AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION PLAN

9.1 Introduction

The FAA Modernization and Reform Act (FMRA) amended Title 49 – Transportation of the United States Code (USC).[56] The FMRA included a number of changes to the Airport Improvement Program (AIP), two of which were related to recycling, reuse, and waste reduction at airports. Section 132(c) of the FMRA expanded the definition of airport planning to include, *developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable State and local recycling laws, including the cost of a waste audit*. Section 133 of the FMRA added a provision requiring airports that have or plan to prepare a master plan, and receive AIP funding for an eligible project, ensure that the new or updated master plan addresses issues relating to solid waste recycling, including:

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

Recycling refers to any program, practice, or opportunity to reduce the amount of waste disposed in a landfill. This includes reuse and waste reduction as well as the recycling of materials. FAA issued a memorandum on September 30, 2014,[57] to provide guidance on preparing airport recycling, reuse, and waste reduction plans as an element of airport master plans, as well as within a sustainability document, or as a standalone document. The guidance is mandatory when preparing an airport master plan.

The purpose of this section is to review the City of Concord's current recycling, reuse, and waste program, and to provide guidance on ways to reduce waste and improve recycling and reuse at JQF in compliance with the FAA's guidance.

56United States 112th Congress (February 14, 2012), "Public Law 112-95 FAA Modernization and Reform Act of 2012," <https://www.gpo.gov/fdsys/pkg/PLAW-112publ95/pdf/PLAW-112publ95.pdf>, accessed October 30, 2017.
57Federal Aviation Administration (September 30, 2014), "Guidance on Airport Recycling, Reuse, and Waste Reductions Plans," memorandum to Regional Airports Division Managers from Frank SanMartin, Airport Finance Assistance Division and Danielle J. Rinsler, AICP, Airport Planning and Environmental Division, < http://www.faa.gov/>, accessed October 30, 2017.

9.2 Facility Description and Background

Concord-Padgett Regional Airport is located in Cabarrus County, North Carolina, approximately seven miles west of the City of Concord (downtown central business district). In addition, the Airport is located approximately 15 minutes northeast of the City of Charlotte's central business district. JQF encompasses approximately 657.83 acres and is generally bounded by I-85 to the east, the Rocky River and Concord Mills Boulevard to the south, Derita Road to the west, and Poplar Tent Road to the north. Cabarrus County is linked to the Charlotte region by three interstates (I-85, I-77, and I-485) and three major highways (US 29, US 601, and NC 49).

Construction of Concord-Padgett Regional Airport was completed in September 1994 and officially opened November 11, 1994. Since the opening of the Airport, aviation operational activity has fluctuated between 55,082 operations (2015) and 67,874 operations (2008).[58] Up until December 20, 2013, Concord-Padgett Regional Airport was the busiest general aviation airport in the North Carolina airport system. The Airport was a designated reliever airport for Charlotte-Douglas International Airport. The Airport also serves as the aviation and corporate base for NASCAR and several NASCAR racing teams including, but not limited to, Joe Gibbs Racing, Hendrick Motorsports, Stewart-Haas Racing, Roush Fenway Racing, Chip Ganassi Racing, and DH Motorsports.

On December 20, 2013, Allegiant Air (an American low-cost airline owned by Allegiant Travel Company (AAY), which operates scheduled and charter flights) initiated service between JQF and SFB) using either a 166-passenger McDonnell Douglas MD-80 or a 177-passenger Airbus A-320 aircraft. Since that initial launch date, Allegiant Air has added additional routes and provides service to and from JQF to:

- SFB (four days a week) – started December 20, 2013
- PIE (three days a week) – started November 14, 2014
- FLL (four days a week) – started May 8, 2015
- PDG (two days a week) – started October 5, 2016
- MSY (two days a week) – started November 18, 2016

[58]Federal Aviation Administration, "APO Terminal Area Forecast Detail Report," December 2008, <http://aspm.faa.gov/wtaf/>, accessed October 24, 2017.

