



Transportation Impact Assessment (TIA) Procedures

Engineering Division
City of Port Moody
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Acknowledgements

These procedures were developed using research into Transportation Impact Assessment (TIA) policies practiced in other municipalities, in particular the guidelines used in cities of Abbotsford, Calgary, Colwood, Courtenay, Mississauga, and North Vancouver.

As part of developing these procedures in 2017, we solicited and appreciate valuable feedback from City of North Vancouver.

The City of Port Moody Transportation Impact Assessment Procedures was developed with guidance from Evolve Traffic Solutions in 2017 and Urban Systems in 2025.

Disclaimer

These procedures were prepared based on the latest industry practices and Port Moody publications available as of August 2017 and were updated in March 2025.

City of Port Moody reserves the right to update its current practices, preferred methodologies, and software. Transportation consultants conducting a TIA should verify with City staff to whether any updates to this document are available or pending.

Updated For:

City of Port Moody 100 Newport Drive Port Moody, BC V3H 5C3

Updated By:

URBAN SYSTEMS LTD.
Suite 405, 9900 King George Blvd., Surrey, BC V3T 0K9 | T: 604-953-6500



Tessa Williams, RPP, MCIP
Transportation Planner



Allison Clavelle, P.Eng
Principal / Transportation
Engineer

1.0 INTRODUCTION

1.1. Transportation Impact Assessment

A Transportation Impact Assessment (TIA) is an important part of the development review and approval process. Traditionally, a Transportation Impact Assessment, or better known as a Traffic Impact Study (TIS), has focused on assessing the potential impacts of traffic generated by a proposed development on the adjacent area road network. With a recent shift of many municipalities, including Port Moody, from a vehicle-centered approach to a more inclusive multi-modal approach, the goal of a TIA is to support all transportation aspects of a development considering all modes of travel.

A TIA benefits the City of Port Moody by:

- Identifying existing and/or potential transportation capacity and safety issues that need to be addressed in the near or long term;
- Identifying local neighbourhood concerns that City staff may not be aware of;
- Assisting the Planning Department and City Council in making informed land use decisions;
- Providing Staff and Council with research and best practices that are applied in different municipalities and public agencies; and,
- Assisting in negotiations between Port Moody and developers or other public agencies.

1.2. Purpose of the TIA Procedures

The purpose of the TIA Procedures is to streamline the application process through the City departments by providing a standard framework for consultants to follow when submitting TIAs for review. The procedures help ensure TIAs are prepared in a consistent manner, utilizing the industry's recommended methodologies and parameters, as well as the City's bylaws, policies and standards. . The City of Port Moody will need to update the TIA procedures from time to time, to reflect changes in the community or legislative context.

1.3. Legislative Context

In 2023 and 2024, the provincial government passed new legislation that significantly impacted the way municipalities plan for growth, including Bill 44 (Residential Development), Bill 46 (Development Financing), Bill 47 (Transit-Oriented Areas), and Bill 16 (Local Government Tools). Broadly speaking, these bills were intended to increase the affordable housing supply and support the development of complete communities connected by sustainable transportation. These bills grant local governments new and expanded powers to secure infrastructure for walking, cycling, and transit, therefore the City of Port Moody updated its TIA procedures to take advantage of the new tools.

2.0 GENERAL REQUIREMENTS

2.1. Is a TIA Needed?

In general, a TIA is required whenever a proposed development will result in a net gain of more than 30 additional peak hour vehicle trips to and from the proposed development on local or collector roads, and 100 additional peak hour vehicle trips on arterials. A net gain is defined as the new vehicle trips associated with the proposed development minus the vehicle trips associated with the old development on the site, if applicable.

In some cases, a Special Transportation Study may be needed to address one or several items as detailed in section 4.

Also, a TIA may be required if one or more of the following conditions apply:

- The development requires an amendment to the OCP or Zoning By-Law;
- The applicant is requesting a variance in one or more of the City's minimum requirements;
- The development is located in an area where safety concerns have already been identified; or,
- City staff believes that the development has the potential to create operational issues (for vehicles or other modes) or safety impacts to the area road network.

