FOREIGN OBJECT DEBRIS (FOD)

MANAGEMENT PLAN

San Diego County Regional Airport Authority
2020

TASK	NAME	DATE
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EFFECTIVITY: Release Date: 11/20/20

San Diego County Regional Airport Authority Airside

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1.0 OBJECTIVE AND SCOPE

This document details the policies that the **San Diego County Regional Airport Authority** (Airport Authority) has put in place to ensure FOD (foreign object debris)-free operations at the San Diego International Airport (SAN). The plan also outlines the practices implemented by the Airport Authority and its tenants, contractors, and subcontractors to effectively prevent and manage FOD. While FOD is a significant airfield concern, this plan also applies to all airside and landside areas at SAN.

1.1. FOD Prevention Area

The entire air operations area (AOA) at SAN is deemed a FOD Prevention Area, and FOD Prevention stickers are placed on most doors that provide direct access to the airside, and on the FOD containers at each of the gates. If required, temporary FOD Prevention Areas can be established, or existing FOD Prevention Area controls may change. See Section 9 for FOD Prevention Area signage and a map of the FOD Prevention Area.

2.0 FOD PROGRAM ACRONYMS AND DEFINITIONS

2.1 Acronyms

- AOA - AIR OPERATIONS AREA

- ATCT - AIR TRAFFIC CONTROL TOWER

- BMP - BEST MANAGEMENT PRACTICE

- FAA - THE FEDERAL AVIATION ADMINISTRATION

- FMD - FACILITIES MANAGEMENT DEPARTMENT

- FOD - FOREIGN OBJECT DEBRIS

- GSE - GROUND SUPPORT EQUIPMENT

- HPD - HARBOR POLICE DEPARMENT

- ILS - INSTRUMENT LANDING SYSTEM

- LAMC - LINDBERGH AIRLINE MANAGERS COMMITTEE

- MSP - MISCELLANEOUS SMALL PARTS

- SAN - SAN DIEGO INTERNATIONAL AIRPORT

- SWMP - STORM WATER MANAGEMENT PLAN

- TSA - THE TRANSPORTATION SECURITY ADMINISTRATION

- TIF - TOOL INVENTORY VERIFICATION FORM

2.2 Definitions

a. Air Operations Area (AOA): the area of the airport situated within the perimeter fence line which is used primarily for aircraft parking, taxiing, refueling, landing, take-off and surface maneuvering, including the aprons, ramps, taxiways and aircraft movement areas. The AOA is generally referred to as the airfield.

b. Aircraft Movement Areas: areas of the airport which are normally under the control of the air traffic control tower (ATCT) by reason of their function to support the landing, take-off and ground maneuvering of aircraft, including the runways, taxiways, safety areas, and instrument landing system (ILS) critical areas.

c. Airside: the area of an airport that is within its passport, customs control, and security checks - the side of the airport terminal from which aircraft can be observed. This area is accessible only to airport personnel and passengers holding valid boarding passes for imminent travel.

d. Apron: the defined area of the airport intended to accommodate aircraft for the purposes of loading or unloading passengers or cargo, refueling, parking or maintenance. Also referred to as the "Ramp."

e. The Airport Authority: the San Diego County Regional Airport Authority (SAN).

f. Best Management Practices: stormwater management practices employed to prevent or reduce storm water and surface water pollution, including, without limitation, the use of tarps or covers for the outdoor storage of materials, the use of spill-containment pallets for the storage of liquids, and the prompt cleanup of spills.

g. Clean-as-you-go: a cleaning strategy used to reduce the risk of FOD that involves taking opportunities to clean continually throughout the working day and making cleaning part of a daily routine to ensure spaces are FOD-free.

h. Foreign Object Debris (FOD) "Foreign Object Debris": any type of debris on aircraft ramps, aprons or aircraft movement areas, including, without limitation, nuts, bolts, paper, plastic, cardboard, cans, rocks, baggage pieces and parts (Source: SAN Rules and Regulations); Any object, live or not, located in an inappropriate location in the airport environment that has the capacity to injure airport or air carrier personnel and damage aircraft (Source: FAA Circular 150/5210-24).

i. Foreign Object Debris (FOD) Damage: Any damage attributed to a foreign object that can be expressed in physical or economic terms which may or may not downgrade the product's safety or performance characteristics. NOTE: For the purposes of this document, and to reduce confusion and ensure consistency in language and terminology, "FOD" will only refer to the phrase "foreign object debris."

j. FOD-Prevention Area: areas that are particularly sensitive to FOD generally including hangars, runways, and areas where aircraft and equipment are repaired.

k. FOD Sweep: a formal activity that involves personnel servicing FOD sensitive areas, picking up any FOD using sweeper machinery.

l. FOD Walk or Walk Down: a formal, or informal, activity that involves personnel walking FOD sensitive areas and simultaneously picking up any FOD. Personnel physically walk through a FOD Prevention Area (often side-by-side or shoulder-to-shoulder) to inspect the area's cleanliness and remove FOD.

m. Ground Support Equipment (GSE): vehicles and equipment approved and used on the aircraft aprons or parking areas in support of airport operations.

n. Hazard: A condition, object, or activity with the potential for causing damage, loss, or injury.

o. Landside area: Airport Authority maintained parking lots, roadways, structures, and landscaped areas at SAN that are outside of the air operations area and the terminals.

p. Local Management: designated managerial positions within organizations operating on the airport including Airport Authority tenants, contractors, sub-tenants, sub-contractors, and vendors.

q. FOD Incident: an incident caused by FOD that results in damage to personnel, equipment, or infrastructure.