9.3 Existing Waste Sources

The identification and evaluation of sources of waste at an airport can be difficult. There are numerous groups, agreements, operational styles, and collection/disposal processes that play into the overall generation of waste at a given airport. The three primary sources of waste at JQF are the

- airfield
- terminal building
- hangars/tenants

The sources of waste, per the FAA's September 30, 2014 memorandum, can be further broken down by how much control JQF has on the generation and disposal of waste. The three levels of control are areas where:

1. JQF has direct control of waste management (public space, office space, terminal buildings, airfield). These areas are controlled by JQF and they are able to introduce recycling, reuse, and waste reduction programs directly.
2. JQF has no direct control but can influence waste management (tenants). These are areas owned by the airport; however, they are leased out to tenants. JQF can recommend that recycling, reuse, and waste reduction programs be used and can include language in the tenant contracts, but realistically cannot control what is done.
3. JQF has no control or influence over waste management. These are areas JQF neither owns or leases (none of which are considered in this section of the Master Plan Update).

Table 9.3-1 (page 193) illustrates the identified areas of waste generation, what waste is generated, how the waste is collected, if any reduction and/or recycling programs are in place, and JQF's level of control.

Republic Services provides non-hazardous solid waste services at the commercial service terminal at JQF. BFI Services provides solid waste services for the rest of the airport. Several disposal containers are located through the airport property (Figure 9.3-1, page 195).

Table 9.3-1
Waste Generation
Concord-Padgett Regional Airport

Area	Waste Generated	Control	Current Solid Waste Collection
Area 1: Airfield			
Foreign object debris/damage (FOD)	Debris found on airfield, including loose hardware, building materials, plant debris, etc.	Direct Control	Solid waste collected by airport maintenance staff with carts, compacted and deposited in one open top roll-off container; emptied weekly by Republic Waste Services
Allegiant Air	Mixed paper, misc. plastics, catering waste (food waste, soiled paper), glass, deplaned waste, cardboard		
Other airfield tenants	Mixed paper, misc. plastics, catering waste (food waste, soiled paper), glass, deplaned waste, cardboard		
Municipal solid waste collection areas	General debris found on airfield. Construction material (asphalt, concrete, wood, metal)		
Area 2: Terminal Buildings			
General Aviation Terminal			
Administrative offices	Mixed paper, plastic and paper food containers, cardboard, glass containers, electronic waste	Direct Control	Solid waste collected by airport maintenance staff with carts, compacted and deposited in one open top roll-off container; emptied weekly by Republic Waste Services
Restrooms	Paper towels, misc. waste (soiled diapers, feminine hygiene products)		
Electric room	Filters		
Breakroom	Mixed paper, misc. plastics, glass, paper cups, food waste		
Welcome counter	Mixed paper, misc. plastics		
Waiting areas	Mixed paper, misc. plastics, glass, paper cups		
Exterior pubic walkways			
Food concession	Corrugated cardboard, glass, paper and plastic food and beverage containers, paper napkins, plastic utensils, expired food		
Car rental counters	Mixed paper, misc. plastics, glass, paper cups		
ATCT	Mixed paper, plastic and paper food containers, cardboard, glass containers, electronic waste		
Commercial Service Terminal			
AAY offices, breakroom, baggage handling	Mixed paper, misc. plastics, glass, paper and plastic food and beverage containers, foreign debris from airfield (includes loose hardware, building materials, plant debris, etc.), electronic waste	Direct Control	Solid waste collected by airport maintenance staff with carts, compacted and deposited in one open top roll-off container; emptied weekly by Republic Waste Services