2.2. TIA Levels

There are three (3) TIA levels that require different levels of detail and complexity. The required TIA level is generally established based on peak hour trip generation, as determined using the most recent version of the Institute of Transportation Engineers (ITE) Trip Generation Manual. The required TIA level may also be altered at the City's discretion.

The TIA levels and criteria for each are identified below.

TIA Level	Two-Way Peak Hour Motor Vehicle Trips
No TIA Required	Fewer than 30
Basic TIA (Level 1)	Between ~30 and ~100
Standard TIA (Level 2)	Between ~100 and ~150
Comprehensive TIA (Level 3)	~150 or more

An overview of the TIA levels and required study components is provided below. A detailed description of each study component is contained in the following section.

	Level 1 (Basic TIA)	Level 2 (Standard TIA)	Level 3 TIA (Comprehensive)
<i>Study Area</i>	Site access points, adjacent streets, sidewalks, and paths	Site access points, all intersections adjacent to site, plus other signals within 400m	Site access points, all intersections adjacent to site, signals within 400m and further away, as required
<i>Existing Conditions</i>	Brief review of multi-modal transportation network	Review of multi-modal transportation network, land use, connectivity, safety, and relevant policies	
<i>Overview of Proposed Development</i>	Brief review	Sensitivity analysis may be required to understand different traffic scenarios for different commercial uses	
<i>Loading Requirements</i>	Swept path analysis may be required	Swept path analysis typically required	
<i>Parking Requirements</i>	Study required to justify supply reduction outside TOAs TDM measures required to justify residential off-street parking supply increase within TOAs		
<i>Safety Impacts</i>	Not typically required	Analysis of road user interactions, weaving, gap, or stopping sight distance as required	
<i>Transportation Demand Management (TDM)</i>	Demonstrate compliance with TDM requirements.	Demonstrate compliance with TDM requirements.	Demonstrate compliance with TDM requirements and quantify impact on traffic and parking.
<i>Analysis Time Periods</i>	Opening Year	Opening Year and Horizon year (five years)	Opening year and two horizon years (five and ten year)
<i>Required Data collection</i>	Not typically required	Data required for all study intersections. Pre-existing count data may be used with approval by City staff.	
<i>Background Traffic Base</i>	Not typically required	Analysis of existing site vehicle trips, annual growth, and future transportation network improvements typically required	
<i>Trip Generation, Distribution, and Assignment</i>	Trip generation only	Trip generation, distribution and assignment	
		Vehicles only and all proposed land uses	All modes and all proposed land uses
<i>Analysis of Future Background and Total Traffic</i>	Not typically required	Opening Year – vehicles only	Opening and horizon year – all modes
<i>Multi-Modal Analysis</i>	Brief review of frontage and site improvements	Qualitative assessment	Qualitative and quantitative assessment
<i>Recommendations</i>	Required	Required	Required

2.3. Terms of Reference

Prior to commencing with the TIA, the transportation consultant is required to consult Port Moody staff, either by email or in a meeting, to confirm that a TIA is required and discuss the scope, level of detail, and key assumptions required for the TIA. Consultation with City staff also serves to supply the consultant with any background information that can assist in the TIA work (previous studies, OCP, MTP, signal plans, etc).

For applications that may involve consultations with another level of government, neighbouring municipalities, or other government agencies, the consultant is required to contact those groups and determine whether they have any requirements for the TIA that extend beyond the requirements of the City of Port Moody. Other government agencies may also have additional background information that can assist in the completion of the TIA.

At the end of consultation, the City and the transportation consultant will agree on a Terms of Reference (TOR) that confirms the TIA scope.

