APPENDIX B

Waste Reduction, Reuse, and Recycling Plan

Mead & Hunt

Waste Reduction, Reuse, and Recycling Plan

October 2019

MKE

MILWAUKEE

Mitchell International Airport

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Executive Summary

Guided by its sustainability vision, Milwaukee County (the County) is striving to implement strategies related to economic viability, operational efficiency, natural resource conservation, and social responsibility at Milwaukee Mitchell International Airport (MKE or the Airport). In addition to implementing strategies developed in a Sustainability Management Plan (SMP) for the facility, the County is in the process of updating MKE's airport master plan. In accordance with the FAA Modernization and Reauthorization Act of 2012 (FMRA) requirements, the master plan must include considerations related to airport solid waste and recycling. In support of the priorities identified in the SMP and in compliance with the FMRA requirements, the County is developing this Airport Waste Reduction, Reuse, and Recycling Plan ("Recycling and Waste Minimization Plan" or the Plan) for MKE.

MKE currently has a waste management program that includes recycling and disposal of several materials within County-controlled Airport buildings. In addition, various Airport stakeholders practice waste diversion and have implemented donation programs in areas they lease or operate. Based on facility walk-throughs, a waste composition study, interviews with MKE staff, and discussions with various Airport tenants, the consultant documented existing practices and identified potential opportunities to increase waste diversion. This information, in combination with information about internal and external factors, formed the basis for recommendations to improve MKE's operations.

Highlights of these recommendations include:

- Establish waste diversion goals and objectives
- Install liquid collection stations at security checkpoints
- Collect and donate eligible food, beverages, and toiletries
- Expand waste diversion to additional areas, including deplaned airline waste
- Educate employees, tenants, and contractors on waste diversion
- Improve contracts, leases, and purchasing policies

This range of recommendations gives the County and program stakeholders the flexibility to implement those strategies that are most compatible with changing conditions and available resources (such as labor and space), and progressively increase landfill diversion over time through a phased program of waste reduction, reuse, and recycling.

Introduction

This Plan was developed for MKE to guide Milwaukee County's efforts to operate the Airport in a sustainable manner and to comply with Federal requirements to address waste during airport planning projects.

Regulatory Background and Project Purpose

Section 132(b) of the FMRA expanded the definition of airport planning to include "developing a plan for recycling and minimizing the generation of airport solid waste." FMRA Section 133 added a requirement that when airports prepare or update a master plan and receive Federal Aviation Administration (FAA) Airport Improvement Program (AIP) funding, they ensure these plans address issues related to solid waste recycling. These issues include:

- The feasibility of solid waste recycling
- Minimizing the generation of solid waste
- Operation and maintenance requirements
- Review of waste management contracts
- The potential for cost savings or revenue generation.

In September 2014, the FAA released a memorandum titled "Guidance on Airport Recycling, Reuse, and Waste Reduction Plans" detailing the FAA's expectations and suggestions for an airport's plan. This guidance applies to federally obligated airports preparing or updating a master plan, carrying out other planning efforts, or undertaking a standalone recycling project.

The scope and nature of an airport's waste and recycling program and associated plan depend on several factors that include: the airport size, location, and layout; the amount and type of waste generated; markets for recyclable commodities; costs for recycling; available local infrastructure; and the willingness of an airport and its tenants to implement recycling and other strategies.

In compliance with FMRA and in accordance with the FAA's guidance memo, this Plan was developed for MKE as part of the on-going Airport Master Plan Update project. This Plan documents and assesses MKE's existing waste diversion program based on the factors and variables listed above and provides recommendations for improvement. The content of this Plan was governed by the extent and accuracy of available information.

Waste Definitions and Plan Focus

The focus of this plan is on Municipal Solid Waste (MSW), which consists of everyday items that are used and then discarded. The following five primary types of MSW are generated at airports:

- General MSW consists of common inorganic waste, such as product packaging, disposable utensils, plates and cups, bottles, and newspaper. Less common items, such as furniture and clothing, are also considered General MSW.
- Food waste is either food that is not consumed or the waste generated and discarded during food preparation.
- Green waste consists of tree, shrub and grass clippings, leaves, weeds, small branches, seeds, pods, and similar debris generated by landscape maintenance. Green waste and food waste together may be referred to as "compostables."
- Deplaned waste is MSW that is removed from passenger aircraft. These materials include bottles and cans, newspaper and mixed paper, plastic cups, service ware, food waste, food soiled paper, and paper towels.
- Construction and demolition (C&D) waste is generally categorized as MSW and is any non-hazardous solid waste from land clearing, excavation, and/or the construction, demolition, renovation or repair of structures, roads, and utilities. C&D waste commonly includes concrete, wood, metals, drywall, carpet, plastic, pipes, land clearing debris, cardboard, and salvaged building components.

This Plan focuses on the management of MSW materials that can be recycled or disposed of in a landfill, including C&D waste.

This Plan does not address the management of other types of waste, specifically hazardous waste, C&D debris subject to special handling (containing asbestos or lead), universal waste (batteries, fluorescent light bulbs/ballasts, etc.), industrial waste (used solvents, etc.), or waste deplaned from international flights, which are regulated by separate federal, state, and local laws.

Facility Information

Airport Description

MKE is a medium-hub commercial service airport owned by the County, operated by the Milwaukee County Department of Transportation (MCDOT) Airport Division, and guided by the County Executive and the County Board of Supervisors. The County Executive and Board of Supervisors manage MKE, including implementation of facility improvements and policy changes. The facility is located in the city of Milwaukee in Southeast Wisconsin. The Airport primarily serves the Milwaukee Metropolitan area as well as individuals from the nearby communities in Southeastern Wisconsin and Northern Illinois.

Eleven airlines operate at MKE. MKE is the only airport in both Wisconsin and neighboring Illinois that has airline service available from all major domestic airlines. In 2018, the Airport served over seven million passengers and had nearly 111,700 operations. There are more than 130 daily departures to more than 45 non-stop destinations in the United States and more than 160 one-stop destinations globally. The Airport currently has 17 restaurants and 14 retail stores. More information about MKE, including operations, activity levels and airline information, can be found on MKE's website (www.mitchellairport.com) and in the Airport Master Plan.

Key Buildings and Plan Scope

MKE is a large facility encompassing numerous buildings and associated infrastructure. More information about each of the buildings at MKE is available in the Airport Master Plan.

The County has direct control of waste management in several buildings and areas at MKE, while it has influence, but not direct control, over several others **(Table 1).** Per FAA guidance, areas over which the airport sponsor (in this case, the County) has direct control or influence should be included in the Plan, while areas outside airport sponsor control or influence may be excluded.

The County has control over waste management in MKE employee work areas, such as offices, buildings and grounds maintenance areas, and areas staffed by firefighting and public safety employees.

The County can influence waste practices through contracts or price agreements for activities related to waste management in the airport terminal and on airport property. The County has price agreements with waste hauling contractors for administration, public, and County-operated areas of the terminal and outlying buildings. In the public spaces of the terminal and the MKE offices, custodial staff are responsible for housekeeping, including waste management. The County also contracts with ABM Facility Services (ABM) for cleaning services and limited waste management.

The County leases terminal space to airlines, concessionaires, retail tenants, and rental car agencies and can influence their waste practices through the lease agreements. These tenants manage waste generated in their areas, either directly or using a contractor. The County also leases spaces to two fixed base operators, several cargo companies, and the 128th Air Refueling Wing, Wisconsin Air National Guard. MKE's cargo carriers include FedEx, UPS, DHL, Air Cargo Carriers and Freight Runners. Each entity is responsible for the waste generated in their areas. Airport tenant leases are managed by the Airport's Properties section.

Areas at MKE where the County has limited control or influence include the Airport Traffic Control Tower operated by the FAA, other FAA facilities, and the Amtrak station; therefore, these are excluded from the Plan.

Due to the scale of operations and waste generation at MKE, the scope of this Plan focuses primarily on the facilities that generate the largest total volumes of waste (within the passenger terminal) and the areas where the County has the most control or influence to make improvements (County spaces, followed by terminal tenant areas). The areas of focus for this Plan are highlighted in **Table 1**.

Table 1: Waste Management Responsibility, by area		
Under MKE Control	Under MKE Influence	Outside MKE Control or Influence*
• **Terminal** o Airport administration offices o Conference rooms o Badging office o Other airport offices and support spaces o Terminal public (pre- and post-security) o Restrooms o Hold rooms o Concourses and Gates o Ticketing lobby o Baggage claim o Curbside o Security queuing o Milwaukee Gallery of Flight Museum o USO Lounge • **International Arrivals Terminal Parking** • **HVAC plant** • **Airport Maintenance and Fleet Management Facility** (shared with Milwaukee County Highway Department) • **Aircraft Rescue and Fire Fighting Station** • **MKE Business Park**	• **Terminal** o Concessions and retail areas o Airline ticketing counters and offices o Security checkpoints o Baggage makeup o Baggage screening o TSA offices o Sheriff's station • **Parking Structure** o Car rental companies' offices • **Cargo Tenant Facilities** o Cargo Carriers building o MKE Air Freight building o Private hangars o US Postal Service • **Airport Operations and Maintenance (maintenance hangars and offices)** • **General Aviation Facilities** o Two Fixed Base Operators (hangars and offices) o Other hangars (smaller GA and corporate)	• **Airport Traffic Control Tower (ATCT)** • **FAA Facilities** • **Amtrak Station** • **128th Air Refueling Wing, Wisconsin Air National Guard**
Key: Areas of focus for this plan *excluded from Airport Recycling, Reuse, and Waste Reduction Plan HVAC = Heating, ventilation, and air conditioning *Source: Airport Operations and Maintenance, 2018*		

Drivers and Challenges

The drivers to the waste diversion program at MKE support improvement of waste management practices. These factors influence the feasibility of program implementation and the potential levels of material diversion. Challenges to the MKE waste diversion program illustrate items that require attention or correction before strategies will be successful. Focusing efforts on addressing the drivers to the program while acknowledging the challenges will allow the County to create a successful waste diversion program at MKE that aligns with the County's sustainability goals.

Several key drivers to implement a waste minimization and diversion program at MKE effectively and efficiently and the associated challenges to the program include those listed in **Table 2**:

Table 2: MKE Waste Diversion Drivers and Challenges

Drivers	Challenges
Alignment with County objectives	Limited control over tenant and contractor activities (largest generators)
Serve internal and external stakeholders	Many internal and external stakeholders; varied interest level Informal policies and training (to date)
Efficient use of financial and other resources at MKE	Reduced value of recycled materials Rising costs of waste services
Maximize landfill diversion	Obtaining accurate waste disposal and recycling data, including dumpster use Logistical, infrastructure, and staffing limitations
Lead community and industry in sustainability practices	Voluntary commitment to reduced waste, no local, state, or federal requirements or thresholds

The following sections provide further details about the drivers and challenges that influence the waste diversion program at MKE.

Internal Drivers

MKE Sustainability Vision

Responsible waste management at MKE is driven by the County's commitment to environmentally responsible operations. The County has devoted resources, including financial and employee labor, to establishing and promoting a sustainability program in its facilities and offices. These efforts include designing strategies to address waste generation and diversion at MKE. In effort to align programs at MKE with County objectives, the County recently developed a SMP for operations at the Airport. Under the SMP, the County aims to implement strategies related to economic viability, operational efficiency, natural resource conservation, and social responsibility.

Airport Operations

According to the SMP, the qualitative sustainability goal for MKE's waste management practices is to "increase waste diversion through an enhanced waste management program, including education and training programs, formal policies and procedures, increase waste revenue streams and avoided disposal costs." The following sections describe the rationale behind the use of these goals as drivers.

Environmental and Financial

The County recognizes a duty to serve as a location for industry, recreation, business, travel, and culture with all of its facilities. As a hub for the County's visitors and local residents, MKE is devoted to the mission of empowering people and strengthening the community. The County is also cognizant of the environmental impact of MKE's operations. As a result, waste diversion based on conscientious waste management practices at MKE is driven by the County's commitment to environmentally responsible operations.

Milwaukee Mitchell International Airport Sustainability Vision

MKE is the airport of choice for Wisconsin and beyond. Striving for sustainable operations, we will:

- Provide the best customer service experience by minimizing waiting times, creating a comfortable environment for travelers and supporting the success of our staff and tenants
- Provide exemplary service at the lowest possible expense with the least possible waste of resources, materials and time and minimal impact on the environment
- Be the best possible neighbor to our community and Lake Wisconsin
- Link Milwaukee to the world

Source:
MKE Sustainability Management Plan

The County is also driven to be an effective steward of its finances. As costs to send materials to the landfill are increasing, waste diversion cuts down on the frequency of pickups, which reduces costs. In addition, the materials deposited in the landfills by waste generators is tracked and violators face financial penalties if waste is not handled properly. If an entity is found to have violated the landfill's accepted materials, fines can be imposed to cover the appropriate remediation. Therefore, the County is looking to ensure that all material collection and deposit practices lead to avoiding such expenses.

