

CRATER LAKE
KLAMATH
REGIONAL AIRPORT

Master Plan

February 2021



Appendix C

Airport Recycling Plan



CRATER LAKE

KLAMATH REGIONAL

AIRPORT

Appendix C: Airport Recycling Plan

Report: Airport Master Plan Recycling, Reuse, and Waste Reduction Plan



TABLE OF CONTENTS

OVERVIEW 1

1. BACKGROUND 1

 Project Purpose and Regulatory Background 1

 Airport Description 2

 Definitions and Waste Plan Focus..... 2

 Airport Facilities 3

2. EXISTING RECYCLING PROGRAM..... 4

 Local Recycling..... 4

 Airport Recycling Infrastructure 4

 Recycling Operation and Maintenance Responsibilities 6

 Airport Reduction, Reuse, and Recycling Efforts 7

 Airport Tracking and Performance..... 8

3. WASTE AUDIT..... 8

 Quantity and Sources 9

 Composition..... 9

 Purchases..... 10

4. REVIEW OF WASTE MANAGEMENT CONTRACTS 11

 Custodial and Waste Hauling Contracts..... 11

 Tenant Leases and Service Contracts 11

 Expiring Leases and Contracts..... 12

 Funding..... 12

5. RECYCLING FEASIBILITY 12

 Commitment and Support..... 12

 Airport Policy and Contractor Dedication 12

 Local Market Factors 12

 Contractual Issues 13

 Logistical Considerations and Constraints 13

 Recycling and Landfill Requirements 13

 Guidelines and Policies 14

6. COST SAVINGS OR REVENUE GENERATION 16

7. RECOMMENDATIONS 16

 Target Goals and Objectives (SMART) 16

 Tracking and Reporting 17

 Reduce and Reuse 17

 Recycle and Compost 17

 Continuous Plan 20

8. SUMMARY CONCLUSION..... 20

9. REFERENCES 22

OVERVIEW

An Airport Recycling, Reuse, and Waste Reduction Plan (the Plan) was prepared as part of the Airport Master Plan for the Crater Lake–Klamath Regional Airport (LMT) in accordance with the Federal Aviation Administration Modernization and Reform Act of 2012 (FMRA) requirements. The purpose of this Plan is to evaluate the existing airport waste program and recommend ways to increase landfill diversion through waste reduction, reuse, and recycling.

Data collection and interviews with LMT Airport Staff provided background on current conditions and practices. This information formed the basis for recommendations appropriate for the waste stream at LMT and in accordance with FMRA. Recommendations are:

- ▶ Establish and document quantifiable Plan goals and objectives.
- ▶ Install recycling containers and signage at each garbage collection point or waste station.
- ▶ Incorporate waste and recycling into all LMT tenant contracts/leases.
- ▶ Establish a recycling purchasing/procurement policy.
- ▶ Provide Plan education (LMT employees, tenants, janitorial services, contractors).
- ▶ Develop a Plan-Do-Check-Act process to oversee Plan progress.

As summarized in detail by **Table C-3**, the Plan recommendations allow LMT to structure and prioritize recycling activities that are compatible with changing LMT conditions, site expansion, and available LMT Airport Staff resources.

BACKGROUND

PROJECT PURPOSE AND REGULATORY BACKGROUND

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 for airports preparing or updating a master plan to receive FAA Airport Improvement Program (AIP) funding to address issues related to solid waste recycling. The FAA Memorandum *Guidance on Airport Recycling, Reuse, and Waste Reduction Plan* dated September 2014 outlines FAA procedures in developing the Plan in accordance with FMRA.

The key Plan elements 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

The specific Plan recommendations depend on the following unique LMT factors:

- ▶ The airport size, location, and layout
- ▶ The type and quantity of airport waste generated
- ▶ Waste and recycling infrastructure and collection systems
- ▶ The costs and market commodity
- ▶ LMT and City recycling initiatives

AIRPORT DESCRIPTION

LMT is a FAA Part 139 commercial service airport owned and operated by the City of Klamath Falls and is a public-use facility included in the FAA *National Plan of Integrated Airport Systems (NPIAS)*. LMT serves commercial, general aviation (GA), US Forest Service (USFS), and military activity. In 2017/2018, LMT aircraft traffic totaled 48,500 operations with 85 civilian based aircraft and 32 military based aircraft.

DEFINITIONS AND WASTE PLAN FOCUS

Defined terms and acronyms used in this Plan:

City:	City of Klamath Falls (department responsible for waste/recycle programs)
LMT:	Crater Lake–Klamath Regional Airport (civilian areas)
LMT Airport Staff:	Airport Administrative Staff (City employees)
FAA:	Federal Aviation Administration

Municipal Solid Waste (MSW) consists of everyday items that are used and then discarded. There are five primary types of MSW generated at airports; recyclable materials include paper, plastic, plastic bottle, aluminum cans, and cardboard.

Municipal Solid Waste Types	
General waste	Consists of common inorganic waste, such as product packaging, disposable utensils, plates and cups, bottles, and newspaper. Less common items include furniture and clothing.
Food waste	Consists of either food that is not consumed or the waste generated and discarded during food preparation. Food waste and green waste make up a waste stream known as <i>compostable</i> waste.
Green waste	Consists of tree, shrub, and grass clippings, leaves, weeds, small branches, seeds, pods and similar debris generated by landscape maintenance activities. Green waste and food waste together may be referred to as <i>compostables</i> .

Deplaned waste	Consists of waste removed from aircraft, typically scheduled passenger flights. These materials include plastic bottles, aluminum cans, newspaper, mixed paper, plastic cups, service ware, food waste, food soiled paper, and paper towels.
Construction and Demolition Waste (C&D)	Consists of 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 and other materials that can be either recycled or disposed of in a landfill. This Plan does not address the management of other types of waste regulated by federal, state, and local laws, specifically:

- ▶ Hazardous waste material
- ▶ Industrial waste
- ▶ Construction and Demolition special requirements (such as asbestos and lead special handling)

AIRPORT FACILITIES

LMT civilian buildings include a terminal passenger building, airport operations building, airport administration building, Special Aviation Service Operator (SASO)/Fixed-Based Operator (FBO) buildings/hangars, flight schools, general aviation tenant facilities, United States Forest Service (USFS), agricultural facilities, and air cargo facilities. The Oregon Air National Guard (Oregon ANG) buildings, which are excluded from this study, are located on leased property. See **Attachment A**, *Airport Site Location Map*, for building locations. See **Attachment B**, *Airport Site Photos*, for waste and recycling collection items by location.

PLAN AREA OF INFLUENCE

In accordance with FAA FMRA guidance, areas over which the LMT Airport Staff has direct control or influence should be included in the Recycling, Reuse, and Waste Reduction Plan; areas outside of the LMT Airport Staff control or influence may be excluded. This Plan does not include adjacent properties owned or operated by the City.

