



Airports

The City of San Diego
Welcome To
Brown Field Airport
Elevation 526 feet

Airport Master Plan

Brown Field
Municipal Airport

Airport Recycling,
Reuse, and Waste
Reduction Plan

2017

Prepared by:



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1.1 Airport Recycling, Reuse, and Waste Reduction Plan Background

The management and disposal of solid waste have considerable impacts on an airport's finances, operations, environmental well-being, and relationship with the community. Its significance has been identified by the Federal Aviation Administration (FAA) and incorporated into recent regulations. Section 133 of the FAA Modernization and Reform Act of 2012, requires airports with a master plan to complete a recycling plan that includes/addresses:

- A solid waste audit
- Feasibility of solid waste recycling
- Minimization of solid waste generation
- Operation and maintenance requirements
- Review of waste management contracts
- The potential for cost savings or the generation of airport revenue

In order to assist airports in the development of these recycling programs, the FAA prepared *Recycling, Reuse, and Waste Reduction at Airports: A Synthesis Document*. This synthesis document outlines types and sources of airport waste and provides guidance on establishing a comprehensive waste reduction and recycling program. On September 30, 2014, the FAA issued *Guidance on Airport Recycling, Reuse, and Waste Reduction Plans*, which provides official guidance for preparing waste and recycling plans as part of an airport master plan, within a sustainability plan, or as a stand-alone document. This guidance has been used in the development of a recycling, reuse, and waste reduction plan for Brown Field Municipal Airport (SDM or Airport).

As noted in *Guidance on Airport Recycling, Reuse, and Waste Reduction Plans*, airports with an existing recycling program may not need to complete certain tasks. Given the nature of the Airport as a General Aviation (GA) facility with an existing recycling program and low waste production, certain elements were scaled accordingly (e.g., a detailed evaluation of potential cost savings or revenue generation was not prepared, but qualitative information is provided).

1.2 Baseline Assessment

Facility Description

As documented in prior Working Papers of the Airport Master Plan, the Airport is a GA facility designated as a national reliever airport according to the National Plan of Integrated Airport Systems (NPIAS). National airports average about 250 total based aircraft, including 30 jets, making SDM small for a national airport. As noted in Working Paper 3 - *Forecasts of Aviation Demand*, SDM had 223 based aircraft in 2017 and experienced 85,780 operations for the year 2016. Additional information regarding the Airport's operations as well as its layout and governance can be found in earlier Working Papers of the Master Plan.

Existing Program, Waste Management Contract, and Operations and Maintenance Procedures

As a GA airport, SDM has a number of waste sources including¹:

- Terminal area that includes a restaurant. This area typically generates food waste, paper, plastic, aluminum cans, and trash.
- Airport administrative offices, which are within the terminal and produce waste including paper, food, plastic, metals, etc.
- Airfield and maintenance operations where aircraft, vehicle and green waste is generated as well as packaging materials. Foreign object debris (FOD) is often generated on active airfields and can include runway rubber or miscellaneous materials from aircraft and vehicles.
- Tenant-occupied buildings including those on ground leases where various forms of waste are generated depending upon the type of activity conducted there.

The Airport is located within the City of San Diego and is influenced by city codes. In 2007, the City Council approved the City of San Diego's Recycling Ordinance requiring commercial and institutional facilities to recycle. The ordinance mandates that the following list of items be recycled:

- Plastic and glass bottles
- Jars
- Paper, newspaper
- Metal containers
- Cardboard
- Clean food waste containers
- Jugs, tubs, pots, buckets, and toys

In addition to the Recycling Ordinance, the City's Zero Waste Plan was unanimously approved by the City Council in 2015 with an initial target of 75-percent diversion of materials from landfills by 2020, 90 percent by 2035, and 100 percent by 2040. The City's Zero Waste Plan created a framework of strategies to increase the diversion rate as well as to expand on the goals of the Recycling Ordinance.

In compliance with the City's Recycling Ordinance and Zero Waste Plan, departments owned and operated by the City have implemented their own Waste Diversion Plans in order to maximize the amount of recycling at their facilities. The Airports fall within the Real Estate Assets Department

¹ Guidance for generators of waste and types of waste generated provided by FAA Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document, April 24, 2013.

