On-Site Circulation Study

(Last update: June 2025)

An On-Site Circulation Study, also known as Vehicle Tracking or Swept Path Analysis, is the simulated assessment of the predicted steering/maneuvering of specific vehicle types within road and site design projects. These projects may include intersections, roundabouts, bus terminals, loading bays, parking lots, below and above grade parking garages or any on/off-street assignments involving vehicle access checks, clearances, and swept path maneuvers.

Required by Legislation

The Ontario *Planning Act*.

Who should prepare this plan?

An On-Site Circulation Study should be prepared by a qualified Transportation Professional, including Professional Engineers and Registered Professional Planners. The study must be dated and signed by the Professional.

Why do we need this study?

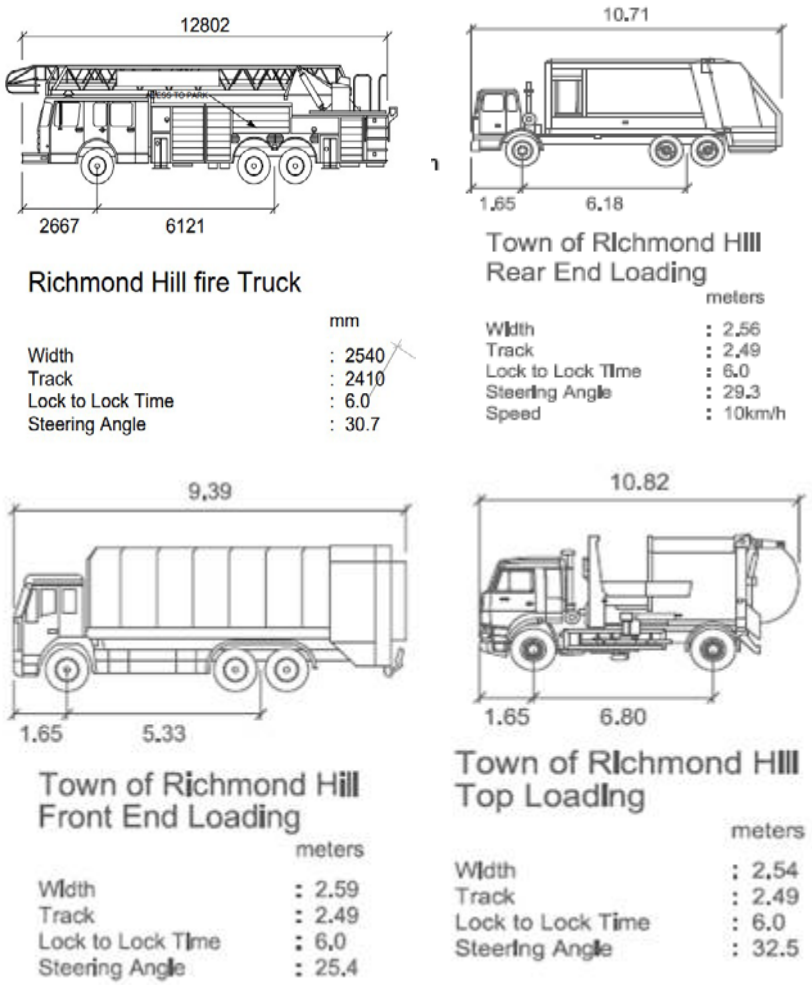
The City must be satisfied that the functionality of a design is acceptable from a safety and operational perspective.

How should this study be prepared?

Transportation Professionals should use the AutoTURN Computer-Aided Design (CAD) software to carry out their On-Site Circulation assessment.

Figure 1 depicts the City's waste collection design vehicles that may need to be assessed depending on the project and the City's requirements. For more information on design vehicles, please refer to the City's Standards and Specifications Manual.

Figure 1: City of Richmond Hill Waste Collection Design Vehicles



For typical condominiums or townhouses with shared parking (i.e. no individual garages), front-end containers are used and therefore a front-end loading truck would collect garbage, organics and recycling. A rear-packer would also need to access the site to collect bulky waste (i.e., furniture).