The LMT Airport Staff can influence the management of waste and recyclables in tenant spaces through lease agreements and contracts. The LMT buildings and areas over which the LMT Airport Staff has direct and indirect control of waste management are identified on **Table C-1**. Excluded facilities include the Oregon Air National Guard (military leased areas). **Table C-1** is a summary of the buildings and facility users under direct (operated by LMT), indirect (LMT civilian tenant), and excluded (LMT military tenant) LMT Airport Staff control of recycling programs.

EXISTING RECYCLING PROGRAM

LOCAL RECYCLING

Waste Management of Oregon, Inc. is the City's exclusive franchise contractor for the collection of residential and businesses waste and recyclable materials and includes collection at LMT. The LMT waste and recycling activities fall under the City contract program. LMT recycles all waste material types collected by Waste Management of Oregon.

Waste Management of Oregon hauls the recyclables to the Klamath Regional Disposal transfer station, which is located approximately three miles north of LMT. At the transfer station, Waste Management pays to have the recyclable items sorted, compacted, and shipped to a facility near Portland, Oregon, where the items are recycled. Waste materials are taken to the Dry Creek Landfill, which is located in White City, approximately 70 miles west of LMT.

AIRPORT RECYCLING INFRASTRUCTURE

LMT uses carts to collect comingled recyclables as well as a variety of waste dumpsters supplied by Waste Management. The hauling contractor collects the waste and recyclable materials from LMT and transfers them for processing or disposal. Waste materials are transported for disposal at Klamath Falls Landfill. Recyclable materials are transported to a recycling center at a local transfer station. In addition to the residential and commercial pick-up collection programs, Klamath County operates several disposal sites, including Klamath Falls Landfill and eight community transfer stations. These facilities are used for disposal of waste and processing of recyclables generated at LMT.

LMT provides a network of trash cans and recycling stations in and around the facilities it operates. These receptacles are often co-located for convenient use by employees, tenants, and patrons. The contents of these receptacles are collected and emptied into waste dumpsters and recycling carts strategically located adjacent to LMT facilities. Photographs of specific locations and sizes of the waste receptacles within the terminal building, administration building, operations building, and airport public-use parking lots are shown in **Attachment B**.

Table C-1 : Airport Recycling Areas

Buildings and Facility User	Facility Description	LMT Direct Control	LMT Indirect Control	LMT Excluded Control	Recycling Collection
Airline Passenger Building	A two-story facility that houses an airline operating area, a restaurant, restrooms, office space, and rental car company counter areas. The Passenger Terminal Building has recycling collection.	X			Yes
Airport Operations Building	Located west of the terminal building. This building houses vehicles, machinery, equipment, and tools necessary to maintain the airport grounds and facilities. The Airport Operations Building has recycling collection.	X			Yes
Airport Administration Building	The single-level administrative building, located northwest of the passenger terminal building, contains administrative office space. This building is occupied by LMT Staff, and has recycling collection.	X			Yes
Air Cargo Building Facilities	Both FedEx and UPS provide air cargo services. The cargo facilities are located north of the FBO hangar building, and include a storage building, aircraft ramp, and vehicle parking. The on-airport cargo facilities are occupied by FedEx. The UPS and FedEx sort facility is located off-airport.		X		Yes
Special Aviation Service Operator (SASO) / Fixed Base Operator (FBO) Facilities	Century Aviation offers pilot and aircraft services including hangar rental, fueling, passenger charter, emergency air ambulance, hangar storage, and aircraft tie-down parking.		X		Yes
Aviation Training and Flight School(s)	Pelican Aviation and Precision Aviation provide pilot instruction and aircraft training. The flight schools are located in a building-hangar along the north westside apron.		X		Yes
General Aviation and Tenant Facilities	Tenant and General Aviation hangars are located on the northwest and northeast side of Runway 14/32. These facilities include various hangars types (box and T-hangars) and tie-down parking.		X		Yes
United States Forest Service (USFS)	The USFS is located in a leased area northeast of Runway 14, and occupies buildings, parking areas, and storage tanks to conduct aerial-firefighting.		X		Yes
Agricultural Spray Operator Facilities	The agricultural facilities are located in a leased area south of the Runway 25 end and along Taxiway H, and occupies buildings, parking areas, and storage tanks to conduct aerial-spray operations.		X		Yes
Oregon Air National Guard	Multiple LMT lease and operating areas, including the Air Traffic Control Tower (ATC) and Aircraft Rescue and Fire Fighting (ARFF) facility.			X	Yes

Source: Mead & Hunt, Inc. – Airport Records and Site Visit, March, 2019.

- ▶ **Passenger Terminal Building:** Multiple trash cans and recycling stations are placed throughout the terminal building public spaces (**Figure C-1**). An exterior 2-yard open-top dumpster used for non-recycled waste is available to building tenants.
- ▶ **Restaurant (Airport Tenant):** The restaurant area includes space for food preparation, dishwashing, ingredient and supply storage, and other related activities. In order to reduce food waste, the restaurant shops for ingredients weekly. Garbage is collected in a large container and taken to the shared terminal dumpster.
- ▶ **Rental Car (Airport Tenants):** The rental car tenants are responsible for disposing of the contents from their bins into the dumpster and recycling carts. The recycling cart and waste dumpster used to consolidate materials generated in the terminal are positioned within a fenced enclosure adjacent to the terminal building.
- ▶ **Airport Operations Building:** A 1-yard dumpster is located at the operations building. This container is moved outside the fence on the day of pick-up for service.
- ▶ **Airport Administration Building:** One 64-gallon cart for comingled recyclables is for staff use. The LMT administration staff is responsible for cleaning their own areas within the administrative building. Reusable kitchen utensils and ceramic mugs are available in the breakroom for use by staff and guests. Plastic bottles and aluminum cans generated in this area are collected in separate bins. The items collected in these bins are taken to a redemption location by the LMT Airport Staff.

Figure C-1 :
Terminal Building Recycling Bins and Trash Cans



RECYCLING OPERATION AND MAINTENANCE RESPONSIBILITIES

The LMT waste and recycling program is administered by LMT Airport Staff (City employees reporting to the City Manager's Department) and implemented under City contract with Waste Management of Oregon, the hauling service provider. The LMT Airport Staff also contracts janitorial cleaning services, and manages waste and recycling through various LMT tenants, service providers, and contractors.

Roles and Responsibilities

- ▶ Waste Management of Oregon is the City contracted waste hauler responsible for collecting waste material from LMT dumpsters and transporting this material for recycling or disposal.
- ▶ The LMT Airport Director reports to the City Manager; LMT has three administration staff (Airport Director, Airport Business Manager, Airport Operations Manager) and three operations staff responsible for day to day airport operations.

