

Functional Internal Traffic Study

Terms of Reference

PREAMBLE

The list presented below is to provide guidance when preparing and submitting a Functional Internal Traffic Study (FITS). It is understood that an applicant can submit plans which adhere to current engineering standards or alternative road-cross sections and design standards can be brought forward, provided justification is submitted. The review process examines the details of the submission and measures and evaluates the details against the applicable standards.

Depending upon the circumstance, additional items can be added which deal with traffic calming and mitigation measures, and traffic control devices.

REQUIRED BY LEGISLATION

- The Ontario Planning Act.
 - The Ontario Highway Traffic Act
 - The Occupational Health and Safety Act (OHSA)
 - The Accessibility for Ontarians with Disabilities Act (AODA)
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WHO SHOULD PREPARE THIS PLAN?

The FITS is to be prepared on behalf of the Developer in consultation with various members of the Development Team and be submitted to the Town. All drawings, reports and studies must be prepared by the appropriate qualified professional and signed and sealed where appropriate.

WHEN IS THIS REQUIRED?

- Draft Plan Approval Application
 - Subdivision Application
 - Condominium Applications
 - Other processes as identified by the Town
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Functional Internal Traffic Study

Terms of Reference

WHY DO WE NEED THIS PLAN?

A FITS is required in order to demonstrate the proposed internal roadway network functions adequately and meets Town, Ministry of Transportation of Ontario (MTO), Transportation Association of Canada (TAC), applicable Ontario Traffic Manuals (OTMs), and any other applicable Road Authority standards and drawings.

HOW SHOULD THIS STUDY BE PREPARED?

The following list consists of the typical planning and design items that are to be addressed in a FITS, as applicable. Associated with each item are specific criteria that may require measurement, calculation, and/or demonstration of adherence to any relevant standards and operating parameters.

1. Road Network Layout and Design Volumes

The built-out traffic flows are to be determined on each internal road (especially collector roads) for the typical weekday AM and PM peak hours. In addition, if the development application contains a collector road which forms an intersection with a bounding arterial road, the typical weekday AM and PM peak hour turning volumes must be identified. Similarly, for collector-to-collector road intersections within the development application, the typical weekday AM and PM peak hour turning movements must be identified. It is imperative that any associated exclusive turning lanes, particularly for left turns, are provided with their ultimate storage and taper length dimensions. It is understood that collector roads at intersections with other collector roads and arterial roads will require a right-of-way (ROW) widening to permit the introduction of necessary vehicle turning lanes and proper daylight triangles.

2. Internal Road Classification and Right-of-Way

Standards are available from accredited associations identifying the acceptable range of traffic flows that a particular type of road can adequately accommodate in either 24 hours or during the roadway typical weekday peak hours. It must be demonstrated that the type and classification of road being considered is capable of serving the traffic flow demand within the identified class.

3. Horizontal Curves, Vertical Curves, Intersection Angles and Safe Vehicle Stopping, and Turning Decision Criteria

Acceptable standards are contained in manuals available from the Ministry of Transportation of Ontario (MTO), the Transportation Association of Canada (TAC), and Institute of Transportation Engineers (ITE). All road elements are to be evaluated and made to conform to the applicable criteria.

Functional Internal Traffic Study

Terms of Reference

4. Intersection Spacing

Standards are available from accredited associations that identify the minimum spacing of intersections from one another. The development application must meet these minimum standards.

5. Intersection Turning Lanes and Traffic Signals or Traffic Circle

The forecast demand volumes and the forecast intersection turning movements will dictate the appropriate traffic control device (collector-to-collector and collector-to-arterial intersections) as well as the intersection lane configuration. The forecast demand volumes will be used to calculate required storage and taper lengths for any turning lanes. If a traffic signal is to be considered, then signal-warrant analysis shall be conducted. A traffic circle can be considered as an alternative to a collector-to-collector intersection controlled by a traffic signal. Appropriate design plans to be formulated to demonstrate functionality of the traffic circle.

6. Street Elbows

At locations where a road's centreline radius is greater than 90°, pavement width analysis must be conducted to ensure that opposing vehicles (automobiles, as well as emergency vehicles) can navigate the manoeuvre with no impacts. In addition, individual driveways must be located such that the road manoeuvring area and sidewalk are not compromised.

