

An aerial photograph of a coastal town and airport. The foreground shows a large body of water with a small boat. The middle ground features a residential area with many houses, a sandy beach, and a large green field. In the background, there is an airport with a runway and taxiway, surrounded by trees and some industrial buildings. The sky is filled with soft, white clouds.

APPENDIX A
WASTE
MANAGEMENT AND
RECYCLING



A. Waste Management and Recycling

A.1. INTRODUCTION

Solid waste management is an issue of importance to both Tweed New Haven Airport (HVN or the Airport), the City of New Haven, and the Town of East Haven. This Waste Management and Recycling Plan addresses waste materials management at HVN by:

- Reviewing existing recycling, waste reduction, and reuse policies at HVN
- Analyzing the opportunities, costs, and benefits of initiating or expanding these efforts
- Recommending goals and/or initiatives to establish, operate, and maintain an airport recycling, reuse, and waste reduction program, in compliance with the Federal Aviation Administration (FAA) memorandum, *Guidance on Airport Recycling, Reuse, and Waste Reduction Plans* dated September 30, 2014

All airports that prepare a master plan must include content that addresses solid waste recycling at the airport. In addition to government incentives, an airport recycling and waste minimization program helps reduce the Airport's environmental footprint in the community it serves and provides passengers with an opportunity to recycle away from home.

Different areas within an airport facility can have different collection strategies. The decision about what type of collection system is best for a facility or for specific areas requires an understanding of passenger and employee behavior and the value of the recyclables if comingled or separated.

Under the FAA Modernization and Reform Act of 2012, airports that receive Airport Improvement Program (AIP) funding must address issues related to solid waste recycling in their master plans. Specific items that should be discussed include:

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

The main objective of recycling is to reduce the amount of waste being disposed at the landfill through reuse, waste reduction, or recycling materials.

A.1.1. Overview of Types of Solid Waste Generated at Airports

The following are the four types of waste generated at an airport:

- **Municipal Solid Waste (MSW):** Everyday items that are used and then discarded that could be recycled, such as glass and plastic bottles and containers, aluminum, steel, and paper products.



- **Construction and Demolition (C&D) Debris:** Non-hazardous waste produced by land clearing, excavation, repairs, renovation, demolition, or construction projects. C&D debris comprises of such materials as wood, soil, metal, concrete, asphalt, gravel, brick, drywall, carpet, pipe, and roofing material.
- **Compostables:** Waste categorized as food or green waste. Food waste is defined as food that was not consumed or waste generated during food preparation. Green waste is defined as debris generated from landscaping activities, such as grass clippings, tree or shrub branches, leaves, and weeds.
- **Deplaned Waste:** Waste that is produced by a passenger aircraft, such as bottles, cans, newspapers, magazines, plastic cups and utensils, paper towels, and food waste.

A.2. FACILITY DESCRIPTION AND BACKGROUND

As described in Chapter 2, *Inventory*, the Airport is located approximately three miles southeast of the central business district of New Haven, Connecticut. The Airport is classified as a non-hub, commercial service airport, has one runway, and is owned and operated by the City of New Haven. There is an approximately 14,800 square foot (SF) terminal building, an approximately 9,500 SF Airport administration building, three conventional hangars with a total of approximately 43,500 SF of space, and two T-hangars located off-airport property. The Airport has approximately 25,000 annual operations, and 50 based aircraft, including three jets. It is served by Republic Airways and has approximately 50,000 annual enplanements.

A.2.1. Existing Waste Sources

Areas within the Airport property can be divided into how much control the Airport has on the generation and disposal of waste. The three levels of control are:

- Areas where the Airport has direct control of waste management,
- Areas where the Airport has no direct control but can influence waste management, and
- Areas where the Airport has no control or influence over waste management.

A.2.2. Direct Control Areas

Table A-1 lists the areas where the Airport has direct control over how waste is generated and collected. The Airport has direct control over the terminal building, Airport administrative offices, the maintenance facility and any Airport maintenance vehicles or operations, and any on-Airport construction.