- ▶ The Airport Business Manager oversees the airport recycling program, including directing housekeeping activities, adjusting the program, purchasing custodial supplies, and collection services. The Airport Business Manager is also responsible for communicating with the collection service providers and processing invoices.
- ▶ The LMT janitorial service contractor is responsible for cleaning the public and common spaces within the airport passenger terminal building, including collecting waste and recyclables from cans and bins and transferring these materials to the appropriate dumpsters.
- ▶ The LMT airport tenants (restaurant, rental cars, FBO/SASO, US Forest Service) contract custodial services within their operating areas, including depositing waste materials in the dumpsters or appropriate recycle bins.

AIRPORT REDUCTION, REUSE, AND RECYCLING EFFORTS

Waste Reduction

Waste reduction refers to reducing the volume of waste produced at the source. Printing methods and office supply purchasing are effective practices to reduce waste. LMT Airport Staff employs the following practices to reduce waste:

- ▶ Double-sided printing
- ▶ Email and internal websites for inter-office communication
- ▶ On-screen print preview and PDF printer or other electronic printing.

Reuse

Reuse refers to using materials and items more than once and as many times as possible before disposal. Reuse can include using items and materials for the original purpose or repurposing for a different use. Reuse can require purchasing durable materials instead of disposable or single use options. The following are common LMT Airport Staff reuse practices:

- ▶ Ceramic coffee mugs and durable silverware in breakroom and offices
- ▶ Office supplies, including inter-office envelopes
- ▶ Towels/rags in maintenance areas

Airport Recycling

LMT Airport Staff recycles cardboard, plastic bottles, paper, aluminum cans, and scrap metal. The paper stream includes high volumes of printer paper, disposed mail, envelopes, and other paper-related items. Cardboard waste is typically generated in the form of shipping boxes. The plastic and aluminum streams are typically comprised of beverage containers collected from the public areas of the terminal, administrative building, and restaurant. Glass is accepted by Klamath Regional Disposal, but glass is not currently offered as a pick-up service by the City contract hauler. Glass recycling involves challenges due

to market value and a tendency to cross-contaminate other recycling materials. Plastic bottles and aluminum cans are collected by employees and tenants for refund under the State's bottle bill.

Construction and Demolition (C&D) Debris, Green Waste, and Other Waste

LMT Airport Staff requires the waste generated during construction projects to be hauled off site. Green waste generated from LMT property maintenance is managed on-site as compost (wood pile location) or it is hauled to the landfill. LMT Airport Staff also collects scrap metal, which is taken to a recovery facility and recycled.

Airport Tenants (Civilian/Military)

Airport tenants are also likely collecting waste material for recycling, whether through the LMT recycling program or on their own. LMT Airport Staff do not monitor tenant waste activity or use of recycling containers. The Oregon Air National Guard (OR ANG), which operates facilities within restricted leased airport area premises, has a solid waste plan; the Oregon ANG has adopted the Department of Defense's goal of 40 percent solid waste diversion.

AIRPORT TRACKING AND PERFORMANCE

The LMT Airport Staff tracks waste hauling invoices and paper materials purchased. At present, LMT does not have waste diversion or recycling goals.

WASTE AUDIT

LMT Airport Staff have informally observed employee and tenant waste and recycling related behaviors and how waste flows through the facility. The LMT Airport Staff have also described waste and recycling collection and hauling practices. LMT Airport Staff provided information about:

- ▶ The LMT Airport buildings and facilities (civilian areas)
- ▶ The areas that generate waste
- ▶ The types of waste generated in each area
- ▶ The materials that can be recycled under the current program

An evaluation of LMT Airport Staff recycling information and records under the City's direct control or influence supported efforts to identify the source, composition, and quantity of waste generated. This information, combined with aviation industry waste and recycling trends, served to identify opportunities to improve and monitor program effectiveness.

QUANTITY AND SOURCES

According to invoices provided by LMT Staff, the following containers and service schedules are as follows:

- ▶ Waste: One 2-yard dumpster – collected twice per week (terminal building)
- ▶ Recycling: One 64-gallon cart – collected once per week (terminal/administration building)
- ▶ Waste: One 1-yard dumpster – collected twice per week (operations building)

According to the United States Environmental Protection Agency (EPA), one cubic yard of comingled recycled material, excluding glass, totals 155 pounds. It is estimated that LMT generates 14,000 pounds (7 tons) of waste and 3,700 pounds (1.82 tons) of recyclable material each year. Based on the same load factor and an appropriate volume to weight conversion factor from the EPA, the 2-yard dumpster is equivalent to 200 pounds of MSW per week, which is approximately 5 tons per year. The smaller dumpster is estimated to contain an estimated 100 pounds of MSW each week, equating to approximately 2 tons per year. From this, it is estimated that the LMT current recycling rate is 21 percent; this is calculated by dividing the total tons of recycled material by the total recycled and MSW.

COMPOSITION

A varied waste stream can be expected at LMT based on the various aeronautical and non-aeronautical activities. According to industry case studies and previous waste planning projects, an airport’s waste stream is approximately 40 percent recyclable, 35 percent compostable, and 25 percent waste that cannot be recycled or composted using current technologies and, as a result, must be placed in a landfill. **Table C-2** lists the LMT waste and material types.

Table C-2 : Airport Waste by Area and Material

Area/Material	Office Paper	Newspapers	Magazines	Plastics	Aluminum	Cardboard	Food Waste	Paper Products	Liquids	Packaging	Metals	Greenyard Waste	Construction and Demolition (C&D)	Other Waste
Passenger Terminal Building		X	X	X	X		X	X	X	X				X
Airport Administrative Office	X	X	X	X	X	X	X	X	X					X
Airport Operations Building	X			X	X	X			X	X		X	X	X

Source: LMT Airport Staff records.

The following describes, in more detail, airport waste and recyclable materials typically generated.

Airline Service - Transportation Security Administration Restrictions

The Transportation Security Administration (TSA) restricts the volume of liquids, gels, and aerosols that can be carried onto an aircraft. Items such as toiletries, food, and beverages are restricted by TSA. Passengers are allowed three-ounce containers of toiletries in one, one-quart baggie (3-1-1) in their carry-on luggage. Even though these restrictions have been in place for longer than 10 years, security screening regularly reveals toiletries, beverages, and food items that do not meet the requirements contained in passenger luggage. When these items are found, the TSA gives passengers three options: pack the item in a checked bag, give the item to a non-traveling family member or friend, or forfeit the item.