MKE Sections

MKE has many sections that are involved with the waste management program including:

- Environmental and Safety
- Operations and Maintenance
- Properties
- Finance
- Administration
- Engineering
- Custodial
- Public Affairs and Marketing

MKE's sections have demonstrated commitment to and support for recycling and responsible waste management. The Environmental and Safety section has implemented and maintained the existing program in collaboration with other MKE sections and has expressed interest in formalizing the program through written policies and procedures.

Other elements of MKE's waste diversion program fall under the purview of other Airport sections, including Properties and Operations and Maintenance. To date, these sections have participated on the Airport's sustainability committee and have been supportive of waste diversion efforts impacting their areas. Continued cooperation and participation by these sections will be key in future efforts to improve or expand recycling at MKE.

External Drivers

Federal, State, and Local Guidelines

Federal, State of Wisconsin, and local waste regulations, policies, and factors were reviewed to evaluate MKE's existing waste diversion plan in the context of applicable requirements that will drive their program.

Federal

At the federal level, the United States Environmental Protection Agency (EPA) is responsible for developing a solid waste management program under the Resource Conservation and Recovery Act (RCRA) and related policies and guidance. RCRA provides the framework for management of hazardous and non-hazardous waste. All generators of hazardous waste, including airports, are required to comply with RCRA. All other Federal waste laws and regulations are generally not covered under this plan.

The EPA has developed a hierarchy of waste management strategies. This hierarchy (**Figure 1**, left) ranks these strategies from most- to least-environmentally preferred, with emphasis on reducing, reusing, and recycling. In addition to the general waste management hierarchy, the EPA has also developed a preference ranking of management strategies for food waste (**Figure 1**, right).

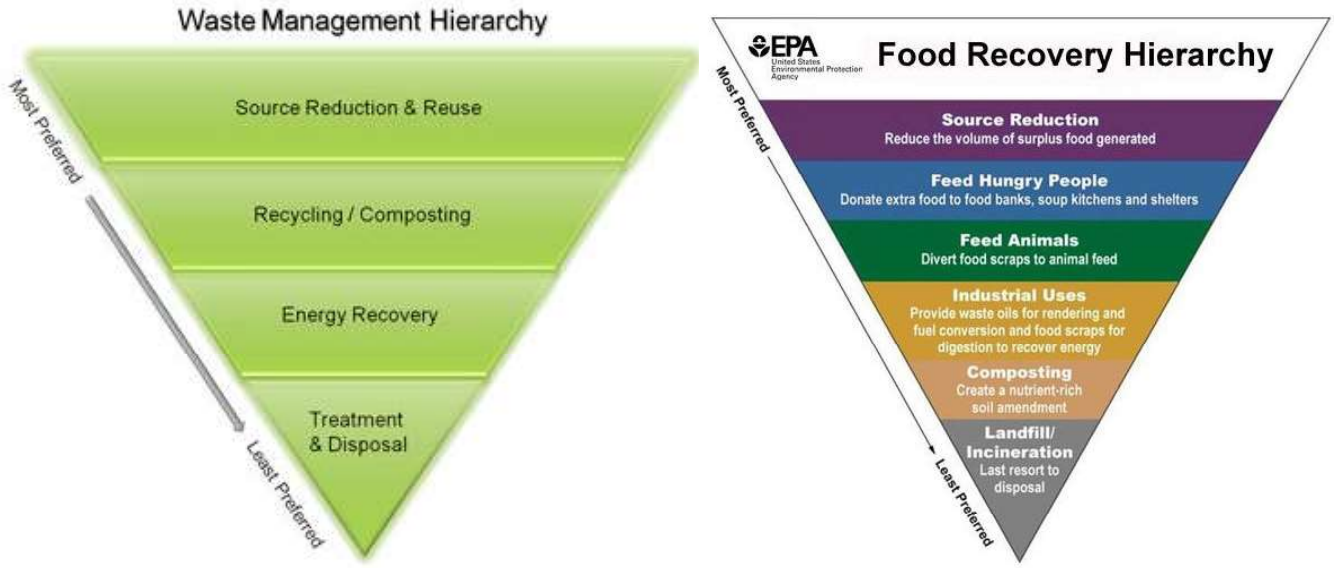


Figure 1: Waste Management Hierarchy (left) and Food Recovery Hierarchy (right)
Source: United States Environmental Protection Agency

As described in **Regulatory Background and Project Purpose** above, the FAA's definition of airport planning was updated in 2010 through FMRA to include planning for recycling and waste minimization. The County is required to address solid waste at MKE as part of an airport master planning project. The FAA provides guidance on airport waste and recycling in the September 2014 memo on the topic as well as in a synthesis document prepared in 2013 (both available on the FAA's website).

State of Wisconsin

At the state level, the Wisconsin Department of Natural Resources (DNR) is the governing authority for the State's waste and recycling goals and programs. Wisconsin Statutes Chapter 287 and Wisconsin Administration Code Chapters NR 542 to 549 provide the guidance for the state's recycling program. The Wisconsin DNR has a mission that focuses on "minimizing waste and increasing the recovery of resources to grow Wisconsin's economy with significant investment in the state's recycling infrastructure." Their efforts are focused around identification, diversion, and proper disposal of materials that are most effectively reusable or have high levels of toxicity. A list of materials banned from all Wisconsin landfills and incinerators is shown in **Figure 2**.

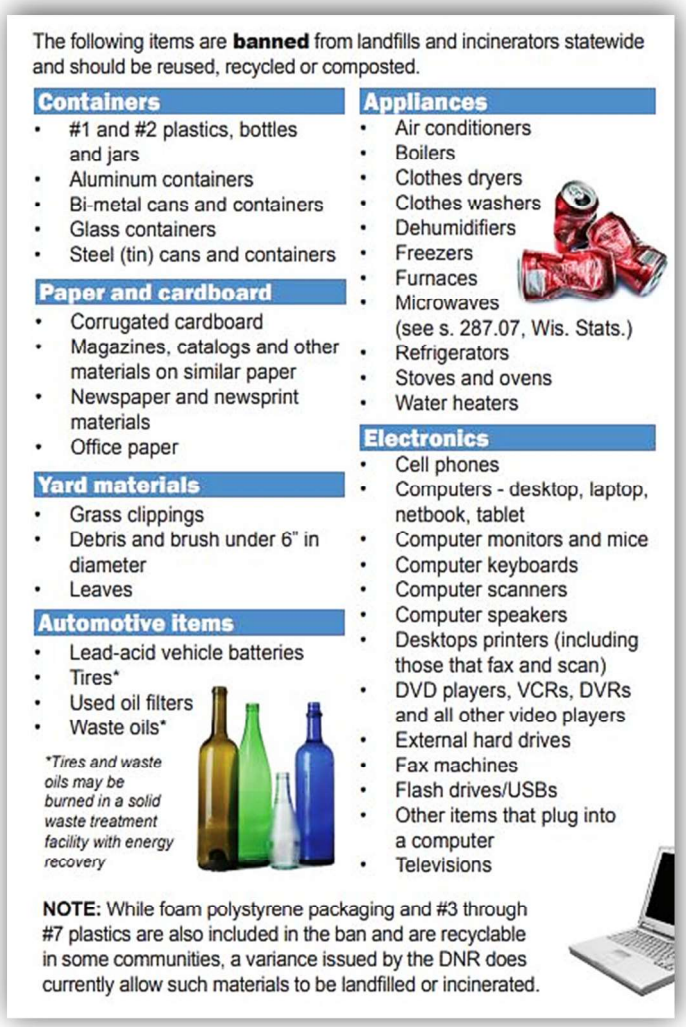


Figure 2: State of Wisconsin Landfill and Incineration Bans
Source: Wisconsin Department of Natural Resources, dnr.wi.gov

Programs and Roles

The DNR is the responsible party for enforcing penalties for recycling policy violations. The DNR further delegates special oversight of defined jurisdictions (municipalities, counties, etc.) to responsible units (RUs). To help prevent violations and maximize the effectiveness of the waste diversion efforts, the DNR provides individuals, businesses, and RUs with educational materials, financial aid, and collection of data.

The State has active initiatives related to composting, discovery of new recycling markets, electronics recycling (e-cycling), and C&D waste handling. Guidance on these policies and methods of implementation are available for consumer review. Additional information on the State of Wisconsin's recycling program can be found at dnr.wi.gov.

Recycling Excellence Award

The Wisconsin DNR recognizes organizations who have undertaken substantial efforts in recycling and waste diversion through an annual awards program. Organizations are eligible to nominate themselves or be nominated by another program or entity. The application involves submitting an essay that states all pertinent information about the entity's current recycling program including recycling data, notable examples, and illustrative tools (photos, tables, etc.), that highlight the reasons for nomination. **Table 3** illustrates the categories that are available for awards and recognition.

Table 3: Wisconsin DNR Recycling Excellence Award Categories

Category	Recognition
Projects and Initiatives	Recognizes a defined project or initiative that increases materials recycled or diverted, and/or improves the cost effectiveness of a recycling/diversion program.
Overall Program	Recognizes programs that are robust and constantly improving, demonstrating a commitment to advance the overall recycling/diversion program.
Special Events	Recognizes effective recycling at a special event by offering recycling for the first time or expanding.
Innovation	Recognizes a program that demonstrates unique and innovative approaches to recycling.

Associated Recyclers of Wisconsin

The Associated Recyclers of Wisconsin is an organization that is responsible for providing the information in the Recycle Right Wisconsin and the Recycle More Wisconsin Campaigns. These campaigns provide individuals and businesses with resources that help to ensure that recycling is done properly while encouraging increased participation in waste diversion initiatives.

City of Milwaukee

According to the Wisconsin DNR, the City of Milwaukee has been identified as the RU for MKE. Operating under the Resource Recovery Program, the City of Milwaukee's Department of Public Works (DPW) is responsible for the execution of public education and processing logistics for waste and recycling. Recycle for Good (**Figure 3**), the local recycling campaign in Milwaukee, was released to the public in 2008 by the DPW. This initiative is based around providing increased education for residents about the proper ways to recycle, encouraging participation in recycling and waste reduction programs, and sharing details about the availability of recycling collection sites. The initiative was formed based on research and development from studies of the City of Milwaukee's residents and information received from the Wisconsin Be SMART (Save Money and Reduce Trash) Coalition.

Figure 3: Milwaukee's Recycle for Good campaign (sample)
Source: city.milwaukee.gov/recycles

The messaging of the campaign illustrates the numerous benefits to recycling and promotes the residents' contributions to the future of their environment and the well-being of local citizens. As a result of this program and modifications to collection practices, the City of Milwaukee was able to realize an initial 30 percent increase in recycling participation after the first year of the program and an upward trend in recycling each year since. The Mayor of Milwaukee has established a target of 40 percent diversion of solid waste by 2020. A network of recycling centers and support offices allow residents to have convenient access to recycling infrastructure in order to help achieve this goal.

More about the City's recycling initiatives can be found at city.milwaukee.gov/recycles.

ReFresh Milwaukee

The City of Milwaukee formed its first sustainability plan, ReFresh Milwaukee, in efforts to address the issues surrounding goalsetting for a sustainable community. In 2004, a public-private Green Team was established and charged with forming recommendations for the City to implement goals and strategies that are focused on both environmental preservation and economic growth. The plan involves a series of improvements to the City's environmental practices that will take place from 2013-2023. **Figure 4** illustrates the highlights, goals, and targets of ReFresh Milwaukee.

City of Milwaukee Resource Recovery Sustainability Plan Highlights

- *Increasing resource recovery options*
- *Establishing resource recovery policies*
- *Designing a food waste diversion and composting program*
- *Expanding Neighborhood Ambassadors and Neighborhood Environmental Ambassadors Programs*
- *Using the results of the July 2015 resource recovery audit as a baseline to address waste diversion and resource recovery efforts*

Figure 4: City of Milwaukee's Resource Recovery Highlights, Goals, and Targets
Source: https://city.milwaukee.gov/ReFreshMKE_PlanFinal_Web.pdf

Community Culture and Programs

Waste and recycling projects at other airports have confirmed that passengers have an interest in recycling. Residents in the City of Milwaukee have access to curbside recycling and many also have access to drop-off locations. Based on the area's recycling programs, area residents have many opportunities to recycle and are familiar with general recycling practices. The City of Milwaukee has identified increasing waste diversion and recycling as a critical goal. The area's recycling rate is likely similar to that of the State of Wisconsin, which is at 32 percent.

