

Transportation Assessment and Management Study Guidelines for Consultants

INTRODUCTION

This document is intended to provide guidelines for transportation consultants who produce Transportation reports for the City of Vancouver. Studies requested may include a Transportation Impact Study, a Parking Study, and a Transportation Demand Management Plan; collectively called a Transportation Assessment and Management Study (TAMS). These guidelines establish the scope, form and analysis required to properly assess the impacts of a proposed development on existing transportation infrastructure, determine the required mitigation measures and document the results.

TRANSPORTATION ASSESSMENT AND MANAGEMENT STUDY REPORT STRUCTURE

The format of Transportation Assessment and Management Studies (TAMS) should follow the guidelines outlined in this document. The following is a suggested report structure:

1. REPORT CONTEXT

Description of the development (include all of the following that are known at the time of the application):

- Municipal address;
- Development Application number;
- Location relative to existing transportation systems;
- Proposed land uses and relevant planning regulations to be used in the analysis;
- Proposed development size (building size, number of residential units, etc.) and location on site;
- Estimated date of occupancy;
- Planned phasing of development;
- Proposed number of parking spaces, number and type of loading spaces, number and type of bike parking spaces;
- Type of access (full turns, right-in/right-out, other turning restrictions, etc.);
- Proposed pedestrian, bicycle, vehicle and loading access points;
- Development time periods and phasing; and
- Horizon years for traffic (include reference to phased development).

TAMS must include a key plan and a context plan that shows the general location of the development in relation to the surrounding area. TAMS must define the study area. TAMS must also provide a draft site plan of a suitable scale that shows the proposed accesses and parking areas. If the proposed development/redevelopment is to be constructed in phases, a description must be provided for each phase, identifying the proposed timing of implementation. TAMS must include, the proposed access locations, and the existing conditions in the surrounding area; figures documenting the existing travel demands by mode; and a summary of collisions for the affected study area roads. A photographic inventory of the transportation infrastructure in the vicinity of the proposed access points would be beneficial for better context.

2. EXISTING CONDITIONS

Full description of relevant existing conditions, including:

- Existing roads ramps and driveways in the study area, including classification and number of lanes
- Existing intersections, indicating type of control, lane configurations, turning restrictions, and any other relevant data (e.g., extraordinary lane widths, grades);
- Transit routes and facilities ;
- Existing access points to adjacent developments (both sides of all roads bordering the site);
- Existing on-and-off-road bicycle facilities and pedestrian sidewalks and pathway networks;
- Existing pedestrian network (within 400 meters diameter) and existing bicycle network (within 5 kilometre diameter)
- Assessment of existing intersection and roadway operations (V/C, LOS); and
- Major trip generators/attractors within the Study Area should be indicated.

3. DEMAND FORECASTING

For future time horizon(s) TAMS must include:

- General background traffic growth , including a description and justification of how the background growth has been calculated;
- Other study area developments within one kilometre;
- Planned or anticipated changes to the study area road network;
- Future intersection and roadway operations (V/C, LOS, queue lengths)
- Include figures documenting future background travel demands at study area intersections by mode for each horizon year;
- Trip generation rates, including description and justification for any adjustments;
- Trip distribution and assignment, include description of how distribution was determined;
- Current and future mode split ;
- Include figures documenting forecasted site trip generation and assignment by mode; and
- Include plans showing total (background plus site generated) future travel demands by mode for each horizon year.

4. IMPACT ANALYSIS

- Assessment of intersection and roadway operations (V/C, LOS, queue lengths);
- Traffic , pedestrian and bike signal and auxiliary lane warrants as required ;
- Operational/Safety assessment (e.g., sight line assessment where vertical and/or horizontal alignment are an issue) ;
- Storage analysis for closely spaced intersections and identification of operational and safety issues;
- Site access location assessment;
- Pedestrian and bicycle network connections and continuity;
- On-site circulation and design;
- Potential for neighbourhood impacts; and
- Potential for impacts on existing and planned cycling infrastructure.