By law, the TSA cannot retain any items removed from passenger luggage, so items that passengers do not repack or hand off end up in the trash. Of the items that end up in the trash, some items include bottled water, other bottled or canned beverages, toothpaste, shampoo and/or conditioner, sunscreen, and lotion moisturizers; other unallowable items are peanut butter, yogurt, applesauce, and maple syrup. It is expected that the garbage cans and recycling station located in the TSA security queuing area receive a fair amount of liquids and beverage containers due to TSA restrictions. These items end up in the waste stream where the liquids are difficult to manage, and the containers cannot be recycled. Liquids add significant weight to the waste stream, contaminate other materials such as paper, and may be rejected by a recycler, which can result in disposal at a landfill. In addition, discovery of a restricted item in a passenger's carry-on or bag may subject the passenger to additional screening, which requires extra time and can interrupt the flow at a security screening checkpoint. Liquids contaminate and degrade other materials within the recycling stream and add weight to recycling or waste streams where they are found. In some cases, liquids are thrown away in their containers, which means the recyclable material in water bottles, aluminum soda cans, and plastic beverage containers is not captured for recycling.

PURCHASES

LMT Airport Staff tracks some of the types of the disposable items and supplies purchased for the facility. This information provided insight on some of the materials coming into LMT that will go back out as waste (other materials are brought on-site by employees and tenants). The purchase list provided under this project includes:

- ▶ Printing Paper (Certified Forest Stewardship Council [FSC] mix)
- ▶ Paper Towels (may contain recycled content)
- ▶ Bathroom Tissue (may contain recycled content)
- ▶ Janitorial Supplies.

Potentially, identifying and tracking the type and quantity of disposable items purchased for use at LMT will allow the LMT Staff to identify opportunities to reduce its outgoing waste, including:

- ▶ Items that have reusable or recyclable alternatives (water coolers instead of bottled water)
- ▶ Items that could be eliminated (by converting paper forms to digital to reduce paper waste generated)
- ▶ Items that indicate scale of the activity.

REVIEW OF WASTE MANAGEMENT CONTRACTS

The LMT Airport Staff provides means to recycle all the waste material types that the commercial recycling program accepts. LMT contracts and leases address housekeeping and related expectations for managing trash and providing recycling. These LMT agreements do not appear to require conformance with the City's recycling and sustainability related initiatives. The following describe the content of various contracts related to LMT waste and recycling.

CUSTODIAL AND WASTE HAULING CONTRACTS

The contract for janitorial services within the passenger terminal building public spaces references recycling responsibilities. The agreement states that the contractor shall "make reasonable efforts to ensure, to the maximum extent economically feasible, the utilization of materials that may be recycled or reused when discarded. If this contract involves demolition, the Contractor shall salvage or recycle construction and demolition debris, if feasible and cost-effective." It appears these clauses are standard for City contracts. The City's franchise agreement takes the place of an individual contract between the Airport and the hauler. The City's solid waste ordinance outlines the responsibilities of the collection contractor, including:

- ▶ Dispose of waste at site owned and/or operated by City
- ▶ Provide opportunity to recycle in accordance with State law and DEQ rules
- ▶ Provide necessary collection vehicles, containers, facilities, and personnel

TENANT LEASES AND SERVICE CONTRACTS

The following are the most cost common LMT aeronautical leases:

- ▶ **Rental Car Company (Standard Agreement):** An agreement with one of the rental car companies (dated March 2017) states that the responsibilities of the City within the terminal building include "trash pickup and disposal service from central location, with such location to be designated by the city" (Article 7- *Responsibilities of the City*). This agreement does not mention recycling responsibilities.
- ▶ **US Forest Service Lease:** The USFS lease requires the tenants to keep the leased premises free from junk, rubbish, and other material. This agreement also requires the USFS to pay for all utilities on the leased site, including janitorial and related services. Recycling is not mentioned within this lease agreement.
- ▶ **Restaurant:** The lease agreement with the restaurant (dated September 2010) requires the restaurant to reimburse the City for one half of the monthly garbage fee for the dumpsters located near the terminal building. This agreement also requires the tenant to provide the necessary management and labor for trash and garbage removal services. No reference is made to recycling.
- ▶ **FBO:** The FBO lease agreement (dated October 2017) requires the tenant to pay for all utilities, including waste disposal. Recycling is not mentioned as a requirement.

- ▶ **Hangar Lease (Standard Agreement):** An example of a hangar lease was provided, which requires garbage disposal and other utilities to be paid by the tenant. It also states, “Tenant shall not commit, or suffer to be committed, any waste upon the Premises.” This is likely standard GA hangar tenant lease language, which does not include information about recycling.

EXPIRING LEASES AND CONTRACTS

Specific information regarding the expiration, extension, or renewal dates of all LMT tenant leases were not reviewed under this project. As outlined in the FAA guidance memo, “this information can signal the Airport’s next opportunity to add recycling, reuse, and waste reduction objectives to existing leases and contracts.”

FUNDING

LMT waste and recycling collection costs, for civilian areas, are funded by the airport operating budget.

RECYCLING FEASIBILITY

The following describes various internal and external factors influencing waste and recycling collection.

COMMITMENT AND SUPPORT

The combined willingness of stakeholders (airport staff, contractors, tenants, public users, and patrons) to support recycling is critical. Without a commitment to participate and manage recycling resources, a waste and recycling Plan could struggle. The LMT Airport Staff supports recycling, as they are currently under contract to recycle all the waste materials that the commercial recycling program accepts. This level of involvement in recycling is expected to continue.

AIRPORT POLICY AND CONTRACTOR DEDICATION

The City promotes and supports recycling waste management practices. The City provides residents and businesses with recycling information and resources. The City’s waste management contractor’s website states, “As your collection company and your neighbor, Waste Management is dedicated to excellent customer service, protection of our environment and preservation of valuable resources. We ‘Think Green.’”

LOCAL MARKET FACTORS

Recycling materials can be processed as a commodity; however, the financial aspects of recycled waste fluctuates based on various market, collection, and supplier factors. Local waste haulers typically 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 discriminatory about what materials they

accept; they prefer materials that are of high value, clean, and easy to separate. The materials listed in **Table C-3** are accepted under the City contractor’s commercial recycling program.

CONTRACTUAL ISSUES

There are no major contractual issues with the current recycling practices at LMT, and none are evident or anticipated. The LMT Airport Staff, City, and contracted waste and recycling collection contractor will need to continue collaborating to support the LMT recycling Plan.

Table C-3 : Waste Materials Accepted for Recycling in the City of Klamath Falls

Recycling Material	Waste Items
Cardboard	Shipping Boxes
Paper	Mixed Paper, Newspaper, Magazines
Metal	Scrap Metal, Cans
Plastic	Bottles, Jugs

Source: City of Klamath Falls, Waste Management-Commercial and Industrial.

LOGISTICAL CONSIDERATIONS AND CONSTRAINTS

Certain basic elements of LMT recycling must be in place. These include:

- ▶ A janitorial contractor
- ▶ An affordable hauling contractor
- ▶ Space for bins, dumpsters, and compactors.

These elements are available, provide sufficient frequency/capacity, and appear unconstrained. Additional recycling resources are expected, including containers and stations, as waste material increases due to greater user demands, changing conditions, and/or new expanded facilities.