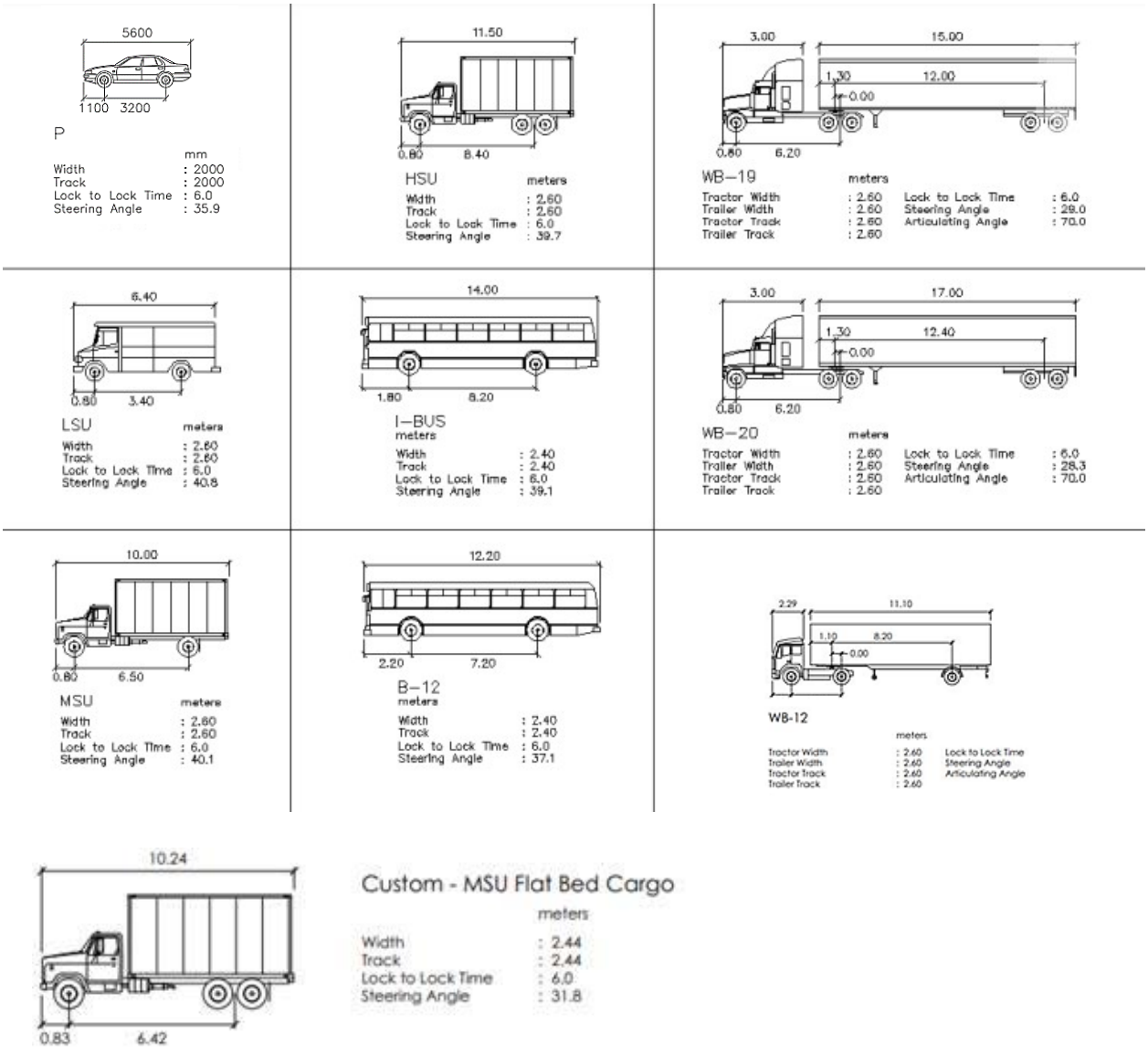
Small condominiums and townhouses with shared parking, if they meet the criteria outlined in Division J of the City's Standards and Specifications Manual, may opt for carts (plastic containers on wheels with flip lips). A top loader would be used to collect garbage, organics and recycling from the curbside, and a rear-packer would collect bulky waste.

For townhouses or any dwelling with its own individual driveway and garage, rear-packers would collect all waste streams.

For the assessment of City snowplows, please use dimensions of 8.5m long by 2.5m wide. With the addition of the front plow & side wing, dimensions become 10.6m long and 4.4m wide with the wing extended.

Figure 2 depicts additional design vehicles which have been extracted from the Transportation Association Canada's (TAC) Geometric Design Guide for Canadian Roads that may need to be assessed depending on the project and the City's requirements.