5. MITIGATION MEASURES AND SITE DESIGN CHARACTERISTICS

The TAMS must identify all physical and operational mitigation measures required to offset network impacts from the development and justification for those measures.

The TAMS must include all of the following where they are required by the subject development:

- Location and timing of proposed changes to existing traffic controls at intersections (e.g., new traffic signals, Stop signs, etc.);
- Location and timing of new intersections, including proposed traffic control measures (e.g., traffic signals, etc.);
- Requirements for left turn lanes and in some cases right turn lanes;
- Operational changes (e.g. turn restrictions);
- Mitigation measures required to offset impacts on Transit networks;
- New or modified elements of the bicycle and pedestrian networks; and
- Mitigation measures required to offset impacts on existing and planned cycling and pedestrian facilities.

TRANSPORTATION IMPACT STUDY REQUIREMENTS

6. OPERATIONAL ANALYSIS

An operational evaluation of all intersections and roadway sections within the study area that will be affected by site generated traffic volumes during any or all of the relevant periods and scenarios is required. Summaries are to be provided in tabular format clearly identifying intersection performance under existing, future background, and total future traffic conditions including impacts of any adjacent future developments anticipated.

Volume-capacity (V/C) calculations relating to future conditions should be determined using signal timing optimized for the volume conditions being studied. In cases where minimum pedestrian phase times prevent equalizing the level of service for critical movements, then the V/C ratio for the most heavily saturated critical movement should be considered as the V/C ratio for the intersection.

The Consultant must undertake at least one hour of continuous observations during each of the am peak, pm peak, and peak hour traffic conditions to verify that the traffic volumes through the intersections reflect existing demands and to identify unusual operating conditions. Timing of observations and conditions observed should be documented in the report.

Intersection evaluations should identify:

- Signalized intersections - V/C ratios for the overall intersection, as defined above, and for individual movements and
- Un-signalized intersections - Level of service (LOS) and capacity based on gap analysis.

Existing signal timing information such as cycle length, offset, phasing, pedestrian minimums, and clearance intervals must be used as a base to analyze the existing capacity of signalized intersections. This signal timing data can be obtained from the City of Vancouver Traffic Management Branch.

In cases where roadways have closely spaced signalized intersections where there are heavy turning movements, the analysis should confirm that vehicle storage limitations would not prevent signalized intersections from operating at the predicted V/C ratio.

Traffic control and left turn lane warrants should be completed and documented in the report, as required.

7. QUEUING CAPACITY AND DELAY AT MAJOR INTERSECTIONS

Intersection evaluation should identify projected queue lengths and available storage for left turn and through lanes on all approaches. Mitigation measures in the form of the additional lane capacity, signal timing/phasing adjustments and/or TDM measures will be required where the projected 95th percentile queue lengths exceed available storage.

8. SYSTEM OPERATIONS, SAFETY, AND PERCEIVED SAFETY

An evaluation is required of potential operational and safety concerns at intersections, on road segments or at driveways that will be created or affected by site generated traffic during any or all of the relevant periods and scenarios. Consideration must be given to the potential to exacerbate existing safety concerns, and operational issues such as:

- Pedestrian and Cycling conflicts
- Vulnerable road users
- Access points for non-vehicular modes
- Vehicle-pedestrian and vehicle-cyclist conflicts;
- Weaving;
- Merging/diverging;
- Corner clearances;
- Sight distances/sight line assessment (where grades at access points are an issue); and
- Access conflicts.

The consultant must undertake at least one hour of continuous observations during am peak and pm peak traffic conditions and any other “critical traffic” time periods to evaluate operating conditions and any safety issues along the study area roadways.

9. PROVISION FOR NON-AUTO MODES

As per the policy directions established by the City of Vancouver Transportation Plan 1997, Proposals must support pedestrian movements, cycling, transit ridership, and goods movement. Pedestrian and bicycle network continuity should be considered, as should the City of Vancouver Transportation Plan requirements related to the provision of infrastructure to promote sustainable modes of transportation.