r. Non-movement Areas: areas at the airport that are used for the parking of aircraft that are not under the direct control of the ATCT, which generally includes the aprons and ramps.

s. Operators: Personnel or companies operating at SAN including employees of the Airport Authority and its tenants, contractors, and subcontractors. Any person holding any right to use the airport terminal buildings or airfield under any type of agreement with the Airport Authority and the agents, employees, contractors and subcontractors of such person, including, but not limited to, airlines, licensees, permittees, and badge holders.

t. Ramp(s): the area(s) where aircraft are parked, unloaded, loaded, refueled, or boarded.

u. Sterile Area: portions of the airport defined in the airport security program that provides passengers access to boarding aircraft and to which the access generally is controlled by the Transportation Security Administration (TSA), an aircraft operator, or a foreign air carrier. This does not include the airside or AOA.

v. Storm Water Management Plan: the written plan prepared by the Airport Authority that outlines a comprehensive program to reduce and eliminate pollutants from entering the storm drain system and receiving waters (that is, San Diego Bay). The SWMP describes potential pollutant sources at the Airport and the management programs in place or required for use to reduce or eliminate impacts to storm water or receiving water quality. Also known as the "SAN Storm Water Management Plan."

3.0 REGULATIONS AND GUIDANCE

The presence of FOD on an airport's air operations area (AOA) poses a significant threat to the safety of air travel, personnel on the airfield, and the natural environment. FOD damage to aircraft, ground support equipment, and airport infrastructure can increase the cost of operation and maintenance. FOD also has the potential to damage

aircraft during critical phases of flight, which can lead to catastrophic loss of life and aircraft. FOD hazards can be reduced, however, through the implementation of a FOD management program and the effective use of FOD detection and removal equipment. The following sections highlight general requirements for FOD prevention at San Diego International Airport.

FOD is everyone's responsibility. This message is an integral part of FOD Prevention at SAN.

3.1 Reference Documents

The **SAN** FOD Management Plan is designed to address FOD concerns outlined in the following documents:

- Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5210-24 Airport Foreign Object Debris (FOD) Management
- San Diego County Regional Airport Authority Code
- San Diego International Airport Rules and Regulations
- San Diego County Regional Airport Authority Stormwater Management Plan
- San Diego County Regional Airport Authority Standard Contract Specifications and Conditions for construction
- State of California "Trash Amendments"-2015 updates to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE Plan)

Other documents referenced in this plan include:
- San Diego County Regional Airport Authority's Biodiversity Plan

3.2 Statutes and Regulations

SAN statutes (codes), policies, rules, and regulations are designed to ensure safe and efficient operations at SAN. Airport Authority Code, Rules and Regulations, Plans, Leases and Contracts govern the general conduct of Airport Authority employees, tenants, commercial users, contractors, passengers, and the public.

3.2.1 San Diego County Regional Airport Authority Code

The SAN Code contains administrative and regulatory ordinances applicable to acts of omission and commission on airport property as adopted by the Board of the San Diego County Regional Airport Authority. The following Codes apply to FOD prevention and management:

Article 7 – Safety and Security, Part 7.4- Airport Facilities, Section 7.41 – Rubbish & Waste Disposal, Regulated

    (a) It shall be unlawful for any person to dump any material or throw garbage, offal, rubbish, litter, sewage, refuse or foreign material of any kind upon any lot, tract of land, street, alley, lane, court, sidewalk or place under the jurisdiction of the San Diego County Regional Airport Authority (the "Authority") without the written permission of the Authority's Executive Director or his or her designee (the "Executive Director").

    (b) It shall be unlawful for any occupant, lessee, tenant or licensee of any premises within said area to place, or allow to be placed, or allow to remain on any premises within said area such

garbage, offal, rubbish, litter, sewage, refuse or foreign material of any kind without the written permission of the Executive Director.

Article 8- General Operations, Part 8.2 Authority Facilities, Section 8.20- Animals

(d) No person shall feed or perform any other act to encourage the congregation of birds or other animals on any facility or airport under the jurisdiction of the Authority.

3.2.2 San Diego County Regional Airport Authority Rules and Regulations

SAN Rules and Regulations govern the general conduct of tenants, employees, and commercial users of SAN. FOD is defined in the Rules and Regulations as "any type of debris on aircraft ramps, aprons or aircraft movement areas; includes, without limitation, nuts, bolts, plastic, cans, rocks, baggage pieces and parts." Specific rules and regulations relevant to FOD include:

Section 3.2 Aeronautical Operations on the Air Operations Area (AOA),

3.2.1 General Rules

L. Minimizing Bird-Strike Potential

1. All persons conducting any activity on the AOA shall ensure that:

a. There is no bird-feeding activity;

b. Unsecured trash bags containing foodstuffs are not to be left on the ramp or AOA;

c. Food containers, whether full, empty, or nearly empty are not discarded on the ramp, in baggage carts, on flatbed vehicles or on other uncovered vehicles; and

d. The lids of all dumpsters and trash containers are closed when not actually being loaded or unloaded.

3.2.5 Ground Operations

A. Ramp Operations

2. Every person operating an aircraft shall ensure that the aircraft is operated to not blast, injure, or damage any person, property, equipment, building, or other aircraft.

3. Every tenant shall police and keep their ramp areas clean and free of all debris.
a. All tenants shall provide clearly marked FOD containers for collecting material that is picked up from the aprons. Containers shall be present in sufficient quantities to facilitate disposal of picked up materials. Containers shall have a cover and be small enough to be easily emptied, but heavy enough to resist spillage and will be placed in such a location so that they are not impacted by aircraft jet blast.

b. All tenants shall empty their FOD containers on a scheduled basis and as necessary.

c. All tenants shall ensure that outside trash containers (e.g., cans, dumpsters, and compactors) are covered, checked frequently, and emptied as necessary to prevent spillover of trash.