Figure 2: TAC Design Vehicles



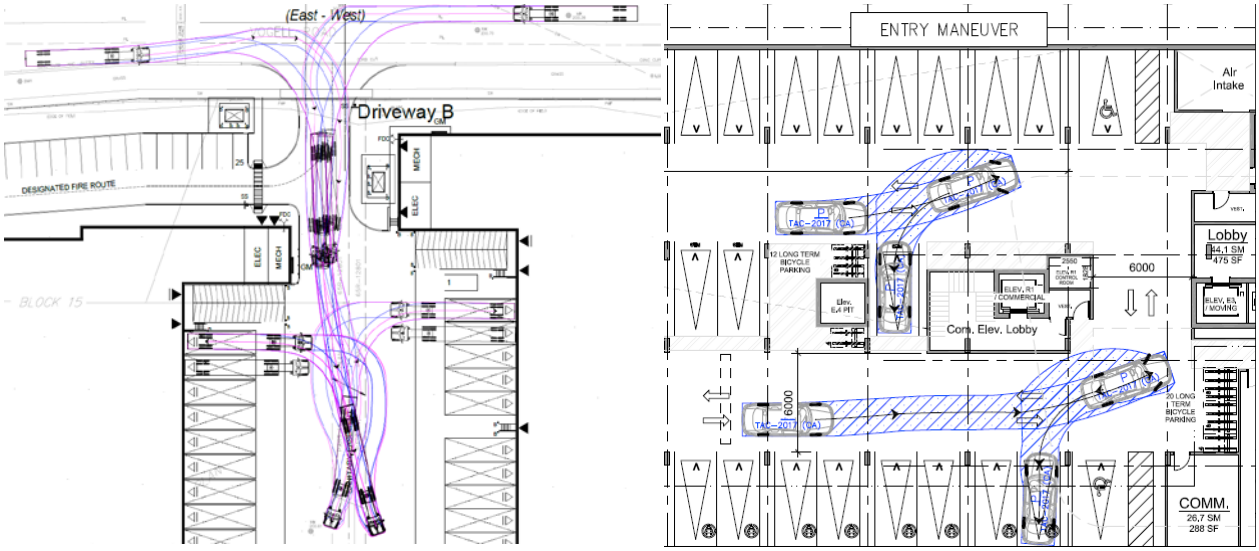
Please ensure that all drawings are within a drawing title block that includes the following:

- Drawing title.
- Drawing number.
- Revision date, including changes made from last revision.

- Company name and contact details.
- Author/Checker of drawing.

Figure 3 illustrates examples of swept path analyses.

Figure 3: Example Swept Path Analyses



What else should we know?

A Pre-Submission Meeting with City Planning staff is encouraged prior to submitting a development application. The scope of the Study should be discussed with City staff and/or other agencies as part of the pre-submission process which would generally take place prior to the submission of a *Planning Act* application.

Additional Terms

To be identified by the City through the pre-submission process.

Study Submission Instructions

To be submitted in accordance with the City's requirements for Development Planning Applications.

What other resources are there?

Richmond Hill Development Application Resources

Richmond Hill Standards and Specifications Manual – Division C (Transportation and Roadworks)

Richmond Hill Standards and Specifications Manual – Division J (Waste Management Design and Collection Standards for Development)

York Region Transportation Mobility Plan Guidelines

York Region Construction Design Guidelines and Standards, including the Access Guidelines for Regional Roads

Transportation Association Canada's (TAC) Geometric Design Guide for Canadian Roads updated April 2020.

Ontario Professional Planners Institute (OPPI) – Hire an RPP

Professional Engineers of Ontario – Why employ a professional engineer?

About these Terms of Reference

These Terms of Reference were developed as a joint effort with participation by representatives from all York Region municipalities and the Region. The Terms of Reference are in widespread use across the Region, with local requirements added as prescribed by each municipality.

If determined that this study is applicable, the study terms may vary depending on the nature of the proposal. Discussion and confirmation as to whether all criteria outlined within these Terms of Reference are appropriate for your development project, will also take place with you and in consultation with any relevant external agencies.

In addition to these Terms of Reference, municipal departments and/or external agencies may require analysis of specific technical components that should be addressed in the study. Confirmation of additional technical requirements, and a checklist identifying detailed standards to be met, in turn may be provided.

Notes:

If the proposed development is revised, the study/report shall reflect the revisions by an updated report or letter from the author indicating the changes and whether or not the recommendations and conclusions are the same. (Note: this is subject to the extent of the revisions).

A peer review may be required. The cost of the peer review will be borne by the applicant.

If the submitted study is incomplete, is authored by an unqualified individual or does not contain adequate analysis, the applications will be considered incomplete and returned to the applicant.