, intermediate, or low) based on the following criteria; a numerical rating from 0 (low) to 5 (high) was assigned to each criterion for each waste stream:

- Not Currently Recycled – waste streams that are not currently being recycled, but a market exists received a score of 5; waste streams that are currently being efficiently diverted from disposal via recycling or other means received a score of 0; and waste streams that are partially diverted or that currently have weak/nonexistent markets received scores between 1 and 4.
- Marketable Quantity – waste streams received scores based on their known or perceived quantity, a large quantity scored a 5 and a low quantity scored a 0; and waste streams with quantities in between received scores between 1 and 4.
- Marketable Condition – waste streams received scores based on the complexity of collecting/preparing the waste for vendor pickup, waste streams that are easy to collect/prepare received a score of 5, waste streams with complicated/labor intensive requirements scored a 0; and waste streams with condition needs in between received scores between 1 and 4.
- Market Exists – waste streams with a well-established market received a score of 5; waste streams with no currently known market scored a 0; and waste streams with markets in between received scores between 1 and 4.
- Market Location – waste streams with markets/vendors located near Milwaukee received a score of 5; waste streams with markets at a distance over 150 miles scored a 0; and waste streams with market locations in between received scores between 1 and 4.

The ratings for each waste stream were summed to calculate a total score. Waste streams with a total score less than 15 were designated as low priority candidates for recycling; waste streams with scores of 16-19 were designated as intermediate priority, and waste streams that scored >20 were identified as high priority target materials. The Recycling Opportunity Assessment Prioritization, including ratings and total scores for each waste stream are shown in Appendix B. The following waste streams received scores that qualified them as high priority target materials for recycling:

- Food Waste; and
- Solid Waste (recyclables not removed).

Food waste is being donated by HMSHost, but food waste that is not donated is currently not being recycled/composted. Source separation of recyclable items from the solid waste stream could be improved.

Although recycling opportunities for waste streams with low and intermediate scores were not evaluated under this project, these waste streams can be reconsidered in the future as changes in recycling

markets and technology occur that may affect waste stream prioritization scores and as the MKE works towards establishing and then achieving its waste diversion goals.

Waste Diversion Rate

The diversion rate equals the rate at which non-hazardous solid waste is diverted from disposal. The diversion rate is calculated using the following equation:

$$(R/(R+L))*100 = \text{percent diversion rate}$$

Where:
R equals the amount in tons of non-hazardous solid waste (and can include construction and demolition debris waste or a separate diversion rate can be used for this waste stream) that is diverted from disposal.

L equals the amount in tons of solid waste disposed.

Using data in the Solid Waste Estimated Annual Generation Rate spreadsheet (see Appendix A); the MKE waste diversion rate was calculated to be 10.2 percent.

3.1.11 Recommend Measures

Recommendations included in Table 3 are presented to improve the MKE solid waste and recycling program and focus on increasing solid waste diversion. These recommendations are based on the findings described in Section 4. The table includes the following information:

- Identification number (ID#) – a number assigned for ease of reference.
- Recommendation – description of the recycling opportunity.
- Ease of Implementation – indication of the level of complexity that may be involved in implementing the opportunity and identified as easy, moderate, or strenuous.
- Implementation Timeframe – a 10-year timeframe for recycling opportunities development and implementation broken down as short-term (<1 year out), mid-term (1-2 years out) and long-term (3+ years out).
- Capital Required – ranking of capital needed to implement the recycling opportunity, displayed by $ signs (one $ sign = low; three $$$ signs = high); does not include labor costs for existing MKE employees.
- Priority – Subjective ranking of recommendations based on ease of implementation, timeframe, and capital required criteria to provide guidance on which recommendations to work on first.

Table 3 is sorted by priority then by ease of implementation, followed by implementation timeframe (e.g., high priority, easy to implement, short-term recommendations are in the first rows of the table and low priority, strenuous to implement, long-term recommendations are in the last rows of the table).

Table 3. Recycling Opportunities and Initiatives Recommendations

ID#	Recommendation	Ease of Implementation	Implementation Timeframe	Capital Required	Priority
1	Contact Waste Management and request that they provide data on quantities of waste picked up for disposal (weights are typically available for waste collected in compactors and roll-off containers).	Easy	Short-Term	None	High
2	Track weights for all recycled wastes (e.g., batteries recycled through the Call2Recycle Program; however, MKE could weigh the boxes before shipping and maintain/track the data).	Easy	Short-Term	None	High
3	Develop a written waste diversion policy and procedures and distribute to waste generators and staff with waste management responsibilities.	Moderate	Short-Term	None	High
4	Expand education/training on the recycling program beyond recycling container labeling. Develop a promotion/training program to educate and encourage staff and passengers to reduce waste and recycle. Advertise waste reduction and recycling efforts to increase awareness and participation using posters, videos, airport TV/Dynamic Signage. Add recycling information to the MKE web page. Routinely, add fresh information to promote the MKE recycling program to passengers. Photographs of typical containers and lists and photographs of recyclable items would help future passengers understand the recycling program. Provide training on recycling to MKE staff. Make simple and clear recycling instructions readily available. Provide recycling/solid waste training to managers and require that managers make their staff aware of items that can be recycled and recycling procedures. Provide initial training as part of New Employee Orientation and then offer periodic refresher training/ awareness on an annual basis for all MKE staff and contractors (e.g., signs, e-mail messages, news articles, and special events).	Moderate	Mid-Term	$	High
5	Provide data on recyclables collected through the recycling program to passengers and staff noting progress and emphasizing priority to illustrate how their efforts contribute to the recycling program. Recycling psychology studies have found significant increases in the frequency of participation and total amount of recycled material when individual and group feedback is provided.	Moderate	Short Term	None	High

ID#	Recommendation	Ease of Implementation	Implementation Timeframe	Capital Required	Priority
6	Create a centralized tracking system to use in monitoring quantities and progress. Identify points of contact and collect data on quantity of waste disposed and recycled.	Strenuous	Mid-Term	$	High
7	Create or participate in a composting program for organic waste generated by onsite food service/preparation. Evaluate the feasibility of a composting program for organic waste (i.e., food waste; biodegradable cups, dishes, and utensils; and napkins, hand toweling, and other biodegradable, non-recyclable paper), where space permits, using large, sealed, containers that control odors and collect leachate (i.e., in vessel composting systems). For additional information: http://www.calrecycle.ca.gov/organics/food/Compost/InVessel.htm http://cwmi.css.cornell.edu/invesselcomposting.pdf	Strenuous	Long-term	$$$	High
8	Reduce the number of trash cans. Co-locate remaining trash cans with recycling containers, and label trash cans with wording similar to “Trash only – No recyclables”.	Moderate	Short-term	$	Intermediate
9	Periodically re-evaluate the need to conduct recycling opportunity assessments for waste streams with low and intermediate prioritization scores. These waste streams should be reconsidered in the future as changes in recycling markets and technology occur that may affect waste stream prioritization scores and as MKE works towards increasing waste diversion rates.	Moderate	Mid-term	None	Low
10	Conduct periodic audits of the types and amounts of waste being placed in the solid waste and recycling containers (i.e., mini sorts and/or visual surveys), and institute waste management process audits at each trash central collection point (i.e., walk-through/interview), as well as monitor container pickup frequency and staff/contractor knowledge of waste management procedures to evaluate the effectiveness of solid waste management activities.	Moderate	Long-term	None	Low

Attachment 4

Greenhouse Gas Inventory

4. GHG Inventory

Milwaukee Airport (MKE) GHG Inventory

Summary data	2014	2015
Scope 1 Emissions	7,144	6,730
Scope 2 Emissions	27,464	27,225
Total Emissions	34,608	33,955
Number of passengers	6,554,152	6,549,353
GHG Intensity Mtons CO2e/1000 passengers	5.28	5.18