7. Rear Laneways

The laneway layout and operation must be thoroughly addressed. This includes pavement widths, shoulder treatments, building setbacks (including ability to manoeuvre one large and one mid-sized automobile into and out of a garage), circulation and turning movement capability of different vehicle types (automobiles, emergency vehicles, and waste collection trucks). The assessment must be undertaken along a typical cross-section of the laneway as well as at each intersection or bend formed by a laneway.

8. Temporary Turn-Arounds and Cul-de-Sacs

Any proposed temporary turn-around or cul-de-sac must be capable of adequately accommodating service and emergency vehicle turning capability.

9. On- Street Parking

The location of on-street parking must be done in a consultative manner with all disciplines involved in the preparation of the development application. The location of on-street parking will be guided by many factors including adjacent land uses, roadway geometrics and traffic demand flows. It is expected that there will be no parking in laneways. It is expected on local roads that parking will be permitted on one side. It is expected that parking will be introduced in a sensitive manner on collector roads. Additional pavement on collector roads must not

Functional Internal Traffic Study

Terms of Reference

encourage speeding or diminish the operation of future transit. Consideration of parking bays with protected intersection conditions minimizing pedestrian walking distances are considered appropriate (indent parking). The target for on-street parking spaces is 0.5 spaces/unit.

10. Traffic Calming

When considering measures for traffic calming, the Town's Traffic Mitigation Strategy shall be consulted for design features that may be included within a development. In addition, the designer shall complete the accompanying New Development Checklist.

11. Headlight Screening

"Window Streets" or other internal roads may parallel a bounding arterial road. Vehicle headlight movements must be examined on the local road, and measures must be proposed to prevent headlight glare from reaching the eye-level of drivers on the bounding arterial road.

12. Service and Emergency Vehicle Circulation

All internal roads including any laneways must demonstrate that the available driving surface is capable of efficiently accommodating the free movement of emergency and service vehicles.

13. Curb Radii

Curb radii can be introduced which reduce vehicle speeds and benefit pedestrians. It shall be demonstrated that the curb radii provide sufficient capacity for vehicle turning demands and that all service and emergency vehicles can effectively negotiate turns.

14. Corner Roundings

The ability to minimize the required space providing the necessary clear sightline distances for vehicle turning and stopping can be accomplished through corner roundings. Each intersection must be examined to verify that the clear vehicle sight lines are available. Any special circumstances must be justified.

15. Pedestrian and Accessible Accommodation

It shall be demonstrated that proposed sidewalks serve primary pedestrian flows. At curb locations grading must be provided to accommodate wheelchair movements.

16. Surface Treatments

As part of traffic calming at intersections and in an effort to accommodate major pedestrian flows, consideration can be given to providing alternative surface treatments. These surface treatments are meant to give textural and auditory signals to drivers that increased awareness is necessary.

Functional Internal Traffic Study

Terms of Reference

17. Round About and Traffic Circles

Any proposed round about must be designed to meet forecast traffic demands as well as the turning paths required for all municipal services including transit and emergency vehicles. Larger vehicles such as moving trucks should also be examined. Pedestrian crosswalks must be properly located to provide maximum visibility to all users. Traffic Circles would normally be employed on higher volume roads.

18. Driveway Locations

Driveways to individual uses must respect the adjacent traffic flow demands and resultant intersection lane configuration requirements. The driveway location must minimize impacts on the role and function of adjacent boundary lanes particularly turning lanes. At internal collector-to-collector road intersections, consideration should be given to a land use form that is served by rear laneways thereby reducing the impact on intersection lane functions. Similar considerations should be given to driveway locations where the collector road intersects with a bounding arterial road.

19. Sidewalks

The placement of sidewalks must conform to Municipal guidelines. Continuity and connectivity are imperative to providing an environment which encourages walking. Special pedestrian crossing outside of intersection locations must be examined in detail and the justification for pedestrian actuated controls brought forward.

20. Bicycle Paths and Lanes

Bicycle paths and lanes must be in conformity with the Municipal goals and objectives. Those bicycle routes whether lanes or paths must be clearly identified and the appropriate geometric standards incorporated into the roadway cross-sections or where bicycles cross a roadway.

