

APPENDIX J  
FOD MANAGEMENT PLAN

Appendix J - FOD Management Plan





# FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT PLAN

San Diego County Regional Airport Authority (SDCRAA)  
2018



<u>TASK</u>	<u>NAME</u>	<u>DATE</u>
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<b>San Diego County Regional Airport Authority Airside</b>		

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## 1.0 OBJECTIVE AND SCOPE:

This document details the policies that the **San Diego County Regional Airport Authority (SDCRAA)** has put in place to ensure FOD-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 foreign object debris (FOD).

While FOD is significant airfield concern, this plan applies to all airside and landside areas, such as parking lots, roadways, structures and landscaped areas at San Diego International Airport.

### 1.1. FOD Prevention Area:

The entire AOA at SAN is deemed a FOD Prevention Area and FOD Prevention stickers are placed on most doors that provide access to the airside and on the FOD Cans 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 map of FOD prevention Area (or Airport Campus)

## 2.0 FOD PROGRAM DEFINITIONS AND ACRONYMS:

### 2.1 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 cards for imminent travel. It is also known as the sterile area.
- 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 Authority: the San Diego County Regional Airport Authority (SDCRAA).
- f. Best Management Practices: storm water 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 risk of FOD that involves taking opportunities to clean continually throughout the working day and making cleaning part of your 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: SDCRAA 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 trash and/or debris using sweeper machinery to clean up.
- l. FOD Walk or Walk Down: a formal, or informal, activity that involves personnel walking FOD sensitive 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 cleanliness and remove loose or unwanted items.
- 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. Local Management: designated managerial positions within organizations operating on the airport including Authority tenants, contractors, sub-tenants, sub-contractors, and vendors.
- p. FOD Incident: an incident caused by FOD that results in damage to personnel, equipment, or infrastructure.
- q. 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.
- r. Operators: Personnel or companies operating at San Diego International Airport 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 Authority and the agents, employees, contractors and subcontractors of such person, including, but is not limited to, airlines, licensees, permittees, and badge holders.

- s. Ramp(s): the areas where aircraft are parked, unloaded, loaded, refueled or boarded.
- t. 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. Also referred to as the airside.
- u. Storm Water Management Plan: the written plan prepared by the 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."

## **2.2 Acronyms**

- AOA-AIR OPERATIONS AREA
- ATCT-AIR TRAFFIC CONTROL TOWER
- BMP-BEST MANAGEMENT PRACTICE
- FAA- THE FEDERAL AVIATION ADMINISTRATION
- FOD-FOREIGN OBJECT DEBRIS
- GSE-GROUND SUPPORT EQUIPMENT
- HPD-HARBOR POLICE DEPARMENT
- ILS-INSTRUMENT LANDING SYSTEM
- ISWEBE- INLAND SURFACE WATERS, ENCLOSED BAYS, AND ESTUARIES PLAN
- MSP-MISCELLANEOUS SMALL PARTS
- SAN-SAN DIEGO INTERNATIONAL AIRPORT
- SDCRAA-SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY
- SDIA-SAN DIEGO INTERNATIONAL AIRPORT
- SWMP-STORM WATER MANAGEMENT PLAN
- TSA-THE TRANSPORTATION SECURITY ADMINISTRATION
- TIF-TOOL INVENTORY VERIFICATION FORM



### 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 Diego International Airport (SDIA).

#### 3.1 Reference Documents:

The **SDCRAA** 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 \(ISWEBE Plan\)](#)

#### 3.2 Statutes and Regulations:

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

##### 3.2.1 SDCRAA Code

The SDCRAA 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 SDCRAA Rules and Regulations**

SDCRAA 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 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 the 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 SDCRAA's Stormwater Management Plan***

SDCRAA'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 SDCRAA Contract Language**

SDCRAA contracts include language to require appropriate FOD prevention and management. Contract language requires compliance with the SDCRAA code, rules and regulations, and Storm Water Management Plan. Construction contractors are required to prevent the generation of materials that can become FOD on 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**

SDCRAA 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 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 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 SDCRAA Employee & Visitor Requirements:**

Employees of SDCRAA 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 that Authority employees take. The training

highlights FOD hazards and best management practices—including preventing FOD in the first place.

- SDIA Non-movement area driving course – highlights FOD hazards and best management practices and is mandatory for all employees with driving privileges on the airfield.

Authority airside visitors being escorted through FOD prone areas must also be made aware of FOD and FOD prevention requirements. 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
- The impact of FOD on the safety of personnel and airline passengers
- Causes and principal contributing factors of FOD
- The 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:**

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
- The impact of FOD on the safety of personnel and airline passengers
- Causes and principal contributing factors of FOD
- The 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 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 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 PRACTICES

### 5.1 FOD Prevention Program Awareness

A successful FOD prevention program is one that everyone is aware of. Organizational communication, led by the 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 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 on a daily basis and includes:

- Performing regular inspections work areas and activities
- Keeping facility and operation areas clean and orderly
- Placing trash receptacles that have covers in appropriate locations
- Sweeping facility and operation 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.