Summary data	2014		2015		2014-2015 % change
	m tons CO2e	% distribution	m tons CO2e	% distribution	
Scope 1 Emissions	7,144	20.6%	6,730	19.8%	-5.8%
Scope 2 Emissions	27,464	79.4%	27,225	80.2%	-0.9%
Total Emissions	34,608	100%	33,955	100%	-1.9%
Number of passengers	6,554,152		6,549,353		-0.1%
*GHG Intensity Mtons CO2e/1000 *passengers*	5.28		5.18		-1.8%

	2014	2015
Scope 1 Emissions		
Stationary Sources	5,519	5,065
Diesel (Emergency Generators)	89.24	89.24
Number of generators	20	20
Average consumption (gallons / hour)	70	70
Hours of usage (hours/year)	6	6
Gallons	8,400	8,400
gC02/gl	10,623.33	10,623.33
gN20/gl	0.0000564	0.0000564
gCH4/gl	0.0000987	0.0000987
kilograms CO2	89,236.00	89,236.00
kilograms N20	0.00047	0.00047
kilograms CH4	0.00083	0.00083
metric tons CO2e	89.24	89.24
Natural Gas (Boilers)	5,383.92	4,930.91
Therms	1,013,692	928,399
gC02/gl	5,306.00	5,306.00
gN20/gl	0.01	0.01
gCH4/gl	0.1	0.1
kilograms CO2	5,378,650	4,926,085
kilograms N20	10.14	9.28
kilograms CH4	101.37	92.84
metric tons CO2e	5,383.92	4,930.91
Refrigerants (HVAC Systems)	11.55	11.55
Refrigerant type		
kg of refrigerant	150	150
GWP	77	77
metric tons CO2e	11.55	11.55
Waste[1]	34	34
Tons of landfilled waste	801	801
Tons of diverted waste	91	91
metric tons CO2e	33.80	33.80
Mobile Sources	1,626	1,665
Vehicle CNG	420.54	451.88
Total SCF	7,664,771	8,236,083
gC02/gl	54.44	54.44
gN20/gl	0.001027	0.001027
gCH4/gl	0.005135	0.005135
kilograms CO2	417,270	448,372
kilograms N20	7.87	8.46
kilograms CH4	39.36	42.29
metric tons CO2e	420.54	451.88
Vehicle Diesel	835.13	804.04
Total Gallons	75,946	73,119
gC02/gl	10,860.00	10,860.00
gN20/gl	0.42	0.42
gCH4/gl	0.29	0.29
kilograms CO2	824,778	794,071
kilograms N20	31.898	30.710
kilograms CH4	22.024	21.204
metric tons CO2e	835.13	804.04
Vehicle Gasoline	369.86	408.67
Total Gallons	39,158	43,267
gC02/gl	9,400.00	9,400.00
gN20/gl	0.12	0.12
gCH4/gl	0.38	0.38
kilograms CO2	368,090	406,712
kilograms N20	4.70	5.19
kilograms CH4	14.88	16.44
metric tons CO2e	369.86	408.67
Scope 2 Emissions		
Electricity	27,464	27,225
Electricity	27,463.98	27,224.83
kWh purchased	43,669,153	43,288,892
gC02/kWh	625.7	625.7
gN20/kWh	0.00983	0.00983
gCH4/kWh	0.00776	0.00776
kilograms CO2	27,323,789	27,085,860
kilograms N20	429.27	425.53
kilograms CH4	338.87	335.92
metric tons CO2e	27,463.98	27,224.83

[1] GHG Emissions related to waste disposal were calculated by using the Waste Reduction Model (WARM) v14

Breakdown by Source Type	2014		2015		2014-2015 % change
	m tons CO2e	% distribution	m tons CO2e	% distribution	
Stationary Sources	5,519	15.9%	5,065	14.9%	-8.2%
Mobile Sources	1,626	4.7%	1,665	4.9%	2.4%
Electricity	27,464	79.4%	27,225	80.2%	-0.9%
Total Emissions	34,608	100%	33,955	100%	-1.9%

Breakdown by Main Groups	2014		2015		2014-2015 % change
	m tons CO2e	% distribution	m tons CO2e	% distribution	
Energy	32,937	95.2%	32,245	95.0%	-2.1%
Transportation	1,626	4.7%	1,665	4.9%	2.4%
Other	45	0.1%	45	0.1%	0%
Total Emissions	34,608	100%	33,955	100%	-1.9%

Breakdown by Source	2014		2015		2014-2015 % change
	m tons CO2e	% distribution	m tons CO2e	% distribution	
Diesel (Emergency Generators)	89	0.3%	89	0.3%	0.0%
Natural Gas (Boilers)	5,384	15.6%	4,931	14.5%	-8.4%
Refrigerants (HVAC Systems)	12	0.0%	12	0.0%	0.0%
Waste	34	0.1%	34	0.1%	0.0%
Vehicle CNG	421	1.2%	452	1.3%	7.5%
Vehicle Diesel	835	2.4%	804	2.4%	-3.7%
Vehicle Gasoline	370	1.1%	409	1.2%	10.5%
Electricity	27,464	79.4%	27,225	80.2%	-0.9%
Total Emissions	34,608	100.0%	33,955	100.0%	-1.9%

Breakdown by Energy Use	2014		2015		2014-2015 % change
	m tons CO2e	% distribution	m tons CO2e	% distribution	
Diesel (Emergency Generators)	89	0.3%	89	0.3%	0.0%
Natural Gas (Boilers)	5,384	16.3%	4,931	15.3%	-8.4%
Electricity	27,464	83.4%	27,225	84.4%	-0.9%
Total Energy Emissions	32,937	100%	32,245	100%	-2.1%

Attachment 5

Water Efficiency Analysis

5. Water Efficiency Analysis

Location	Urinals		Toilets		Public Lavatory Faucets		Service Sinks Faucets		Breakroom Lavatory Faucets		Showers	
	#	GPF	#	GPF	#	GPM	#	GPM	#	GPM	#	GPM
HVAC Powerhouse	2	1	3	1.6	3	2	1	2.5	1	2		
International Arrivals Building (IAB)	5	1.5	11	3.5	10	2	2	2.5	1	2		
Admin Building	5	1	15	1.6	12	2	4	2.5	3	2		
Sherrifs	1	1.5	4	3.5	4	2	1	2.5	1	2	2	1.75
Main Concourse	15	1	37	1.6	36	0.5	4	2.5				
OPS Mezz Main Concourse			1	1.6	1	2		2.5	1	2		
Ticketing	5	1	13	1.6	13	0.5	2	2.5				
Baggage	4	0.5	12	1.28	10	0.5	2	2.5				
C-Concourse	15	1	42	1.6	36	0.5	3	2.5				
D-Concourse	17	1	59	1.6	45	0.5	5	2.5				
E-Concourse	9	1	13	1.6	16	0.5	1	2.5				
Car Rental	2	1	6	1.6	4	0.5	2	2.5				
Parking Admin	2	1	4	1.6	4	0.5	2	2.5	1	2		
Fleet	1	1.5	2	3.5	2	2	1	2.5	1	2		
Highway	2	1.5	4	3.5	1	2	1	2.5	4	2	9	1.75
South Shop	2	1.5	5	3.5	1	2	1	2.5	5	2	9	1.75
Firehouse	2	1.5	5	3.5	5	1.5	1	2.5	1	2		