Table 9.3-1
Waste Generation
Concord-Padgett Regional Airport

Area	Waste Generated	Control	Current Solid Waste Collection
Restrooms	Paper towels, misc. waste (soiled diapers, feminine hygiene products)		
Electric Room	Filters		
Ticket counters	Mixed paper, misc. plastics		
Waiting and ticket areas	Mixed paper, misc. plastics, glass, paper cups		
Post-security departure lounge	Mixed paper, misc. plastics, glass, paper cups, food waste		
Security queuing area and waiting area outside security			
Baggage claim area	Mixed paper, misc. plastics, glass, paper cups, food waste		
Exterior pubic walkways			
Food concession (pre- and post-security)	Corrugated cardboard, glass, paper and plastic food and beverage containers, paper napkins, plastic utensils, expired food		
Car rental counters	Mixed paper, misc. plastics, glass, paper cups		
Baggage handling area			
TSA offices	Mixed paper, misc. plastics, confiscated security items		
Area 3: Hangars/Tenants			
Private hangar tenants		No direct control but may be able to influence	Independent waste collection and disposal
Car rental sites			
Other commercial tenants			

Source: Talbert, Bright & Ellington, Inc., September 2018.

9.4 City of Concord Plans and Policies

The City of Concord, which owns and operates JQF, has adopted several city-wide plans aimed at reducing the amount of solid waste that goes into the landfill. The City also has a formal sustainable procurement policy[59] through which it pursues sustainable procurement so that the products and

[59]City of Concord Solid Waste Services Department (August 2012), "City of Concord 10-Year Comprehensive Solid Waste Management Plan Three Year Update Covering July 1, 2012 to June 30, 2022," <https://www.concordnc.gov/Portals/0/Documents/Solid%20Waste/>, accessed October 30, 2017.