(READ), which is also responsible for its offices, Petco Park and SDCCU Stadium. The current diversion practices READ include:

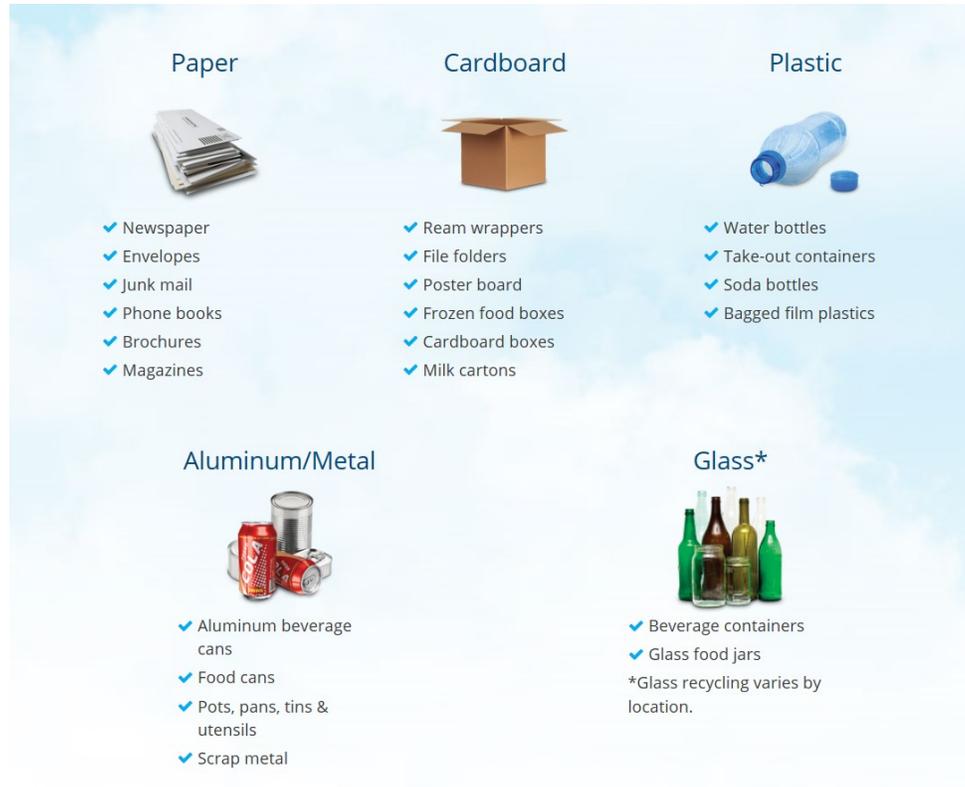
- Dual recycling and trash bins placed in administrative offices
- Properly labelled three- to five-yard recycling bins placed next to trash dumpsters that are emptied once to twice a week
- Separation of airport trimmings from waste collection
- The special attention/handling for disposing of hazardous waste

The City currently contracts SDM's waste and recycling pickups with Republic Services. Trash pickups are scheduled on Mondays and Fridays with recycling collection occurring once a week. Waste generated by the restaurant and tenants are not included in this contract and are handled independently of the Airport. There are two trash disposal dumpsters and one recycling dumpster, each three cubic yards. One recycling and one trash dumpster are located on the east side of the terminal building, while the second trash dumpster is located near the Maintenance Building. In addition, there are two smaller recycling bins positioned at the Airport (each approximately 50 gallons in capacity) and two 40-yard dumpsters used for loose airport waste/debris, located near the Old Maintenance Building.

Recycling and Trash Receptacles
Source: C&S Engineers, Inc.



As of July 2017, Republic Services accepts the following in its single-stream recycling program:



Allowable Materials
Source: Republic Services

Unacceptable items include:

- Aerosol cans
- Aluminum foil
- Batteries
- Food waste
- Glass
- Mirrors or ceramics
- Stickers and address labels
- Styrofoam
- Tissue, paper towels or napkins
- Plastic-coated paper
- Wrapping paper
- Waxed paper
- Window glass
- Light bulbs
- Ceramics
- Plastics other than products coded #1 or #2 (this was extended to accommodate plastics #1-7)
- Cookware
- Hardcover books
- Polystyrene foam plastic (even if it has the recycling symbol [e.g., foam coffee cups])
- Plastic bags

Items requiring special attention include:

- Incandescent light bulbs
- Fluorescent tubes
- Computers & Electronics
- Needles or syringes
- Hazardous waste
- Toxic material containers
- Paint
- Yard waste

As noted on the Republic Services website, these items should never be mixed with regular recycling. Disposal requires special handling.

Waste Audit

As part of the master planning process for SDM, C&S Engineers, Inc., conducted a waste audit on September 14, 2017, focusing on waste collected directly by Airport staff and disposed of in the three-cubic-yard dumpsters. In preparation for the event, waste was collected from September 2, 2017, through September 14, 2017, along with two weeks' worth of recyclables. Leading up to the audit, only one of the Airport's two trash disposal bins was filled with waste. The combined weight of waste and recyclables collected for the audit was 189 pounds. Materials collected in the 40-yard dumpsters and 50-gallon recycling receptacles were not reviewed.

