

# Crime Prevention Through Environmental Design for Public Transit Stations

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## Project Overview

This research examined Crime Prevention through Environmental Design (CPTED) practices at public transit stations to improve rider safety and expand access to transportation opportunities. The study evaluated CPTED implementation at twelve transit stations in vulnerable areas, developed comprehensive assessment tools, and identified gaps between existing practices and CPTED principles.

## Methodology

Researchers analyzed transit agency design documents, conducted field assessments at twelve bus stops, rail stations, and trolley stops using specialized CPTED checklists, and engaged with transit agency staff. Sites were selected using geospatial mapping tools to identify areas with multiple transportation challenges and infrastructure needs. Each location was evaluated across five CPTED categories: maintenance, natural surveillance, access control, territoriality, and activity support, with findings cross-referenced against local crime reporting data.

## Key Findings

- **Maintenance:** Maintenance elements were demonstrated in 68.1% of instances, with well-maintained buildings and landscaping but inconsistent waste receptacle placement
- **Natural Surveillance:** Adequate visibility features were found in 51.7% of cases, though security cameras were absent
- **Access Control:** Signage-related CPTED elements were uncommon, with only 17% of locations including location or system maps
- **Activity Support:** Activity support elements were implemented in 36.4% of locations where they would be appropriate with seating available at 50% of all locations assessed
- **Territoriality Elements:** Proper boundary definition features were least-often encountered, with directional signage present at only 8% of locations

## Key Figures

Researchers reviewed transit agency documents and performed field studies using evaluation forms to assess transit stations' compliance with CPTED principles.

**Maintenance**  
Spaces have a sense of ownership and intended purpose through appropriate upkeep; easy-to-maintain materials are selected

Element	Found in transit agency design guidelines?	Location/notation	Notes
<input type="checkbox"/> Building is well-maintained.			
<input type="checkbox"/> Landscaping is well-maintained			
<input type="checkbox"/> Waste-resistant materials, animal fecal or porcupine droppings in areas where graffiti is likely to be a problem. Vegetative screens for large, fat walls.			
<input type="checkbox"/> Common areas and/or street furniture made of long-lasting, vandal-resistant materials and are secured or removed after hours.			
<input type="checkbox"/> Landscapes and passageway illuminations are vandal-resistant.			
<input type="checkbox"/> Waste receptacles are available in appropriate locations.			
<input type="checkbox"/> There is a method for riders to report maintenance needs.			

Maintenance Evaluation Design Checklist

**Access control**  
Entry points are clear; people know where to go, and unauthorized access is deterred

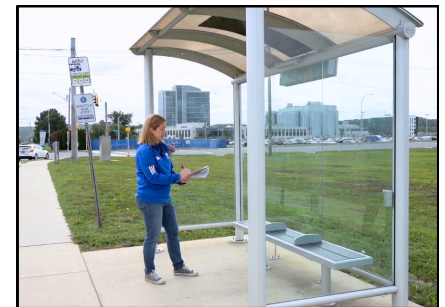
Element	Photo	Photo note	PIA/UINA	Notes
<b>Wayfinding and signage to promote safety</b>				
<input type="checkbox"/> Location maps (fixed plaque format) and directional signage are provided at public entry points and along internal public routes of travel.		Photo note: a map of the station		
<input type="checkbox"/> Strong colors, standard symbols and simple graphics are used for informational signs.		Photo note: a sign with a blue arrow		
<input type="checkbox"/> Users are advised of security measures that are in place and where to find them.		Photo note: a sign with a blue arrow		
<input type="checkbox"/> Signage is provided in the parking area advising users to lock their cars.		Photo note: a sign with a blue arrow		
<input type="checkbox"/> Instructions are posted or broadcast on how to report suspicious activity.		Photo note: a sign with a blue arrow		
Discourage unauthorized access/entry				

Access Control Field Evaluation Checklist

## CPTED Principles



- Maintenance
- Natural Surveillance
- Access Control
- Activity Support
- Territoriality



Transit infrastructure site evaluation



This research was led by faculty from the University of Delaware

## Notes for Policymakers

- Integrate CPTED protocols in new transit infrastructure projects, upgrades, and repairs
- Establish clear reporting mechanisms for riders to communicate maintenance needs and safety concerns
- Deploy security cameras and improved lighting systems at high-priority transit locations