### 5.3 "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.

#### **5.4 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.

#### **5.5 Authority Airside Operations and Terminal Operations Efforts:**

The Authority's Airside and Terminal Operations Department performs routine FOD inspections of the airside and adjacent areas at least once a day. This department can remove FOD from the airfield and also can communicate FOD issues to operators.

#### **5.6 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 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 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 meeting and Safety and Security Committee meeting.

##### ***5.6.1 Authority FOD Walks and Sweeps***

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

- **Monthly Ramp Walks:** The Authority organizes monthly "ramp" walks where Authority employees, tenant employees, and contractor employees join together 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 Authority's Facilities Management Department. SDCRAA 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.

##### ***5.6.2 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.

**Ground Handler** (Tenant / 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 ground handlers strive to participate in mandatory FOD walks before each aircraft arrives and departs. Additionally, all ground handlers are expected to implement weekly sweeping. Groups perform weekly FOD walks when they move out their equipment from the building prior these sweeping activities.

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.

## **5.7 Personal Attire and Personal Items:**

Proper work attire and control of personal items are essential to preventing FOD. Each individual with access to the AOA must secure personal attire and personal items to prevent them from becoming FOD. As noted above, the Authority's Rules and Regulations requires 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.

## **5.8 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 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. The Authority's Facilities Maintenance Department is responsible for tools that enter and exit the Airside. Within the Department, each one of the maintenance shops and each employee has their own tool inventories. These inventories include information on the manufacturer, model number, and description of each tool in order 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)" in order to work in sterile areas or on the airfield and submit them to the appropriate 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 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.

#### **5.9 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.

#### **5.10 Wildlife Hazard Management and Bird Abatement Program:**

The definition of FOD includes live animals. As such, the Authority implements both a Wildlife Hazard Management Plan and a Bird Abatement Program. The 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 Authority's Wildlife Hazard Management Plan and the Bird Abatement Program outline methods 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 Authority has installed bird deterrents around much of the airport campus, including fine wire, netting, and small "spikes" in potential perching or nesting areas. The Authority's Bird Abatement Program also uses horns, sirens, and pyrotechnics to disperse birds that pose a risk to aviation safety.

## 6.0 SDCRAA FOD MANAGER:

The 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 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 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.
- 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 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 Authority's Planning and Environmental Affairs Department is responsible for maintaining an effective FOD Management Program with the assistance and guidance from relevant stakeholders. In order 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.

#### 6.1.1 *FOD Characterization:*

As part of the Authority's FOD Management program, the Authority evaluates the FOD discovered during the monthly ramp walk twice a year. Objects found during walk downs are categorized to assist with data analysis 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.

## **7.0 REPORTING AND RECORDS:**

### **7.1 Incident Reporting:**

While local management may have their 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 Authority-property damage or personnel injury, must be reported to and investigated by the Authority's Air 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 Air Ops 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. Air Ops and/or HPD will process the report and provide a copy to the Authority's FOD Manager.

The 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, have 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 incidents occurrence.

The Airport Authority's Planning and Environmental Affairs Department will maintain documentation of FOD related incidents and corrective actions. This documentation may be 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 Program POC: Katherine Altobello-Czescik**
  - Planning and Environmental Affairs Department
  - Office: 619-400-2763
  - Cell: 619-455-8007
  
- **Airport Authority Environmental Affairs Manager: Richard Gilb**
  - Planning and Environmental Affairs Department
  - Office: 619-400-2790
  - Cell: 619-985-5491
  