Section 3.4 Fueling Operations and Spill Protection on the Air Operations Area (AOA)

3.4.9 Foreign Object Debris (FOD)

A. General Regulations:

1. Every person with access to the air operations area (AOA) shall keep the aprons, ramps, and grounds of the Airport free of all FOD.

2. Every tenant providing a trash container at the Airport (e.g., cans, dumpsters, compactors) shall ensure that the container is covered, checked frequently, and emptied as necessary to prevent spillover of trash.

3. No person shall establish a break area (tables, chairs, trash can, etc.) on the ramp without prior approval from the Airport Authority. Unauthorized break areas on the ramp will be removed by the Authority.

B. Foreign Object Debris (FOD) Containers Regulations:

1. Every tenant on the AOA shall provide and maintain clearly marked and covered FOD containers for the deposit of materials picked up from the aprons and other areas of the Airport.

2. Every tenant providing and maintaining one or more FOD containers shall empty such containers on a scheduled basis and as necessary.

Section 5.4 Commercial Transportation Vehicles

L. Hold Lot and Shuttle Island Procedures

1. All taxicab and vehicle for hire operators shall adhere to the following procedures:

l. Any driver found feeding birds or throwing any food or trash on the ground in the Airport hold lot will be immediately ejected from the hold lot for the remainder of the day. Any further violations will result in revocation of the driver's Airport permit.

Birds in the area of aircraft operations present a serious safety hazard to aviation. Feeding or attracting birds in the vicinity of the AOA is a violation of federal regulations.

3.2.3 SAN's Stormwater Management Plan

SAN's Storm Water Management Plan (SWMP) requires all tenants to address FOD as soon as it is observed and to implement weekly sweeping. Best management practices in the SWMP relevant to FOD include:

- SC12-02: Roads, ramp areas, apron areas, and, if feasible, runway/taxiway areas should be swept on a regular basis.
- SC12-05: Debris and sediment from sweeping should be disposed of properly.
- SC18-02: The facility/operation should be kept clean and orderly.
- SC18-04: Sweep all facility and operation areas at least once per week to prevent the accumulation of sediments, debris, and contaminants.

3.2.4 SAN Contract Language

SAN contracts include language to require appropriate FOD prevention and management. Contract language requires compliance with the SAN code, rules and regulations, and Storm Water Management Plan. Construction contractors are required to prevent the generation of materials that can constitute FOD on Airport Authority property. Construction project specifications for Capital Improvement Projects require contractors to clean up construction sites through regular progress cleaning, site inspections, and final cleaning. Contract provisions for Capital Improvement Projects include Special Condition Section 1D-33 Cleaning Up, which states:

> Contractor shall provide the necessary personnel, equipment, and materials needed to maintain the specified standard of cleanliness. Conduct daily inspection to verify that requirements of cleanliness are being met.

> The Airport Authority reserves the right to withhold approval of payment requests for failure on the part of the Contractor to regularly clean the project in conformance with the requirements of this Article. The Airport Authority also reserves the right to clean any work areas that have not been acceptably cleaned by the Contractor and charge the Contractor for the Airport Authority's cleaning costs.

3.2.5. State of California Trash Amendments

SAN must comply with the **State of California's Trash Amendments**. Officially referred to as Amendment Part 1 Trash Provision of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE Plan), these amendments prohibit trash from entering waterways via the stormwater conveyance system. In response to the Trash Amendments, the Airport Authority has increased street sweeping, launched education programs on trash/litter/FOD, and installed devices on storm drains to help prevent these materials from entering the storm drain system. The Airport Authority's FOD management program helps ensure compliance with the Trash Amendments.

4.0 FOD PREVENTION TRAINING

All personnel with access to FOD Prevention Areas should receive FOD Prevention training. Local management is responsible for ensuring that all employees working within affected areas/functions are aware of FOD policies and best practices. The focus of training is that "FOD is everyone's responsibility."

4.1 SAN Employee & Visitor Requirements

Employees of SAN are required to complete the following training, as appropriate:

- Annual Sustainability Training – Information regarding FOD is disseminated annually as part of the mandatory Environmental Stewardship Training for all Airport Authority employees. The training highlights FOD hazards and best management practices—including preventing FOD in the first place. The training occurs via an online learning management system.
- San Diego International Airport Non-movement area driving course – FOD hazards and best management practices are highlighted in the driver training which is mandatory for all employees with driving privileges on the airfield.

Airport Authority airside visitors being escorted through FOD prone areas must also be made aware of FOD and FOD prevention requirements. Airport Authority employees responsible for escorting visitors determine the level of training required, but should at least review:
- Overview of the FOD management program at SAN
- Impact of FOD on the safety of personnel and airline passengers
- Causes and principal contributing factors of FOD
- Consequences of ignoring FOD
- FOD prevention and management practices, including clean-as-you-go work habits, and the general cleanliness and inspection standards on the AOA

4.2 Tenant, Contractor, Subcontractor, & Visitor Requirements

In 2020, the Airport Authority conducted a large survey with airlines and their business partners, and all 38 participants reported that their employees receive FOD management training at time of hire and on a reoccurring basis. FOD Prevention training is required at SAN for all personnel with access to the AOA, including tenants, contractors, subcontractors, vendors, etc. The responsibility for this training belongs to local management. Each individual with access to the AOA, whether staff for airline operations, aircraft maintenance, catering, cabin cleaning, baggage and cargo handling, waste disposal, fueling, etc., should understand their role in the prevention of FOD. Airside visitors being escorted through FOD prone areas must also be made aware of FOD and FOD prevention requirements. Local management determines the level of training required for their own employees and visitors, but such training must include at minimum the following:
- Overview of the FOD management program at SAN
- Impact of FOD on the safety of personnel and airline passengers
- Causes and principal contributing factors of FOD
- Consequences of ignoring FOD
- FOD prevention and management practices, including clean-as-you-go work habits, and the general cleanliness and inspection standards on the AOA

The Airport Authority's FOD Manager will provide current information and assist with training relating to FOD issues relevant to the specific operation of the airport to both Airport Authority employees and local

management of personnel with access to the AOA. Local management is responsible for training its own employees and guests on a recurrent schedule and maintaining a documented process to ensure participation in the training.