2.4. Use of Previous Traffic Count Data Submission Requirements

The information to be included in a TIA is described in detail in Section 3. The consultant should discuss all key items in the body of the report. Any recommendations must be validated and confirmed as feasible. A TIA should be submitted both in electronic format. Hard copies may be requested at the discretion of the City of Port Moody. The final TIA should be signed and sealed by a professional engineer licensed to practice in BC. All appendices should be included in the TIA for the draft and final submissions. The appendices should include the following:

- Summary sheets of traffic counts indicating the time periods and mode classification;
- Capacity analysis reports showing key inputs and performance measures (LOS, v/c, queues, delay, signal plans, etc.);
- All other applicable information used in the analysis and recommendations.

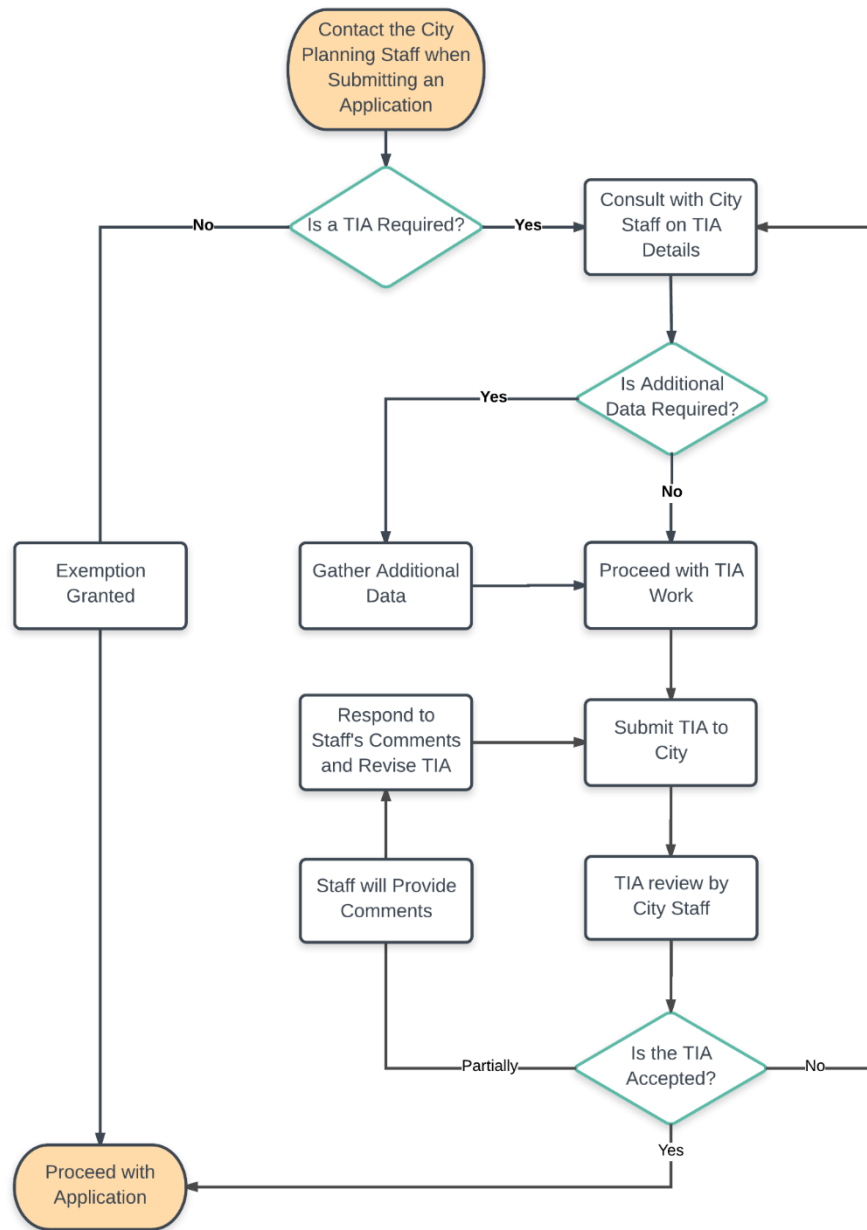
2.5. Review Process

Upon receiving a TIA, City staff will conduct a preliminary review to ensure that the TIA includes all the requirements as described in Section 3. If any item is missing, staff will return the TIA to the consultant and ask for the missing information to be added. If all items are included, staff will proceed with a full review.