GPF = Gallons per Flush

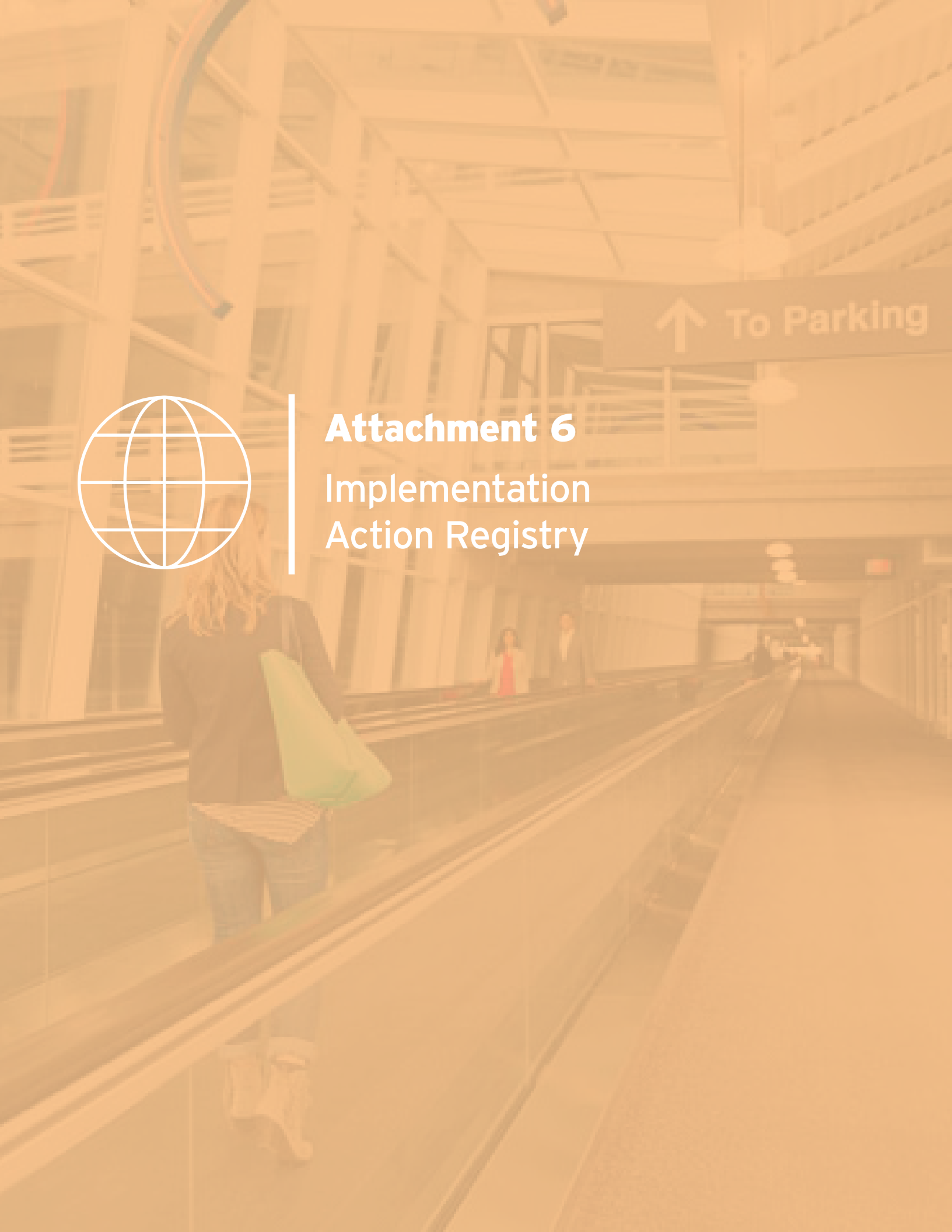
GPM = Gallons per Minute

Efficiency below baseline value

Efficiency equal to baseline value

Efficiency above baseline value

Type of fixture	Baseline Efficiency	
Toilet	1.6	gpf
Urinal	1	gpf
Public lavatory faucet	0.5	gpm
Service sink faucet	2.2	gpm
Showerhead	2.5	gpm



Attachment 6

Implementation Action Registry

MKE SMP Actions Registry					Implementation Information					
ID	Focus Area	Action	Description	Overall Relative Rank	Cost	Expected Duration	Primary Responsibility			Funding Source
SB2	Sustainable Buildings and Infrastructure	Develop airport-specific sustainable planning, design and construction guidelines including green building commitment or policy and consider pursuing LEED certification for appropriate (new construction projects) airport buildings	Coordinating with other existing Milwaukee County policies and guidance, develop airport-specific green building guidelines and commitment or policy and pursue Leadership in Energy and Environmental Design (LEED) certification, or other 3rd party certification, for appropriate airport buildings.	1	$$	**	Milwaukee County AE&ES			Budgeted OpEx
WS2	Waste Management	Enhance waste management and recycling program and develop education/training on waste management.	Expand and enhance overall waste management and recycling programs and develop education/training on waste management for employees and tenants. MKE should continue building on the existing program so that airport staff, tenants and passengers are aware of airport waste management practices and related waste and diversion results. Increased awareness and engagement should support more active involvement from all interested stakeholders and having a formal waste plan in place will allow for better procedures and monitoring of results.	1	$$	***	Airport Maintenance	Airport Environmental		Additional OpEx
EN5	Energy Management	Implement Energy Conservation Measures Identified through SMP development process and any other existing or future energy studies	Implementing ECMs that have been already identified will allow for energy consumption reduction and consequent GHG emissions reduction	3	Variable	****	Airport Maintenance	Milwaukee County AE&ES		Budgeted OpEx for Small Projects to Capital for Large Ones
CX2	Customer Experience	Create a unique sense of place, specific to Milwaukee	Provide services and design features that will create the impression of being in a unique and well-identified place (Gateway to Milwaukee).	4	Variable	*****	Airport Marketing			Budgeted OpEx for Small Projects to Capital for Large Ones
EP3	Economic Prosperity	Develop and implement an Asset or Infrastructure Management Plan.	An asset management plan (AMP) incorporates a systematic and coordinated set of activities and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, and risks and expenditures over their lifecycles. Typically, an AMP will take a whole-system approach, covering more than a single asset. An AMP is a framework being widely adopted as a means to achieve sustainable infrastructure and minimize the total cost of owning and operating this infrastructure, while delivering the desired service levels. Infrastructure asset management tends to focus specifically on the physical, rather than financial assets. Generally, an AMP covers the following areas: i) asset system description; ii) standard of service definition; iii) current asset performance; iv) planned actions; v) costs; vi) benefits; and vii) potential improvements.	4	$$	**	Airport Maintenance	Airport Engineering	Airport Planning	Budgeted OpEx
WA2	Water Management	Develop a dedicated water management and efficiency program.	Develop a dedicated water management and efficiency program. A formal water management program would allow the airport to better monitor water usage and develop and track actions to reduce water consumption and expenses.	4	$$	***	Airport Engineering	Airport Maintenance		
EE2	Employee Engagement	Involve employees directly in the SMP and airport sustainability program.	Involve employees directly in the SMP and airport sustainability program by increasing training, information and responsibilities around sustainability.	7	Variable	*****	Airport Sustainability Group (ASG)			
CE2	Community Engagement	Involve airport business and community stakeholders in the development and implementation of MKE's sustainability program	Involve airport business and community stakeholders in the development and implementation of MKE's sustainability program	7	Variable	*****	Airport Sustainability Group (ASG)	Business Development		
OE1	Operational Efficiency	Evaluate the feasibility of expanding the use of Cityworks to add monitoring of additional sustainability actions.	MKE already uses Cityworks to manage O&M, safety and other areas. The potential expansion of this program to monitor and manage additional sustainability topics represents an opportunity for MKE to build on existing business software and bring additional sustainability topics under management.	7	Variable	**	Airport GIS	Airport Sustainability Group (ASG)		
SB1	Sustainable Buildings and Infrastructure	Use the Envision rating system to assess the sustainability of airport infrastructure projects and development programs.	Envision is a rating system that provides a holistic framework for evaluating the community, environmental, and economic benefits of all types and sizes of infrastructure projects. The Envision Rating System is increasingly be considered and used in aviation industry to evaluate, grade, and give recognition to infrastructure projects and assess the sustainability indicators over the course of the project's life cycle.	7	$$	***	Airport Engineering			