5.0 FOD MANAGEMENT PRACTICES

5.1 FOD Prevention Program Awareness

A successful FOD prevention program is one that everyone is aware of. Organizational communication, led by the Airport Authority's Planning and Environmental Affairs Department, is performed annually and as needed to relevant staff, tenants, and contractors. Examples of organizational communication include FOD seminars, FOD letters, notices and bulletins, FOD bulletin boards, presentations, and Tenant Information Notices.

5.2 FOD Management Program Baselining Study 2020

In 2020, the Airport Authority conducted a "Waste and FOD Questionnaire" with all airlines and their business partners that functioned as a survey to baseline what operators at SAN do to manage their waste and the FOD that results from their operations. In total, 38 interviews were conducted and detailed information about each company's waste and FOD management practices was recorded. The data was compiled and analyzed. Eighty-six percent (86%) have a formal FOD management policy, while 100% of those surveyed provide reoccurring FOD training to their staff. Most operators utilize the Authority-provided FOD containers located under the jet bridges to dispose of their FOD, but 42% also have their own containers that they maintain. Overall, all participants in the survey demonstrated knowledge about the dangers of FOD and the importance to manage it effectively.

5.3 Housekeeping

"Good Housekeeping" is a Best Management Practice (BMP) that helps to eliminate the potential for pollutants, like trash and debris, to enter the airport's storm water collection system. Areas that are kept clean and well-maintained are less likely to generate FOD. Good Housekeeping should be conducted daily and includes:

- Performing regular inspections of work areas and activities
- Keeping facility and operational areas clean and orderly
- Placing trash receptacles that have covers in appropriate locations
- Sweeping facility and operational areas at least once per week to prevent the accumulation of trash, debris, sediment, and contaminants.
- Properly disposing of all trash, debris, and sediment from sweeping.

5.4 "Clean As You Go"

"Clean As You Go" is an aerospace industry standard routine for cleaning up work areas prior to, during and after work efforts. It is the continuous practice of debris removal and surface cleanliness during maintenance or any operation involving hardware, equipment, or tools. The "clean as you go" routine prevents accumulation of FOD, and thus greatly decreases the potential for FOD related injury and damage.

The following are good clean-as-you-go practices, and should be applied on an everyday basis:

- Clean up the immediate and surrounding areas when work cannot continue.
- Clean up the area when work effort is complete.
- Clean up the apron area between aircraft arrival and departure.
- Clean up any generated debris that has the potential to migrate to an out of sight or inaccessible area.
- Clean up debris that has the potential to cause damage to hardware, equipment, or infrastructure.
- Clean up the area prior to a work shift change or unplanned delay.

Similar to Good Housekeeping, the "Clean As You Go" routine provides a clean, organized, and professional working environment for personnel, while simultaneously preventing the generation of FOD.

5.5   FOD Containers

To assist with the proper disposal and containment of FOD on the airfield, large, covered "FOD Cans" (trash cans) are installed at each gate and serviced multiple times throughout the day by the Authority's janitorial contractor.

5.6 Airport Authority Airside & Terminal Operations Department Inspection

The Airport Authority's Airside and Terminal Operations Department performs routine FOD inspections, or movement area inspections, at least once a day. These inspections occur throughout the airside including on the runway itself between flight operations. This department can remove FOD from the airfield and can communicate FOD issues to operators.

5.7   FOD Walks / Walk Downs / Sweeps

A FOD walk, or walk down, is a formal, or informal, activity that involves personnel walking FOD prevention areas, picking up any trash or debris. Personnel physically walk through a FOD Prevention Area (often side-by-side or shoulder-to-shoulder) to inspect the area's cleanliness and remove loose or unwanted items. Areas or items of concern are recorded to ensure follow-up corrective action. A FOD Sweep is a similar activity but involves the use of sweeper machinery to achieve the same goals. At SAN, both the Airport Authority and its tenants perform these activities on either a scheduled or as–needed basis, as outlined below. Findings from FOD walks and sweeps are shared with airline managers and other airfield tenants at the monthly Lindbergh Airport Managers Committee (LAMC) meeting and Safety and Security Committee meeting.

5.7.1 Airport Authority FOD Walks and Sweeps

In addition to cleaning-as-you-go, the Authority has scheduled FOD prevention and removal including:

- Monthly Ramp Walks: The Airport Authority organizes monthly "ramp walks" where Airport Authority employees, tenant employees, and contractor employees join to perform a FOD walk of the gate areas. These ramp walks also serve as an opportunity for appropriate staff to perform safety, stormwater, or operations inspections.

- Scheduled sweeping: Sweeping equipment and scheduling is managed by the Airport Authority's Facilities Management Department. SAN owns and operates two sweepers, one equipped with a large magnet, that sweep throughout the Airport campus—including FOD Prevention Areas. Depending on the specific location, sweeper frequency varies between nightly, monthly, or quarterly. In preparation for each month's ramp walk, FMD staff sweep the scheduled areas, including gate areas and aprons, using their sweeping vehicles and handheld brooms.