RECYCLING AND LANDFILL REQUIREMENTS

The recycling facility and landfill that accept LMT waste 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, convert these materials, and the value of the recyclable stream.

The Klamath County landfills and transfer stations only accept corrugated cardboard and glass for recycle when dropped-off by patrons. However, Waste Management collects paper, metal, cardboard, and plastic from commercial businesses and sorts them at the Klamath Regional Disposal transfer station where they are shipped off and processed. Waste material that may be generated at LMT, but is prohibited by the

Klamath Regional Disposal, includes hazardous waste, used oil, industrial appliances, paint, electronics, and light bulbs. Some waste items cannot be recycled or disposed of in a landfill, such as hazardous waste and chemicals, paint, light bulbs, and electronics. These items must be managed through hazardous waste or universal waste programs or disposed of at a specialized landfill.

Costs

The costs associated with a recycling program depend on available infrastructure, material markets, and the type of waste generated at a facility. These costs sometimes include capital costs for containers, landfill tipping fees, hauling costs, material rebates, and labor. In accordance with FMRA, an evaluation of the potential cost savings and revenue generation opportunities is required for a waste and recycling Plan.

GUIDELINES AND POLICIES

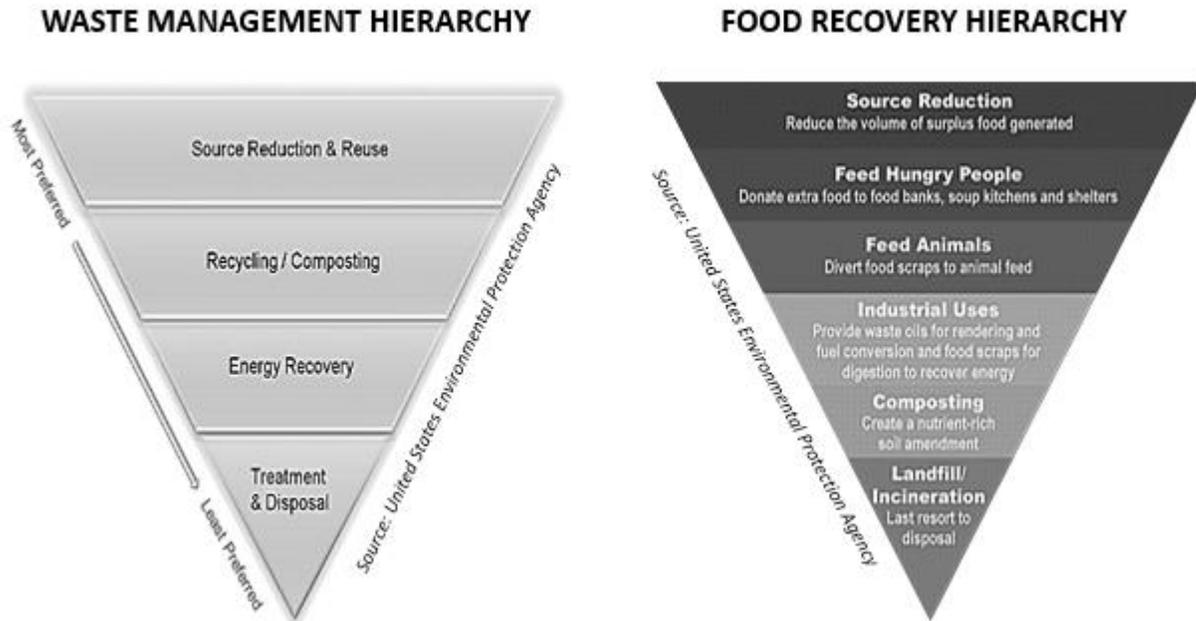
The following are federal, state, and local guidance used in preparing the LMT waste and recycling Plan.

Federal

At the federal level, the EPA is responsible for developing a solid waste management program under the Resource Conservation and Recovery Act (RCRA). 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 and all other federal waste laws and regulations. The EPA has developed a ranking-hierarchy of waste management and food recovery strategies (See **Figure C-2**).

In addition, the FAA provides guidance on airport waste and recycling in the September 2014 FAA Memorandum and in a 2013 Transportation Research Board synthesis report (https://www.faa.gov/airports/environmental/airport_recycling/).

Figure C-2 : Waste Management Hierarchy (Federal EPA)



State

The State of Oregon’s 1971 Bottle Bill, administered by the Oregon Liquor Control Commission, was the first of its kind in the country designed to reduce litter. Outside of the Bottle Bill, the base recycling law is the Opportunity to Recycle Act (Act), first passed in 1983 and last amended in 2015. The Oregon DEQ establishes Recycling and Waste Reduction administrative rules to elaborate on the Act and is responsible for regulating cities, counties, and other local governments regarding waste. The DEQ has developed a policy and integrated plan for managing waste materials, *Materials Management in Oregon: 2050 Vision and Framework for Action*. The Opportunity to Recycle Act prioritizes certain waste management strategies over others in alignment with the hierarchy promoted by the EPA.

The State’s material recovery rate goal is 52 percent for 2020 and 55 percent for 2025. In addition, the state’s recovery rate goals for food waste, plastic waste, and carpet waste are all 25 percent by 2020. Each county (and some metropolitan areas) set their own voluntary recovery goals by statute. To make progress under the 2050 Vision, cities of a certain size or within a certain region must implement three to five listed reduction and reuse elements. All other cities must implement a minimum number of recycling program elements, based on their size and location, chosen from the thirteen options listed in Senate Bill 263. The State’s laws and plans allow the local units to implement programs to meet the statewide mandatory and individual voluntary goals.

Local

According to the Code of Klamath County, Article 77, *Solid Waste*, all uses that fall within the City Urban Growth Area that require solid waste or recycled material collection will conform to specific collection standards. These standards require the community to:

- ▶ Cover receptacles
- ▶ Screen containers greater than 66-gallons from a public street or adjoining property
- ▶ Ensure contractual agreement for collection includes keeping the site clean and free of debris

The City and County codes do not appear to include waste reduction or recycling goals. However, it is assumed the City and surrounding governmental jurisdictions follow the waste management goals and efforts stated within the *Materials Management in Oregon: 2050 Vision and Framework for Action*. Klamath County's recycling rate is currently 25.7 percent. The County hosts several recycling events throughout the year to help residents dispose of electronics, hazardous waste, and other large items in the proper manner.

COST SAVINGS OR REVENUE GENERATION

LMT Airport Staff provided waste and recycling collection invoices including the costs for waste collection fees. On average, the LMT Airport Staff spends \$330 each month, or \$3,960 per year, on waste collection services. These invoices also include fees for excess yard waste, which is approximately \$65 for each pick-up occurrence. According to these invoices, recycling collection is part of the waste collection fee, with no additional charge for pick-up. The waste dumpsters are picked up twice a week. LMT Airport Staff can maximize saving by diverting more material from the waste dumpsters to the recycling cart and refund program. If LMT Airport Staff maximizes the waste diversion, pickups may be reduced. Potential savings could be as much as \$560 for each ton diverted annually.

