APTA STANDARDS DEVELOPMENT PROGRAM
RECOMMENDED PRACTICE
American Public Transportation Association
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APTA SS-SIS-RP-014-13, Rev. 1
First Published: March 26, 2013
First Revision: May 28, 2021

Transit Infrastructure Security Working Group

Trash/Recycling Container Placement at Public Transportation Passenger Facilities

Abstract: This Recommended Practice provides procedures for the placement of trash and recycling containers at public transportation passenger facilities.

Keywords: blast, container, explosions, placement, trash

Summary: Public transportation systems by nature are open and easily accessible by the public, moving large amounts of people often without application of security screening practices employed in airports. As adversaries may use trash and recycling receptacles to emplace and conceal a CBRNE device, significant thought should be given to the types and locations of trash containers used in public transportation environments.

Scope and purpose: This recommended practice provides guidance to assist operators in selecting and positioning trash and recycling containers at public transportation passenger facilities by detailing the risks, benefits, and drawbacks associated with different types of trash and recycling receptacles.

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Introduction

This introduction is not part of APTA SS-SIS-RP-XXX-XX, "Trash/Recycling Container Placement at Public Transportation Passenger Facilities."

APTA recommends the use of this document by:

- individuals or organizations that operate public transit systems;
- individuals or organizations that contract with others for the operation of all transit systems; and
- individuals or organizations that influence how all transit systems are operated (including but not limited to consultants, designers and contractors).

Trash/Recycling Container Placement at Public Transportation Passenger Facilities

1. Overview

This document establishes recommended practices for the selection and placement of all types of trash and recycling containers at public transportation passenger facilities. Transit agencies should use a site-specific security risk assessment process to assess the relative risk level of each passenger facility.

The selection and placement of trash/recycling containers at passenger facilities can significantly impact the opportunity and effects of a CBRNE attack. Trash and recycling containers may be used to conceal a CBRNE device for the purpose of causing injury to people, disruption public transportation operations, or damage to assets and public transportation infrastructure. A CBRNE release within an enclosed space is typically more damaging than in an open environment.

Significant thought should be given to the types of trash containers that are selected and where they are deployed relative to people, operations and critical infrastructure.

1.1 Scope

This Recommended Practice provides guidance for the selection and placement of all types of trash and recycling containers at public transportation passenger facilities.

1.2 Purpose

The purpose of this Recommended Practice is to provide guidance to transit agencies for the placement of containers at public transportation passenger facilities to minimize the opportunity and effects of a CBRNE attack and the effects to people, operations and other critical infrastructure.

2. Risk assessment considerations

Agencies should evaluate risk to people, operations and critical infrastructure. Use individual risk assessments as a guide to determine placement of trash and recycling containers.

2.1 Systemwide assessment

Transit systems should refer to their existing security risk assessments to determine the risks to their systems' assets and the surrounding environment. Transit systems that do not have security risk assessments should develop them using the APTA Security Risk Assessment Recommended Practice or other established guidance.

2.2 Passenger facility risk assessment

To determine specific passenger facility risks, refer to the agency asset's criticality ranking and the security and risk management issues for each specific location being considered. Transit agencies should use a risk based assessment approach to identify security threats to their transit system. The approach may also evaluate

system vulnerabilities to those threats, and determine the consequences to people, operations, assets and infrastructure. The results should be used to determine appropriate placement of trash and recycling containers to minimize the risk to people, operations, assets and infrastructure.

A site survey of the assets of each passenger facility should include the following, at a minimum:

- Access and egress points
  - Pedestrian
  - Vehicle (revenue and non-revenue)
- Areas where people congregate
- Location of critical structural elements such as columns and load-bearing walls
- Walkways
- Glass (e.g., doors, windows and skylights)
- Ceiling height
- Utilities
  - HVAC
  - Electrical
  - Communications
  - Gas lines
  - Fire Life Safety systems
  - High-pressure steam
  - Other subsystems
- Enclosed spaces such as alcoves and passageways where a blast could be amplified or reflected
- Pedestrian bottlenecks
- Flammable and toxic materials
- Existing security assets (e.g. security staff deployments, CCTV's, gates, intruder deterrents, etc.)