MKE SMP Actions Registry					Implementation Information					
ID	Focus Area	Action	Description	Overall Relative Rank	Cost	Expected Duration	Primary Responsibility			Funding Source
WA5	Water Management	Improve stormwater management at MKE through green infrastructure projects and watershed restoration projects in collaboration with MMSD	Evaluate opportunities for enhanced stormwater management through green infrastructure and watershed restoration projects in collaboration with MMSD. MMSD is active in the Region and has set ambitious goals for GHG reduction, improvement in stormwater management and development of green infrastructure.	7	Variable	*****	Airport Engineering	Airport Environmental	Milwaukee County AE&ES	
EP4	Economic Prosperity	Establish a dedicated yearly budget and methodically identify grant opportunities to fund sustainability initiatives.	Having an established and defined budget allocated to sustainability can support the planning and strategy development process for MKE and advance implementation of actions that are developed from the SMP. This could allow the airport to forward fund sustainability projects that will result in operational cost savings.	12	$	*	Airport Sustainability Group (ASG)			
OE2	Operational Efficiency	Evaluate the airport's operation and maintenance (O&M) manual to ensure it is sufficient and comprehensive, including any new areas identified in the SMP.	Evaluate the airport's operation and maintenance (O&M) manual to ensure it is sufficient and comprehensive and incorporate any new or enhanced O&M areas that are developed as a result of the SMP. A comprehensive O&M manual would include all systems and operations at MKE and include any new or expanded / enhanced sustainability considerations.	12	$	**	Airport Maintenance			
AC1	Air Quality and Climate Change	Pursue Airport Carbon Accreditation certification.	Use the baseline information gathered for the SMP to pursue Airport Carbon Accreditation (ACA). ACA is a platform for aviation industry greenhouse gas (GHG) and climate leadership, sponsored by Airports Council International (ACI). The airport can pursue Level I Mapping certification and could then pursue Level II with the development of a GHG reduction strategy built on the actions identified for the SMP.	14	$	*	Airport Environmental			
AC2	Air Quality and Climate Change	Complete an annual greenhouse gas (GHG) inventory.	Building on the SMP baseline GHG inventory, complete annual greenhouse gas (GHG) inventory updates to monitor performance and track progress toward achieving GHG emission reduction goals.	14	$	*	Airport Environmental			
EN2	Energy Management	Develop a Strategic Energy Management Plan (SEMP).	Build on the Energy Survey Report and actions from the SMP Energy Management Focus Area by developing a more comprehensive Strategic Energy Management Plan (SEMP). A SEMP is developed to analyze various energy improvement options and select actions that will yield the greatest benefit to the airport over the short- and long-term.	14	$$$	**	Airport Engineering			
EN3	Energy Management	Evaluate the potential for guaranteed energy performance contract.	Evaluate the potential for using an energy performance contract to implement significant energy reduction opportunities. In this case, a performance contractor, typically an Energy Service Company (ESCO), is hired to carry out and pre-finance improvement measures with regard to the energy efficiency in major areas such as lighting, HVAC or cogeneration, as well as with renewable energy systems. Compared to traditional project delivery methods, the performance contractors provides the capital for improvements.	14	$	**	Airport Engineering			
GEN2	General	Incorporate the MKE Sustainability Management Plan in the upcoming Master Plan	Build on the SMP process and results to include sustainability as a guiding principle for the upcoming Master Plan update	14	$$	***	Airport Planning			
OE3	Operational Efficiency	Develop and implement an Environmental Management System (EMS) and a Energy Management System (EnMS)	Develop and implement an Environmental and/or Energy Management System (EMS and EnMS) to track progress in improving environmental performance and energy efficiency. A MS is a management structure that helps organizations achieve goals through a systematic approach toward regulatory compliance and beyond. A MS includes regulatory requirements and voluntary goals and is used to track compliance and progress, and manage data, often through an electronic database. A MS can be tailored to meet the specific requirements and goals that apply to an organization, and does not imply that a particular level of achievement must be attained.	14	$$$$	****	Airport Environmental	Airport Planning		
SB3	Sustainable Buildings and Infrastructure	Conduct a Climate Change and Resiliency Impact / Vulnerability Assessment.	Conduct a Climate Change and Resiliency Impact / Vulnerability Assessment by understanding the potential impact of climate change and related natural disasters on the airport's operations. This assessment will provide proactive planning with the goal to mitigate negative impacts, prepare for changing conditions, increase safety and limit potential financial losses due to closures or operational blackouts.	14	$$$	**	Airport Environmental			

MKE SMP Actions Registry					Implementation Information					
ID	Focus Area	Action	Description	Overall Relative Rank	Cost	Expected Duration	Primary Responsibility			Funding Source
WS1	Waste Management	Develop a monitoring and tracking plan for the airport waste stream.	Developing a monitoring and tracking plan for the airport waste stream and having a centralized system for this information would allow the airport to better understand waste diversion activities and results and inform development of effective waste reduction strategies. Currently available information regarding amounts of waste, number of pickups and cost is fragmented and does not provide the airport with the necessary information to manage waste effectively.	14	$$	***	Airport Environmental			
AC3	Air Quality and Climate Change	Evaluate options and consider direct purchase of renewable energy or purchase of renewable energy certificates (RECs).	Energy represents the largest GHG emission source for MKE. Purchasing renewable energy or RECs could have a significant positive impact in terms of GHG emissions reductions.	22	$	**	Airport Finance			
CX1	Customer Experience	Track and evaluate existing data collected on passenger satisfaction	Measure passenger / customer satisfaction and communicate results with airport facilities in order to focus on a continual improvement program.	22	$	*****	Airport Marketing			
CX3	Customer Experience	Improve wayfinding, travel and wait	Allow for passenger to easily recognize the direction they need to head to and have more comfort while waiting for their flights	22	TBD	***	Airport Planning			
EN1	Energy Management	Enhance the airport's energy management program by developing an energy efficiency program for tenants.	Enhance the airport's energy management program by developing an energy efficiency program for tenants. Tenant activities contribute a significant component of the airport energy use. Being able to track tenant consumption and collaborate to improve energy efficiency of tenant operations would allow for increased savings and reduced energy consumption for the airport.	22	$	**	Airport Properties	Airport Engineering		
WA4	Water Management	Review and revise, as necessary, Comprehensive Storm Water Management Plan (SWMP) and stormwater management approach at MKE .	Review and revise, as necessary, Comprehensive SWMP and stormwater management approach at MKE to continue moving beyond compliance and incorporating best management practices (BMPs) that will reduce stormwater flow and runoff contamination, take increased advantage of bio-filters, and improve stormwater/effluent sustainability practices. Adopt tactics as appropriate.	22	$$	**	Milwaukee County AE&ES			
EE1	Employee Engagement	Build awareness of airport job openings and improve communications regarding job advertising.	Improving the recruitment process would allow MKE to be seen as a relevant employer in the region and also allow for a larger, potentially more qualified pool of candidates to apply for openings	27	$	*****	Milwaukee County HR			
EE3	Employee Engagement	Provide opportunities for employee engagement, advancement and growth	More engaged employees that can see advancement opportunities will improve retention and allow for higher efficiency and better results in all areas including sustainability	27	$	*****	Airport Management			
EN4	Energy Management	Complete installation of sub-meters in all areas of the airport including terminals, Business Park buildings, tenant areas and airfield.	Having extensive sub-metering capabilities would allow MKE to track all energy uses and identify possible anomalies and issues in the energy usage pattern. This could lead to the development of strategies promoting efficiencies and savings.	27	$$	****	Airport Engineering			
GEN1	General	Integrate sustainability metrics into MKE KPI initiative	Add new sustainability metrics identified in SMP into the MKE KPI initiative. Leverage and incorporate what has already been done through Cityworks and the SMP. This will apply for all Focus Areas.	27	$	**	Airport Planning			
HS1	Health and Safety	Develop and implement a Risk Management System.	Having a formal Risk Management Plan in place would allow MKE to improve the ability to identify risks and accordingly prepare for them. This will increase the airport's resiliency.	27	$$	***	Airport Operations			
WA3	Water Management	Develop a tenant engagement program for water management and efficiency.	Develop a program to engage tenants in water management and efficiency. Involving tenants in the airport water management and efficiency program would allow for increased savings and reduced water consumption for the airport.	27	$	**	Airport Properties	Airport Engineering		
CE1	Community Engagement	Develop a communication plan for sustainability information for the public	Communicating the efforts and results of the sustainability program will create more engagement and support from the region for MKE. For this reason an organized and detailed communication plan will help this process	33	$	**	Airport Marketing			
EP1	Economic Prosperity	Develop an updated Economic Study potentially incorporated into the master planning process	An updated economic study would include updated information on MKE's economic impact and incorporate latest economic conditions in the region thus providing useful information for airport planning. The latest Economic Study for the airport includes 2010 data.	33	$$	**	Airport Planning			