A.2.3. Influence, But No Direct Control Areas

Table A-1 also lists areas where the Airport has some influence, but no direct control over how waste is generated and collected. As shown on the table, these areas include hangars, tenants, aircraft. Although the Airport does not directly control the many tenants operating on Airport grounds, in most cases the Airport could have influence, as the lessor, over their tenant's waste



disposal and recycling practices. Contractual lease agreements could be used as a tool to begin a waste recycling program among tenants at the Airport. Any waste generated on aircraft is removed and managed by Airport tenants that own their particular aircraft, or by the fixed base operator (FBO) servicing transient aircraft. Any construction waste and debris removal and subsequent reuse, recycling, or disposal is conducted by the construction contractor.

Table A-1: Waste Generation and Control at HVN

Area	Waste Generated	Control
Area 1: Terminal building, Airport administration office	Paper, plastic, aluminum cans, trash	Direct Control
Area 2: Field maintenance activities	Paper, plastic, aluminum cans, trash, general waste, used motor oil and other vehicle fluids	Direct Control
Area 3: Hangars/tenants	Paper, plastic, aluminum cans, trash, deplaned waste, possibly used oil and aircraft parts	Influence, but No Direct Control
Area 4: Aircraft	Paper, plastic, aluminum cans, trash, deplaned waste	Influence, but No Direct Control
Area 5: Airport construction	Building materials, wood, general waste	Influence, but No Direct Control

Source: McFarland Johnson analysis, 2020.

A.2.4. No Direct Control or Influence Areas

These are areas that the Airport neither owns nor leases, which includes the T-hangars off Airport property. Currently, private aircraft owners and tenants conduct their own individual waste collection efforts independent of the Airport; however, all are influenced in some small part by the leases and fees negotiated by the Airport. Furthermore, any consolidated recycling collection and disposal program implemented by the Airport could be made available to all tenants on a voluntary basis.

A.2.5. Local and State Waste Management Plans and Policies

Although HVN has not documented formal solid waste management or waste reduction goals to date, the Airport has adopted state, county, and local plans, guidance, and policies aimed at reducing the amount of solid waste that goes into the landfill. These are discussed below.

A.2.6. State Municipal Waste Planning, Recycling, and Reduction Policies

Statewide recycling in Connecticut has been mandated since 1991 with the Mandatory Recycling Act that requires every residence, every business (including non-profits), and all public and private agencies and institutions such as colleges, hospitals, and local and state government agencies, to recycle.



City of New Haven Code

Chapter 304 of the City of *New Haven Code of General Ordinances* concerns itself with non-residential recycling and mandates that:

“...the owners of nonresidential buildings including, but not limited to, places of business, industry, offices, public and private schools, not-for-profit companies and shelters shall make arrangements for the separation, collection and recycling of the following items in a manner that will prevent contamination, or minimize their breakage: corrugated cardboard, glass food and beverage containers, metal food and beverage containers, plastic food and beverage containers, newspaper, office paper, scrap metal, scrap tires, leaves, storage batteries and waste oil. Additionally, the owner will communicate his/her mandatory recycling program to all occupants, and identify and address any sources of contamination, and upon request, to report to the director of the department of public works or his/her designee. The occupants of such buildings shall comply with all such programs.”

Town of East Haven Code

The stated goal and purpose of §16.5-36. *Separation of Items Required to be Recycled from Other Solid Waste* of the East Haven Code is to comply with the recycling requirements of the State of Connecticut and the Southwest Connecticut Regional Recycling Operating Committee (SWEROC) and policies promulgated by SWEROC. As such, the Town of East Haven and the Airport are required to comply with the Mandatory Recycling Act and recycle solid waste.

A.3. WASTE AUDIT

A waste and recycling site assessment was conducted on Sep. 11, 2019. HVN contracts with John’s Refuse and Recycling, LLC for the disposal of waste and recycling at the terminal building, Airport administrative offices and the Airport maintenance facility. Waste bins are placed throughout the terminal building directly alongside of recycling containers as seen in **Figure A-1**. Also, two dumpsters are located in the terminal building parking lot, one is for cardboard only, and the other is for MSW. The dumpsters can be seen in **Figure A-2**. John’s takes care of all solid waste needs, along with all the recycling for the Airport. John’s transports all the Airport’s waste to the New Haven transfer station which is located approximately six miles away from the Airport. John’s uses single stream recycling which takes mixed paper and commingled containers and combines them into one bin, increasing the ease and convenience of recycling allowing more people to participate and contribute for less waste.