Passengers and employees who recycle at home or at other businesses in the Milwaukee area are likely to expect MKE to have a recycling program and would be willing to participate in that program. As a national and international medium hub airport, many passengers travelling through MKE have seen and participated in various levels of recycling and sustainability programs at other airports and may expect this service at MKE.

Local Food Insecurity and Recovery

According to Feeding America, 10.5 percent (approximately 609,000) of residents in the state of Wisconsin and 16.5 percent (approximately 158,000) of Milwaukee County residents experience food insecurity.

There are more than 20 food pantries that operate near MKE. Several key organizations operate in Milwaukee County, of which many are affiliated with national organizations for food insecurity. All of these organizations operate through monetary and food donations from individual community members and businesses such as MKE.

The Hunger Task Force is a local organization that supplies the pantries in Milwaukee with food that is donated from the local community, free of charge for any memberships, collection fees, or delivery charges. Millions of pounds of food are distributed among 80 organizations in Milwaukee by the Hunger Task Force, with last year's total at 8.7 million pounds distributed. Several key programs hosted by or supporting this organization include Food for Families, Stamp Out Hunger, Summerfest, and the State Fair.

Feeding America Eastern Wisconsin operates a food pantry in Milwaukee, which is part of the national Feeding America organization. The organization also has a location in Fox Valley. Their operations see more than 400,000 people being fed annually through the efforts of approximately 600 member organizations. The citizens of Milwaukee are able to utilize mobile pantries, school pantries, pantries for those with dietary restrictions, and programs that specifically cater to seniors and children. The organization accepts both financial and food donations and provides resources for community members to host their own food or fund drive.

Salvation Army of Milwaukee County is a division of the nationally recognized organization, Salvation Army of America. In 2018, more than 8,000 individuals in Milwaukee County were served by their food pantries. There are three locations that serve residents based on their zip codes. Individuals and families that receive assistance are provided with a two- to three-day supply of food. The pantry is supported by donations from community residents, food drives, and collaboration with the Hunger Task Force.

Keep Greater Milwaukee Beautiful (KGMB)

This non-profit organization is associated with the national entity Keep America Beautiful, Inc. Through community programs, this organization provides citizens with education, resources, and funding for environmental preservation. KGMB promotes awareness of sustainability matters by hosting events such as races, facility tours, galas, and festivals. In addition, their community resources include scout programs, adult education, school programs, and resources for teachers. An annual program sponsored by KGMB is "Big Clean MKE," a sustainability initiative that provides volunteers with green buckets for litter pickup and garbage bags for cleaning up the community. Large groups that take part in this effort have the opportunity to utilize the Mobile Tool Shed that houses tools and supplies that can be used to perform the cleanup.

Tenants

Many of the restaurant and retail tenants at MKE are national or international chains. Addressing alignment with County goals and utilizing their organizations' existing sustainability measures assists waste diversion efforts. For example, HMS Host provides a food recovery program through donations of edible food. This contribution to the community of Milwaukee provides an incentive tied to the social responsibility element of sustainability. The MKE USO Lounge and other local food pantry organizations are very likely to be open to receiving food from this program and may provide additional societal incentives for the receipt of MKE donations. MKE has the opportunity to encourage contributions to the food insecurity issue in Milwaukee by facilitating food donation with other airport entities.

Airlines

The airlines at MKE service millions of passengers annually (**Figure 5**). Airlines have the opportunity to divert deplaned waste based on their programs and procedures. Of the eleven airlines that operate at MKE, the majority have established sustainability programs that include elements of waste management and recycling for both passengers and internal operations.

Southwest Airlines is "committed to conservation and mitigation of [the airline's] environmental impacts." Southwest also partnered with a reuse company to "upcycle" seat leather into new products. Southwest has diverted more than 4,100 tons of material from landfills through recycling.

Per corporate policy, Delta is "committed to minimizing waste streams through diversion and re-use, waste recycling programs, and [waste reduction]."

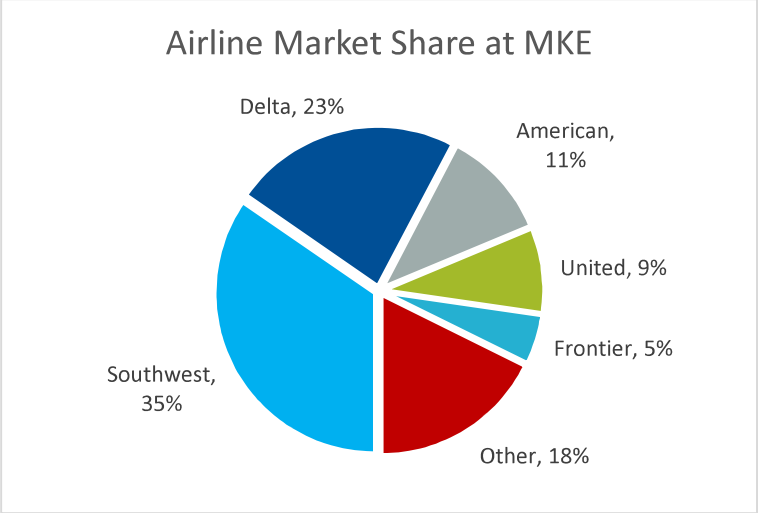


Figure 5: Carrier Shares, Calendar Year 2018
Source: Airport Staff

American Airlines has had an aluminum can recycling program since 1989. They recently partnered with Dallas/Fort Worth (DFW) Airport on the expansion of their recycling practices in their offices, break rooms, and for deplaned waste and were able to recycle approximately 200 tons of material during the first year of the program. Internal operations at American Airlines reflect waste reduction and diversion through minimizing paper use and recycling electronic waste.

United Airlines is "committed to operating sustainably and responsibly" and has recycled more than 28 million pounds of aluminum cans, paper, and plastic from flights and facilities. In 2014, United began to replace its hot beverage cups with fully recyclable alternatives made from recycled plastic water bottles.

Alaska Airlines' environmental strategy includes working to reduce waste from flights and other facilities, including recycling and composting of coffee grounds. Alaska's 2015 goal was to increase their recycling capture rate on flights from 79 percent to 85 percent. Alaska's goal is to ensure all inflight service ware items are recyclable, reusable, and/or sustainably sourced. Alaska has also taken steps to reduce dependence on printed paper through the use of iPads, iPhones, and tailored applications (apps) in their operations.

Air Canada supports "the exploration of innovative ways to reduce our environmental footprint." The company currently hold awards for "Best Sustainability Contribution," "Best Corporate Sustainability Report in the Canadian Transport Sector," and the "2018 Eco-Airline of the Year" by *Air Transport World*.

Aligning the MKE waste diversion program with the airlines' corporate practices provides the opportunity for MKE to achieve its waste reduction and recycling program goals while also helping the airlines achieve theirs.

Passengers

Passenger behaviors and fluctuations in passenger volumes at MKE directly correlate with the waste program and how effectively material can be diverted. The Milwaukee area is home to teams for three major professional sports, several museums and historical attractions including the Harley-Davidson Museum, and a host of breweries including the Miller Brewing Company. The area also hosts several nationally promoted annual events, including the annual Summerfest music festival. These attractions and events, as well as the holiday travel seasons, may drive peaks in passenger volumes and waste generation at MKE.

Other Airports

Competition with other airports' metrics can provide a very strong driver. Airports and their leadership sometimes gauge their status against the industry in a variety of areas, including sustainability and waste diversion. The County may have interest in the status of other facilities' programs, progress toward objectives, and specific metrics in order to help establish baselines for MKE.

Challenges

Stakeholders

MKE has a wide variety of stakeholders that contribute to their waste stream. The same entities that provide drivers – government, tenants, airlines, and passengers – provide challenges for the County to address their individual needs and behaviors with waste diversion practices.

Federal, State, and Local Government

The levels of goals, rules, and regulations that effect MKE vary among the federal, state, and local government. In addition, the resources available to assist MKE with their program also vary. The County has the challenge of determining how to best align their waste diversion goals with each level of government while seeking funding or resources that will accommodate MKE's goals.

MKE Sections, Employees, and Contractors

Each MKE section is responsible for different aspects of waste management. Airport Purchasing is responsible for the procurement of supplies and other items for use at MKE on behalf of other sections, including items that contribute to the waste stream. Airport Properties implements new infrastructure that drives deposit behaviors and program availability. Operations and Maintenance oversees waste and recycling collection and disposal. Each of these sections are challenged to work together in order to achieve the maximum level of waste diversion.

Because airport employees are regularly at the airport, their daily habits form the baseline waste and recycling levels, independent of passenger levels. The servicing of waste and recycling containers by custodial staff or contractors can be thought of as the interface between waste generation and waste management. Other challenges associated with custodial services include contracts without recycling requirements and deviations from expected protocol. These challenges lead to additional difficulties with contamination and lost capture.

Tenants

MKE has concessionaire and retail tenants in the passenger terminal that generate a significant amount of waste and recyclable material. Each entity has control over their own waste handling, purchasing, and employee training practices. The County and Airport are charged with aligning its goals with stakeholders' practices. Negotiations of roles and responsibilities through contracts is necessary in order to implement sustainable practices and optimize the waste diversion program.

Other challenges associated with tenant operations include leases without recycling requirements, a lack of awareness when leases do require recycling, complicated sorting requirements, frustration due to contamination, corporate policies of parent companies, and prohibitive or buried costs.

Airlines

Airline deplaned and operations waste and recyclables can be difficult waste streams to address. Airlines and their contractors conduct many waste-generating activities, both during aircraft flights and through supporting activities such as meal preparation, cabin cleaning, and administration. While airlines may possess guiding principles for waste, the ability to carry out proper waste management at every destination they serve presents challenges. MKE has the airside recycling facility to enable airlines to properly divert waste. However, with the changes in flight crews and transfer of responsibility to the airlines' cleaning contractors, there may be issues controlling the deposit of materials. In addition, although the airside recycling facility is available to airline cleaning crews, the space is not equidistant from all gates. Participation could be viewed as out of the scope of airline operations, which could reduce the volume of material that is captured and diverted.

Passengers

Passengers are visiting MKE from locations all over the world. Individuals are exposed to a wide variety of recycling programs that may differ from the one available at MKE. Passengers typically make decisions about waste and recycling based on what they are accustomed to at home. Therefore, it is difficult to predict passenger behaviors. Challenges to passenger participation may also be due to competition for a passenger's attention among terminal tenants and advertisements, confusing messaging about recycling, and potentially an apathetic attitude among passengers. Language and use of universal signage also pose challenges. As an airport with international clientele, there is a challenge to ensure that waste and recycling containers are fit with the most readily identifiable illustrations of the waste streams.

Other Airports

There is a growing awareness that airports are sometimes calculating their metrics differently, especially numerical values for waste reduction and total diversion. The variation typically centers around specific materials and strategies and whether they are included or excluded from a metric. The variation can contribute to unrealistic comparisons for waste management progress between Airport Operations and Maintenance and reporting results to management. Current industry efforts are focused on standardizing metrics to alleviate these differences. This initiative mirrors a larger effort to standardize metrics between other organizations, such as the metrics reported by each state.

Contamination/Lost Capture

Lost capture occurs when there is no infrastructure in place to collect material in separate streams or materials are deposited in the incorrect receptacle for the appropriate waste stream. In addition to a missed opportunity to divert material, contamination of recycling or composting streams may occur. Though recycling processing facilities are designed to separate different types of recyclable materials, contamination of the waste stream also occurs when items are not properly prepared for diversion. When trash is mixed with recyclable material or residues from food or liquids are prevalent, the value of the commodity is decreased. Threshold levels for contamination are in place to protect the value of the material. When materials are rejected for recycling due to exceeding the acceptable thresholds, they end up as waste.

The causes of contamination and lost capture at an airport such as MKE are heavily dependent on the availability of appropriate education and infrastructure. Waste generators require a means of being able to properly prepare and deposit their materials. Contamination by liquids is a specific concern for recyclables collected in pre-security screening. Liquids reduce the value of the recyclable materials, especially paper, because the technology at most recycling processing facilities works best with dry materials. Liquids also add extra weight to waste bags, and the plastic bottles containing liquids may not be eligible for recycling.

Material Challenges

Markets for recycled materials fluctuate widely based on several factors and interactions. For economic reasons, local waste haulers typically only accept materials that can be recycled cost-effectively. Manufacturers purchasing recycled material want it to be predictable and ready for use; therefore, recycling facilities are particular about what materials they accept and prefer materials that are of high value, clean, and easy to separate. Related issues include the materials accepted and prohibited by recycling and composting companies, whether materials can be comingled or must be separated, and the material rebates available.