5.7.2 Non-Authority FOD Walks and Sweeps

Airline (Tenant) Scheduled FOD management is unique to each organization. Per Airport Authority Rules and Regulations and Code, these stakeholders are required to police and keep their ramp areas clean and free of all debris. Most airlines strive to check the ramps for FOD pre-arrival and post-departure of each aircraft through the work of their ramp employees. Some airlines also perform daily FOD walks with managers and supervisors in addition to implementing the clean-as–you-go method. Some airlines own and operate their own sweeper machines and pressure washers while others use manual methods to remove FOD from the Airside. During the 2020 Waste & FOD Questionnaire, which was conducted by the Airport Authority with all airlines and their business partners, all airlines reported that either their own staff or their contracted staff managed FOD before arrival and after departure of each flight.

Ground Handler & Ramp Operator (Tenants / Subtenants / Subcontractors) Scheduled FOD management is unique to each organization. Per Airport Authority Rules and Regulations and Code, these stakeholders are required to police and keep their ramp areas clean and free of all debris. Most of these contractors strive to participate in mandatory FOD walks before each aircraft arrives and departs. Additionally, all ground handlers are expected to implement weekly sweeping by hand or machine. Groups perform weekly FOD walks when they move out their equipment from the building prior to these sweeping activities.

Janitorial FOD management also occurs. The Airport's janitorial provider also assists in FOD management at the Airport. A designated janitorial employee services all the FOD Cans daily throughout the gate areas while also manually sweeping the areas within 10 feet from the building.

5.8   FOD Characterization Studies

FOD characterization studies occur one to two times a year to measure amounts of FOD, identify types of FOD, and analyze trends over seasons or years. The results are shared with Airport stakeholders, typically at LAMC, to educate and improve future performance. The Airport Authority evaluates the FOD discovered during the monthly ramp walk and objects are categorized using guidance from the FAA Circular and the FOD Control Corporation. Categorization of FOD types helps to identify trends and aid in the development of FOD and pollution prevention processes. An example of the FOD Characterization tally sheet and categorization tables are included in Section 9 of this plan.

5.9 Personal Attire, Personal Protective Equipment (PPE) and Other Personal Items

Proper work attire and control of personal items and PPE are essential to preventing FOD. Everyone with access to the AOA must secure personal attire, PPE, and personal items to prevent them from becoming FOD. Based on the results of the 2020 Baseline Study, disposable gloves and earplugs are of particular

concern. As noted above, the Airport Authority's Rules and Regulations require that all persons conducting any activity on the AOA shall ensure that unsecured trash bags containing foodstuff or food containers, whether full, empty or nearly empty, are not left on or discarded on the ramp, in baggage carts, on flatbed vehicles, or on other uncovered vehicles.

5.10 Tool Accountability & Control

Tools in FOD Prevention Areas should be traceable to their owner and/or their storage locations. Tool accountability/control systems may vary throughout the Airport campus as influenced by tenants, contractors, usage, and area requirements. Individual tenants and subtenants, contractors and subcontractors, and vendors may have their own internal tool accountability systems but must ensure compliance with Airport Authority procedures as well. Local management decides which method(s) are most appropriate based on the standard work performed to ensure that tools do not pose a FOD threat.

At SAN, a good example of internal tool accountability and control comes from the Facilities Management Department. FMD is responsible for their own tools that enter and exit the Airside. Within the Department, each one of the maintenance shops and each employee has his own tool inventories. These inventories include information on the manufacturer, model number, and description of each tool to enhance accountability of all Facilities Maintenance tool users. The Facilities Management Department has also implemented a "Rules for Tools" policy for all tools used by the Department. These Rules are signed by each employee and include measures to increase accountability, prevent tool loss, and inherently prevent FOD incidents. FOD related items from the Rules for Tools include:

1. Airport Authority employees shall be able to show possession of issued tools when requested.

2. Employees shall immediately report to their Lead any loss of tools or equipment.

3. Shop and shift Leads shall conduct a Quarterly personal tool inventory of 25% of staff to ensure proper control and care of issued tools.

4. Shop and shift Leads shall conduct an annual inventory of their community tools.

5. Leads shall keep records of personal and community tools on file.

Contractors are also required to follow proper procedures for tool use at SAN. All contractors fill out the "Tool Inventory Verification Form (TIF)" to work in sterile areas or on the airfield and submit them to the appropriate Airport Authority Department. The TIF includes information regarding the worker, their duration on the Airside, and description of the tool. All sharp, pointed, or bladed objects or tools, including, but not limited to, knives, screwdrivers, hammers, chisels, scissors, carpet cutters, nail guns, etc. must be properly verified by Airport Authority personnel. The TIF assists with security risks but also helps prevent tools from being left in any sterile areas or on the Airside and posing a FOD risk. The Airport Authority's Aviation Security and Public Safety team also manages a Tool Inventory Program to prevent tools from being left in the Sterile Areas and prevent security risks. While this program does not extend to tools that enter the Airside, it does create a system that prevents tools from entering it.

Stakeholders that are interested in examples and descriptions of tool accountability/control systems can reference Section 9 of this plan for a list of tool accountability tactics.

5.11 Miscellaneous Small Parts (MSP) and Consumables

All miscellaneous small parts (MSP) and consumables that are utilized on a day-to-day basis should be controlled, maintained, and disposed of in accordance with local management direction. These items should be stored and transported in sealable containers to prevent them from becoming loose items and ultimately FOD.