Additionally, a survey to incorporate crime prevention through environmental design (CPTED) principles should be performed. (See APTA SS-SIS-RP-007 RP, "Crime Prevention Through Environmental Design (CPTED)".

3. Trash/recycling container types and placement

In operational environments where trash must be regularly collected and removed, consideration must be given to the environment, proximity of critical assets and the number and type of trash containers. The units must be placed in positions where they can be viewed and accessed by the public.

3.1 Operational and maintenance considerations

Operational considerations must be considered prior to placement, including the following:

- Current placement and construction of existing trash /recycling containers
- Container servicing procedures
- Trash volume
- Trash accumulation and removal
- Staffed or unstaffed facilities

Consideration should be given to the frequency of trash collection. Frequent collection may increase the probability of a device being found.

3.2 Container types

Trash and recycling containers are classified as standard or non-blast-resistant and blast-resistant. **Table 1** provides examples of these containers.

Note that Transportation Security Administration security directive, SD RailPAX0-04-01, requires the removal of trash and other containers from rail passenger platforms areas, if the passenger facility risk assessment identifies a significant security risk, to the extent practicable and resources allow. The directive allows blast resistant and clear plastic receptables in these significant risk areas.

3.2.1 Standard or non-blast-resistant

Non-blast-resistant types of containers include hard plastic, metal and concrete. These containers are not designed to withstand the effects of an explosion, as these dense materials can potentially contribute to secondary fragmentation. These types of containers may be designed to reduce the opportunity for a hostile actor to leave behind a CBRNE device undetected. Use of these types of containers in high risk areas should incorporate appropriate security design features based on the threat environment and available intelligence on threats to the system.

If a security threat becomes elevated, consideration should be given to sealing or removing the containers.

3.2.2 Blast-resistant

Blast-resistant containers mitigate and resist breaking apart under a specific explosive load to reduce the effects of primary (container) and secondary (container contents) fragmentation and overpressures from a detonation of an explosive device. Note that these containers direct the blast above, and in some cases, below the unit and have a maximum manufacturer's design load rating. They must also be secured in place in accordance with manufacture’s requirements. Accordingly, blast-resistant containers are difficult to move. Industry standard specifications should be referenced to determine if they meet the transit agencies needs and ASTM specifications for trash receptacles prior to procurement.

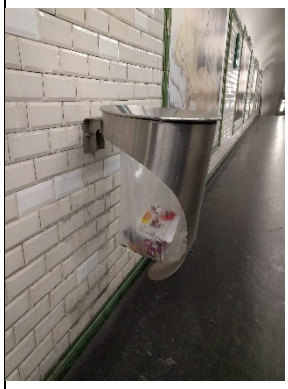
3.2.3 Clear plastic

These containers provide visibility of the contents and do not contribute significantly to secondary fragmentation, but they are not designed to provide protection from a blast or release of an agent. These containers typically consist of a frame or collar and clear bag. A simple design of a clear plastic trash bag suspended from a collar provides a receptacle that will accommodate the types of refuse normally encountered in a transit system while not accepting heavy items typical of a CBRNE device. Employees and passengers can be alerted to unusual occurrences associated with the container by watching for bags that have been broken or have fallen to the floor due to the size or weight of objects not normally discarded in such containers.

Clear plastic receptacles offer a relatively low-cost method of monitoring and identifying suspect items placed in the receptacles, and when combined with employee awareness programs, may provide an effective mitigation measure.