Economic Factors

Airports strive to operate as cost-effectively as possible, and waste management programs can require significant financial resources for implementation and maintenance. For example, terminal-wide waste and recycling container replacement projects have been reported as costing hundreds of thousands of dollars. The waste management costs at individual airports can be influenced by local or regional landfill tipping fees (charges to dispose of waste at landfills or other facilities, vary by region – see **Table 4**), scale of operations, types of activities, number of employees, and passenger levels.

Table 4: Average MSW Landfill Tip Fee, by region, per ton

Region | *States*	January 2016	April 2017	April 2018	April 2019
Pacific | *AK, AZ, CA, HI, ID, OR, WA*	$ 58.20	$ 67.27	$ 68.46	$ 73.03
Mountains/Plains | *CO, MT, ND, SD, UT, WY*	$ 39.64	$ 50.27	$ 43.57	$ 50.71
Midwest | *IL, IN, IA, KS, MI, MN, MO, NE, OH, WI*	$ 43.38	$ 45.84	$ 46.89	$ 48.87
Northeast | *CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, VA, WV*	$ 61.20	$ 60.20	$ 67.39	$ 66.53
South Central | *AR, LA, NM, OK, TX*	$ 36.34	$ 36.94	$ 34.80	$ 40.92
Southeast | *AL, FL, GA, KY, MS, NC, SC, TN*	$ 44.46	$ 41.01	$ 43.32	$ 45.25
National Average	**$ 48.27**	**$ 51.82**	**$ 52.62**	**$ 55.36**

Source: Environmental Research & Education Foundation (EREF), 2019

Technical Factors

Technical and economic factors play a large role in recycling at a given facility. This includes elements such as the types of materials recycled in the area, existing recycling facilities, and other infrastructure, logistical, or legal constraints (such as custodial services or limits on food reuse).

Logistical Considerations and Constraints

Space at MKE is at a premium, especially around the passenger terminal and within restaurant back-of-house areas. Nonrevenue-generating space—for example, for a dumpster or compactor—must compete with revenue-generating space of the same area. Due to the costs associated with operating at an airport, restaurants are designed for back-of-house efficiency and maximum revenue-generating space (dining tables, retail space, etc.), leaving little room for extra waste, recycling bins, and containers. The lack of convenient space can present additional logistic challenges, such as long travel times from points of waste generation to collection areas.

Certain elements must be in place to maintain a waste diversion program at MKE. These include proactive and engaged custodial contractors, willing haulers, space for bins and dumpsters, and access to secure areas (including airside ramps and sterile terminal areas). It is anticipated that all of these are available to support MKE's waste diversion program now and into the foreseeable future, but the County must be prepared to make adjustments in case of changing conditions.

Food Donation Requirements

A food recovery program has specific requirements that ensure food safety and maximize the volumes of food donated to the receiving organization(s). If an Airport-wide food donation program is established at MKE, perishable food designated for donation must be refrigerated in restaurants' back of house areas. In an optimal program, food would be collected by designated staff and delivered to a refrigerated area. Holding this food until it is collected takes up space, which is a limited resource for both the Airport in general and Airport restaurants in particular. The food collection operations and the donation process for an Airport-wide program would likely be facilitated by Airport Properties staff.

Airline Contractors

The airlines that service MKE contract with cleaning companies to service arriving aircraft cabins. The levels of delegation for tasks associated with waste management poses a challenge. The airlines' flight crews may or may not separate recyclables aboard flights. It would then be the responsibility of the cabin cleaning employee or contractor to take recyclable materials off the aircraft to the appropriate compactor. Cabin cleaning contractors and employees are under tight timelines to ready aircraft for service. During busy periods or at gates that are long distances from the airside waste and recycling area, cleaning staff may not separate waste and recyclable materials for disposal in the various dumpsters, especially if the streams are not readily identifiable.

Procurement

Purchasing practices are another element of waste management that is distributed among different organizations (Airport staff, concessionaires, retail tenants) at MKE that may have little or no coordination. Because each organization operates slightly differently, it may be difficult to identify opportunities to make procurement choices that reduce waste. However, due to the multiple levels of responsibility at MKE, improved communication and coordination will be key to removing or minimizing roadblocks such as time, labor, supply needs, or other challenges. A guide for more sustainable procurement could be developed with input from all the organizations.

Turnover

Restaurants, custodial contractors, and other stakeholders in waste diversion at MKE can sometimes experience significant employee turnover. A steady influx of new employees creates a continuous demand for training on all aspects of the employer's policies, including day to day operations. Departing employees take their experience and knowledge with them, including any tips or tricks for timing or completing waste diversion tasks. Development of general waste diversion information that can be provided to any new employee (MKE, airline, tenant) would help address this challenge.

Contractual Issues

A discussion of MKE's contracts is presented in **Contracting** above. Desirable improvements to waste-hauling contracts include increased data availability and expansion of recycling and composting services. The major contractual issue with maintaining and improving the waste management program at MKE is based on the lack of waste diversion requirements within the price agreements. Challenges are also posed by the complexity of the MKE facility and community. Consistency of practices may be an issue due to subcontracting custodial and waste collection services by airport tenants. Consistency of waste reduction and recycling practices can be challenging due to each tenant handling their individual custodial services. The success of MKE's waste diversion program depends on MKE, airlines, and tenants working cooperatively to support it.

The waste and recycling services from Waste Management and Advanced Disposal do not include mechanisms to offset costs through rebates or credits based on the value of recyclable materials. The current price agreements for waste and recycling have the capability to incentivize waste reduction because, as the volume of waste generated at MKE is decreased, the total cost to the County would go down based on less frequent and fewer container pick-ups.

Several of MKE's leases and contracts are set to expire in the near future. New contract creation would require evaluation of fees and charges paid by the member airlines for various services at MKE in order to advise the availability of funds for new programs. These charges may include facility improvements and utilities. Changes to waste management at this facility, for example, introduction of composting service, could raise the cost to the airlines. The County would need to discuss and negotiate costs for recycling in the terminal with both MKE staff and the member airlines.

Recycling and Landfill Facility Requirements

The recycling facilities and landfills that accept waste from MKE have specific acceptance criteria and requirements. Adherence to these specifications protects the safety of employees handling these materials; the integrity and operation of the equipment and infrastructure used to transfer, sort, and convert these materials; and the value of the recyclable stream.

Items generated at MKE may be comprised of components that seem recyclable (plastic, glass, or metal parts), but recycling facilities have specific material standards, and the presence of non-recyclable materials may result in rejection of an entire load. For this reason, it is important that non-recyclable items are not included in MKE's recycling stream.

Other items generated at MKE may require special handling and/or be prohibited or restricted from disposal in an MSW landfill. Examples include yard clippings, appliances, asbestos, drums, lead acid batteries, medical waste, hazardous waste, septage, sewage, and used oil. It is paramount that restricted and regulated wastes are not included in MKE's MSW stream.

Legal and Regulatory

Legal and regulatory mandates for waste diversion efforts have the potential to create challenges for program participation. For example, though the Bill Emerson Good Samaritan Food Donation Act of 1996 offers protection to entities that donate food, there may be apprehension about food donation practices because of liability. For food, clothing, and toiletry donations that are received from passengers at security checkpoints, compliance with TSA, FAA, Centers for Disease Control and Prevention (CDC), and US Customs and Border Protection may challenge the effectiveness of the program. Proper education for passengers and material handlers will be required for the success and compliance of donation efforts.

The variation in state and local recycling laws is another challenge. The absence of a local or state mandate weakens the enforceability of and justification for a robust program. The lack of authority to enforce policies also can affect contracts, leases, and airport rules that were not written with input from the parties responsible for the waste program. Another area that may limit a program's reach is staff time to manage the program, specifically ongoing monitoring or educational components. Periods of peak operations can put even more pressure on waste management systems, on-site infrastructure, related services, and responsible personnel.

Security

Security regulations, specifically those enforced by the TSA, control the movement of passengers, luggage, airport personnel, materials, and supplies within an airport. MKE has the following challenges related to security:

- Installation of liquid collection or donation stations within the security queuing areas
- Limits to the number of tenant employees granted access to certain areas—for example, aircraft movement or other airside areas where waste and recycling collection are located
- Restrictions on the volume of liquids, gels, and aerosols that can be carried onto an aircraft

Security challenges at MKE would require coordination between TSA and all sections that would be impacted by infrastructure or policy changes. The complexity of the security requirements would challenge the County to be innovative with their approaches to waste diversion.

Existing Program

The County maintains a waste diversion program at MKE that accepts waste from several stakeholders. Waste generated throughout the terminal and in the outlying airport buildings is included in the program. This section of the Plan describes the existing program at MKE.

Waste Stream

Under this project, a waste stream composition study was completed to characterize the waste, recyclable, and compostable materials that flow through MKE. This effort was to establish a baseline and inform decisions about areas of focus. The waste stream composition study documented:

- Overall waste stream composition
- Proportions of waste, recyclable, and compostable components
- Waste generation trends by area type or source

In preparation for the waste stream study, County and MKE staff provided information about areas at MKE that generate waste, the types of waste generated in each area, the collection schedule for waste materials, and the materials that can be recycled under the current programs. These representatives have informally observed passenger and employee waste and recycling related behaviors and, for the purpose of this Plan, provided descriptions of how waste flows through MKE based on these observations. They also described waste and recycling collection and hauling practices.

The following sections summarize the study's findings. Note: The study included landfill bound materials only. Materials present in the designated recycling containers were not sorted and evaluated; they were observed to provide high-level contamination and composition information.

Sources

According to the waste stream composition study, all the areas identified in **Key Buildings and Plan Scope** are sources of waste at MKE; however, the bags included in the study were collected based on a pre-determined plan so do not represent the overall contribution from each area. A bag count could provide more information on which areas generate the most waste at the Airport.

Quantity and Recovery

Information pertaining to the quantities of waste and recycling is not currently provided by the haulers. Their invoices provide baseline information for improvements to the collection schedules, right-sizing of containers, and logistics for placement of dumpsters. However, the haulers do not offer automated weight data on invoices. The loads may be weighed when they reach the landfill or recycling facility. It is the responsibility of MKE staff or the County to contact the haulers to request the weight data or estimates for their records.

Information related to the waste composition in areas of focus for the waste composition study can be found in **Appendix A**. Though the waste composition study results are only reflective of a snapshot in time for the Airport, the results allow for an evaluation of the items that would typically be found in the waste stream at any given point in time. In addition, performance improvements and suggestions are more relevant and tailored to the Airport's specific needs.

With an estimated total of 892.1 tons of waste generated in 2015, MKE was assessed to have a current waste diversion rate of 10.2 percent (**Figure 6**).

MKE – Sustainability Management Plan
Attachment 3 –Waste Report

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.

Figure 6: Estimated Waste Generation
Source: MKE Sustainability Management Plan

Current Waste Composition

A waste composition study (**Figure 7**) was conducted to obtain a detailed understanding of the waste stream at MKE. **Appendix A** contains the study results and recommendations.

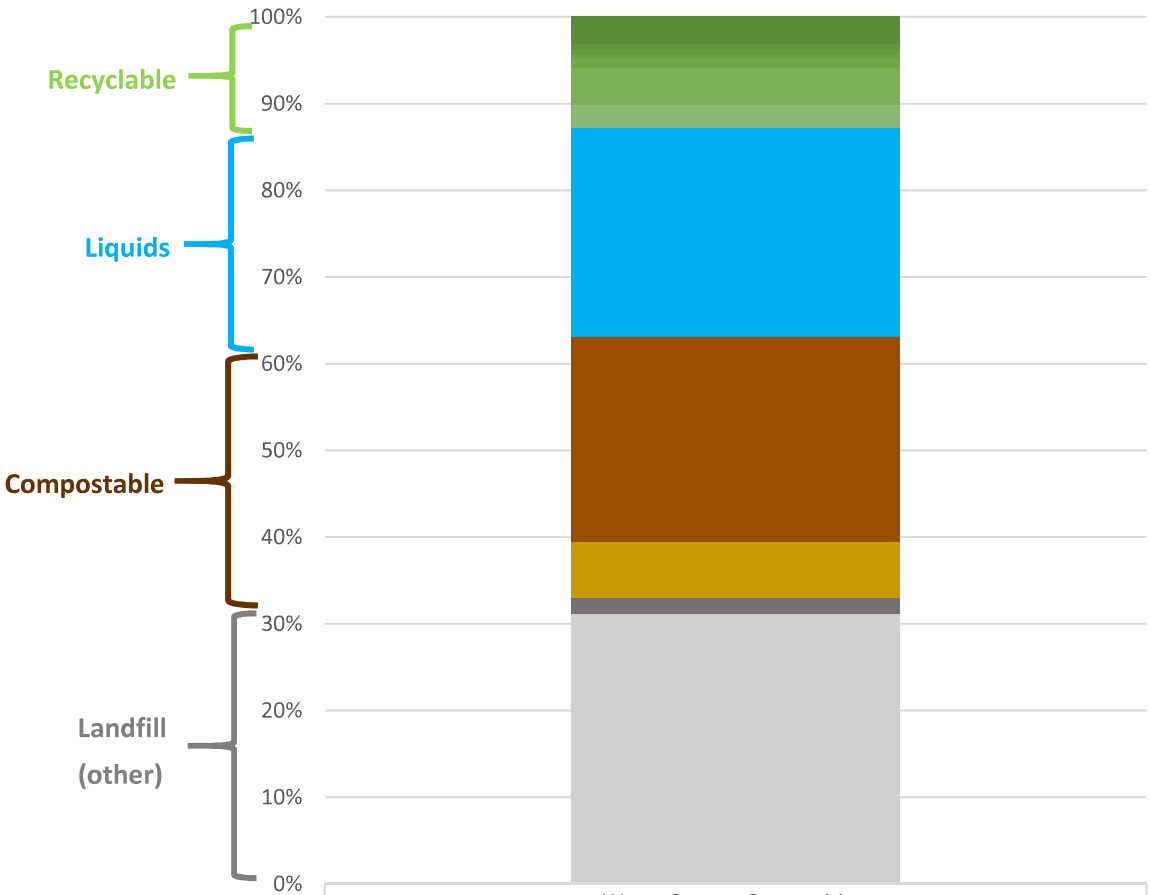
Figure 7: MKE Waste Composition Study

Figure 8. Containers with liquids discovered during study

The most prevalent items in the overall waste stream were paper, food waste, and liquids. Analysis of the study results identified the following key opportunities to improve waste diversion at MKE:

- Clearly define accepted versus prohibited materials for each hauler.
- Address airline administration, deplaned, and other recyclables.
- Reduce liquids in the waste stream (**Figure 8**), specifically at security checkpoints.
- Expand food donation programs with concessionaires.
- Reduce concessionaire paper use and encourage use of reusable items.
- Compost food and paper products.

Figure 9 shows the composition of MKE's overall waste stream, based on the waste composition study.



	Waste Stream Composition
#1 Plastic Bottles	3%
#2 Plastic Bottles	1%
Aluminum	1%
Metals	0%
Glass	1%
Paper	4%
Cardboard	2%
Liquids	24%
Food	24%
Paper Products	6%
#3-5, #7 Plastics	2%
Styrofoam	0%
Other	31%

Figure 9: MKE Overall Waste Stream Composition

Program Management

Policy

A policy is an organization's statement of principles that guides decision-making and the establishment of objectives and procedures. A waste policy outlines an organization's specific priorities for management of waste materials, for example, to align with the waste management hierarchy or other guidance. The County does not currently have a written waste policy for MKE.

Goals, Objectives, and Targets

An airport's goals related to waste management can range from general objectives to specific tasks. The County does not currently have specific goals, objectives, or targets related to waste for MKE; it is anticipated that this plan will be used to establish these measures.

Plans and Procedures

Waste plans document existing practices, plan future actions, and provide high-level roadmaps for achieving waste diversion goals. This plan will serve this purpose for the County and MKE.

A procedure is a set of written instructions to reach a specific outcome. Waste procedures or instructions can be standalone documents or be incorporated in an airport's rules and regulations, leases, and contracts. Instructions may outline which materials are recyclable or compostable, where items should be placed for disposal or recycling, what specific bag colors to use, how to respond to spills, when service will be scheduled, and who will be responsible for managing the materials and program at large. Procedures can also be used to outline data collection and reporting tasks.

Through their agreements and contracts, Airport tenants are subject to the County's Rules and Regulations. Specific rules and regulations encourage tenants to use the two on-site recycling areas to comply with the Airport's Sustainability Master Plan. The Rules and Regulations define which materials are accepted as trash, which are recyclable, and which require special handling. The Rules and Regulations also describe the SMP as a framework for environmental stewardship in planning, design, construction, maintenance, and operations.

Container labels, signage, and other postings also serve as instructions for employees, tenants, contractors and passengers. MKE's terminal trash cans and recycling bins are labeled with accepted materials. The recycling dumpsters, cardboard balers, and trash compactors are also labeled by material.

Roles and Responsibilities

MKE's existing waste management program is maintained and supported by several key stakeholders, each with specific roles and responsibilities. MKE's waste management program is generally categorized as "centralized." The County provides containers for the consolidated collection of waste and recyclables and arranges for collection by a third party.

Custodial employees within the Airport Operations and Maintenance section are responsible for the upkeep of the Airport's facilities, including emptying garbage cans and recycling bins and moving collected materials to the appropriate dumpster or compactor. A custodial contract engages staff in other specific housekeeping tasks. Airport Operations and Maintenance is responsible for allocating custodial resources, coordinating with the waste hauling companies, and maintaining records of recycling and waste data.

Airport staff support the program by serving as technical resources for program improvements and communication. Airport Properties coordinates the County's sustainability efforts with airport tenants, including facilitating a specific sustainability committee that includes tenant representation. Of note, Airport Properties has been leading the effort to establish and implement food waste composting with the terminal tenants. All MKE employees are responsible for depositing waste and recycling into appropriate containers in their work areas.

MKE has a Sustainability Team, which is currently being restructured. In the past, it has been comprised of representatives from Airport Administration, tenants, and airlines. The team provides recommendations on sustainability initiatives.

Airline, restaurant, retail, and ground transportation tenants are responsible for housekeeping in their leased areas, including transfer of waste and recyclable materials to containers provided by the County. Food and beverage tenants who participate in the food donation program are responsible for identifying and collecting eligible items following safe handling practices. Some tenants have contracted for housekeeping activities; these companies are responsible for managing waste materials on the tenant's behalf.

Waste Management, Advanced Disposal, and other third-party waste haulers are responsible for collecting material generated at the Airport and disposing of or recycling it properly.

Funding, Costs, and Rebates

Waste handling and recycling collection for MKE areas is included in MKE's annual operating budget. MKE's waste management costs include:

- Scheduled material pickups
- Transfer to disposal site or recycling facility
- Tipping or processing fee
- Container rental and service
- On-call material pickups
- Labor

As shown in **Table 4**, MKE has spent over one hundred and twenty thousand dollars each of the last two fiscal years on waste and recycling services. Based on estimated annual generation of approximately 890 tons, MKE spends about one hundred and forty dollars per ton of waste generated.

Table 5: MKE Waste Expenditures

Waste Collection Company	FY 2017	FY 2018	FY 2019 YTD
Advanced Disposal - Muskego	$14,161	$14,200	$6,651
Recycle Technologies, Inc.	$2,342		
Waste Management of WI-MN	$107,599	$98,734	$57,651
Waste Management Recycle	$1,542	$7,438	$4,797
Unspecified	$2,166	$1,591	-$7,287
Total	$127,810	$121,963	$61,811

Source: Milwaukee County Financial Intranet System – Financial Data Download August 22, 2019. Provided by County Sustainability Director.

Note: Data is for General Mitchell International Airport (now Milwaukee Mitchell International Airport) and Ash, Waste, Rubbish Disposal.

MKE does not currently receive rebates for recyclable materials. In the past, the Airport received a rebate for recycled cardboard.

Increasing waste diversion from MKE will require financial resources. Some resources may become available based on cost avoidance or cost savings generated by implementing other strategies. These resources could then be used to support the program.

Contracting

Contracting has significant influence over waste management activities and a program's level of success. Contracts and other agreements can support or impede sustainable waste management activities, including the waste-generating and waste diverting activities of contractors and tenants. Advertising requests for bids and proposals that outline waste-related expectations and levels of service are the first step toward establishing such requirements in a contract or other agreement.

The FMRA includes the review of contracts related to waste management as an element of planning for solid waste at an airport. The FAA memorandum "Guidance on Airport Recycling, Reuse, and Waste Reduction Plans" explains that the purpose of reviewing these contracts is to "identify opportunities for improving [waste] program scope and efficiency, as well as identifying constraints" and notes that contract expiration information "can signal the airport's next opportunity to add recycling, reuse, and waste reduction objectives to existing leases and contracts."

Contracts can be used to overcome challenges - specifically tenant participation, airline participation, custodial services, and information availability. MKE staff provided sample contracts for evaluation under this project. The example contracts were reviewed for clauses that supported or hindered recycling or other waste diversion strategies. They are assumed to be standard or representative of similar agreements in place at MKE. Staff also provided the Airport's Rules and Regulations for review (see **Plans and Procedures**, above).

Waste and Recycling Agreements

The County is responsible for acquiring waste and recycling contracts or price agreements for the waste generated in all County facilities, including MKE.

The County has price agreement in place with Waste Management for the collection of solid waste, cardboard, and paper. The agreement includes rental of dumpsters and scheduled collection services. Waste Management collects baled cardboard and materials in the recycling dumpsters once a week and charges monthly for this service. The waste compactors are serviced three times a week and are also charged monthly. This price agreement also establishes a rate for per pull (or pick up) service. Waste Management does not provide load weight information on the invoices; estimated load information is available by calling customer service.

The County also has a price agreement with Advanced Disposal for aluminum can and glass bottle recycling. This agreement includes rental of dumpsters, scheduled collection services, and on-call collection services. Advanced Disposal services three recycling dumpsters on a scheduled basis and charges monthly for this collection. Advanced Disposal services one roll-off waste dumpster on an on-call basis and charges per pull (or pick up). Advanced Disposal does weigh the waste loads at the landfill for internal purposes. This information is not included on the invoices but is available by calling customer service.

Concessionaire and Retail Contracts

The County's agreements with HMS Host, SSP America, Paradies, and other food and beverage, retail, and service tenants were reviewed for provisions related to waste management. These agreements require the tenants to dispose of trash in the compactor provided by the County and specify that the County will then coordinate removal of the trash from the Airport. Additional requirements within the Airport's Rules and Regulations are incorporated in these contracts via reference (see **Plans and Procedures**).

Airline Agreements

Under this project, agreements with Southwest, Delta, American, United, Frontier, Alaska, and Air Canada airlines were evaluated for provisions related to waste management. These agreements specify that each airline is to provide custodial service to its leased space and keep the areas "free of trash," which is to be removed at the airlines' expense or placed in collection areas designated by the County. Additional requirements within the Airport's Rules and Regulations are incorporated in the airline agreements via reference (see **Plans and Procedures**).

Custodial Contract

The County has a contract with ABM Facility Services for housekeeping services, including servicing restrooms, hard floors, and carpeted areas. ABM is responsible for the collection and deposit of all materials related to their cleaning activities. As noted under **Roles and Responsibilities**, Airport custodial employees or tenant employees/contractors are responsible for other housekeeping tasks within specific areas.

Purchasing

Mindful purchasing practices can impact waste generation and diversion, by facilitating reduction, reuse, or recycling of materials and goods. Examples of environmentally preferred items include those which are durable, reusable, recyclable, compostable, packaged in bulk, sustainably sourced or have recycled content.

Airport accounting staff is responsible for purchases for the facility, which are subject to the County's general procurement ordinance.

Under the ordinance, the County's Department of Administrative Services establishes rules, regulations, and procedures for purchasing and develops and recommends standard practices, subject to approval by the Purchasing Standardization Committee. This Committee enforces purchasing standards. The County utilizes county-wide contracts when applicable, prioritizes cooperative purchasing, and tracks expenditures monthly.

As a County facility, MKE has access to County contracts, issues its own purchase orders, and receives separate invoices. The County's purchasing standards do not always include provisions or considerations for sustainable supplies, materials, equipment, or contracts which would support landfill diversion.

Historical records of purchases made for MKE were not available for review under this project. Reviewing purchase histories can help identify supplies and materials that are contributing to the waste stream and may be replaced with durable/multi-use alternatives. Future evaluation of the purchasing practices employed by MKE, restaurant and retail tenants, and other areas at the Airport would provide a basis for assessing alternative supplies and products to reduce landfill disposal.

Waste Diversion

Reduction

According to the EPA solid waste hierarchy, reducing waste at the source is the most preferred waste management strategy. "Waste reduction" is defined as efforts to minimize the overall total amount of waste created, thereby reducing the amount of waste that needs to be recycled, composted, landfilled, or otherwise managed. The EPA food recovery hierarchy also prioritizes source reduction over all other food waste management strategies. The waste reduction strategies at MKE include the following practices:

- Double-sided printing defaults
- Utilizing electronic processes and references
- Terminal bottle-filling stations
- Restroom hand dryers
- Rightsizing garbage bags and bin liners

Reuse

"Reuse" is defined as using materials, equipment, or other items several times either for their original purpose or another purpose in place of single-use alternatives. Reuse lowers the total number of items that need to be recycled, composted, landfilled, or otherwise managed. Items that are reused at MKE include:

- Packing materials and cardboard boxes
- Office supplies
- Towels/rags
- Furniture
- Pallets
- Maintenance supplies
- Equipment parts
- Construction materials such as concrete, asphalt, and fill

Food Donation

The EPA food recovery hierarchy's second priority for food waste is to feed hungry people, specifically through donation of extra food to food banks, soup kitchens, and shelters. Federal and state laws protect food donors from liability. HMS Host donates food, specifically prepared and packaged food items, from its operations at MKE to the Milwaukee Hunger Task Force. Host's restaurants identify and collect eligible food items in their back of house areas where the receiving organization collects it twice a week.