RECOMMENDATIONS

This section provides Plan recommendations, including waste reduction, reuse, and recycling strategies. These recommendations, consistent with FMRA guidance and industry best-practices, are presented for LMT Airport Staff and City consideration.

TARGET GOALS AND OBJECTIVES (SMART)

It is recommended that the LMT Airport Staff set SMART specific (S), measurable (M), achievable (A), realistic (R), and time-bound (T) goals for waste and recycling. An established set of SMART targets, which requires periodic tracking, provides performance measures tied to quantity and financial benchmarks. The following are suggested SMART targets:

- ▶ Recover 55 percent of waste generated by 2025
(based on State of Oregon goal, the City's current rate at LMT is 21 percent)
- ▶ Incorporate recycling provisions in all LMT tenant leases (template agreement)

TRACKING AND REPORTING

LMT Airport Staff tracks the waste hauling invoices and paper materials purchased. It is recommended that LMT Airport Staff expand their tracking to include the volume of waste sent to the landfill, the volume of material collected for recycling, and the costs for supplying these services. Trends associated with waste generation, landfill, recycling, and cost can be assessed for issues or opportunities for improvement.

REDUCE AND REUSE

To reduce the facility's environmental impacts, LMT Airport Staff should focus on reducing waste by shifting waste materials to reuse and recycling. According to the EPA, waste reduction is the most environmentally preferred waste management strategy. Waste reduction strategies can be accomplished in many ways:

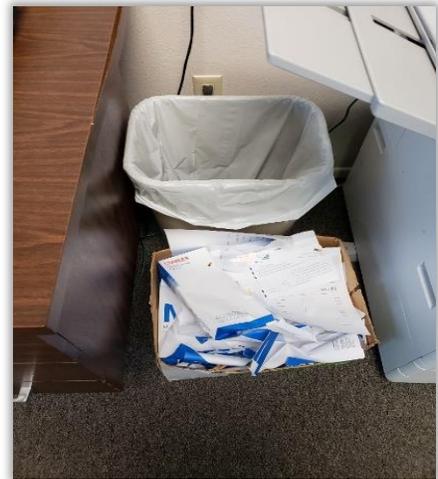
- ▶ Substitute disposable items with durable alternatives.
- ▶ Reuse disposable consumer items and materials.

RECYCLE AND COMPOST

According to the EPA, recycling is the second preferred waste management strategy following waste reduction/reuse. Recycling allows waste items to be processed into raw materials to make new products. The FAA guidance expects the Airport's waste and recycling Plan to document, at a minimum, the existing recycling of paper, plastic bottles, aluminum cans, and plastic cups. LMT Airport Staff recycles most of these items, including cardboard. Future practices and considerations are described below.

- ▶ **Paper:** LMT Airport Staff recycles paper (printer paper, mail, envelopes, and other items) collected from the administration offices as well as from the terminal. These paper items (See Figure C-3) are mixed together but kept separate from aluminum cans and plastic bottles. It is recommended that LMT Airport Staff continue recycling these materials.
- ▶ **Plastic Bottles and Aluminum Cans:** LMT Airport Staff recycles plastic bottles and aluminum cans collected in the terminal, administration building, and Airport Operations facility. Plastic bottles and aluminum cans are not comingled with paper materials; they are placed in a separate bin. These items are collected by LMT Airport Staff and tenant employees for a refund. It is recommended that the LMT Airport Staff continue to support the return of containers,

Figure C-3 :
**Airport Administrative
Building Scrap Paper Bin**



whether individually or through bulk collection. This reduces the environmental impacts associated with disposing of waste material in a landfill and manufacturing new material.

- ▶ **Plastic Cups:** Plastic cup volumes are typically generated aboard commercial flights. It is recommended that airlines add plastic cups from deplaned waste to the LMT recycling program.
- ▶ **Cardboard:** LMT Airport Staff currently recycles cardboard. It is recommended cardboard be recycled separately in order to reduce contamination from other water and recycled material.
- ▶ **Glass:** Glass is not collected for recycle at LMT, as consistent with the City recycling program and services. In the future, as glass potentially becomes a collected City recycled material, it is recommended that glass be collected for recycle at LMT. Glass bottles, along with plastic and aluminum cans, are eligible for a refund under Oregon’s Bottle Bill, which provides as small revenue return.
- ▶ **Other Recyclables:** As other recyclable materials in the LMT waste stream, including glass, become recyclable, it is recommended that LMT Staff work with the waste hauling contractor to design and implement strategies to separate, collect, and process such materials.

C&D Waste, Green Waste, and Other Waste

LMT yard waste is composted at a designated on-airport wood pile site or hauled to the public landfill. LMT construction and demolition (C&D) waste is typically handled by the project contractor as part of each construction project, with bulk waste items hauled directly to the landfill. It is recommended the LMT Airport Staff explore how green C&D waste is managed; for example, reusing material where possible (chipped branches as mulch, asphalt millings), composting (multiple composting sites per type of material), and disposing waste materials off site as a last resort.

Donations

According to the EPA, feeding people is the second preferred strategy for addressing food waste. Federal and state laws protect organizations that donate food in good faith from liability. Some charitable organizations will pick up food at the source, which would reduce restaurant employee demands. It is recommended that LMT Airport Staff explore food donation opportunities as part of the on-airport restaurant.

Education and Outreach

It is recommended that LMT Airport Staff provide basic education for LMT employees, janitorial staff, tenants, and contractors to explain the waste and recycling Plan. This effort would further increase recycling and materials deposited in the landfills. The format could take any number of forms, including pamphlets, posters, maps, email notifications, and meeting sessions. The educational content could include:

- ▶ Materials accepted for LMT recycling
- ▶ Location of the waste and recycling containers at LMT
- ▶ Benefits.

Waste and Recycle Containers and Bins

Collocation of waste and recycling containers decrease contamination and increase recycling participation. It is recommended that all garbage collection points and stations include adjacent recycling bins (see **Figure C-4**).

Signage and Labeling

Some waste station signage could be improved with color, images, and short, clear, instructive text to provide understanding of which items are recyclable and which should be thrown away. The LMT Airport Staff could consider providing additional signage adjacent to recycling stations and bottle collection bins, similar to the passenger terminal building (see **Figure C-4**).

Tenant Contracts and Leases

Tenant contracts and lease agreements are a vehicle through which LMT can influence tenant waste and recycling behavior. As contracts and leases expire, extend, or renew, it is recommended that LMT Airport Staff consider include language to include waste and recycling provisions. This could be a general clause stating a preference that tenants reduce, reuse, and recycle where practicable or specific information about recycling, reuse, or waste reduction objectives and requirements. The language could eventually apply consistently to all existing and future civilian tenant leases.