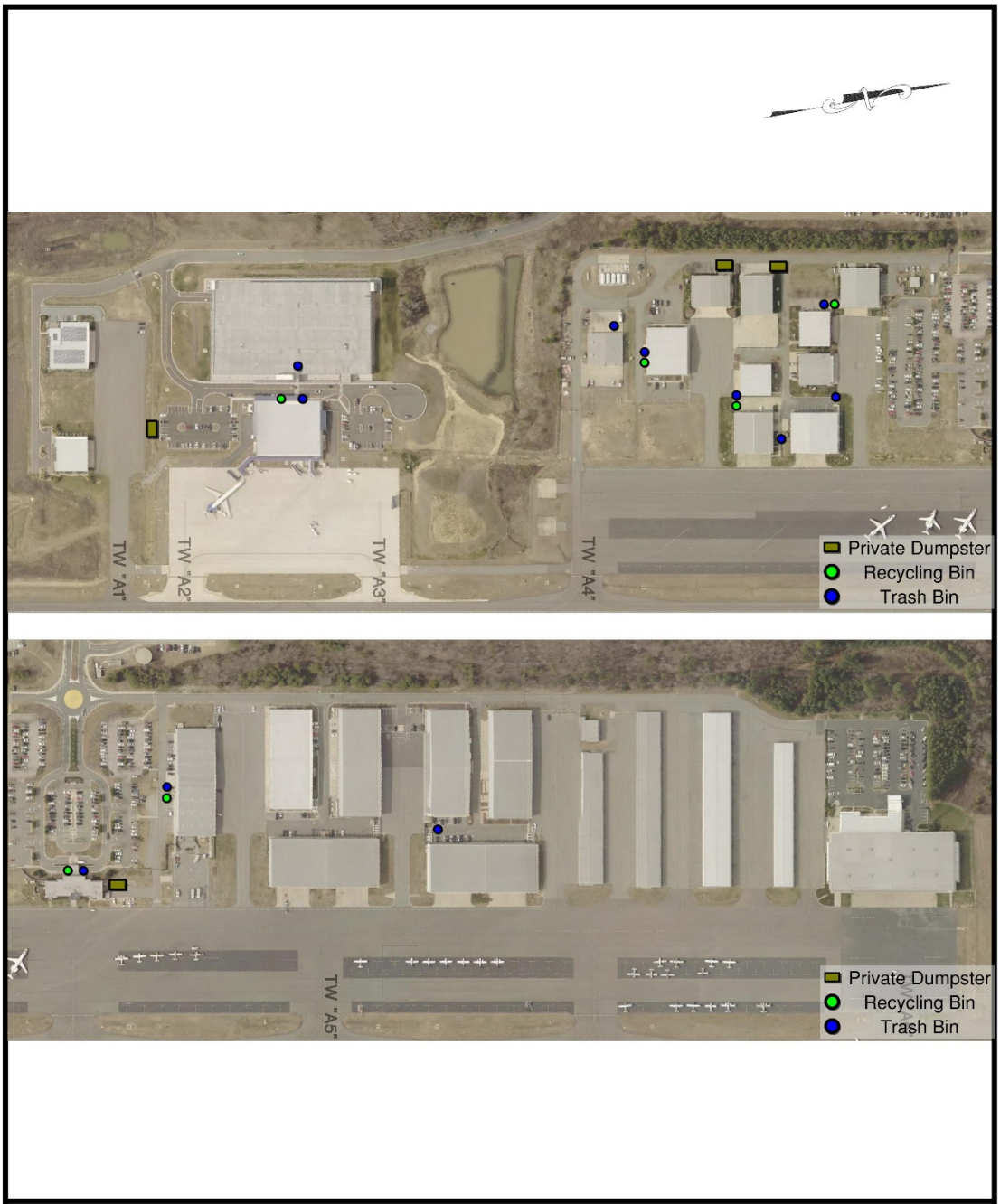

Figure 9.3-1
Concord-Padgett Regional Airport

Waste Disposal Receptacle Locations

services that the City acquires and provides are as sustainable as possible with the lowest environmental and most positive social and economic impacts. Areas considered in evaluating potential procurement include:

- Maximized recycling
- Absence of hazardous chemicals
- Minimized energy consumption
- Solid waste reduction
- Air quality enhancement
- Water conservation
- Disposal management
- Maximizing product useful life
- Minimized packaging
- Biodegradability

9.4.1 Code of Ordinances, Chapter 46 – Solid Waste[60]

Chapter 46 outlines the definitions that apply to the accumulation, disposal, collection, and recycling of waste. The chapter governs the enforcement of the requirements for the proper and safe management of wastes generated within the city limits of Concord. Article II of the chapter outlines the services that are provided by the City of Concord, pre-collection standards, prohibited materials, carts and containers, collection practices, maintenance, and schedules. For businesses, commercial enterprises, and industrial operations, the collection of cardboard and paper is provided for the purposes of recycling. Cart-type collection is available for commercial and industrial locations where bulk containers are unable to be housed. Loose-leaf collection is also available. Rules governing the placement of refuse and recyclables and other wastes are indicated within the chapter. It addresses dangerous items, spilled materials, bulky items, metals, tires, e-waste, construction debris, and the like for appropriate collection or prohibited items. Locations are described for the appropriate placement of all waste types are described, and the necessary scheduling of certain bulky items is indicated. Special conditions, charges, and requests may be allowed under certain circumstances.

[60]City of Concord (August 7, 2017), "Code of Ordinances City of Concord, North Carolina, Supplement 42," <https://library.municode.com/nc/concord/codes/code_of_ordinances>, accessed October 30, 2017.

9.4.2 Comprehensive Solid Waste Management Plan[61]

Commercial, industrial, and institutional customers (CII) must contract with a private hauler for waste disposal. The CII sector is required to contract in the private sector for disposal or recycling of construction and demolition (C&D) waste generated by their activities. Disposal of C&D from Cabarrus County was received at permitted facilities.