Upon completing the TIA review, City staff will proceed with one of the following:

- Accept the TIA: Staff accepts items described in the report;
- Reject the TIA: Staff does not agree with the general methodology and requests the TIA to be updated; and,
- Partially accept the TIA: Staff accepts most of the points in the TIA but would like revisions of parts of the report. Staff will provide the consultant with numbered

comments for which consultant will be expected to address, along with a submission of a revised TIA. The flowchart detailed below provides a summary of the TIA process from start to finish.



3.0 TIA METHODS

This section outlines the methodologies that should typically be included in a TIA. The level of detail of each item depends on the location, size, and complexity of the proposed development, as well as the transportation conditions in the study area.

The following list is a recommended report structure for a typical TIA:

1) Introduction

- Study Area
- Existing Conditions

2) Development Description

- Overview of the Proposed Development
- Bylaw Requirements
 - Loading
 - Parking
 - Transportation Demand Management (TDM)

3) Operational Analysis

- Analysis Time Periods
- Required Data Collection
- Development of Background Traffic Base
- Development of Site Trip Generation, Distribution, and Assignment
- Analysis of Future Background and Total Traffic

4) Multimodal Analysis

- Pedestrian assessment
- Cyclist assessment
- Transit assessment
- Electrification assessment
- Micromobility assessment
- Safety Considerations

5) Recommendations

The City recognizes that OCP amendments, parking variance requests, access reviews, and safety reviews only require some of the above items. The Special Studies section below discusses specific requirements for these items.

3.1. Local Considerations

Every municipality has its own local transportation issues, zoning bylaws, and long-term vision. It is possible for a TIA to satisfy the requirement of one municipality but not the requirements of Port Moody. It is therefore required that the consultant be aware of the local and regional issues affecting the City of Port Moody and take these issues into consideration while preparing the TIA.

3.2. Engineering Judgment

It is recognized that each proposed development is unique in terms of location, complexity, and scope. It is also recognized that not all industry standard practices apply in each case, and therefore the consultant should practice good engineering judgment throughout the TIA process and explain all assumptions made in the study. If assumptions are not thoroughly documented, the City of Port Moody will have to request more information from the applicant, and this could extend the review process.

4.0 INTRODUCTION

4.1. Study Area

Defining the proper study area is crucial in identifying the key existing and future transportation issues that will affect the successful integration of the project in the area road network. The extent of the study area depends on the size of development, the type of the adjacent roads, and the existing transportation patterns around the development. As a starting point, the study area should consider:

- Site access points
- Adjacent streets, sidewalks, and paths
- Intersections within 400m (typically for Level 2 TIAs)
- Intersections greater than 400m (typically for Level 3 TIAs)

In some cases, the TIA analysis may conclude that the study area needs to be extended beyond the original area, to provide better capacity analysis. The City may extend the study area during the TIA process should staff believe that the study findings warrant a larger study area.

The following items in the study area should be noted:

- Key roads, including the number of lanes and the posted speed limit for each;
- Study area intersections to be analyzed, including the control type in each intersection and any turn restrictions;
- Location of on-street parking and time restrictions;
- Right-of-way (for TIAs involving a design component);
- Heavy vehicle restrictions;
- Pedestrian facilities;
- Bicycle facilities;
- Transit routes and stops; and,
- Other transportation facilities, if applicable.

All the above information should also be presented on a site plan, showing distance from the proposed development to transit and other key facilities.

4.2. Existing Conditions

This section should include a discussion of the existing multi-modal transportation network within the study area, as observed during site visits and data collection. In addition to the multi-modal transportation network, the discussion should consider the existing conditions of the surrounding land use, connectivity, safety, and consistency with relevant policies:

- The land use assessment should analyze how existing travel patterns are influenced by nearby trip generators and explore whether these are local or regional trips.
- The connectivity assessment should comment on the existing connectivity and function of the active transportation infrastructure, road infrastructure, and transit service and infrastructure.
- The safety assessment should summarize the number of casualties and seriously injured people at intersections and corridor segments within the past five years, including near miss data, if available.
- The policy assessment should comment on relevant City policies, plans, or programs such as the Official Community Plan, Master Transportation Plan, active transportation plans or climate and sustainability plans.