- **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

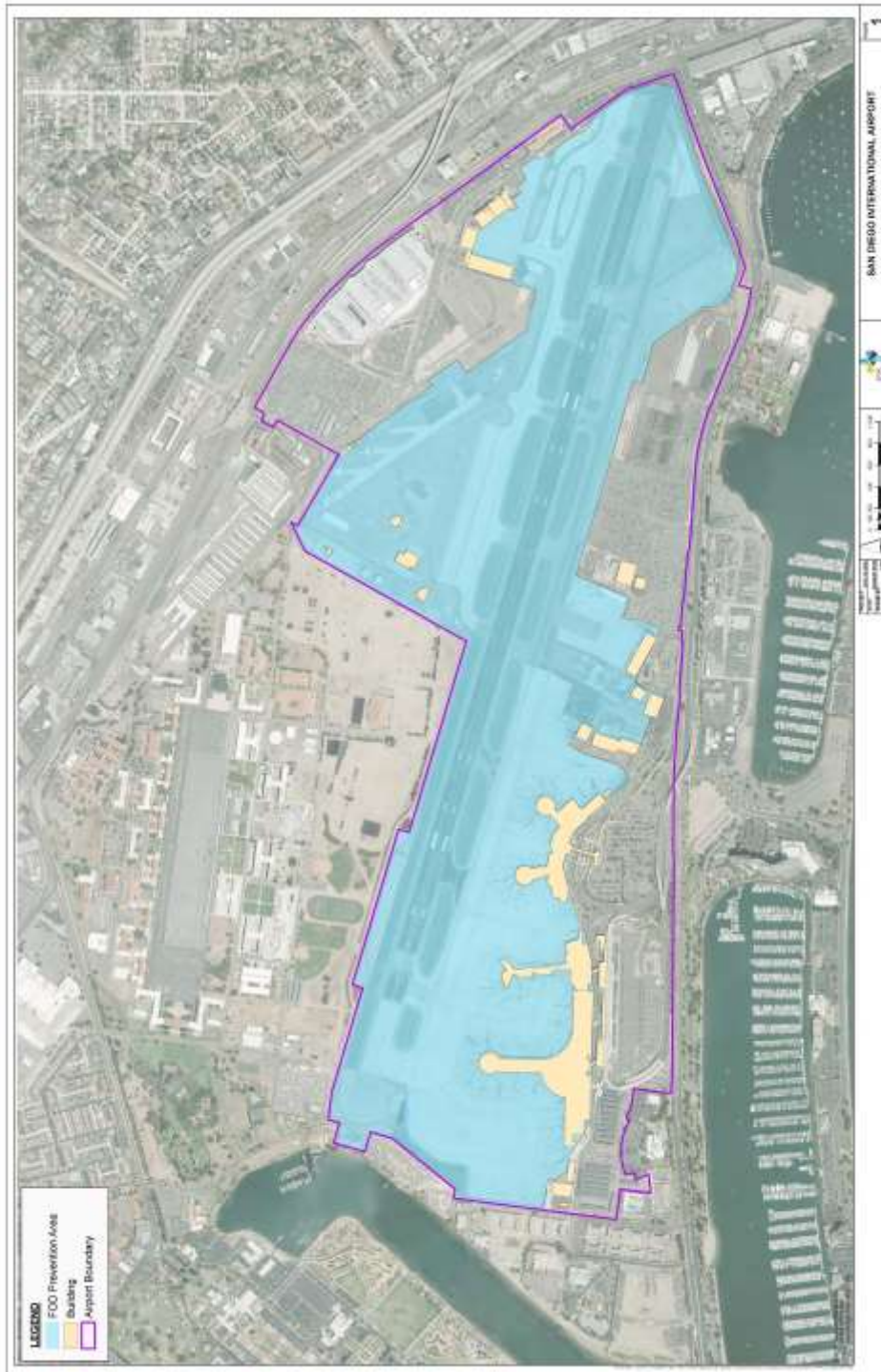


Figure 1

## 9.2 FOD Prevention Area Signs

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

### 9.3 FOD Evaluation Tools: Count Form and Characterization Tables

In order to understand the type of FOD present at SAN, the team uses the following table to count FOD items found during walks or studies. The ranking is based off the top quantity of the FOD items present.

Rank	FOD Item	Quantity
1	Paper scraps	
2	Earplugs	
3	Squishy Plastic Scraps	
4	Metal scraps	
5	Hard plastic scraps	
6	Napkins	
7	Wood Scraps	
8	Gloves (disposable)	
9	Plastic Box Straps	
10	Zip Ties (plastic)	
11	Straws (plastic)	
12	Rubber Scraps	
13	Zipper Pulls	
14	Miscellaneous	
15	Concrete pieces	
16	Personal items (misc.)	
17	Luggage parts (plastic)	
18	Luggage straps (cloth)	
19	Bolts	
20	Washers	
21	Lids (plastic)	
22	Bottle Caps (plastic)	
23	Clothing	
24	Bottles (Plastic)	
25	Nuts	
26	Screws	
27	Cups (paper)	
28	Luggage tags	
29	Organics	
30	Locks	
31	Pens	
32	Cups (plastic)	
33	Batons	
34	Pins	
35	Cloth scraps	
36	Glasses (pieces)	
	Total	

Table 1



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. In order to capture all items found at SAN, the Authority adds certain FOD items into the existing descriptions. The results are recorded into the following categories:

<b>FOD Characterization: FAA Circular Categories</b>			
<b>Type of FOD</b>	<b>FAA Description</b>	<b>Added Items</b>	<b>Quantity</b>
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	
Flight Line Items	Personnel badges, pens, pencils, luggage tags, soda cans	earplugs, gloves, personal items, bottle caps, clothing, bottles, batons, pins, glasses	
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	
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		
			<b>Total</b>

Table 2

FOD Characterization: FOD Control Corporation				
Type of FOD	FCC Description	Added Items	Quantity	
Miscellaneous Small Parts (Type 1)	Nuts, bolts, washers	Screws		
Consumables (Type 2)	Cotton swabs, cable tie wraps, cheese cloth, safety wire	Earplugs, napkins, gloves, straws, lids, bottle caps, bottles, cups, organics		
Tools (Type 3)	Pliers, wire cutters, mirrors, hammers, probes, broken tools			
Personal Items (Type 4)	Pins, pens, badges, glasses, rings, folders, clothing	Batons		
General Debris (Type 5)	Cloth, metal, plastic, or paper pieces or scraps	wood scraps, plastic box straps, zip ties, luggage parts, miscellaneous, concrete		
				<b>Total</b>

Table 3

## 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 below:

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 tool box.
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 time 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.

Table 4