9.4.3 Debris Management Plan[62]

The City of Concord's Debris Management Plan (DMP) identifies the actions required to plan for and respond to a natural debris-generating event. The DMP is designed to identify departments and activities that are involved in debris operations to ensure a coordinated response. The purpose of the plan is to:

- provide organizational structure, guidance, and standardized procedures for the removal and disposal of disaster-related debris
- establish the most efficient and cost-effective methods to resolve disaster debris and removal
- expedite debris response efforts
- mitigate the threat to the health, safety, and welfare of City residents
- coordinate partnering relationships through pre-planning and communications
- to implement and coordinate private sector debris removal and disposal contracts to maximize cleanup efficiency.

JQF is considered a third priority in the debris clearing and collection strategy.

9.5 Overview of Airport Recycling, Reuse and Waste Management

Airports throughout the United States are "greening" their operations. Both the FAA and the US Congress have directed airports to develop reuse, recycling, and waste management programs. Airports, government agencies, and private companies have seen financial, as well as environmental benefits from adopting environmentally sustainable practices, including recycling, reuse, and waste management

[61]City of Concord Solid Waste Services Department (August 2012), "City of Concord 10-Year Comprehensive Solid Waste Management Plan Three Year Update Covering July 1, 2012 to June 30, 2022," <https://www.concordnc.gov/Portals/0/Documents/Solid%20Waste/>, accessed October 30, 2017.
[62]City of Concord Solid Waste Services Department (April 14, 2011), "Debris Management Plan," <https://www.concordnc.gov/Portals/0/Documents/Solid%20Waste/>, accessed October 30, 2017.

programs. In response, airports have installed solar panels and energy efficient light fixtures, use low-emission vehicles in their fleets, constructed Leadership in Energy and Environmental Design (LEED) certified buildings, and changed their waste management programs.

As one agency within a larger government entity (county, municipality, state), airports typically use the recycling, reuse, and waste management programs that are in place throughout the larger government entity, as is the case at JQF. A number of commercial service and general aviation airports have adopted their own individual reuse, recycling, and waste management programs, in part because of their financial benefits, and also because they reduce waste and energy usage.

USEPA published a guide[63] to help airport managers who want to create a more environmentally-friendly waste operation. The USEPA hierarchy of waste management prioritizes as follows: source reduction, reuse, recycling, and disposal in landfills. However, the USEPA's guide focuses on recycling as a first step for airports to take for their waste issues. The following examples are from the USEPA guide to assist JQF.

9.5.1 Ten Steps to Establishing an Airport Recycling Program

1. Obtain commitment from upper management
2. Organize a green team
3. Identify types and sources of waste
4. Assess current waste collection contracts
5. Develop a plan
6. Educate staff and customers
7. Monitor and refine the plan
8. Measure performance
9. Promote successes
10. Expand the program

9.5.2 Special Considerations for Airports

9.5.2.1 Airport Security

The first priority is to ensure that program elements are consistent with security requirements. Including a recycling element in the waste management plan may require additional personnel in

[63]U.S. Environmental Protection Agency (April 2009), "Developing and Implementing an Airport Recycling Program," <https://archive.epa.gov/wastes/conserve/tools/rogo/web/pdf/airport-recycling-guide.pdf>, accessed September 21, 2018.

secure areas of the airport and on the airfield. Bins may need to be additionally secured and inspected. Bombproof receptacles may be required outside secure areas.

9.5.2.2 Facility Space Constraints

Airports have unique space considerations. Gates areas, tenant space, and concessionaires often do not have large amounts of additional space for bins, and staging areas are limited. The airfield generally has space constraints as well, leaving little area for additional bins. On the airfield, airports need to be aware of concerns recycling bins may raise such as FOD, animal attractants, and stormwater contamination. However, a successful recycling program will reduce the amount of trash generated and the number of containers to store trash. This space can be used for recyclable materials.

9.5.2.3 Time

When airlines become involved with the recycling program, time is a primary concern. Airline staff or cleaning service providers have limited time to clean an aircraft before it is scheduled for another departure. A program with easily accessible collection receptacles (dumpsters, compactors, etc.) and clear instructions make it easier for airlines to actively participate in recycling.