Figure A-1: Waste and Recycling Containers





There is no formalized plan for tenants at HVN and they must arrange for their own waste hauling and management. Typically, the collective amounts of trash generated by private aircraft owners likely would not amount to much more than a trash bag or two per month, if even that. Dumpsters are located outside of each of the three conventional hangars, and tenants who are private aircraft owners remove their own trash and dispose of it.

Figure A-2: HVN Dumpsters



Source: McFarland Johnson, 2019.

During Airport construction projects, the contractor is responsible for providing their own waste containers and contracting with reuse, recycling, or disposal facilities. This is typically a contractual requirement between the Airport and the construction contractor.

A.4. REVIEW OF RECYCLING FEASIBILITY

The Airport currently abides by all state and local recycling guidelines as described in Section C.2.6. No limitations of hindrances have been identified.

A.5. OPERATION AND MAINTENANCE REQUIREMENTS

The flow of waste and recyclable materials is from HVN to landfills and recycling centers and can be seen in **Figure A-3**. Recyclable materials are handled on-site by Airport staff; collection and hauling are provided by contracted service providers. Waste is hauled off site to a landfill, while recyclables are transported to facilities where materials are sorted for reuse/resale on the open market.

A.6. REVIEW OF WASTE MANAGEMENT CONTRACTS

Based on the invoices provided by the Airport, there are monthly container rental, container services, and recycle services fees that are fixed. Some months the containers are emptied twice, some months not at all, indicating that containers are emptied only when a threshold of fill is reached. This minimizes costs for the airport as the \$150 roll-off fee is only incurred when the containers need to be emptied rather than on a fixed schedule.

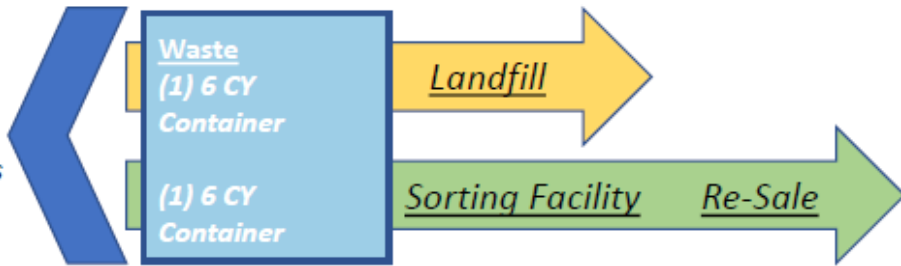


Figure A-3: Waste and Recycling Flows

Sources of Waste	On-Site Handling <i>(HVN Staff & Private Operators)</i>	Hauling & Disposal <i>(Contracted Service Provider)</i>	Re-Use & Re-Sale <i>(Third-Party/Specialty Service Provider)</i>
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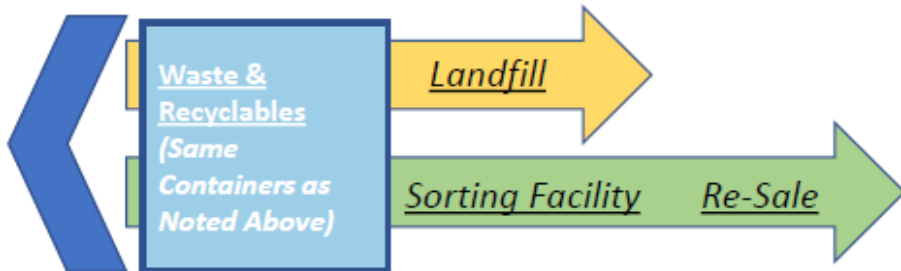
Terminal Building

- HVN Staff
- TSA Staff
- Airlines
- Rental Car Agencies
- Passengers



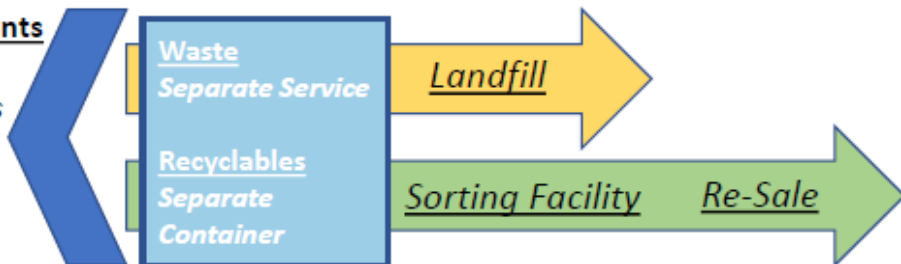
Aircraft

- Republic Airlines



Other Buildings/Tenants

- Robinson Aviation
- Rental Car Agencies



CY is cubic yards.