21. Designated Car-Pool Spaces

Upon defining the transit route network there could be numerous retail, commercial, office and institutional uses that are in close proximity to the transit service. An estimate of the number of parking spaces by use which can be provided to carpooling use is to be identified. If site plans are available, the preferred location of the carpool spaces can be denoted. These spaces are considered shared and do not require a change to the overall parking supply.

22. Transit Route Pattern

The primary route pattern to serve the development application will be identified.

Functional Internal Traffic Study

Terms of Reference

23. Bus Stop and Pedestrian Pad

Major bus stop locations along each route will be identified. At these locations, the necessary concrete pad to serve boarding and de-boarding passengers will be identified and included in the development application.

24. Development Integration

Opportunities should be examined at significant locations where adjacent land uses can provide an integration opportunity with transit. This could range from integrated shelter / building conditions to a minor pick up and drop off area in the vicinity of the bus stop.

25. Major Public Generators and Attractors – Driveway and Entrance Locations

Within the development application, there may be uses such as public schools, high schools and community centres, parks, etc. These land uses generate unique vehicle circulation and parking demands. The vehicle flow demands should be examined in the context of planning driveway and entrance locations which minimize impacts on bounding intersections and major pedestrian flows.

26. Major Public Generators and Attractors – On Street Parking Assessment

Many of these generators are also located next to parks. The bounding road network should be examined to determine if on-street parking can serve multiple parking demands. How the on-street parking is incorporated with the roadway cross-section should be examined in detail. It is preferred that the asphalt surface area is not increased in a continuous manner, as this may lead to increased vehicle speeds.

27. Major Public Generators and Attractors – Traffic Device Plan for Entrances Providing Direct Access

The appropriate traffic control device plan which directly serves these uses must be brought forth. The accommodation of pedestrian flows must also be identified.

28. Traffic Control Device Plan

The development application must provide the definition and location of all traffic control devices to be installed.

29. On-Street and Off-Street Parking Supply

The development application must demonstrate through scaled plans that the required parking supply for residents and visitors can be achieved. On-street parking must respect vehicle sight line requirements, parking space width and length, emergency vehicle needs, snow storage and intersection setbacks. No portion of a vehicle parked in a driveway can protrude onto the curb. The target for on-street parking spaces is 0.5 spaces/unit

Functional Internal Traffic Study

Terms of Reference

WHAT ELSE SHOULD WE KNOW?

The level of detail for the FITS depends on the scope of the project and related works, and the extent of any impacts to the existing roadway network. If there are any uncertainties pertaining to potential impacts or the FITS itself, they are to be identified and addressed in coordination with the Town. Should any impacts not accounted for by the Developer be identified by the Town, additional impact studies and revisions to the FITS may be required.

Should the project encounter any unforeseen circumstances, changes to logistics, or changes to works, the Town is to be notified immediately and may require a revised FITS to be submitted. Any alterations to site and construction management methods are to be shown in any revisions and outlined in a cover letter prefacing the revised FITS.

ADDITIONAL TERMS

If the proposed development is revised, the FITS shall reflect the revisions by an updated report or letter from the author indicating the changes and whether the recommendations and conclusions are the same (Note: this is subject to the extent of the revisions).

A peer review may be required, and all costs associated with the peer review may be the responsibility of the applicant.

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

Functional Internal Traffic Study

Terms of Reference

SUBMISSION INSTRUCTIONS

- Follows the Digital File Naming Convention as required.
 - All submission materials shall be submitted through an FTP site or other acceptable method as agreed to by the Town.
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WHAT OTHER RESOURCES ARE THERE?

- Occupational Health and Safety Act
- Town of BWG Property Standards Bylaw, as amended
- Town of BWG Road Use Bylaw, as amended
- Town of BWG Reduced Load Limit Bylaw, as amended
- Town of BWG Traffic Bylaw, as amended
- Town of BWG Traffic Mitigation Strategy

About these Terms of Reference:

These Terms of Reference were developed by the Town of Bradford West Gwillimbury based on the Terms of Reference prepared by the Region of York.