Waste and Recyclables were divided into 13 categories each classified as either recyclable, non-recyclable, requires special attention, or "Other," e.g., material types that were not specifically addressed by Republic Services in its classification of materials. The 13 categories included:

Recyclable (indicated with a recycling symbol on all labels during the waste audit)

1. Aluminum beverage cans, food cans, pots, pans, tins and utensils
2. Scrap metal
3. Paper (including newspaper, magazines, catalogs, brochures, envelopes, junk mail, phone books, and office paper)
4. Cardboard (including ream wrappers, file folders, poster board, frozen food boxes, cardboard boxes, and milk cartons)
5. Plastic beverage bottles, take-out containers, bagged film plastics
6. Recyclable glass bottles and jars

Non-Recyclable Materials

7. Food waste
8. Plastic bags, and paper products (e.g., paper towels, napkins, tissues, paper plates, paper cups)
9. Other miscellaneous non-recyclable items (e.g., aerosol cans, batteries, aluminum foil, shredded paper, stickers/address labels, clothing, glass windows, Pyrex, mirrors, and ceramic)

Requires Special Attention (must not be mixed with regular recycling)

10. Materials requiring special attention, including:
 - i. Incandescent light bulbs, fluorescent tubes
 - ii. Hazardous / toxic / of concern (needles or syringes, hazardous waste, toxic material containers, paint, etc.)

- iii. Computers & electronics
- iv. Yard waste

Additional Categories

- 11. Wood (boards, planks, etc.)
- 12. Styrofoam Blocks (recyclable)
- 13. Rubber Tires

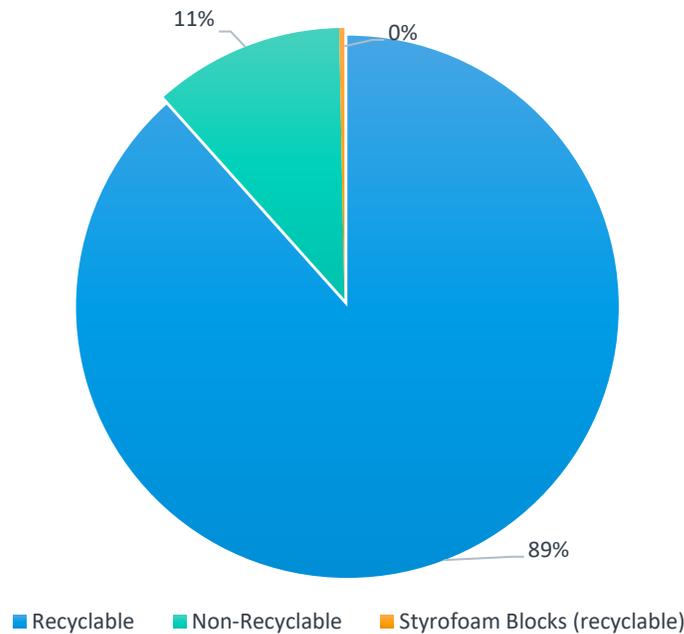
Materials were sorted by weigh, beginning with the recycling stream and then followed by a sampling of the trash stream. **Table 1.1 and Figure 1.1** present the breakdown of contents within the recycling waste stream.

Table 1.1 – Weight and Composition of Recycling Stream

Category	Weight (pounds)
3 – Paper	16.90
4 – Cardboard	23.00
9 (non-recyclable) – Other miscellaneous non-recyclable items	5.10
12 – Styrofoam blocks (recyclable)	.14

Source: C&S Engineers, Inc., 2017

Figure 1.1 – Breakdown of Recycling Stream



Source: C&S Engineers, Inc., 2017

As shown above, cardboard and paper make up the majority of recyclables found in the recycling dumpster. Additionally, the non-recyclable Category 9: shredded paper made up 11 percent of the contents found in the recycling bin. This may represent a lack of education to employees and tenants surrounding the non-recyclable nature of shredded paper. Overall, the Airport’s recycling stream indicated a low percentage of contamination (i.e., non-recyclable materials in a recycling dumpster).