MKE SMP Actions Registry					Implementation Information					
ID	Focus Area	Action	Description	Overall Relative Rank	Cost	Expected Duration	Primary Responsibility			Funding Source
GEN3	General	Produce a simple periodic update (every quarter or six months) 1-2 page report with updates on sustainability at MKE	Keep internal and external stakeholders aware of MKE's sustainability program advancements by producing and distributing periodic summary documents of the activities implemented and related results	35	$	*	Airport Sustainability Group (ASG)			
EP2	Economic Prosperity	Develop a business plan for the Business Park and Timmerman	Identify current and possible future uses for the Business Park buildings including land development options and explore the potential growth for Timmerman airport	36	$$	***	Airport Planning			
WA1	Water Management	Develop partnerships with other organizations in the water management / technology space and engage stakeholders on relevant water topics.	As Milwaukee becomes more and more a hub/center of excellence for water technologies the airport can play an important role and become to a certain extent a lab to test innovative water technologies	36	$	*****	Airport Sustainability Group (ASG)			

Parking Lot			
ID		Action	Description
GEN4	General	Publish an annual or bi-annual airport-wide sustainability report.	Developing and publishing a report using a broadly accepted framework like the Global Reporting Initiative (GRI) helps to track sustainability performance, benchmark against peers, evaluate progress against goals and actions, and engage stakeholders.
GEN5	General	Start or enhance a Green Procurement Program.	An airport operator may institute an environmentally-preferred purchasing program (EPP) to reduce energy use and greenhouse gas (GHG) emissions associated with products, services, purchases, and materials, to prevent pollution and reduce waste.
AC4	Air Quality and Climate Change	Develop a Climate Action Plan (CAP) that provides a long-term roadmap for reducing GHG emissions.	Building on the SMP baseline GHG Inventory, energy assessment, and climate change impact assessments, develop a plan that includes a roadmap for the reduction of GHG emissions at MKE.
EN6	Energy Management	Develop a computer simulation model to assess airport energy performance and identify the most cost effective energy measures.	Develop a computer simulation model to assess airport energy performance and identify the most cost effective energy measures. An energy simulation model would recreate the existing and expected conditions of the airport's energy consumption profile. Such models support scenario creation (e.g., for energy reduction planning) and development of energy reduction and management strategies.
EN7	Energy Management	Complete a feasibility study for the installation of a cogeneration plant serving the airport.	Cogen (CHP) systems allow to combine the production of electricity and heat that can be used to heating and cooling of buildings. CHP systems have higher efficiency than traditional energy production methods and allow to reuse thermal energy that would be lost otherwise.
EN8	Energy Management	Complete a study to evaluate the opportunity of using thermal energy to improve efficiency in energy use at the airport.	Thermal energy could allow MKE to efficiently manage energy demand peaks especially during the summer when there is a significant need for cooling of the airport.
WA6	Water Management	Evaluate graywater reuse opportunities.	Reuse of greywater could allow for significant potable water consumption reduction and financial savings.

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Develop airport-specific sustainable planning, design and construction guidelines including green building commitment or policy and consider pursuing LEED certification for appropriate (new construction projects) airport buildings.
Action ID	SB2
Focus Area	Sustainable and Resilient Buildings and Infrastructure
Description	Coordinating with other existing Milwaukee County policies and guidance, develop airport-specific green building guidelines and commitment or policy and pursue Leadership in Energy and Environmental Design (LEED) certification, or other 3rd party certification, for appropriate airport buildings.

Tactics	Evaluate existing policies and guidance, including Green Print (2007), Sustainable Design Guidelines (2009), and County Ordinance – Chapter 21 (2016), and develop a new airport-specific green building commitment and policy.
	Implement the policy for all new buildings, relevant capital projects, contracting of relevant professional services, and other building programs at MKE.
	Benchmark similar efforts undertaken by other airports to support the definition of the structure of the guidelines.
	Provide training on the airport's sustainable planning, design and construction guidelines, including their basis, the parties responsible for using the guidelines, and the sustainable rating system.
	Require a LEED or equivalent building standard and green operating commitment from non-airport controlled buildings that are undergoing construction activities, including renovations.
	Incorporate comprehensive energy specifications and design guidance into RFPs.

Sustainability Goals

Goals	Adopt sustainable design and construction practices for MKE's buildings and infrastructure.
	Identify vulnerabilities and resiliency strategies the airport could adopt to prepare infrastructure for extreme weather and other climate change-related conditions.

Targets and KPIs

Performance Targets	N/A	**Tracked Key Performance Indicators (KPIs) / Metrics**	N/A

Budget Information

Upfront Cost	☑ Expected	50k-100k	Cost will be influenced by how much work will be done internally vs by external service providers.	**Annual Operating Cost**	☐ Expected	< 50k	Action will require ongoing management, with effort/cost dependent on current capital projects and contract scope with service providers.
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☑ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☐ Expected	6-12 months	<notes>
End Date	<date>		☑ Actual		<notes>
Primary Responsibility	Milwaukee County AE&ES				
	<department/staff member>				
	<department/staff member>				
	<notes>				

Additional Notes

<relevant changes, obstacles, barriers, etc.>

Related Policies, Guidance and other Documents

Green Print (2007).
Sustainable Design Guidelines (2009), and County Ordinance – Chapter 21 (2016).
LEED v4 Guidelines.

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Enhance waste management and recycling program and develop education/training on waste management.
Action ID	WS2
Focus Area	Waste Management
Description	Expand and enhance overall waste management and recycling programs and develop education/training on waste management for employees and tenants. MKE should continue building on the existing program so that airport staff, tenants and passengers are aware of airport waste management practices and related waste and diversion results. Increased awareness and engagement should support more active involvement from all interested stakeholders and having a formal waste plan in place will allow for better procedures and monitoring of results.