Other Donation

Donation of items other than food is also considered beneficial reuse. MKE does not currently donate other items.

Recycling Program

Recycling is converting waste materials into new materials and involves the collection and separation of materials to prepare them for this process. The existing waste and recycling program at MKE includes materials from the terminal, including public spaces, administration offices, and tenant areas, airline operations, and airport maintenance activities. MKE has a combination of single-stream (comingled) and source separated recycling.

Waste and Common Recyclables

Waste and recyclables are collected from the public spaces in a network of labeled, co-located waste stations and standalone trash cans (**Figures 10, 11,** and **12**). These containers can be found along the curbside, within the ticketing lobby, at security checkpoints, in gate areas, and at baggage claim. The waste stations typically feature stainless steel containers marked for trash, newspaper, and bottles and cans. The containers have lids or sidewalls with openings that correspond to the accepted material (slot for newspapers, small round hole of bottles and cans, larger hole for trash). Some the stations are made up of trash can and a bin for comingled recyclables. The ticketing counters and self-service kiosks feature several styles of standalone trash cans **(Figure 13)**.

Figure 10: Terminal waste and recycling containers

Figure 11: Trash can in security checkpoint queuing area

Figure 12: Configurations for terminal waste and recycling containers

Figure 13: Ticketing lobby standalone trash cans

In the administration offices, Airport employees have recycling and trash cans in their offices as well as in common areas such as meeting and copy rooms (**Figure 14**). These containers are typically lined with a trash bag or bin liner.

Figure 14: Waste and Recycling Containers, Airport Administration Offices

Terminal tenants and airlines collect waste and recyclable materials in containers within their areas until they are taken to the loading dock.

MKE custodial employees and tenant employees collect waste and recyclables from the public containers, administration offices, and shops/restaurants and transfer them to a cardboard baler and marked dumpsters (**Figures 15-17**) or a trash compactor located at the terminal loading dock.

Figure 15: Cardboard baler at loading dock

Figure 17: Advanced Disposal dumpster for cans and bottles at loading dock

Figure 16: Waste Management dumpster for paper only at loading dock

The recycling dumpsters are provided and serviced by Waste Management (paper, 4-yard) and Advanced Disposal (bottles and cans, 8-yard). Waste Management also provides and services the 35-yard trash compactor and cardboard baler. Access to these containers is unrestricted, and they are used by Airport custodial employees as well as terminal tenant employees and contractors. The recyclables collected at the loading dock are collected biweekly by Advanced Disposal (bottles and cans) and weekly by Waste Management (paper and baled cardboard). The trash compactor is serviced three times a week by Waste Management.

Materials collected by the airlines and their contractors from arriving flights are consolidated in dumpsters, compactors, and balers located at the terminal loading dock or in the Airline Recycling Center. The Airline Recycling Center is located on the airfield and features a 33-yard compactor, a cardboard baler, designated space for baled cardboard, two 2-cubic yard dumpsters for bottle and can recycling, and designated space for wood pallets **(Figure 18)**.

Figure 18: Airside waste and recycling area with a cardboard baler (left), two dumpsters for can and bottle recycling (center), and an area for pallets (right)

The design of this facility allows airline employees to deposit waste and recyclables without leaving the airfield and the collection contractors to access the material without accessing restricted areas. The airside recyclables are collected biweekly by Advanced Disposal (bottles and cans) and weekly by Waste Management (paper and baled cardboard). The trash compactor is serviced three times a week by Waste Management.

The maintenance buildings have designated dumpsters for waste materials generated from these activities, including one 8-yard recycling dumpster and one 30-yard trash dumpster. The recycling dumpster is serviced twice a week, and the trash dumpster is serviced on an on-call basis.

C&D Waste

Milwaukee County Architecture, Engineering and Environmental Services (AE&ES) has established a 50 percent C&D waste diversion goal for its projects, including projects at the Airport. During construction and major infrastructure projects at MKE, the County requires contractors to reuse C&D waste, such as asphalt, concrete, aggregate, and other materials wherever possible. Project contractors and subconsultants are responsible for managing C&D waste generated by their projects and for reporting diversion information to the County. MKE's contractors are required to track and report C&D waste from their projects using the form seen in **Figure 19.**

SECTION 01505 - SUMMARY
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

SUMMARY OF SOLID WASTE DISPOSAL AND DIVERSION

Project Name: _____ Contractor Name: _____

Project #: _____ Contractor License #: _____ Contractor Address: _____

Solid Waste Material	Diverted from Landfill? (If recycled or reused write YES; If *disposed* state why not diverted)	Date Diverted/ Disposed (mm/dd/yy)	Amount Diverted/ Disposed (tons or cubic yards)	Waste Facility		
				Name	City/State	Phone Number
Appliances						
Asphalt						
Cardboard						
Carpet						
Concrete						
Gypsum Drywall						
Land Clearing/Soil						
Masonry						
Metals: Ferrous						
Metals: Non-ferrous						
Mixed/Co-mingled Waste						
Plastic						
Roofing: Asphalt-Based						
Roofing: EPDM						
Salvaged/Surplus Materials						
Wood: Landclearing Debris						
Wood: Scrap Lumber						
Other (specify):						

Signature: _____ Date: _____

END OF SUMMARY

Figure 19: Milwaukee County AE&ES tracking sheet for C&D waste

Recycling Other Materials

As shown in **Figure 20**, the County and some terminal tenants contract with additional service providers to manage specialized wastes generated at MKE.

TABLE 16
SUMMARY OF DISPOSAL RECYCLING SERVICES AND PROVIDERS

DISPOSAL / RECYCLING SERVICE	MANAGING ORGANIZATIONS	SERVICE PROVIDER (COMPANY NAME)
Antifreeze	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 System
Construction & Demolition Waste	MKE	Contractor, WasteCAP (tracking tool)
Cooking Oil Recycling	HMSHost	Sani-Max
Electronic / Computer Recycling	Procurement / Warehouse	DP Electronic Recycling
Fluorescent Bulb Recycling	Procurement / Warehouse	LampRecyclers
Food Donation	HMSHost	Milwaukee Hunger Task Force
International Flight Waste Mulching	MKE	Stericycle
Landscaping Waste Mulching	Landscaping	Onsite at Oak Street Storage Area
Oils / Oil Filters / Lubricants	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

Figure 20: MKE Waste and Recycling Providers
Source: MKE Sustainability Management Plan, Table 16

Liquid Collection

The diversion of liquids out of the waste stream supports increased and improved recycling. Liquid collection stations are a tool to reduce contamination of recyclables, protect material values, and reduce the weight of waste and recycling bags. MKE does not have a designated liquid collection station where passengers can pour out liquids and keep the container to reuse/refill. TSA provides a bin within the security checkpoint queuing area which offers passengers the opportunity to dispose of any containers with liquids before entering the screening line **(Figure 21)**.

Figure 21: Security checkpoint container collection area

Composting

Composting is a process by which waste organic materials, such as food and green waste, are converted by biological processes into a byproduct that can be used as a soil amendment. The County is in the process of establishing a composting program for non-edible food items. The terminal coffee vendors have provided spent grounds to the public for composting at a kiosk which also advertises the benefits of coffee grounds as a soil enhancer. The County manages green waste generated by landscaping activities on-site by leaving grass clippings in place and grinding and mulching limbs and branches for use on the property.

Energy Recovery

Energy from Waste (EfW) or Waste to Energy (WTE) are strategies for converting unwanted materials into fuel, electricity, and/or heat. The landfill that accepts waste from MKE captures the methane generated from the decomposition of waste and processes it for energy recovery.

The food and beverage tenants that operate at MKE collect waste fats, oils, and greases from food preparation activities and contract with a third-party to collect these materials and convert them into vehicle fuel or another power source.

Landfill Disposal

Disposal of waste in a landfill is the least preferred waste management strategy, according to the EPA hierarchy. Waste materials that are generated at MKE but are not appropriate for reuse, donation, or recycling are collected for landfill disposal at Waste Management's landfill in Franklin, Wisconsin (approximately fifteen miles from MKE). The landfill accepts materials as listed in **Figure 22**.

Figure 22: Materials accepted by Waste Management's Metro RDF Landfill serving MKE
Source: https://www.wmsolutions.com/locations/details/id/52

Other Practices

Resources

Airport and County staff have looked for ideas to expand and improve MKE's waste program, including collecting input from various airport and county sections, information from local businesses, waste and recycling companies, other large facilities in the area, and consultants, ideas from other airports, industry colleagues, industry organizations and events, and guidance from industry publications, studies and reports.

Communication, Education, and Training

MKE's current waste diversion program uses education and outreach, including signage, to address challenges and obstacles. Information about waste and recycling is communicated to passengers almost exclusively through container labels and signage. Additional methods for communicating with passengers include the airport website and social media via Facebook, Twitter, and Instagram.

Airport employees and tenants typically receive information about waste and recycling from container labels and signage. Emails, on-boarding or new employee training, recurring training, newsletters, internal websites, meeting presentations, and employee events are used to spread the word to MKE personnel about facility programs.

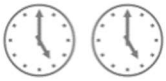
Reporting

The County does not currently practice internal or external reporting related to waste. Questions about waste and recycling are answered on an ad hoc basis; progress updates are provided upon request.

Recommendations

Based on review of MKE's existing waste management program, drivers and challenges, and other factors, a portfolio of strategies are recommended to reduce generation and increase landfill diversion at the Airport and are catalogued in **Appendix B**. The strategies numbered according to the waste management hierarchy and the County's level of control or influence. They are designed to align with the SMP, Green Business Certification's Total Resource Use and Efficiency (TRUE) Zero Waste credits, and best management practices (BMP). Their relative costs, diversion potential, and suggested timing are provided.

Table 6: Recommended Strategies Key

Metric	Symbol	Meaning
Relative Cost	$	Relatively Low Financial Investment
	$$	Relatively Medium Financial Investment
	$$$	Relatively High Financial Investment
Estimated Diversion		Low Diversion Potential
		Medium Diversion Potential
		High Diversion Potential
Time Frame		0-1 Years
		2-5 Years
		5+ Years
Alignment	SMP	Sustainability Management Plan
	TRUE	TRUE Zero Waste
	BMP	Best Management Practice

Near-Term Recommendations

The following strategies are recommended for near-term implementation to enhance MKE's existing program.

#	Category	Sub-Category	Short Description
1	Program Management	Policies	Establish Waste Management Policy

Action	Justification	Information Needed
Develop a written waste management policy to guide decision making. Demonstrate leadership commitment through endorsement of policy. Communicate policy to all stakeholders.	A waste management policy will set the direction of MKE's program and provide high-level guidance for decision making. A written policy also demonstrates an organization's commitment to sustainable waste management. Leadership commitment to a waste program re-enforces its importance to the organization and community. Sharing the policy with stakeholders encourages their support of the program.	Existing MKE Environmental Policies and/or other example policies to ensure alignment and guide format; alignment with MKE Sustainability Vision; access to upper management; final waste policy; communication protocol

Action Plan

- Collaborate with stakeholders to develop a waste management policy for MKE. Include including commitments to all four areas of aviation sustainability – social, environmental, operational and financial considerations.
- Formalize upper management support through signature of the waste policy statement.
- Share final waste policy with staff, contractors, tenants, passengers, and community.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			SMP

#	Category	Sub-Category	Short Description
2	Program Management	Policies	Strive for Highest and Best Use

Action	Justification	Information Needed
Emphasize the concept of highest and best use in waste management decisions and programs. Prioritize reduce and reuse. Consider recycling and composting as last resorts and avoid landfill whenever possible.	Reframing MKE's program within the concept of highest and best use provides a guide for program decisions.	Information about operations and current waste practices; policy and procedure content; highest and best use training

Action Plan

- Incorporate concepts of highest and best use in waste policy and procedures.
- According to Zero Waste International Alliance:
  - reduction and reuse are always preferred to recycling and composting;
  - recycling and composting are last resorts; and
  - landfill disposal should be avoided to the greatest extent possible.
- Train staff and tenants on concept of highest and best use, using examples from MKE's program.
- Acknowledge that MKE's current program has elements which could be improved to divert materials to their highest and best use.
- Evaluate program enhancements according to highest and best use outcomes.
- Track wastes which are upgraded to higher or better use.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$$			TRUE

#	Category	Sub-Category	Short Description
3	Program Management	Objectives and Targets	Establish MKE Specific Goals and Monitor Progress

Action	Justification	Information Needed
Evaluate available data and County's waste goals; determine effectiveness of existing program; identify opportunities for improvement; and establish goals, objectives, and targets. Demonstrate leadership committement to waste diversion by endorsing goals. Communicate goals to stakeholders. Conduct periodic checks of programs to determine compliance and measure progress toward goals.	Specific objectives and targets (aligned with the County's waste goals) establish a means by which MKE can track progress toward more sustainable waste management. Leadership commitment to a waste program re-enforces its importance to the organization and community. Sharing the goals with stakeholders encourages their support of the program and creates accountability. Continuous evaluation of the program allows for timely adjustments as needed to meet goals.	Data from internal measurements and waste and recycling haulers; information about County's waste goals; guidance from County Sustainability staff; access to upper management, final goals, communication protocol; form or other tool to record observations and data

Action Plan

- Set diversion goals for each waste management strategy:
  - overall diversion, reduction, reuse, donation, recycling, composting, and waste to landfill.
- Set goals for quality metrics:
  - contamination, capture, training completed, communications issued, etc.
- Use the Waste Composition Study Results Report as a baseline for goalsetting.
- Monitor progress toward goals by tracking. Include status updates in marketing and education efforts.
- Formalize upper management support through endorsement of goals.
- Share final waste goals with staff, contractors, tenants, passengers, and community.
- Include progress updates in education campaigns and top management reports.