Purchasing/Procurement Policy

It is recommended that LMT Airport Staff consider adopting a purchasing policy that prioritizes procured items that are durable (versus disposable), reusable, recyclable, compostable, and/or made from recycled content. Once established, this policy could be shared with the existing and future tenants to encourage their own adoption of sustainability-minded purchasing practices.

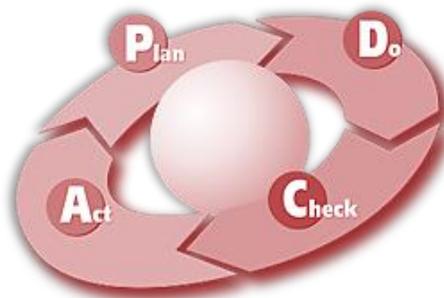
Figure C-4 :
Passenger Terminal Building Garbage Can and Recycling B



CONTINUOUS PLAN

It is recognized the LMT Airport Staff and City have finite resources to commit towards the waste and recycling Plan; therefore, the management and tracking of the LMT waste and recycling Plan should not be arduous. To make the best use of resources, it is recommended that LMT Airport Staff use the PDAC process of Plan (P), Do (D), Check (C), and Act (A) to manage the Plan (See **Figure C-5**).

Figure C-5 : Plan Do Check Act



- ▶ **Plan:** Defining success, for example: 55 percent recycling by 2025, establishing materials and areas of focus, collecting baseline information through a waste audit or surveys, identifying sub-goals, and identifying strategies are all part of planning.
- ▶ **Do:** Implementation of strategies included in this Plan represents the **Do** portion of the process. This involves implementing the recommendations and making progress toward achieving the Plan goals. In doing this, LMT Airport Staff will continue developing a culture of awareness for waste and recycle management at LMT.
- ▶ **Check:** As strategies are implemented, the check portion of the process involves reporting based on regular tracking of and checking the progress toward meeting the Plan and Do actions. The following scenarios may trigger the **Check** actions:
 - New LMT or City goals
 - Changes in waste hauling contractors
 - New infrastructure, for example, composting facility
- ▶ **Act:** The **Act** portion of the process encompasses taking what has been learned in the previous stages and actively responding. By re-evaluating the strategies, stakeholder activities, goals, and metrics, adjustments can be identified and put into action.

SUMMARY CONCLUSION

This Plan documents ways to support LMT’s compliance with the FMRA. The Plan recommendations for recycling, reuse, and waste reduction will lead to increased landfill diversion generated by LMT waste materials. These Master Plan recommendations are permissive and do not require significant staff commitments, organizational changes, tenant coordination, costs, or capital improvements. **Table C-4** summarizes the Plan recommendations for LMT.

Table C-4 : Waste and Recycle Plan Recommendation Summary

LMT Waste and Recycling Program Recommendations	
<p>Objectives and Targets</p> <ul style="list-style-type: none"> ▶ Set SMART goals, see Section 7 Recommendations. 	<p>Food Waste</p> <ul style="list-style-type: none"> ▶ Collect and donate unopened food and beverages.
<p>Tracking and Reporting</p> <ul style="list-style-type: none"> ▶ Continue to regularly estimate and track: <ul style="list-style-type: none"> • Volume of waste to landfill • Volume of material collected for recycling • Recycling rate • Costs for waste and recycling services. ▶ Assess waste generation, landfill, recycling, and cost trends for issues or opportunities for improvement. 	<p>Green Waste</p> <ul style="list-style-type: none"> ▶ Evaluate how this material is managed and explore opportunities to align with the EPA hierarchy.
	<p>Other Recyclables</p> <ul style="list-style-type: none"> ▶ Work with the waste hauling contractor to design and implement strategies for other materials as they are identified in the waste stream.
<p>Reduce and Reuse</p> <ul style="list-style-type: none"> ▶ Substitute disposable items with durable alternatives. ▶ Reuse items and materials. ▶ Encourage reuse by staff, tenants, and contractors. 	<p>Education and Outreach</p> <ul style="list-style-type: none"> ▶ Provide simple, on-going training for employees, tenants, and contractors.
	<p>Signage and Labeling</p> <ul style="list-style-type: none"> ▶ Install and expand signage to elaborate on the program.
<p>Plastic Bottles and Aluminum Cans, Plastic Cups</p> <ul style="list-style-type: none"> ▶ Continue the plastic bottle and aluminum can recycling program. ▶ Expand the program to additional areas, specifically airline deplaned beverage containers. ▶ Support the return of containers included in the bottle bill refund program. 	<p>Containers and Bins</p> <ul style="list-style-type: none"> ▶ Expand the collocation of recycling bins and garbage cans to additional building and waste station areas..
	<p>Contracts and Leases</p> <ul style="list-style-type: none"> ▶ Revise new contract language to include waste management requirements/preferences.
<p>Cardboard</p> <ul style="list-style-type: none"> ▶ Continue the cardboard recycling program. ▶ Separate cardboard from other materials in order to reduce contamination. 	<p>Purchasing Policies and Requirements</p> <ul style="list-style-type: none"> ▶ Adopt a purchasing policy that prioritizes materials that are durable, reusable, recyclable, compostable, and/or made from recycled content.
<p>Glass</p> <ul style="list-style-type: none"> ▶ Introduce a glass recycling program. <ul style="list-style-type: none"> • Encourage glass bottle recycling, by recycling it with the plastic bottles and aluminum cans for a refund. 	<p>Additional Facilities and New Development</p> <ul style="list-style-type: none"> ▶ Collaborate with operators of areas excluded from this Plan to expand the program. ▶ Consider recycling and waste management as part of designing and constructing new development.
<p>Paper</p> <ul style="list-style-type: none"> ▶ Continue the paper recycling program. 	<p>Continuous Improvement</p> <ul style="list-style-type: none"> ▶ Maintain and improve the recycling and waste program according to the Plan Do Check Act cycle.

Source: Mead & Hunt, Inc. – April, 2019.

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U.S. Department of Transportation
Federal Aviation Administration

Memorandum

Subject: **ACTION:** Guidance on Airport Recycling, Reuse, and Waste Reductions Plans

Date: September 30, 2014

From: Frank SanMartin
Manager, Airports Financial Assistance Division, APP-500

Reply to Attn. of: Patrick Magnotta
202-267-9609

Danielle J. Rinsler, AICP
Acting Manager, Airport Planning and Environmental Division, APP-400

To: Regional Airports Division Managers

KLAMATH FALLS & KLAMATH COUNTY CURBSIDE RECYCLING MADE EASY



Klamath Falls and Klamath County residents inside the Urban Growth Boundary can mix all paper, cardboard, metal and plastic bottles in their recycling carts.