TABLE 1
Trash and Recycling Receptacles

Type of Receptacle	Description	Pros	Cons
 Metal wire frame	• Lightweight metal frame manufacture • Designed to hold trash bag in place with minimum effort	• A clear trash bag (liner) allows contents to be viewed from the exterior and interior of the bag • Lightweight • Reduced profile • Easily relocated • Low cost	• Difficult to mount or secure in place • Severe winds may unintentionally move/tip receptacle • Trash bag contents may pose weight limitations • High potential for vandalism/damage
 Metal frame with aperture and interior receptacle	• Light- or heavy-weight metal frame and shell design. • Intended for permanent or semi- permanent placement. • Removable aperture to empty/replace trash bag (liner) • Receptacle located inside frame	• Aesthetic appearance • Available in various colors • Permanent or semi-permanent mounting • Durable under various environmental conditions • Lower vandalism/ damage potential	• Trash bag (liner) contents may pose weight limitations • Difficult to view contents • Frame contributes to fragmentation
 Wire metal with aperture and interior receptacle	• Light- or heavy-weight metal frame and shell design. • Intended for permanent or semi-permanent placement. • Removable aperture to empty/replace trash bag (liner) • Receptacle located inside frame	• Aesthetic appearance • Available in various colors • Permanent or semi-permanent mounting • Durable under various environmental conditions • Lower vandalism/ damage potential	• Trash bag (liner) contents may pose weight limitations • Difficult to view contents • Frame contributes to fragmentation
 Metal frame with wire mesh open aperture receptacle	• Light- or heavy-weight metal frame and shell design. • Intended for permanent or semi-permanent placement. • Removable aperture to empty/replace trash bag (liner) • Receptacle located inside frame	• A clear trash bag (liner) allows contents to be viewed from exterior and interior of the bag	• No aperture to limit size of items placed into receptacle • Trash bag (liner) contents may pose weight limitations • Difficult to mount or secure in place

 Metal frame with clear plastic bag	• Lightweight metal frame manufacture • Designed to hold trash bag in place with minimum effort • Permanent placement • Removable aperture	• A clear trash bag (liner) allows contents to be viewed from the exterior and interior of the bag • Lightweight • Reduced profile • Aperture can limit size of contents	• Must be secured to wall or other structure
 Big Belly	• Heavy-weight metal frame and shell design. • Intended for permanent or semi- permanent placement. • Small aperture to limit size of trash/recyclable • Receptacle located inside frame is locked	• Aesthetic appearance • Available in various colors • Permanent or semi-permanent mounting • Durable under various environmental conditions • Contents are compressed to allow for increased capacity • Lower vandalism/ damage potential • Interior container is locked	• Contents cannot be viewed • Expensive
 Blast-Resistant Container	• Heavy • Must be secured in place in accordance with manufacture specifications	• Blast-resistant • Aperture limits size of items	• Expensive • Difficult to move • Contents not visible

3.3 Apertures (Opening)

An important consideration is the size of the container aperture (opening). The aperture of standard and non-blast resistant containers should be large enough to contain and hold disposed items, but small enough to limit the size of a CBNRE device. The smaller the aperture, the lower potential threat of the hazardous material or blast that could be placed in the container. Consideration should be given to limiting the number of apertures as well.

3.4 Specific location placement

Prior to placing any containers in any location, evaluate the risk to people, operations and critical infrastructure. Ensure that the solution does not introduce new or more serious risks. Placement should consider:

- Pedestrian and vehicle circulation
- Areas where people congregate or queue
- Alcoves, passageways, and passenger tunnels and other confined areas
- Security camera surveillance
- Mezzanine and platform levels
- Fare collection areas

Placement should also allow an unobstructed view of the container and its contents.

3.4.1 Open environment

In an open, or non-enclosed, environment, there are limited blast reflecting surfaces nearby. In low-risk areas, any type of container can be used.

In a high-risk area, it is recommended that standard containers be removed or be switched to blast-resistant or clear plastic containers. The level of blast resistance should be based on the facility's security risk assessment.

3.4.2 Environments close to buildings and other blast-reflecting surfaces

Trash containers should be placed as far from blast-reflecting surfaces (e.g. wall, ceiling, stairways, elevator shafts, etc.) as practical. Placement near glass, flammable and toxic materials and structural members also should be avoided.