9.5.2.4 Working with Tenants

Establishing and maintaining consistent recycling practices and educating airport tenants (food/beverage, concessions, airlines and others) are key components of an airport's recycling program. Educational material that is readily available for easy distribution to all new employees allows tenants to stay involved.

9.5.3 Waste Assessment Approaches

In order to develop a recycling plan, JQF must understand what waste is generated and collected by performing a waste assessment. A waste assessment provides qualitative and quantitative data. It also provides a baseline to measure progress in the future (Table 9.5.3-1, page 200).

9.5.4 Common Recyclable Materials Found at Airports

Table 9.5.4-1 (page 201) illustrates the common recyclable materials found at airports.

9.6 Conclusion

JQF has a basic recycling program in place; however, the Airport could implement basic procedures to improve their program and reduce the amount of solid waste they generate through coordination with City of Concord Solid Waste Services Department.

Table 9.5.3-1
Waste Assessment Approaches
Concord-Padgett Regional Airport

Strengths	Limitations
Records Examination	
• Provides weights and volumes of waste • Tracks major potential waste from the point • Identifies the expensive or valuable • Documents financial benefits of reuse and recycling including total revenues and avoided disposal costs • Requires the least time and effort • Establishes baseline for metrics	• Lack of quantitative data for specific generated waste components • Does not provide qualitative data on how of origin or why wastes are generated • Substantial effort necessary to collect and components of an organization's waste analyze data
Facility Walk-Through	
• Requires less time and effort than waste sorts • Allows first-hand examination of facility operations • Provides qualitative information about major waste components and waste-generating processes • Reveals waste reduction activities • Develops appreciation of logistics and obstacles tenants encounter in their efforts to recycle	• Limited identification of wastes generated • Multiple attempts may be necessary for comprehensive evaluation • Relies on estimates of waste generation
Waste Sort	
• Provides quantitative data on total waste • Allows problem solving and design of recycling program to be site specific	• Requires more time and effort than other generation and specific waste components approaches • Multiple attempts may be necessary for comprehensive evaluation • Does not provide qualitative data on how or why wastes are generated

Source: USEPA (November 1993), "Business Guide for Reducing Solid Waste," <https://nepis.epa.gov/Exe/ZyPDF.cgi/10000ME4.PDF?Dockey=10000ME4.PDF>, accessed September 21, 2018

Table 9.5.4-1
Common Recyclable Materials Found at Airports
Concord-Padgett Regional Airport

		Where											
What		Public Terminals	Ticketing	Security Gates	Food Service Areas	Offices	Cargo Shipping	Maintenance Areas	Airport Grounds	Aircraft	Airfield Ramps	Construction Areas	Concessionnaires, Retailers, Rental Car Facilities
	Corrugated Cardboard				×	×	×	×		×			×
	Mixed Paper	×	×	×	×	×	×	×	×	×	×		×
	Newspaper	×	×	×		×				×			
	Glass	×	×	×	×	×	×	×		×			
	Aluminium Cans	×	×	×	×	×	×	×		×			
	Plastic Bottles	×	×	×	×	×	×	×		×			
	Pallets						×						
	Food Waste and Cooking Oil	×			×	×							
	Organics/Green Waste								×				
	Electronics					×							
	Used Tires							×					
	Used Oil							×					
	Scrap Metal						×	×				×	
	Concrete											×	
	Lumber											×	
	Batteries					×							
	Toner Cartridges					×							×
	Plastic (non-Bottles, e.g. Film)						×	×					×

Source: USEPA (April 2009), "Developing and Implementing an Airport Recycling Program," <https://archive.epa.gov/wastes/conserve/tools/rogo/web/pdf/airport-recycling-guide.pdf>, accessed September 21, 2018.