Los residentes del Condado Klamath y Klamath Falls dentro del límite del Crecimiento Urbano pueden mezclar todo el papel, cartón, metal, todos los contenedores y las botellas de plástico en sus carros de reciclado.

1-800-808-5901
www.wmorthwest.com/klamathfalls



CURBSIDE RECYCLING GUIDE

Garbage and recycling are picked up weekly. We recommend that you wait until the cart is full to bring it to the curb.

Mix these items together in your recycling cart when they are clean, dry, and empty.

MIXED RECYCLING



KEEP OUT

- No plastic bags
- No tissue, paper towels, frozen food boxes or coffee cups
- No pizza boxes or food soiled cardboard
- No plastic bags or bottles that contained hazardous materials.

GLASS BOTTLES AND JARS



Glass is not collected at the curb. Bring it to Waste Management's office for recycling.
WM Klamath Falls
1812 Greensprings Drive
No light bulbs, broken glass, ceramic, window glass

COLLECTION GUIDELINES

Garbage and recycling are collected weekly.

Please place containers at the curb the night before your service day.

- Three (3) feet apart with lids opening toward street
- At least three (3) feet from cars, trees, mailboxes
- Residents may place up to three 32-gallon bags of yard debris at the curb

- Maximum allowable weights:
- Yard debris bags - 35 lbs
 - 32-gallon can - 60 lbs
 - 64-gallon cart - 100 lbs
 - 96-gallon cart - 145 lbs



Mail-in Recycling Programs

Waste Management offers affordable mail-in collection programs for batteries, electronics, sharps, toner cartridges and compact fluorescent light bulbs.

Visit www.thinkgreenfromhome.com for more information.

Mobile App

Use the WM app to manage your account and check your collection schedule on the go. Available in Apple and Android:
wm.com/wm-mobile.jsp



Billing Information

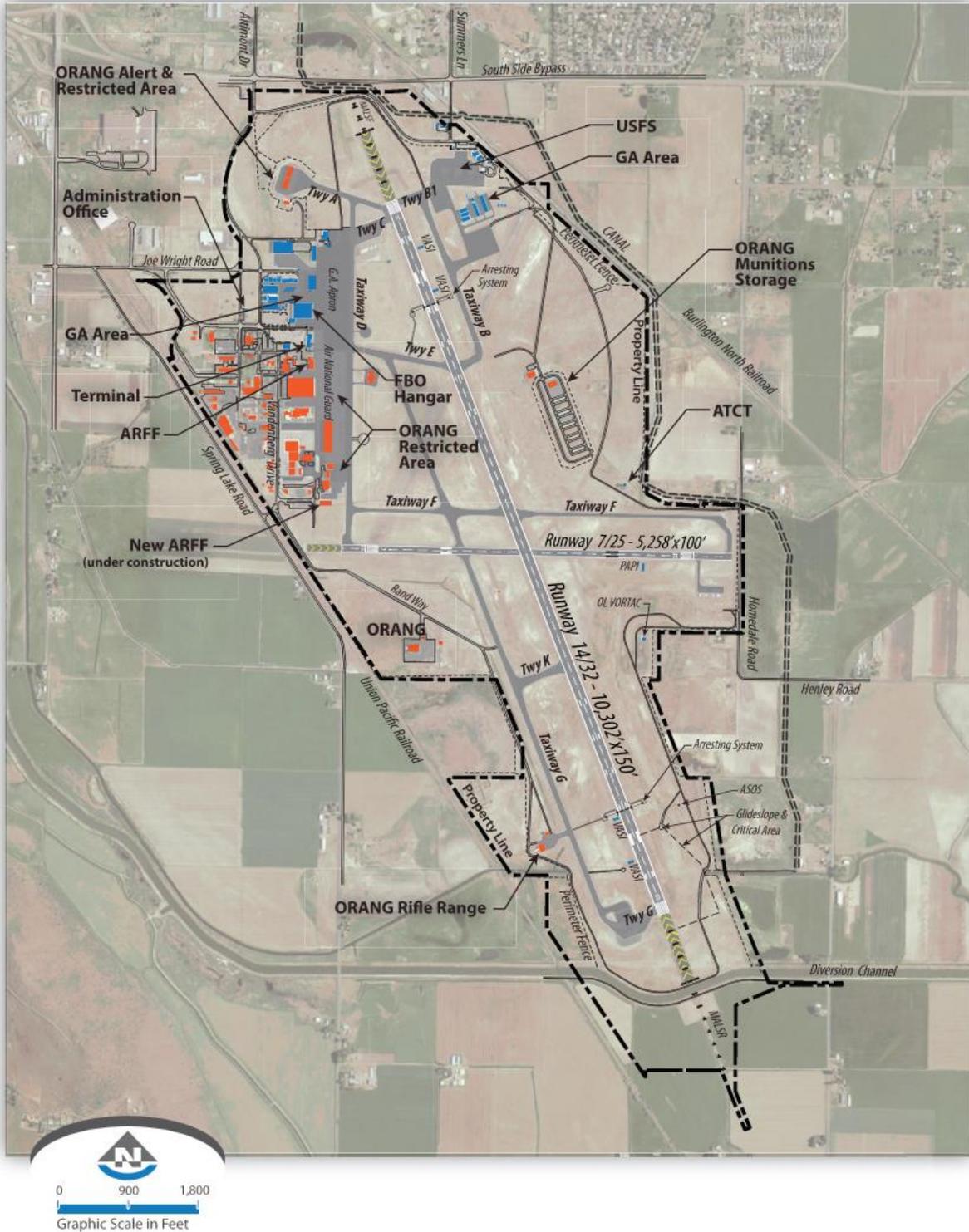
You may pay your bill online at www.wm.com/pay-my-bill or sign up for paperless billing at no cost. Watch for more information when you receive your customer ID number on your WM invoice.

Electronics Recycling

Computers, monitors and TVs CANNOT be disposed of in the garbage or at landfills. Call 1.800.5.RECYCLE or visit www.oregonrecycles.org to find a FREE recycling location near you!



ATTACHMENT A: AIRPORT SITE LOCATION MAP



ATTACHMENT B: LMT SITE PHOTOS

PASSENGER TERMINAL BUILDING (INTERIOR)

Public Foyer



Restaurant



Restaurant Kitchen



Rental Car Counters



PASSENGER TERMINAL BUILDING (EXTERIOR)

2-Yard Dumpster



2-Yard Dumpster



(2) Recycling Roll-Off



Waste Bin



AIRPORT ADMINISTRATIVE BUILDING

Office



Kitchenette



Office



Office



AIRPORT OPERATIONS BUILDING

Workshop



Scrap



(2) 64-Gallon Roll-Off



2-Yard Dumpster



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Mead&Hunt