Tactics	Train airport staff on waste management.
	Expand education/training on the recycling program beyond recycling container labeling.
	Engage tenants by including waste management requirements in concession contracts, developing overall waste policy that includes tenants and have periodic meetings to discuss waste related matters.
	Improve recycling stations by enhancing signage and bin placement, using bins that can be better distinguished by passengers from the ones dedicated to traditional waste.
	Add dumping station before security for people to dispose liquids and install water bottle filling stations right after security and substitute traditional drinking fountains with dual units including water bottles filling stations.
	Create reusable MKE branded water bottles to give out after security to reduce amount of single use plastic bottles bought from vendors and disposed. Bottles should include a recycling message on the bottles to promote the MKE recycling program.
	Inform stakeholders regarding the progress of the waste management program.
	Build and expand on the SMP Waste/Recycling Opportunities Assessment and develop and implement a Recycling, Reuse, and Waste Reduction Plan that covers the following topics currently missing: - Review of Recycling Feasibility - Operation & Maintenance Requirements - Roles & Responsibilities - Potential for Cost Savings or Revenue Generation - Tracking and Reporting on Recommendations - Education & Outreach. In order to develop the plan refer to the following resources: - FAA Guidance on Airport Recycling, Reuse, and Waste Reduction Plans (9-30-2014), Section 6 - Contents of an Airport Recycling, Reuse, and Waste Reduction Plan; - FAA Recycling, Reuse, and Waste Reduction at Airports: A Synthesis Document (04-24-2013), Section 5 - Waste Management Plan Development; - Sustainable Aviation Guidance Alliance (SAGA), Sustainable Practices web page http://airportsustainability.org/sustainable-practices to develop a Recycling, Reuse, and Waste Reduction Plan.

Sustainability Goals

Goals	Increase waste diversion through enhanced waste management program, including education and training programs, formal policies and procedures, increase waste revenue streams and avoided disposal costs.

Targets and KPIs

Performance Targets	- xx% reduction of total waste - xx% increase in waste diversion/recycling	**Tracked Key Performance Indicators (KPIs) / Metrics**	- Waste diversion rate - tons of waste produced

Budget Information

Upfront Cost	☑ Expected	50k-100k	Cost will depend on the tactics that get implemented. Hiring an external consultant to develop the waste management plan may bring the cost to the higher end of the range and may exceed $50K. Buying materials such as new bins, signage and completing activities such as employee training and stakeholder engagement internally may keep the cost down.	**Annual Operating Cost**	☐ Expected	< 50k	Action will require ongoing management, with effort/cost dependent on the tactics that get implemented and contract scope with any potential service providers.
	☐ Actual				☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☑ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☑ Yes ☐ No	**Type of Grant** AIP for the RRWR or via MMPU	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☐ Expected	6-12 months	<notes>
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Maintenance				
	Airport Environmental				
	<department/staff member>				
	<notes>				

Additional Notes

<relevant changes, obstacles, barriers, etc.>

Related Policies, Guidance and other Documents

SMP Technical Report Number 2, MKE Sustainability Management Plan Baseline / Waste/Recycling Opportunities Assessment Report.

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Implement Energy Conservation Measures Identified through SMP development process and any other existing or future energy studies.
Action ID	EN5
Focus Area	Energy Management
Description	Implementing ECMs that have been already identified will allow for energy consumption reduction and consequent GHG emissions reduction.

Tactics	Complete an ASHRAE Level II Energy Audit for the terminal and MKE Business Park. Evaluate local utility programs to be able to perform the Level II audit at a lower cost compared to hiring a consultant.
	Complete retro commissioning of all energy systems and implement identified measures.
	Upgrade airport Controls Systems and install a building automation system (BAS).
	Install modulating condensing boilers for summer operation.
	Install variable frequency drives (VFDs) on cooling towers.
	Convert air handling units (AHUs) to variable volume.
	Install dedicated domestic hot water heaters.

Sustainability Goals

Goals	Reduce MKE's energy consumption by developing a formal energy management program that relies both on energy efficiency and renewable energy.

Targets and KPIs

Performance Targets	- xx% reduction in electricity, natural gas and total energy usage (Separate between airport and Business park or combined)	**Tracked Key Performance Indicators (KPIs) / Metrics**	- kWh, therms, Mbtu (Airport, Business Park, Total) - kWh-therms-Mbtu/sqf ((Airport, Business Park, Total) - kWh-therms-MBtu/passenger (Airport, Business

Budget Information

Upfront Cost	☑ Expected	TBD	Cost will depend on which ECMs are implemented. Level II audit could vary between low cost (if completed by local utility) up to $75k if done by external service provider.	**Annual Operating Cost**	☐ Expected	TBD	Action will require ongoing management, with effort/cost dependent on the ECMs that get implemented and contract scope with any potential service providers.
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☑ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☑ Yes ☐ No	**Type of Grant**	AIP, Utility Rebates (only selected tactics would be eligible for grants) **% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	12-24 months	Timeframe will be dependent on the type of ECMs implemented
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Maintenance				
	Milwaukee County AE&ES				
	<department/staff member>				
	<notes>				

Additional Notes

<relevant changes, obstacles, barriers, etc.>

Related Policies, Guidance and other Documents

SMP Technical Report Number 2, MKE Sustainability Management Plan Baseline / Energy Survey Report.
Retrocommissioning reports.

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Create a unique sense of place, specific to Milwaukee.	**Tactics**	Improve variety of vendors (e.g., local, healthy, unique options). Provide display space for visiting art from area museums.
Action ID	CX2		
Focus Area	Customer Experience		
Description	Provide services and design features that will create the impression of being in a unique and well-identified place (Gateway to Milwaukee).		

Sustainability Goals

Goals	Maintain or improve high customer satisfaction.

Targets and KPIs

Performance Targets	Suggested: - % of unique local businesses - % of food vendors offering "healthy" options	**Tracked Key Performance Indicators (KPIs) / Metrics**	Suggested: - CanMark Survey satisfaction results

Budget Information

Upfront Cost	☐ Expected	TBD	Cost can be estimated only once the type of initiatives that will be implemented are identified	**Annual Operating Cost**	☐ Expected	TBD	<notes>
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☑ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☐ Expected	Ongoing	<notes>
End Date	<date>		☐ Actual		<notes>
	Airport Marketing				
Primary Responsibility	<department/staff member>				
	<department/staff member>				
	<notes>				

Additional Notes

Will require input, cooperation and collaboration from vendors.
Formalized, regular evaluation and reporting of customer survey data will be necessary.

Related Policies, Guidance and other Documents

MKE Concession Contracts.
CanMark Survey Data.

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Develop and implement an Asset or Infrastructure Management Plan.	**Tactics**	Compile existing information on MKE's assets and infrastructure in order to develop an up to date inventory.
			Establish criteria against which assets will be evaluated.
Action ID	EP3		Identify a schedule for asset performance review.
Focus Area	Economic Prosperity		Align AMP with SMP implementation plan.
Description	An asset management plan (AMP) incorporates a systematic and coordinated set of activities and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, and risks and expenditures over their lifecycles. Typically, an AMP will take a whole-system approach, covering more than a single asset. An AMP is a framework being widely adopted as a means to achieve sustainable infrastructure and minimize the total cost of owning and operating this infrastructure, while delivering the desired service levels. Infrastructure asset management tends to focus specifically on the physical, rather than financial assets. Generally, an AMP covers the following areas: i) asset system description; ii) standard of service definition; iii) current asset performance; iv) planned actions; v) costs; vi) benefits; and vii) potential improvements.		

Sustainability Goals

Goals	Enhance MKE's economic performance by increasing revenue streams and maintaining awareness of market trends and opportunities.
	Build the airport's role as an economic engine in the region.

Targets and KPIs

Performance Targets	TBD	**Tracked Key Performance Indicators (KPIs) / Metrics**	Suggested: - O&M cost /sqf - KPIs tracked in MKE initiative - Others TBD

Budget Information

Upfront Cost	☑ Expected	50k-100k	Cost will be influenced by how much work will be done internally vs by external service providers.	**Annual Operating Cost**	☐ Expected	TBD	Action will require ongoing management, with effort/cost dependent on the scope of the AMP, tactics that get implemented and contract scope with any potential service providers.
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☑ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	6-12 months	<notes>
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Maintenance				
	Airport Engineering				
	Airport Planning				
	<notes>				

Additional Notes

<relevant changes, obstacles, barriers, etc.>

Related Policies, Guidance and other Documents

<list of docs>

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Develop a dedicated water management and efficiency program.
Action ID	WA2
Focus Area	Water Management
Description	Develop a dedicated water management and efficiency program. A formal water management program would allow the airport to better monitor water usage and develop and track actions to reduce water consumption and expenses.

