

7.0 TRUCK APRONS GUIDELINE

Version 1.0

January 2021

City of Toronto, Transportation Services

*Road Engineering
Design Guidelines*

7.0 Truck Apron Guideline

Note: The Truck Apron Guideline is a supplement to the Curb Radii Design Guideline and should be used in conjunction with the Curb Radii Design Guideline. The Truck Apron Standard Drawing (T-310.030-15) can be found on the website for Standard Drawings for Road Works.

7.1 Introduction

In 2014, Transportation Services developed and approved the Curb Radii Guidelines with the primary objective of reducing speeds of right turning vehicles. This reduces the impact speed in the event of a collision and provides additional time for a driver to react to unexpected events. Approximately one quarter of pedestrian collisions at intersections occur between right turning vehicles and pedestrians. Of these collisions, over 90% occur when the pedestrian has the right-of-way.

Curb radii at intersection corners must be designed to accommodate all vehicle types that are permitted to turn at an intersection corner. This results in many intersection corners being designed to accommodate larger vehicles which enables smaller vehicles to turn at a higher speed than desired.

Truck aprons allow for intersection corners to be designed for smaller vehicles while accommodating larger vehicles to turn at an intersection corner by using a truck apron. Truck aprons have been implemented across North America in various forms including in Ottawa, Mississauga, and Vaughan.

7.1.1 Definitions

Truck Apron Radius

Truck apron radius is the mountable curb alignment that can accommodate passenger vehicles and/or design vehicles. The truck apron radius is mounted by trucks when making right turns.

Sidewalk Curb Radius

Sidewalk curb radius is the curb alignment that can accommodate all turning vehicles. The sidewalk curb radius should not be mounted by turning vehicles. TWSIs are placed along the sidewalk curb radius and pedestrian crossing distances are measured from the sidewalk curb radius.

7.2 Truck Apron Design

7.2.1 Design Elements

Truck aprons should be designed as per the Truck Apron Standard Drawings

Truck Apron Curb

The truck apron curb should be a 75mm high semi-mountable curb and gutter as per OPSD 600.060. The truck apron curb should include 2 - 15M reinforcing bars with 50mm of concrete cover, to be extended 600mm beyond the end of the truck apron curb.

Sidewalk Curb

The sidewalk curb should be a 75mm minimum high superelevated curb and gutter as per T-600.05-1.

Dropped Curb for Crosswalks

Dropped curbs for crosswalks should be 30mm high dropped curb and gutter. Dropped curb and gutter cross section should be as per T-310.030-10 or T-310.030-11.

Zebra Crosswalk Markings

All intersections with truck aprons should have zebra crosswalk markings. Zebra crosswalk markings should extend through the truck apron surface. Crosswalk markings should have a minimum width of 3.0m for signalized intersections and 2.5m for non-signalized intersections. Zebra crosswalk markings should be as per T-310.030-5

Truck Apron Surface Pavement

The pavement design of the truck apron surface should be asphalt as specified by Transportation Services, Asset Management.

7.2.2 Design and Control Vehicles

Different vehicle types manoeuvre intersection corners at varying frequencies and in different ways. Truck apron radii and sidewalk radii should be designed based on the size of the vehicle and available receiving width.

P: Passenger Vehicle

Passenger vehicles should not encroach onto the truck apron.

LSU: Light Single Unit Truck and MSU: Medium Single Unit Truck

LSUs and MSUs should not encroach onto the truck apron if there are a minimum of 2 receiving lanes. LSUs and MSUs should use the truck apron if there is 1 receiving lane or if there are additional benefits that can be achieved such as protected intersections and to address collision trends as determined by Transportation Services.

HSU Heavy Single Unit Truck and WB-20 Tractor Semi-trailer

HSUs and WB-20s should use the truck apron.

TTC Buses

Truck aprons on TTC Bus Service Routes, including where buses are used to replace streetcar and subway service should be designed for TTC buses to turn without encroachment onto the truck apron. Planned bus routes that are confirmed to be operational in the near future should also be considered. Truck aprons at constrained corners may consider TTC bus encroachment onto the truck apron in consultation with TTC and Transportation Services.

Emergency Services

Emergency Services vehicles should use the truck apron.

7.2.3 Design Methodology

Curb radii and truck aprons at intersection corners should be designed to be appropriately sized for vehicle types at an intersection. Good engineering judgement should be used to ensure that curb radii are not undersized or oversized.

Design methodology should follow the Curb Radii Guidelines and use the same design controls including intersection corner type, truck turn type, design and control vehicles, and vehicle speed; and vehicle positions and clearances including vehicle starting position, vehicle ending position, and vehicle envelope clearances from curb radii.

Vehicle envelope clearances from curb radii should determine offsets from the truck apron radius or sidewalk curb radius based on Section 7.2.2. Vehicles that should not encroach into the truck apron should use offsets from the vehicle turning envelope to the truck apron radius. Vehicles that should use the truck apron should use offsets from the vehicle turning envelopes to the sidewalk curb radius.

7.2.4 Application

The truck apron interim guideline should be applied in the following scenarios:

- Intersection corners where issues with the existing curb radius are identified by the delivery project manager.
- Intersection corners identified by Transportation Services.

Traffic Operations staff may recommend minor deviations from the guideline to address site specific safety or operational issues. Significant deviations from the guideline should be brought to the Safety and Mobility Committee (SMC) Traffic Engineering Subcommittee (TES) for consideration.