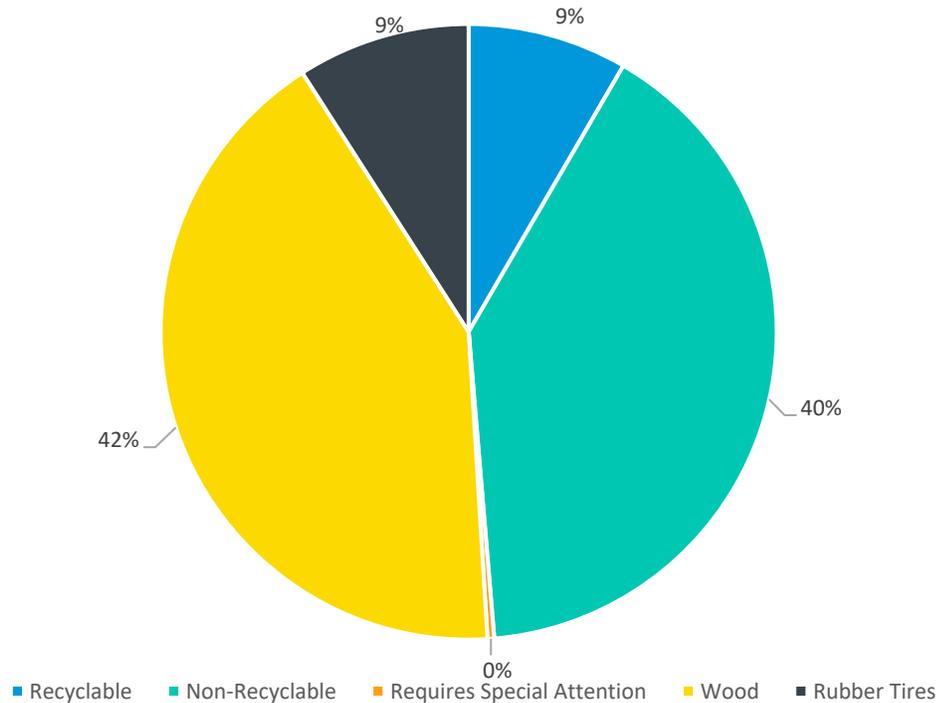
Table 1.2 and Figure 1.2 present the percentage of contents in composition and quantity of trash sorted and recorded during the waste audit.

Table 1.2 – Weight and Composition of Waste Stream

Category	Weight (pounds)
1 – Aluminum beverage cans, food cans, pots, pans, tins and utensils	1.00
2 – Scrap metal	2.50
4 – Cardboard	5.50
5 – Plastic beverage bottles, take-out containers, bagged film plastics	2.50
6 – Recyclable glass bottles and jars	0.50
7 (non-recyclable) – Food waste	7.50
8 (non-recyclable) – Plastic bags, and paper products	19.10
9 (non-recyclable) – Other miscellaneous non-recyclable items	31.10
10 – Requires special attention	0.50
11 – Wood (boards, planks, etc.)	60.00
13 – Rubber Tires	13.00

Source: C&S Engineers, Inc., 2017

Figure 1.2 – Breakdown of Waste Stream



By weight, wooden boards and planks were the heaviest items found among the trash. However, non-recyclable items such as paper towels and other miscellaneous items made up the majority of the trash content. Within the miscellaneous Category 9 composition, there were many bottles filled with dirty paper, cigarette butts, etc., causing them to go from potential recycling items to non-recyclable items. Additionally, all cans recorded during this audit were found in the trash waste stream.

In order to determine an estimated diversion rate for the Airport, the amount of trash collected (over

143 pounds) was compared to the amount of recyclables collected (approximately 45 pounds). Based on this calculation, the current diversion rate was calculated as **approximately 24 percent**. This rate includes the following considerations:

- The durations of collection were relatively similar (approximately two weeks).
- This does not take into account the recyclables waste stream's contamination and instead assumes all recyclables collected were diverted from landfills.

1.3 Opportunities for Improvement and Potential for Cost Savings or Revenue Generation

Based on the existing recycling ordinance and the efforts put forward by the department's Waste Diversion Plan, several opportunities for improvement are provided below, many of which have the potential for cost savings and/or revenue generation.

Diversion from Landfills

The Airport should continue its focus on diversion of waste from landfills. Specific opportunities for improvement are listed below:

- **Increase Availability of Recycling Receptacles** – It was observed that minimal recycling receptacles are available throughout the public areas of the Airport and those that are available do not list which materials are acceptable. Clearly labeled recycling bins should be placed adjacent to trash cans to encourage recycling; this is particularly important in administrative areas and near concessions (the restaurant or vending machines). All offices should have individual recycling receptacles, and the City should consider including trash only in centrally located areas to promote recycling whenever possible.
- **Expand Diversion Efforts via Additional Recycling Options** – The City should consider implementing a composting program at the Airport, potentially partnering with the restaurant for maximum potential. In addition, the City should review the materials collected in the trash stream for opportunities to generate revenue. For example, there was a significant volume of both wood and tires, both of which may have a resale potential. Lastly, Airport management should begin collecting shredded paper separately and work with the Environmental Services Department (ESD) for recycling (in prior coordination with ESD, it was noted that they have a contract with Shred-It to handle such recycling).
- **Surplus Property Donation** – Airport management should take advantage of the City's surplus property and internal redistribution program, whereby obsolete furniture and other materials can be listed on a city-wide intranet system (i.e., a program similar to Craigslist).
- **Expand upon Education and Awareness Efforts** – The department's Waste Diversion Plan has already made progress in this area READ and the City overall should continue to emphasize education and awareness regarding both waste minimization and recycling. Some potential strategies to consider based on other airports' initiatives include:
 - Circulate an educational piece and post signage on what is and is not acceptable in the recycling stream. An emphasis should be placed on shredded paper, which many are disposing of in the recycling dumpster. Employees should be encouraged to minimize shredding unless absolutely necessary due to confidentiality concerns (see related item above).
 - Provide Training for Airport Employees – Develop consistent language and materials to train employees on the recycling program procedures to minimize errors and

contamination between trash and recycling. Include this in any new employee orientation or onboarding.

- Implement an Awards Program – Some airports have established tenant and/or employee awards programs to incentivize involvement in recycling. This could be as simple as conducting random walk-throughs of the terminals, administrative areas, etc., and distributing certificates or gift cards to any businesses/employees who are observed recycling or taking action to reuse/reduce materials like packaging.
- **Continue to Reuse Materials** – The Airport should continue to leave mowed grass in place, and identify other potential waste streams generated through maintenance activities with potential for reuse/salvaging.
- **Establish Minimum Construction & Demolition Recycling Target** – Many airports have established targets that must be met by their contractors, for example, 75 percent of C&D materials must be diverted from landfills via recycling, reuse, or repurposing. The Airport Authority could also require that the contractors track and report on the diversion efforts as well as where the materials are being transported to and/or how they are being reused/repurposed.
- **Promote Recycling in Terminal/Concessions Areas** – Based on information obtained at other airports via waste audits and other tracking mechanisms, concessions areas such as food courts and vending machine areas often show the greatest levels of contamination. In other words, they experience the greatest amounts of non-recyclable materials ending up in recycling receptacles, as well as the greatest missed opportunities for recycling (the greatest amounts of recyclable materials being disposed of in trash containers). The Airport should ensure that dual trash and recycling receptacles are conveniently located in these areas, particularly at their entrance and exit points.
- **Require Recycling on Airport Property** – An airport’s Rules and Regulations, which apply to all tenants and users of the facility, is an opportunity to require recycling. For example, the following language could be included; “All tenants and subtenants shall recycle acceptable materials in accordance with the City of San Diego Recycling Ordinance.” The Airport does not currently have published Rules and Regulations, but may consider this in the future.

Waste Minimization

The Airport should consider the following efforts aimed at reducing waste, which can contribute to a greater diversion rate.

- Assess materials procurement and identify opportunities for bulk purchasing to reduce packaging materials and cardboard. The City has an Environmentally Preferred Purchasing (EPP) policy in place (Administrative Regulation 35.80) but it is unknown if all Airport staff are aware of and following its guidelines. (A detailed analysis of current procurement methods was not conducted.) The current policy includes the following, which would contribute greatly to waste minimization if not already incorporated at the Airport:
 - Prohibits purchasing of bottled water (without a waiver) and expanded polystyrene foam food service ware.
 - Specifies 12 criteria that should be considered when making purchasing decisions that should be considered when making purchasing decisions; many of these will promote waste minimization/recycling including:
 - Biodegradable
 - Compostable
 - High-recycled Content
 - Recyclable
 - Repairable
 - Reusable

- Require concessionaires and airport businesses to adhere to the City’s EPP policy (currently, there is one restaurant, but this measure could be included in future Rules and Regulations).

Waste minimization efforts can potentially reduce costs incurred by the City. For example, reducing the amount of materials disposed of in the 40-yard dumpsters will decrease the frequency of required pick-ups, which occur on an as-needed basis.

1.4 Conclusion

The Airport can significantly improve their waste and recycling efforts through improved signage, placement of recycling bins in the terminal common areas, and employee awareness in order to increase their diversion rate. By implementing these initiatives, SDM would be assisting the City with their overall recycling goals as well as maintaining the Zero Waste Plan targets. With a few adjustments, SDM has the potential to increase its diversion rate with consistency and employee engagement.