Tactics	Develop water efficiency guidelines for all new installation and replacement of fixtures.
	Develop an employee training program around water management.
	Install sub meters in different buildings and areas to track water usage.
	Continue monitoring water consumption and track and report on water usage and cost savings compared to the baseline.

Sustainability Goals

Goals	Support the Milwaukee area in becoming a national hub for water related innovation and technology
	Maintain a holistic water stewardship program that addresses water consumption, water quality, and stormwater management.

Targets and KPIs

Performance Targets	- xx% water usage reduction - number/% of water efficient fixtures	**Tracked Key Performance Indicators (KPIs) / Metrics**	- gallons - gallons/sqf - gallons/passenger - total # of fixtures - # of efficient fixtures installed

Budget Information

Upfront Cost	☑ Expected	50k-100k	Cost will be influenced by how much work will be done internally vs by external service providers.	**Annual Operating Cost**	☐ Expected	TBD	Action will require ongoing management, with effort/cost dependent on the tactics that get implemented and contract scope with any potential service providers.
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☐ Mix	☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**		**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	6-12 months	Duration could vary significantly based on the level of detail and tactics chosen for the plan
End Date	<date>		☐ Actual		<notes>
	Airport Maintenance				
Primary Responsibility	Airport Engineering				
	<department/staff member>				
	<notes>				

Additional Notes

<relevant changes, obstacles, barriers, etc.>

Related Policies, Guidance and other Documents

SMP Technical Report Number 2, MKE Sustainability Management Plan Baseline.

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Involve employees directly in the SMP and airport sustainability program.
Action ID	EE2
Focus Area	Employee Engagement
Description	Involve employees directly in the SMP and airport sustainability program by increasing training, information and responsibilities around sustainability.

Tactics	Include educational training on sustainability in periodic employee meetings.
	Include sustainability responsibilities in job descriptions.
	Link achievement of the organization's sustainability goals to performance reviews of key personnel.
	Post sustainable meeting best practices in meeting rooms and on internet and intranet sites.
	Empower employees to reward travelers who act sustainably.
	Allow opportunities to collect employee feedback through dedicated meetings of sustainability committee or surveys.
	Create expectation that all staff at the airport works well with the public – can ask anyone for help and they will provide good assistance.
	Adapt Milwaukee County's "find it-fix it" program to enable employees to address sustainability concerns directly.
	Update employee training videos to include value around sustainability.

Sustainability Goals

Goals	Attract workers from throughout Milwaukee County to create a workforce that reflects county demographics.
	Retain employees and provide opportunities for advancement to build employee satisfaction.

Targets and KPIs

Performance Targets	Suggested: - number of employees participating in sustainability training	**Tracked Key Performance Indicators (KPIs) / Metrics**	KPIs to be identified based on the activities. Suggested: - employee turnover - employee home zip codes in Milwaukee County

Budget Information

Upfront Cost	☑ Expected	TBD		**Annual Operating Cost**	☐ Expected	TBD	<notes>
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☑ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	Ongoing	There will be a training and engagement plan that will need to be developed at the beginning to guide the process but most of the activities will be completed on an ongoing basis.
End Date	<date>		☐ Actual		
Primary Responsibility	Airport Sustainability Group (ASG)				
	<department/staff member>				
	<department/staff member>				
	<notes>				

Additional Notes

Can be difficult for managers to consistently communicate MKE values around sustainability to employees.
Standardized job description format may be valuable.
Standardize employee performance review format may be valuable.

Related Policies, Guidance and other Documents

HR Documents
Performance Review Forms
Employee On-boarding Materials

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Involve airport business and community stakeholders in the development and implementation of MKE's sustainability program
Action ID	CE2
Focus Area	Community Engagement
Description	Involve airport business and community stakeholders in the development and implementation of MKE's sustainability program

Tactics	Develop a Sustainability Stakeholder Engagement Calendar.
	Coordinate informal meetings with the mayors of neighboring cities to discuss airport projects, sustainability, and other general information.
	Detail current and anticipated sustainability practices on airport and local municipality websites and provide an opportunity for community input.
	Develop a "Speaker's Bureau" where airport representatives report the airport's sustainability accomplishments to local communities and determine points of collaboration for future practices.
	Highlight community based sustainability initiatives (e.g. through photo exhibit).
	Promote MKE volunteer service day.
	Identify local / regional academic institutions that may be interested in having the opportunity to collaborate.
	Provide sustainability awareness training programs, presentations, and/or meetings for employees, consultants, tenants, and contractors.
	Set up annual or bi-annual clean-up events to collect bulky, non-hazardous items from tenants, airlines, and airport employees for recycling, donation, or disposal.
	Establish a regular meeting schedule to discuss sustainability progress with construction and maintenance contractors, tenants, airlines, local regulators, and/or national civil aviation administration.

Sustainability Goals

Goals	Create lasting partnerships to enhance reputation and be responsive to community needs.
	Communicate sustainability information and MKE's progress on SMP goals and leadership on sustainability issues.

Targets and KPIs

Performance Targets	Suggested: - # of events and meetings - % of recurrent participants	**Tracked Key Performance Indicators (KPIs) / Metrics**	Suggested: - participants per meeting - newsletter views - video views

Budget Information

Upfront Cost	☑ Expected	TBD	Cost will depend on the type of activities the engagement plan will include	**Annual Operating Cost**	☐ Expected	TBD	<notes>
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	Ongoing	<notes>
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Sustainability Group (ASG)				
	Business Development				
	<department/staff member>				
	<notes>				

Additional Notes

Limited internal resources may be a barrier.
Focusing message to audience may be time consuming.

Related Policies, Guidance and other Documents

<list of docs>

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Evaluate the feasibility of expanding the use of Cityworks to add monitoring of additional sustainability actions.
Action ID	OE1
Focus Area	Operational Efficiency
Description	MKE already uses Cityworks to manage O&M, safety and other areas. The potential expansion of this program to monitor and manage additional sustainability topics represents an opportunity for MKE to build on existing business software and bring additional sustainability actions under management.

Tactics	Evaluate current uses of Cityworks at the airport, including work flow management and operations, for potential expansion to include new sustainability topics, data points and work flow activities.
	Use a maintenance log to track resource use (fuel, water, waste, materials) and sustainability issues and ideas.
	Emphasis should be on those Focus Areas with specific data and work flow activities that affect operations, such as Air, Energy, Waste, and Water, but could be evaluated for additional expansion.

Sustainability Goals

Goals	Improve performance tracking by adopting management systems and developing new metrics and specific procedures.

Targets and KPIs

Performance Targets	These will depend on the topics that will be added to the Cityworks platform	**Tracked Key Performance Indicators (KPIs) / Metrics**	These will depend on the topics that will be added to the Cityworks platform

Upfront Cost	☑ Expected	TBD	Depends on the extent of the implementation	**Annual Operating Cost**	☐ Expected	< 50k	Action will require ongoing management, with effort/cost dependent on the scope of the implementation and contract scope with any potential service providers.
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☐ Mix	☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**		**% Coverage**	

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	6-12 months	Duration would vary based on how many new areas will be added into the Cityworks tool.
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport GIS				
	Airport Sustainability Group (ASG)				
	<department/staff member>				
	<notes>				

Additional Notes

As an asset and work management system, Cityworks has a robust work flow engine that can be used to log processes and it is possible to create customized reports and metrics. While all sustainability topics could be evaluated for potential inclusion, waste should be explored as a priority area as the waste program may benefit greatly from inclusion in Cityworks.