Source: McFarland Johnson, Inc.



A.7. POTENTIAL FOR COST SAVINGS

As a cost-saving measure, the Airport could perform its own recycling of “old, corrugated cardboard” (OCC), which is currently being performed by John’s Refuse and Recycling, LLC. By managing the disposal of OCC internally, the Airport would save on the cost of an additional dumpster, which could potentially allow the single dumpster to be stored elsewhere out of the view of the travelling public in the terminal parking lot. This could also allow the Airport to reduce the frequency of trash pickups, thereby further cutting down the cost of waste removal for the Airport. If considered, the storing the OCC between drop-offs, and the cost of managing and delivering the OCC to the landfill would need to be taken into consideration.

A.8. CONCLUSION

The FAA, the State of Connecticut, the City of New Haven, and the Town of East Haven all have requirements in place for residents and businesses to recycle, and the Airport follows the recycling requirements of all these entities. Potential opportunities for improvement include:

- **Education Program:** An integral part of increasing use of dedicated recycling containers throughout the terminal building, both in passenger and tenant/staff areas is a communication and education program. Such an effort need not be overly robust, time consuming, or expensive. Rather, thoughtful placement of placards in passenger and staff areas as encouragement to utilize recycle bins, or inclusion in regular staff and tenant communications (e.g., emails, invoices, newsletters) and training sessions may suffice.
- **Record/Track Volume and Weight of Waste and Recyclable Materials:** The Airport might also consider devoting some portion of existing staff time each week to record estimates of volume and weight of waste and recycled materials at the time private hauling contractor comes to collect. With viable trash collection data, it is possible the frequency of trash pickup could be reduced, thereby reducing cost to the Airport. A sample spreadsheet for monitoring recycling performance at the Airport is shown in **Figure A-4**.
- **Add Recycling into Leases and Contracts:** At the next opportunity leases and contracts are renewed, review leases and contracts for the opportunity to add recycling, reuse, and waste reduction objectives.
- **Cost Savings:** Potentially, taking the responsibility or management and recycling of OCC in house could realize some cost savings.



Figure A-4: Sample Waste and Recyclable Material Volume Monitoring

Waste	Pick Up Record Date: _____ Time: _____ Initials: _____	Pick Up Record Date: _____ Time: _____ Initials: _____	Pick Up Record Date: _____ Time: _____ Initials: _____
	Percent (%) Full 100% <input type="checkbox"/> 75% <input type="checkbox"/> 50% <input type="checkbox"/> 25% <input type="checkbox"/>	100% <input type="checkbox"/> 75% <input type="checkbox"/> 50% <input type="checkbox"/> 25% <input type="checkbox"/>	100% <input type="checkbox"/> 75% <input type="checkbox"/> 50% <input type="checkbox"/> 25% <input type="checkbox"/>
Terminal Dumpster 1 (Capacity: 6 CY)			
Recycling	Pick Up Record Date: _____ Time: _____ Initials: _____	Pick Up Record Date: _____ Time: _____ Initials: _____	Pick Up Record Date: _____ Time: _____ Initials: _____
	Percent (%) Full 100% <input type="checkbox"/> 75% <input type="checkbox"/> 50% <input type="checkbox"/> 25% <input type="checkbox"/>	100% <input type="checkbox"/> 75% <input type="checkbox"/> 50% <input type="checkbox"/> 25% <input type="checkbox"/>	100% <input type="checkbox"/> 75% <input type="checkbox"/> 50% <input type="checkbox"/> 25% <input type="checkbox"/>
Terminal Dumpster 1 (Capacity: 6 CY)			

Source: McFarland Johnson, Inc.