5.12 Wildlife Hazard Management and Biodiversity Plan

The definition of FOD includes live animals. As such, the Airport Authority implements both a Wildlife Hazard Management Plan and a Biodiversity Plan which includes goals for management and control of birds at SAN. The Airport Authority uses multiple effective and humane methods to deter birds and other animals from entering the airfield and jeopardizing the safety of aircraft and passengers. The Airport Authority's Wildlife Hazard Management Plan and the Biodiversity Plan outline methods and goals to modify the airport environment to discourage wildlife from inhabiting the airport. These methods include selecting and maintaining landscape plants that limit sources of food and nesting habitat for wildlife, eliminating sources of standing water, and limiting the number and variety of trees around the airport. To prevent birds, in particular, from becoming FOD, the Airport Authority has installed bird deterrents around much of the airport campus, including fine wire, netting, and small "spikes" in potential perching or nesting areas, and ensures bird control is considered in design of each new construction project. The Airport Authority's bird deterrent methods also include horns, sirens, and pyrotechnics to disperse birds that pose a risk to aviation safety.

6.0 SAN FOD MANAGER

The Airport Authority is responsible for designating a staff member to oversee the airport's FOD programs and issues. This designated individual is responsible for managing FOD related reports, recommendations, and issues. The FOD manager regularly communicates the status of the FOD program to Airport Authority staff and local management and ensures that lessons learned from FOD incidents are distributed widely. An open line of communication is always available between the FOD Manager and the airport tenants.

The Airport Authority's FOD Manager develops and implements plans and programs to prevent, detect, and remove FOD from the airport and prevent pollution. Responsibilities of the FOD manager include:

- Review and assess the airport's FOD management program and make necessary revisions.

- Research FOD management best practices and technologies and explore implementation options.

- Conduct scheduled and unscheduled evaluations/inspections of work areas to assess the effectiveness of the FOD management program.

- Evaluate the amount and kind of foreign objects found and how they were found (e.g. during bi-annual FOD characterization studies).

- Assure that FOD incidents are thoroughly investigated, and that adequate corrective actions are implemented.

- Notify affected contractor/tenant organizations and personnel of unique FOD prevention requirements.

- Develop and disseminate special FOD prevention instructions, as necessary.

- Assist as necessary or as requested in the development of FOD prevention training for Airport Authority staff, as well as airport tenants and contractors.

- Assure that written procedures provide for adequate records attesting to the status and adequacy of the FOD management program.

- Assure FOD Management Program awareness throughout the airport.

6.1   FOD Program Surveys

The Airport Authority's Planning and Environmental Affairs Department is responsible for maintaining an effective FOD Management Program with the assistance and guidance from relevant stakeholders. To ensure compliance with FOD related regulations and requirements, informal audits or surveys of internal groups or local management may be conducted. If needed, adjustments or changes may be required to improve FOD prevention practices and the program's overall effectiveness. Periodic check-ins with the Airport Authority's Airside & Terminal Operations Department, Safety & Security team, and FMD may be part of the program survey.

6.1.1   FOD Characterization
The FOD Manager is responsible for scheduling and conducting bi-annual FOD Characterization studies and sharing the results with Airport stakeholders.

7.0 REPORTING AND RECORDS

7.1   Incident Reporting

While local management may have its own internal procedures for reporting FOD incidents, there are times that incident reports must be generated by the Airport Authority or Harbor Police Department (HPD). All FOD incidents that result in Airport Authority-owned property damage or personnel injury must be reported to and investigated by the Airport Authority's Airside & Terminal Operations Department and Harbor Police Department. If an incident results in injury to personnel, or damage to airport infrastructure, aircraft, or ground support equipment, the Harbor Police Department must be notified immediately.

Local management is responsible for coordinating with the Airside and Terminal Operations Department and/or Harbor Police Department to process an incident report. The initial report does not require cause

and corrective action information but should inform the appropriate parties that an incident has occurred. These entities will process the report and provide a copy to the Airport Authority's FOD Manager.

The Airport Authority's FOD Manager will review the incident report and investigate the incident, as necessary, to obtain the following information, to the extent practicable:

- How the FOD object was detected

- Date and time of FOD detection and retrieval

- Description of FOD retrieved (category, size, color), and/or image (if available)

- Location of FOD incident

- Name of personnel detecting FOD incident and contact information for local management

- Possible source of FOD

- Airport operations and weather data during the FOD detection event

- What corrective action, if any yet, has been taken

The FOD Manager will work with local management to identify and implement any necessary corrective action relative to FOD prevention. Information relative to the incident should be collected and recorded within 2 weeks of the incident.

The Airport Authority's Planning and Environmental Affairs Department maintains documentation of FOD related incidents and corrective actions. This documentation is helpful in identifying trends, repeats, and unusual conditions and provide qualitative data for evaluating the need for changes to the FOD Management Plan.

7.2 Records Retention

The Airport Authority maintains documentation on FOD incident reports, results of FOD characterization studies and findings, surveys, and other FOD management program data for a minimum of 2 years.

8.0 FOD PROGRAM POINTS OF CONTACT

The following person(s) and organizations have been identified as local points of contact for FOD related issues at San Diego International Airport.