Related Policies, Guidance and other Documents

<list of docs>

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Use the Envision rating system to assess the sustainability of airport infrastructure projects and development programs.
Action ID	SB1
Focus Area	Sustainable and Resilient Buildings and Infrastructure
Description	Envision is a rating system that provides a holistic framework for evaluating the community, environmental, and economic benefits of all types and sizes of infrastructure projects. The Envision Rating System is increasingly be considered and used in aviation industry to evaluate, grade, and give recognition to infrastructure projects and assess the sustainability indicators over the course of the project's life cycle.

Tactics	Identify an upcoming project at MKE for potential Envision certification or complete an informal Envision assessment as a trial / pilot project.
	Identify one or more staff member to become Envision accredited.
	Complete one Envision certified project.
	Include language in the specifications for all new major infrastructure projects.

Sustainability Goals

Goals	Adopt sustainable design and construction practices for MKE's buildings and infrastructure.
	Identify vulnerabilities and resiliency strategies the airport could adopt to prepare infrastructure for extreme weather and other climate change-related conditions.

Targets and KPIs

Performance Targets	Suggested: '- Envision certification level (bronze, silver, gold)	**Tracked Key Performance Indicators (KPIs) / Metrics**	Suggested: - Envision credits achieved - # of projects implementing Envision - # of Envision certifications achieved

Budget Information

Upfront Cost	☑ Expected	TBD	Cost will vary based on the type and size of project and on whether internal staff will be involved and/or become Envision accredited
	☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>
	☐ Actual		<notes>

Annual Operating Cost	☐ Expected	TBD	<notes>
	☐ Actual		<notes>
Funding Sources	☐ CapEx	☐ OpEx	☐ Mix ☐ Unknown
	Grant Eligible ☐ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☑ Completed	
Start Date	<date>	**Duration**	☑ Expected	12-24 months	Duration will vary depending on the timeline and type of projects that will be developed at MKE.
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Engineering				
	<department/staff member>				
	<department/staff member>				
	<notes>				

Additional Notes

Costs for this action (both upfront and annual operating costs) vary considerably based on level of implementation - whether this action would be implemented as a pilot for smaller projects, implemented informally (i.e., using Envision as a guide), or implemented formally with accredited staff and projects pursuing Envision certification.

Related Policies, Guidance and other Documents

Green Print (2007).
Sustainable Design Guidelines (2009), and County Ordinance – Chapter 21 (2016).
LEED v4 Guidelines.

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Improve stormwater management at MKE through green infrastructure projects and watershed restoration projects in collaboration with MMSD.
Action ID	WA5
Focus Area	Water Management
Description	Evaluate opportunities for enhanced stormwater management through green infrastructure and watershed restoration projects in collaboration with MMSD. MMSD is active in the Region and has set ambitious goals for GHG reduction, improvement in stormwater management and development of green infrastructure.

Tactics	Install rain gardens, bioswales, infiltration features, and other stormwater management facilities to reduce stormwater quantities throughout the airport (including entry roads) and to beautify terminal areas.
	Develop green infrastructure policy and / or design and construction guidelines for green infrastructure.
	Removing concrete from channel downstream of the airport's main discharge which would allow for improved and more natural stormwater flows for Wilson Park Creek.

Sustainability Goals

Goals	Support the Milwaukee area in becoming a national hub for water related innovation and technology
	Maintain a holistic water stewardship program that addresses water consumption, water quality, and stormwater management.

Targets and KPIs

Performance Targets	TBD	**Tracked Key Performance Indicators (KPIs) / Metrics**	Suggested: - # of green infrastructure projects - # of project in collaboration with MMSD - Others TBD

Budget Information

Upfront Cost	☑ Expected	TBD		**Annual Operating Cost**	☐ Expected	TBD	<notes>
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☐ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	Ongoing	Ongoing but project duration may vary.
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Engineering				
	Airport Environmental				
	Milwaukee County AE&ES				
	<notes>				

Additional Notes

<relevant changes, obstacles, barriers, etc.>

Related Policies, Guidance and other Documents

<list of docs>

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Establish a dedicated yearly sustainability budget and methodically identify grant opportunities to fund sustainability initiatives.
Action ID	EP4
Focus Area	Economic Prosperity
Description	Having an established and defined budget allocated to sustainability can support the planning and strategy development process for MKE and advance implementation of actions that are developed from the SMP. This could allow the airport to forward fund sustainability projects that will result in operational cost savings.

Tactics	Allocate financial savings from sustainability initiatives such as energy and water efficiency towards the implementation of further sustainability programs.
	Investigate energy tax credits, rebates, and grants by local utilities or federal, state, or local agencies.
	Apply for national, state, and local grants to support the implementation of sustainable practices.

Sustainability Goals

Goals	Enhance MKE's economic performance by increasing revenue streams and maintaining awareness of market trends and opportunities.
	Build the airport's role as an economic engine in the region.

Targets and KPIs

Performance Targets	TBD	**Tracked Key Performance Indicators (KPIs) / Metrics**	Suggested: -$ approved sustainability budget -funds requested/funds obtained -Other TBD

Budget Information

Upfront Cost	☑ Expected	< 50k	Assumes this action will be managed internally and initial budget is relatively small.	**Annual Operating Cost**	☐ Expected	TBD	Action will require ongoing management, with effort/cost dependent on current projects and grant needs.
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☑ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned		☐ Ongoing	☐ Completed
Start Date	<date>	**Duration**	☑ Expected	Ongoing	<notes>
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Sustainability Group (ASG)				
	<department/staff member>				
	<department/staff member>				
	<notes>				

Additional Notes

May require special "seed" funding or line item to establish program.

Related Policies, Guidance and other Documents

<list of docs>

Milwaukee International Airport - Sustainability Management Plan - IMPLEMENTATION DETAIL SHEET

General Information

Action Title	Evaluate the airport's operation and maintenance (O&M) manual to ensure it is sufficient and comprehensive, including any new areas identified in the SMP.	**Tactics**	Coordinate with OE1 for how Cityworks could support this action.
Action ID	OE2		
Focus Area	Operational Efficiency		
Description	Evaluate the airport's operation and maintenance (O&M) manual to ensure it is sufficient and comprehensive and incorporate any new or enhanced O&M areas that are developed as a result of the SMP. A comprehensive O&M manual would include all systems and operations at MKE and include any new or expanded / enhanced sustainability considerations.		

Sustainability Goals

Goals	Improve performance tracking by adopting management systems and developing new metrics and specific procedures.

Targets and KPIs

Performance Targets	TBD	**Tracked Key Performance Indicators (KPIs) / Metrics**	TBD

Budget Information

Upfront Cost	☑ Expected	< 50k	Cost will depend on level of revision needed and whether external service providers will be engaged.	**Annual Operating Cost**	☐ Expected	TBD	<notes>
	☐ Actual		<notes>		☐ Actual		<notes>
Additional Costs	☐ Expected		<notes>	**Funding Sources**	☐ CapEx	☐ OpEx	☐ Mix ☐ Unknown
	☐ Actual		<notes>		Grant Eligible ☐ Yes ☑ No	**Type of Grant**	**% Coverage**

Implementation Information

Status	☐ Standby	☐ Planned	☐ Ongoing	☐ Completed	
Start Date	<date>	**Duration**	☑ Expected	6-12 months	<notes>
End Date	<date>		☐ Actual		<notes>
Primary Responsibility	Airport Maintenance				
	<department/staff member>				
	<department/staff member>				
	<notes>				

Additional Notes

<relevant changes, obstacles, barriers, etc.>

Related Policies, Guidance and other Documents

<list of docs>

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