#	Category	Sub-Category	Short Description
3	Program Management	Objectives and Targets	Establish MKE Specific Goals and Monitor Progress

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			SMP

#	Category	Sub-Category	Short Description
4	Program Management	Plans and Procedures	Document Waste Management Procedures

Action	Justification	Information Needed
Document existing waste management procedures; update as program is improved. Communicate expectations to staff and tenants.	Written procedures will provide instructions for specific actions necessary to meet waste diversion goals. Written procedures can be used in training and communication efforts. Documented procedures help facilitate continuation of the program as staff and other resources change.	Existing waste management procedures; example procedures to guide format; facility descriptions; activity types and locations; photographs; maps; access to waste stream; lists of found materials; opportunities to divert specific items

Action Plan

- Evaluate warehousing and distribution, offices, food services, grounds, construction, vehicle maintenance, and retail activities for special waste streams. Develop targeted projects and programs to manage each area's specific needs.
- Develop written standard operating procedures for each waste stream; make available to all MKE employees and tenants and serve as the basis for regular training.
- Track reductions and diversions from focused programs.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
5	Program Management	Roles and Responsibilities	Establish and Communicate Roles and Responsibilities

Action	Justification	Information Needed
Clarify Roles and Responsibilites related to waste management, including responsibilities of Environmental and Safety, Airport Operations and Maintenance, Sustainability Team, tenants, and other parties.	Additional resources are needed to maintain and expand MKE's waste diversion program. Clear definition and delineation of roles and responsibilities is key to sustainable waste management in order to ensure the program's continuous improvement. Elements of the existing program are the responsibility of various Airport sections and tenants. Coordination and communication could be improved and would support increased diversion.	Capacity of Environmental and Airport Operations and Maintenance sections to champion program; role of Sustainability Team; information regarding resources available from the County; tenant liasons; documented waste procedures

Action Plan

- Formalize expectations for managing program, including monitoring progress, providing feedback, implementing improvements, conducting training, and communicating results.
- Document which tasks are the responsibility of the Environmental and Safety and Airport and Operations sections.
- Document tasks which can be completed by the Sustainability Team.
- Identify waste management champions and tenant liaisons and formalize expectations for these groups.
- Document Roles and Responsibilities in written waste procedures.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
6	Program Management	Roles and Responsibilities	Dedicate One Person to Waste Leadership

Action	Justification	Information Needed
Allocate resources to manage waste diversion at MKE, namely, a dedicated staff member to coordinate program maintenance and improvement.	Allocating a dedicated staff member demonstrates MKE's commitment to waste diversion.	Recruitment and hiring process; job posting; resources for salary/benefits; reporting structure

Action Plan

- Designate one staff member who is responsible for waste diversion leadership.
- Empower said individual to contract for hauling services, coordinate custodial activities, train employees, review purchases, and monitor and report on program progress.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$$$			TRUE

#	Category	Sub-Category	Short Description
8	Program Management	Costs and Rebates	Evaluate Costs and Rebates

Action	Justification	Information Needed
Evaluate current costs for waste diversion program.	Evaluation of the fixed and variable costs of the existing program provides the opportunity to identify potential cost savings. For example, Advanced Disposal (one of MKE's recycling contractors) suggested larger roll off container instead of smaller dumpsters for recycling; other hauler(s) may offer similar, more efficient alternatives.	Historical program costs; estimates of staff hours and contractor hours required by existing program; existing program pricing from each hauler; alternative services/containers/etc. from haulers; current and projected usage and schedules for containers and collection

Action Plan

- Route invoice and weight data from collection haulers to designated staff responsible for waste in order to facilitate early detection of issues or unnecessary expenses.
- Complete container right-sizing with the assistance of the waste haulers.
- Negotiate full hauling contracts with provisions for rebates based on market values.
- Track and report waste costs quarterly.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
11	Program Management	Contracting	Establish Contracts with Haulers

Action	Justification	Information Needed
Establish waste and recycling hauling contract(s) for MKE, with Environmental and Safety section leadership or involvement. Incorprate waste diversion, data requests, and specific material lists in contracts.	Contracts establish expectations and form basis of actions. Waste and recycling hauling are currently provided under general County price agreements. This limits the data available and services provided to the Airport. Cost/profit sharing, control of waste disposal practices, and data availability are necessary for effective and efficient waste management. Specific accepted material lists ensure MKE's program and its users are collecting the correct materials and minimize materials that are undesirable to the hauler and processing facility.	Expiration dates for existing price agreements; example contracts designed for sustainable waste management; understanding of hauling contractor's priorities; example contracts with profit sharing or weight-based fees; detailed lists of accepted and prohibited materials from each waste and recycling hauler; data requests; collaboration with haulers; sharing of MKE goals and policies; input from Environmental and Safety and Airport and Operations sections

Action Plan

- Collaborate with haulers to identify opportunities to establish mutually beneficial waste collection contracts.
    - Solict and incorporate feedback from Environmental and Safety and Airport and Operations sections.
    - Contracts should incentivize MKE and hauler to reduce waste to landfill. Explore profit sharing or weight-based fees.
    - Verify which materials found in waste sort are accepted and which are prohibited by recycling haulers and processing facilities; include this information in agreements. Utilize these lists for written procedures, training, and program enhancement. Request haulers provide updated lists at least annually or with significant changes.
    - Formalize the service agreements with the waste haulers into full contracts with detailed expectations for levels of service, required data, and support of waste diversion efforts.
- Track costs and activities associated with waste and recycling collection.

#	Category	Sub-Category	Short Description
11	Program Management	Contracting	Establish Contracts with Haulers

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
12	Program Management	Purchasing	Establish Environmentally Preferred Purchasing Policy

Action	Justification	Information Needed
Establish guidelines and practices for obtaining environmentally preferred supplies and materials. Integrate these practices throughout the procurement process. Support tenant adoption of similar practices. Review supply chain and identify sources of waste; eliminate waste at the source.	Purchasing practices have a major impact on the stream generated at a facility such as MKE. The procurement policy and practices should reflect MKE's commitment to sustainable waste management. Addressing inbound materials will allow MKE to avoid waste before it is generated.	Historical purchasing records; supply and material catalogs and lists; contact information for suppliers and vendors; collaboration with Administrative Services; preferred characteristics; example policies from other organizations; collaboration with Airport purchasing staff

Action Plan

- Review purchasing records and identify purchases which generate or induce waste. Substitute for alternative products.
- Identify sources of non-recyclable packaging and work with organization(s) receiving packaging to request alternative packaging.
    - Switch to alternatives, including bulk packaging, sole material packaging (vs. combination packaging), and palletizing.
- Write and implement Environmental Preferred Purchasing policy.
    - Coordinate with County Department of Administrative Services to ensure such a policy is aligned with the County's ordinance and other requirements.
    - Incorporate preferences for durable goods; sustainably sourced wood and paper products; used, refurbished, and remanufactured goods; 100% recyclable packaging; non-hazardous chemicals; 30% recycled content office paper; 20% recycled content paper products; and purchases from vendors/suppliers with waste diversion goals and programs.
    - Identify preferred items and suppliers in catalogs and on supply lists and attach this information to the policy.

#	Category	Sub-Category	Short Description
12	Program Management	Purchasing	Establish Environmentally Preferred Purchasing Policy

- Negotiate agreements for vendors to take back and properly manage all products and packaging supplied to MKE.
    - Of specific interest, a program to return pallets for reuse should be established and is discussed in more detail as its own strategy.
    - If a vendor cannot establish a takeback program, request credit or reimbursement for the proper disposal of products and packaging. Track the volume of materials returned or credits owed.
- Train Airport Administrative Services staff on purchasing requirements and provide resources for identifying appropriate supplies.
- Track purchases and highlight those which meet or exceed the EPP standards.
- Encourage tenants to purchase according to these guidelines.
- Encourage and support tenants in their efforts to negotiate take back and credit programs with their suppliers.
- Track reductions in waste from improved purchasing.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$$			TRUE

#	Category	Sub-Category	Short Description
13	Physical Strategies	Reduction	Install Liquid Collection Stations

Action	Justification	Information Needed
Install liquid collection stations at security checkpoint to divert liquids from waste stream. Collect recyclable containers adjacent to liquid collection stations.	Liquids comprised 54% of the waste sample from the security checkpoints. Many unopened containers were found in the trash; these containers are recyclable when empty.	Availability of location to drain stations; optimal location information; costs of purchasing and installing collection stations (start at $5,000 each fixture); service schedules and logistics

Action Plan

- Coordinate with custodial staff to plan for installation of liquid collection station(s).
  - Identify service schedule and location. Identify emptying locations and document procedures for service and spills.
  - Obtain and install liquid collection stations.
  - Track volume of liquids collected and observe passenger use.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$$			SMP

#	Category	Sub-Category	Short Description
16	Physical Strategies	Reduction	Reduce Toilet Paper and Paper Towel Waste

Action	Justification	Information Needed
Evaluate using paper towels and toilet paper down to core (See below for donation strategy for these materials).	Unfinished rolls of toilet paper and paper towels were found in the waste sort sample. The custodial staff and contractors may be changing these on a schedule or with a certain amount remaining instead of when they are empty.	Custodial staff input regarding current practices; collaboration with custodial staff on reducing waste of these items

Action Plan

- Coordinate with custodial staff to adjust practices for paper towel and toliet paper services.
    - Encourage use to core.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
17	Physical Strategies	Reduction	Right-size Garbage Bags to Reduce Plastic Waste

Action	Justification	Information Needed
Right-size garbage bags and bin liners used throughout the terminal spaces. Coordinate with custodial staff and contractor to evaluate current practices regarding replacement of bags and liners.	Oversized bags contribute plastic waste to the stream. Some sample bags provided for the sort activity were nearly empty.	Input from custodial staff and contractors regarding current practices; leadership from custodial staff and contractor to modify practices to reduce plastic waste

Action Plan

- Right-size and standardize garbage bags and bin liners to match capacity of containers.
  - Discontinue use and purchase of oversized bags and liners.
- Evaluate bag replacement practices and reduce bag replacement frequency.
- Discontinue use of liners in MKE office containers for paper or other recyclables.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
25	Physical Strategies	Reuse	Provide Reusable Mugs and Water Bottles to Staff

Action	Justification	Information Needed
Distribute reusable mugs and water bottles to MKE employees.	Reuse prevents waste from being generated. This is a higher priority strategy.	Number of employees; financial resources available to purchase reusable mugs and water bottles

Action Plan

- Provide each MKE employee a ceramic mug and reusable water bottles for their use.
  - Encourage and support use of these items.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			SMP

#	Category	Sub-Category	Short Description
26	Physical Strategies	Reuse	Donate Toilet Paper and Paper Towel Products

Action	Justification	Information Needed
Evaluate donating excess paper towels and toliet paper to reduce waste of these items.	Donation is a form of reuse which benefits MKE and the community. Unfinished rolls of toilet paper and paper towels were found in the waste sort sample. The custodial staff and contractors may be changing these on a schedule or with a certain amount remaining instead of when they are empty.	Custodial staff input regarding current practices; collaboration with custodial staff on reducing waste of these items; information about receiving organization (if interested in donation)