An assessment of potential impacts on transit operations must be undertaken where the site accesses connect to or cross any bus route. The assessment will identify the potential for increased delay to transit vehicles, safety concerns/conflicts with transit vehicles and any impacts on bus stops.

Gaps in pedestrian and cycling network continuity should be identified.

Site access from intersecting existing or planned bike routes should be avoided when possible. Where site access along a bike route is unavoidable, the consultant should identify measures to mitigate the impacts on bicycle route(s).

A detailed assessment of pedestrian facility level of service will be required in the vicinity of the site where the development is expected to produce significant pedestrian volumes. The consultant shall identify any conflicts between any two modes of travel accessing to the site. The consultant shall also identify pedestrian and cycling facilities in the public realm. Additional sidewalk or facility width or a 'bicycle hub' may be required in such circumstances.

10. ON-SITE DESIGN AND OPERATIONS

Particular attention must be paid to the potential for on-site traffic operations to affect the safe and efficient operation of the adjacent roads. It is expected that the consultant will provide:

- Evaluation of proposed on-site circulation and provision for pedestrian and cycling movements (clear and direct pedestrian and cycling pathways must be provided, including connections to existing facilities);
- Identification of end of trip facilities for cyclists ;
- Identification of potential for conflict/spill-back from on-site parking aisles/stalls to driveway intersections with the City's road network; and
- Identification of truck access location and loading/unloading facilities

11. COMMUNITY TRANSPORTATION IMPACTS

A transportation impact study report will review the local transportation network in the vicinity of the proposed development and identify potential neighbourhood impacts during both the commuter peak and the projected site peak as well as appropriate mitigation strategy, where required.

12. PARKING AND LOADING STUDY

Please ensure that parking and loading study adheres to the principles of City of Vancouver Parking and Loading Design Supplement.

Applicant may provide two class A spaces in lieu of one class B space, provided where more than one class B spaces are required and at least one of the class B spaces must be provided. The applicant must provide a written report, sealed and signed by a professional Engineer that provision of two class A spaces in lieu of one Class B spaces will not, in any way, negatively impact city streets or lanes and is sufficient to fulfil the operational requirements of the development.

Applicant may provide two class B spaces in lieu of one class C space, provided where more than one class C spaces are required and at least one of the class C spaces must be provided. The applicant must provide a written report, sealed and signed by a professional Engineer that provision of two class B spaces in lieu of one Class C space will not, in any way, negatively impact city streets or lanes and is sufficient to fulfil the operational requirements of the development.

13. TRANSPORTATION DEMAND MANAGEMENT (TDM) STRATEGIES

Transportation demand management plans developed for new projects should curtail the use of the single occupant vehicle, promotes travel modes that incur reduced impacts on the environment while promoting healthier travel options, lessen the need for parking spaces, and reduce impacts on the surrounding neighbourhood.

14. TRANSPORTATION MANAGEMENT PLANS SHOULD INCLUDE (BUT NOT BE LIMITED TO):

- Description of site and proposed development
- Documentation of existing traffic, circulation, and access conditions
- Provision of required parking, loading and bicycle parking as per the Parking By-law or rezoning requirements.
- Identification of pick-up/drop-off, loading and other related activities
- Identification of existing and/or proposed vehicular use for the site
- Demographics of site users (number of staff/students, visitors/volunteers and the proximity of their homes relative to the site), where applicable
- Mode splits; current and projected goals
- Provision of end-of-trip bicycle facilities
- Provision of initiatives for reducing car use; including walking routes, cycling, provision of free/reduced transit passes, parking management controls and provision of car sharing vehicles and carpooling
- Designation of a Transportation Manager to implement, oversee and monitor the plan, including a description of responsibilities
- Commitment to maintain and ensure continuity and effectiveness of the Plan, subject to review by the City of Vancouver
- Related information pertinent to individual sites; including adjacent signals, bikeways/greenways, SkyTrain stations, impediments to loading circulation, etc)
- Summary of goals, initiatives and implementation of the plan
- Estimation of Green House Gas emissions, as the result of development.

SUBMISSION

All Transportation Assessment and Management studies should be signed and sealed by a Professional Engineer.