- **Airport Authority FOD Manager and Program Point of Contact: Katherine Altobello-Czescik**
  - Planning and Environmental Affairs Department
  - Office: 619-400-2763
  - Cell: 619-455-8007
  - Email: katiea@san.org
- **Airport Authority Environmental Affairs Manager: Richard Gilb**
  - Planning and Environmental Affairs Department
  - Office: 619-400-2790
  - Cell: 619-985-5491
  - Email: rgilb@san.org
- **Airside Operations Department**

  - 619-400-2718

- **Airport Authority Communications Center**

  - 619-400-2710

- **Harbor Police Department**

  - 619-686-8000

9.0 FIGURES AND TABLES

9.1   FOD Prevention Area Map/Floor Plan

Figure 1: Map of SAN FOD Prevention Areas
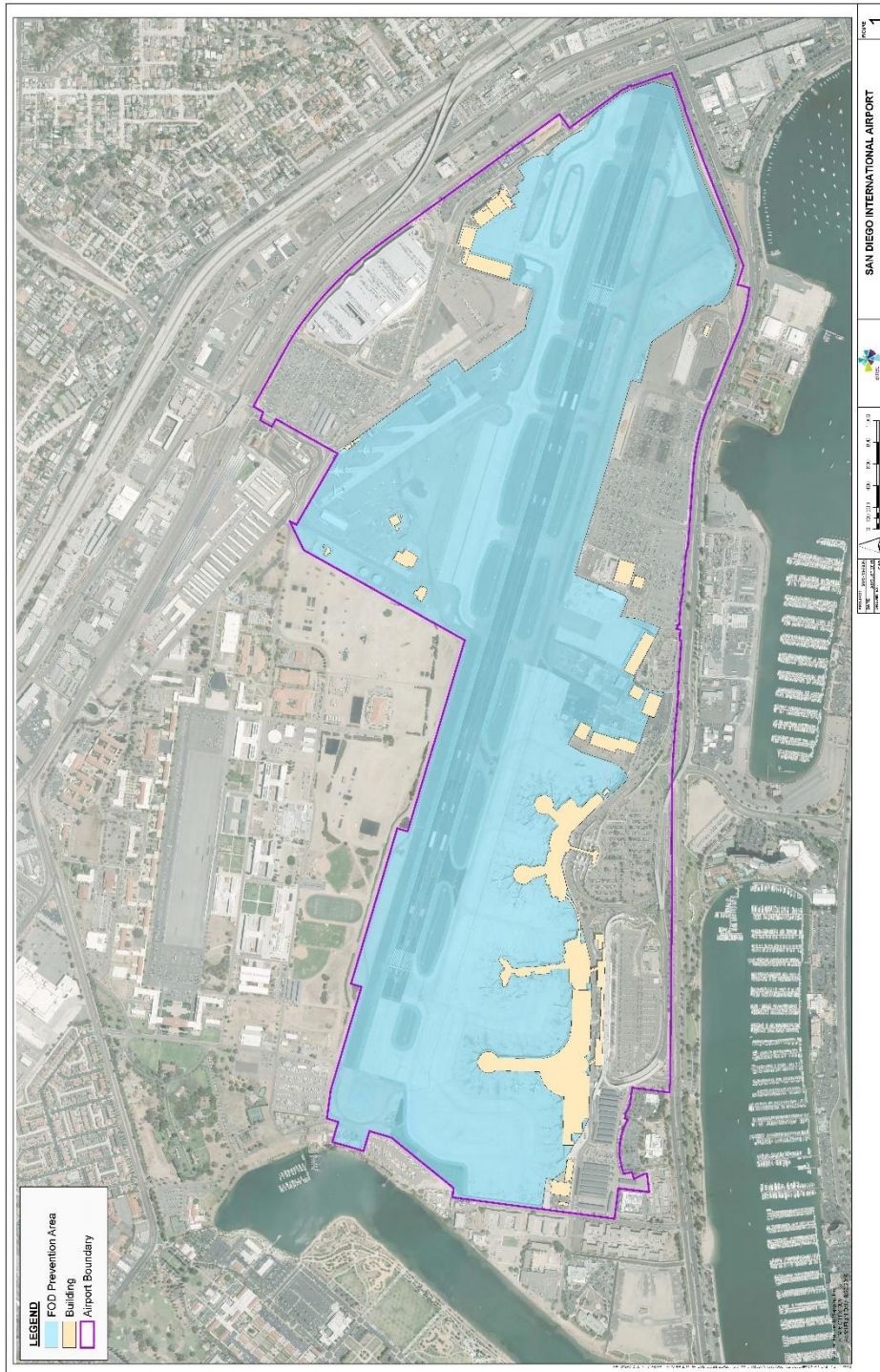
9.2   FOD Prevention Area Signs

Figure 2 below is an example of the signage found across the airport campus—specifically in FOD prevention areas. These stickers can be found on doors, walls, and FOD trash containers throughout the airside and entrances to the airfield.

Figure 2: FOD Prevention Area Sign for Doors, Walls, and FOD Trash Containers

Figure 3 below is an example of FOD Prevention Area signage designed by the Airport Authority's Marketing Team. This signage is intended to be placed on frequented doors and on the terminal building facades as a way to designate the airside as a FOD Prevention Area. The signage also instructs operators to dispose of trash, monitor personal items, account for tools and equipment, and to pick up FOD.

Figure 3: FOD Prevention Area Signage for Doors and Terminal Facades

9.3 FOD Evaluation Tools: Count Form and Characterization Tables

To understand the type of FOD present at SAN, the team uses the following table (Table 1) to categorize and count FOD items found during FOD Characterization Studies. The ranking below represents the most common FOD items found at SAN based on the 2020 FOD Summer Characterization Study.