Action Plan

- Identify receiving organization for paper products.
  - Coordinate collection with custodial staff.
  - Track volume of material donated.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
28	Physical Strategies	Reuse	Support Donation of Edible Food

Action	Justification	Information Needed
Donate edible food to food insecurity organizations in the Milwaukee area.	Donation is a form of reuse which benefits MKE and the community. Feeding people is the most preferred strategy for food waste after reduction.	Information about existing food donation program; information about receiving organization(s); acceptable items and preparation requirements; food handling practices ; participation from additional concessionaires and retailers; quantity information

Action Plan

- Encourage food and beverage tenants to donate edible food.
  - Support projects to equip tenant areas for donation (common refrigerator, receiving organization access to terminal, etc.).
  - Track donations.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			TRUE

#	Category	Sub-Category	Short Description
31	Physical Strategies	Recycling	Color Code Waste Streams

Action	Justification	Information Needed
Evaluate designing and implementing color coding for waste and recycling streams. Introduce color coded bags and signage/ labeling.	The existing terminal waste and recycling containers are all silver with black tops and feature the same labeling; assigning a specific color each material type material may facilitate better separation of items by passengers and reduce waste stream contamination. Color coding may help custodial staff and contractors identify the source and contents of garbage and recycling bags and facilitate placement in the corresponding dumpster. Color coding also conveys to MKE staff, tenants, and visitors whether the bags are intended to be recycled or landfilled.	System of color coding; information on garbage and recycling bags in various colors

Action Plan

- Design and implement color coding system that assigns different colors to each of the waste streams (for example trash = red, glass = blue, paper = green, cans = yellow).
    - Align the color coding of the bags with signage, containers, and labels.
    - Train all custodial staff on the use of the color coding system and the importance of the program to MKE's waste diversion efforts.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
32	Physical Strategies	Recycling	Improve Container Labeling

Action	Justification	Information Needed
Improve container labeling to reflect best practices in order to reduce contamination and increase capture.	Improved signage would increase participation and reduce contamination.	Photographs of existing labeling; best practices for labeling; example labels; standardized labeling alternatives; understanding of in-house graphics capabilities

Action Plan

- Standardize container labeling throughout facility.
  - Match container labeling on interior/curbside bins to back of house bins to dumpsters, compactors, and balers.
  - Incorporate graphics, colors, simplified messaging, and specific material information on recycling bins.
  - Clearly designate that contents of garbage cans are destined for landfill disposal by marking these containers as "landfill."
- Consider adopting standardized labels from Recycle Across America (see **Appendix C**) or The Recycling Partnership to align with other major facilities and best practices.
- Review proposed signage with staff, contractors, and tenants and adjust per their feedback.
  - Once final, train users on the signage and provide educational materials for their use.
  - Incorporate the signage into the overall training program.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$$			TRUE

#	Category	Sub-Category	Short Description
34	Physical Strategies	Recycling	Enhance Recycling Signage

Action	Justification	Information Needed
Improve program signage to reflect best practices in order to reduce contamination and increase capture. Replace bin labels on co-located waste and recycling containers throughout the terminal so that they are visible from every angle.	Improved signage would increase participation and reduce contamination. Visual inspection and informal observation of the recycling dumpsters and compactor noted prohibited materials in these containers. The existing signage has been in place for some time and new signage may draw more attention to the message at this time. Current bin labels are not visible from every side of the waste and recycling containers.	Photographs and descriptions of existing signage; best practices; information about in-house graphics capabilities; specific lists of acceptable materials from recycling haulers; specific examples of prohibited/unwanted materials; sign design; new labels that encircle the entire container

Action Plan

- Create colorful signage to supplement container labeling and provide additional instructions.
  - Install additional signage in priority areas, specifically the loading dock waste area and airline waste facility.
  - Incorporate signage elements in employee and tenant training.
  - Consider using templates from Recycle Across America (see **Appendix C**) or Recycling Partnership's websites
  - Create printed lists with haulers' accepted materials for each deposit site.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			SMP

#	Category	Sub-Category	Short Description
35	Physical Strategies	Recycling	Right Size Collection Containers and Service Levels

Action	Justification	Information Needed
Adjust container sizes and service schedule based on actual generation.	Rightsizing container sizes and collection schedule should reduce costs.	Observations of containers and service events; lists of containers including sizes; collection schedules

Action Plan

- Inspect containers prior to collection and note fill volume.
- Review weight data from hauler.
- Adjust container sizes and collection frequency.
- Reallocate excess containers to other streams.
- Document adjustments and re-evaluate regularly.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			TRUE

#	Category	Sub-Category	Short Description
37	Physical Strategies	Composting	Support Food Waste Composting

Action	Justification	Information Needed
Establish composting program for food waste generated by food and beverage tenants. Evaluate opportunities to introduce composting program for food and paper products, specifically from concessionaire back of house areas.	Pre- and post-consumer food made up 53% of the waste sort sample from the concessionaire areas. The overall sample evaluated during the sort was 30% compostable food waste and paper products. Composting diverts organic waste from the landfill and utilizes the resources inherent in these materials.	Information about commercial composting facilities in the area. Agreement with compost facility to receive food waste. Agreement with hauling company to transport food waste to compost facility. Acceptable material specifications. Collaboration with and commitment from tenants to participate. Containers to collect food waste in back of house. Dumpster to consolidate collected food waste.

Action Plan

- Issue Request for Information for compost services.
- Assess options to compost food waste from MKE.
- Meet with food and beverage tenants to discuss benefits and challenges to composting food waste.
- Obtain collection and processing services.
- Obtain bins for material collection.
- Implement program with tenant partners.
- Track quantity data and report progress.
- Assess program and adjust as needed.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$$			SMP

#	Category	Sub-Category	Short Description
39	Physical Strategies	C&D Waste	Support C&D Material Diversion

Action	Justification	Information Needed
Implement best practices for C&D waste diversion.	C&D materials represent additional diversion opportunities.	Information about existing construction practices; information about project contracting; best practices for C&D waste

Action Plan

- Integrate participation in waste diversion in the project contract, which commits contractor to planning and carrying out related practices.
    - Use Wisconsin DNR sample specifications.
- Require diversion plan for projects above size threshold or of certain type.
- Reuse where possible.
    - Plan and conduct decommissioning and demolition carefully to protect materials.
- Source local materials to reduce packaging.
- Return packaging to suppliers.
- Plan space in staging areas for stockpiles or dumpsters for reusable and recyclable materials.
    - Clearly label collection areas, provide instructions for preparation, share contact information for responsible organization.
- Integrate waste diversion into project communications, including specifications, plan sets, pre-construction and status meetings, project updates, and other elements.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			BMP

#	Category	Sub-Category	Short Description
42	Other Strategies	Tracking and Reporting	Track Key Performance Indicators and Report Progress

Action	Justification	Information Needed
Track waste generation and diversion data in order to inform waste management decisions and program enhancements. Develop centralized waste and recycling tracking tool for ease of data collection, analysis, and reporting. Report progress to the County. Provide feedback on progress and results of diversion program to staff, contractors, tenants, and passengers. Add rejected recyclables to landfill stream data. Track waste financial data in order to inform waste management decisions and program enhancements.	Data is needed to monitor progress and identify opportunities. Communication can increase participation and compliance. Reporting creates accountability and visibility to the key metrics of the waste program. It also provides data for reporting to stakeholders. Coordination with the County may facilitate additional support of MKE's program. Need to accurately account for contamination in recycling and waste to landfill metrics.	Diversion data and metrics calculations including quantity data from hauler(s) and/or estimates of volumes; contamination information from hauler and/or from waste audits/inspections; calculations of rejected components designated representative to receive data; conversion factors; reporting schedule and format; capability of existing tools to accept waste and recycling data; availability of standard or custom tools for this purpose; data for entry into tool; historical cost information; invoices; fee schedules; budgeting information

#	Category	Sub-Category	Short Description
42	Other Strategies	Tracking and Reporting	Track Key Performance Indicators and Report Progress

Action Plan

- Track waste, recycling, and other diversion data.
  - Contact account managers at Waste Management and Advanced Disposal to request quantity data for waste and recyclables collected from MKE.
  - Include account/container identification numbers and frequency data should be reported in request.
  - Incorporate recycling contamination rate in waste to landfill tracking.
  - Request contamination percentages from waste haulers, as well as any qualitative information about contamination. Add contamination weights to landfill-bound waste stream data. Address sources of contamination through training and communication with generators.
  - Download EPA WARM model tracking tool and evaluate for use at MKE. Identify and obtain alternative tool, if desired. Obtain data from haulers and update tracking tool monthly.
- Calculate metrics (recycling rate, diversion rate, waste to landfill per passenger, etc.) and report to various groups.
  - Document conversion factors used in calculations.
- Work with Airport Office of Accounting to track costs associated with waste management at MKE.
  - This tracking should include charges from Waste Management, Advanced Disposal, and other collection companies as well as specialized waste services (for example, for universal or hazardous waste.)
  - This tracking should also incorporate tracking costs associated with purchases of disposable items and supplies for waste management (garbage bags and bin liners.)
  - Metrics should include spend per ton of waste or recycling, spend per passenger, avoided costs from diversion efforts, and any revenue from recyclables, sales of other materials, or donation credits.
  - This information should be included in regular progress updates.
- Collaborate with staff to incorporate tracking into their everyday activities.
- Celebrate successes and use setbacks as opportunities to improve.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			SMP

#	Category	Sub-Category	Short Description
45	Other Strategies	Tracking and Reporting	Report Progress to Stakeholders

Action	Justification	Information Needed
Regularly update stakeholders on progress of waste diversion efforts. Such communication can drive participation.	Sharing program progress would increase participation and generate feedback from stakeholders.	Data and metrics; communication protocol

Action Plan

- Utilize electronic, verbal, and visual media to update all stakeholders on progress on a regular basis.
    - Share articles, tips, and updates at least quarterly and to coincide with Earth Day, America Recycles Day, and other events.

Relative Cost	Estimated Diversion	Time Frame	Alignment
$			

Additional Recommendations

Information about additional recommendations is included in **Appendix B**.

These recommendations are appropriate for consideration in the longer-term and include:

Sub-Category	Recommendation Number	Short Description
Roles and Responsibilities	*7*	Encourage and Recognize Stakeholder Participation
Contracting	*9*	Utilize Waste Provisions in Contract Tenants (via Rules and Regulations)
Contracting	*10*	Incorporate Waste Diversion in New Leases and Contracts / Update Rules and Regulations
Reduction	*14*	Go Paperless for Office Functions
Reduction	*15*	Reduce Printing
Reduction	*18*	Reduce Use of Hazardous Chemicals/Materials
Reduction	*19*	Support Reduction of Paper Waste from Receipts
Reduction	*20*	Eliminate Other Waste at Source
Reduction	*21*	Document Waste Avoided
Reuse	*22*	Reuse Cleaning Cloths
Reuse	*23*	Support Reuse of Pallets and Shipping Supplies
Reuse	*24*	Encourage Use of Durable Food Serviceware in Airport Offices
Reuse	*27*	Donate Other Items
Reuse	*29*	Encourage Use of Durable Serviceware in Restaurants
Reuse	*30*	Encourage Sale of Reusable Water Bottles and Travel Mugs
Recycling	*33*	Standardize Bin Placement and Eliminate Standalone Trash Cans
Recycling	*36*	Support Airline Recycling
Disposal	*38*	Improve Chemical Waste Management
Communication, Education, and Training	*40*	Develop Awareness Campaign and Training Program

Sub-Category	Recommendation Number	Short Description
Communication, Education, and Training	*41*	Establish Tenant Recognition Program
Tracking and Reporting	*43*	Conduct Biannual Waste Audit
Tracking and Reporting	*44*	Improve C&D Data Collection
Tracking and Reporting	*46*	Participate in EPA Waste Wise Program
Continuous Improvement	*47*	Maintain Program Through Plan, Do, Check, Act (PDCA)

Conclusion

This Plan documents and supports MKE's compliance with the FAA Modernization and Reform Act of 2012 and FAA guidance on the topic of recycling, reuse, and waste reduction. At MKE, the County has an established SMP for its Administration Offices, terminal, and surrounding airport buildings with elements of a recycling program. The opportunities evaluated as a result of the waste composition study provide baseline information for areas of concern and interest for the County's sustainability programs at MKE. This Plan describes the existing program and outlines recommended improvements that will allow MKE to progressively increase landfill diversion and recycling volumes. The development of this plan provides a high-level roadmap for achieving waste diversion and other goals and objectives. Proactive planning by the County will optimize approaches and successes in meeting their goals.

Appendices

Appendix A: MKE Waste Composition Study Results Report

Appendix B: Waste Diversion Recommendations

Appendix C: Recycle Across America Airport Signage Information

A full compilation of appendix material can be found in the original document