In high-risk areas where placement is within 100 feet of a building, standard containers should be removed or switched to blast-resistant or clear plastic containers. In low-risk areas, any container may be used.

3.4.3 Enclosed environments

Explosions in enclosed spaces generally are more damaging than explosions in an open environment. Areas that are confined and with limited paths for the blast wave to exit the structure provide a particularly damaging blast environment. Enclosed areas include underground stations, below ground level passenger facilities, parking facilities, and other passenger facilities with limited paths for the released agent or blast to travel.

Placement near glass, flammable and toxic materials and structural members also should be avoided, as they may contribute to the blast effect or agent disbursement.

In high-risk enclosed spaces, standard containers should be removed or should be blast-resistant or clear plastic. Blast-resistant containers should be placed in accordance with recommendations from the facility's maintenance and engineering staff and emergency responders (such as bomb detection teams).

Caution should be used in placing blast-resistant containers under vulnerable overhead assets and on top of vulnerable platforms.

In low-risk enclosed spaces, any container may be used.

4. Securing Containers

Containers should be serviceable and removeable by authorized personnel, when required. Containers should be secured by being mounted in place, unmovable or rendered unmovable by being bolted or welded in place to prevent unauthorized removal, rolling or spilling the container contents.

5. Elevated Threat Levels

During periods of elevated threat levels or other localized elevated threat levels, transit agencies should implement complementary protective measures associated with trash receptacles and recyclable containers.

Transit agencies should refer to the FTA's "Transit Agency Security and Emergency Management Protective Measures" (November 2006) resource document for assistance in developing their own specific protective measures. This document is available for viewing and downloading at the FTA website:

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/ProtectiveMeasures.pdf

The DHS National Terrorism Advisory System (NTAS) provides the Nation with current threat information in the form of Bulletins, Elevated Alerts, and Imminent Alerts. Transit agencies should monitor NTAS bulletins and consider implementing the following additional protective measures that pertain to trash receptacle and recyclable container placement when appropriate:

- Remove all non-blast-resistant trash receptacles except for clear plastic containers at passenger facilities.
- Non-blast-resistant trash receptacles and recyclable containers that cannot be removed should be secured from use.

6. Documentation

Location and container type of trash and recycling containers should be documented accordance with the transit agency's procedures. Periodic monitoring of container placement should be performed and documented.

Related APTA standards

APTA SS-SIS-RP-007-10, "Crime Prevention Through Environmental Design"

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Definitions

aperture: The opening of trash and recycling containers that allow for the insertion of items.

explosive device: A bomb fabricated in a manner incorporating destructive, lethal, noxious, pyrotechnic or incendiary chemicals and designed to destroy or incapacitate personnel or vehicles. Explosive devices include incendiary devices.

incendiary device: Any firebomb, and any device designed or specially adapted to cause physical harm to person or property by means of fire and consisting of an incendiary substance or agency and a means to ignite it.

operations facilities: Facilities that are used by the operations staff in the course of their duties in maintaining and running passenger facilities. These facilities generally are not open to the public, although enforcement of security in these areas is likely to be low (with the exception of airports).

passenger facilities: Facilities used by the passengers as part of their transit journey. They range from simple bus stops to large, mixed-use multi-modal structures and have a wide array of supporting amenities and services.

station: All areas and improvements within the boundaries of the station site which includes structures, platforms, entries, approaches, and the parking lots.

transit agency: The organization that operates transit service and other related transportation services.

Abbreviations and acronyms

CBRNE chemical/biological/radiological/nuclear/explosive
OEM original equipment manufacturer

Summary of document changes

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Document history

Document Version	Working Group Vote	Public Comment/ Technical Oversight	CEO Approval	Policy & Planning Approval	Publish Date
First published					March 26, 2013
First revision	Sept. 22, 2020	March 5, 2021	March 31, 2021	April 23, 2021	May 28, 2021