Table 1: FOD Characterization Study Rankings

Rank	FOD Item	# Of Items
1	Earplugs	
2	Paper scraps	
3	Hard plastic scraps	
4	Squishy Plastic Scraps	
5	Rubber Scraps	
6	Zip Ties (plastic)	
7	Organics	
8	Wood Scraps	
9	Napkins	
10	Metal scraps	
11	Gloves (disposable)	
12	Zipper Pulls	
13	Washers	
	Cloth scraps	
15	Personal items (misc)	
16	Plastic Box Straps	
17	Bottle Caps (plastic)	
18	Concrete pieces	
19	Pens	
20	Bolts	
21	Foam	
22	Glass (pieces)	
23	Bottles (Plastic)	
24	Luggage tags	
25	Nuts	
26	Wires	
27	Straws (plastic)	
28	Luggage parts (plastic)	
29	Plastic Utensils	
30	Screws	
31	Cigarette Butts	
32	Plastic Bags	
33	Aluminum Cans	

34	Cups (plastic)	
35	Hair Ties	
36	Lids (plastic)	
37	Batons	
38	Batteries	
39	Clothing	
40	Cups (paper)	
41	Glass Bottles	
42	Locks	
43	Luggage straps (cloth)	
44	Pins	
	Total	

In order to categorize the FOD, the team uses the Federal Aviation Administration's Advisory Circular on Airport FOD Management (AC No: 150/5210-24) and the FOD Control Corporation's guidelines. To capture all items found at SAN, the Airport Authority adds certain FOD items into the existing "types of FOD". The results of FOD Characterization Studies are categorized by both the FAA categories (Table 2) and FOD Control Corporation's categories (Table 3) using the following forms:

Table 1: FOD Characterization: FAA Circular Categories

Type of FOD	FAA Description	Added Items	Quantity	
Aircraft and Engine Fasteners	Nuts, bolts, washers, safety wire	Screws		
Aircraft Parts	Fuel caps, landing gear fragments, oil sticks, metal sheets, trapdoors, tire fragments			
Mechanics' tools				
Catering Supplies		Straws, cups, napkins, lids, cups, utensils		
Flight Line Items	Personnel badges, pens, pencils, luggage tags, soda cans	Earplugs, gloves, personal items, bottle caps, clothing, bottles, batons, pins, glasses, batteries, hair ties, cigarette butts		
Apron Items	Paper and Plastic debris, debris from catering and freight pallets, luggage parts, ramp equipment debris	Squishy plastic scraps, hard plastic scraps, metal scraps, wood scraps, plastic box straps, zip ties, miscellaneous, cloth scraps, locks, zipper pulls, foam		
Runway and taxiway materials	Concrete and asphalt chunks, rubber joint materials, paint chips			
Construction Debris	Pieces of wood, stones, fasteners, misc. metal objects			
Natural Materials	plant fragments, wildlife, volcanic ash	Feathers		
				Total

Table 3: **FOD Characterization: FOD Control Corporation**

Type of FOD	FCC Description	Added Items	Quantity	
Miscellaneous Small Parts (Type 1)	Nuts, bolts, washers	Screws, wires		
Consumables (Type 2)	Cotton swabs, cable tie wraps, cheese cloth, safety wire	Earplugs, napkins, gloves, straws, lids, bottle caps, bottles, cups, organics, cans, utensils, batteries, glass bottles		
Tools (Type 3)	Pliers, wire cutters, mirrors, hammers, probes, broken tools			
Personal Items (Type 4)	Pins, pens, badges, glasses, rings, folders, clothing	Batons, hair ties, miscellaneous, cigarette butts		
General Debris (Type 5)	Cloth, metal, plastic, or paper pieces or scraps	wood scraps, plastic box straps, zip ties, luggage parts, miscellaneous, concrete, plastic bags, glass, locks, luggage tags, rubber scraps, foam		
				Total

9.4 Tool Accountability

For those interested in proper tool management, there are a variety of ways to promote tool accountability and tool-related FOD prevention. Some strategies are listed in Table 4 below:

Table 4: Tool Accountability Strategies and Descriptions

Tool Accountability Strategy	Description
Etching	A tool accountability system whereby the tool is engraved, leaving a permanent mark or design. Serial numbers, barcodes, or other marks can be etched into the tool so that it can be identified as belonging to a specific location or toolbox.
Color Coding	A tool accountability system in which a color scheme is used to identify where a tool belongs. Colors are usually apparent on the tool handle or have been attached to the tool in the form of a tag or adhesive.
Tool Chits	A tool accountability system in which tool users are assigned tokens, or "chits", that must be physically left in place of the tool when it is removed from storage. The tool chit often has the borrower's name, identification number, and/or picture on it.
Contents Inventory Sheet	A basic tool accountability system whereby a list of all items kept within a storage location are recorded. The list may include details such as make, model number, quantity, etc... At the end of a specified time period, the items physically remaining in the storage location will be compared to the contents inventory sheet to determine if any items are missing.
Tool Check-out/check in sheet	A basic tool accountability system whereby a record of all tool movements from or to a storage location are recorded. Records may include details such as who is removing/returning the tool and where/why it was used. At the end of a specified period, the sheet should be reviewed for items that have not been returned to the storage location and are not currently accounted for.
Automated Dispensing Units (ADUs)	A tool accountability system in which tools are stored in a vending machine that automatically tracks the issuance/return of tools by weight, barcode scanning, or other means. ADUs are often paired with software solutions that can supply reports on tool usage, inventory levels, and more.
Electronic Chip Encoding	A tool accountability system that uses radio frequency identification (RFID) technology to uniquely tag and identify a tool.
Shadow Board / Shadow Box	A tool accountability system that provides a visual reference for the contents belonging to a storage location. Items are outlined (shadow board) or their footprint is engraved

| | (shadow box) in a specific storage location. The footprint or outline is referred to as the item's shadow. |