5.0 DEVELOPMENT DESCRIPTION

5.1 Overview of the Proposed Development

The TIA should include the following information about the proposed development:

- Proposed land uses;
- Floor space area for each land use (for residential land use, number of units should also be noted);
- Anticipated completion year (if development is phased, note the completion year for each phase); and,
- Site plan showing all access points to the network (parking ramps, loading bays, bike and pedestrian access), parking dimensions, and distance to City ROW and back of curb.

A further breakdown of residential unit size, commercial area use, and other land use information is highly recommended for the TIA and is required if parking/loading variance is requested. The City recognizes that some information, such as the type of commercial uses on site, may not be available during the TIA stage; however, as traffic generated by different land uses can vary significantly, City staff may request the consultant to perform sensitivity analysis to account for different traffic scenarios for different commercial uses (typically for Level 2 or 3 TIAs).

5.2 Bylaw Requirements

This section should compare the proposed development with the City of Port Moody's bylaw requirements, with a focus on vehicle parking, vehicle loading, and transportation demand management. The Required and proposed parking stalls should be identified separately for each land use. In addition, site access points, circulation, and key parking dimensions (stalls, ramps, and aisle widths) should be clearly identified.

5.2.1 *Loading*

This section should consider freight and delivery vehicles, refuse collection and other larger vehicles, as well as short-term delivery and drop-off activities where appropriate (typically residential and office uses). Review of emergency vehicle and/or public transit circulation may be required, particularly if the proposed development includes an internal street network. In these circumstances, Port Moody Fire Rescue and TransLink should be engaged to determine site access and circulation requirements.

The loading requirements noted in the City of Port Moody's Zoning Bylaw may not reflect existing goods movement practices in Metro Vancouver. For example, some food companies may use large trucks for deliveries to smaller grocery stores, which may only require a smaller Class B loading bay. Design for the appropriate size service is important. The onus falls on the consultant and applicant to verify whether the site may be served by larger vehicles and verify using swept path analysis that trucks can access the site and loading bay(s) (typically for Level 2 or 3 TIAs, but also Level 1 TIAs when the proposed development requires access for larger vehicles).

5.2.2. *Parking*

Outside of transit-oriented areas, requests for off-street parking variances from the requirements set in the Bylaw should be accompanied with supporting information. Supporting information may include comparison with other local municipalities, industry research, publications, or data collected at similar developments. The consultant should note that street parking cannot be assumed to supplement off-street Bylaw requirements, as the City can eliminate or restrict street parking anytime at its discretion. If parking variance is proposed, mitigation measures should be clearly identified.

Inside transit-oriented areas, proposed developments must meet the off-street parking requirements for commercial, residential visitor, and accessible parking. The off-street parking supply for residential uses should not exceed the minimum off-street parking supply for the most appropriate land use in the Bylaw, as determined by the City of Port Moody. If the proposed development exceeds the minimum parking supply, supporting information should be provided to demonstrate how the development will reduce motor vehicle trips and parking demand over time. This still applies to developments where off-street parking requirements have been waived.

Transit-oriented areas are defined as areas within 800 metres of a rapid transit station (e.g., SkyTrain station) and 400 metres of a bus exchange and West Coast Express station that the Province has identified in Bill 47 regulations.

5.2.3. *Transportation Demand Management*

Transportation Demand Management (TDM) aims to change travel behaviour by incentivizing sustainable transportation modes, while reducing vehicle kilometers travelled (VKT) by single occupant vehicle (SOV) trips. The City of Port Moody developed TDM requirements in order to achieve higher quality development and transportation infrastructure through multi-modal site design.

Proposed developments must meet a point target tied to the proposed land use and scale. Applicants can select from a comprehensive list of 38 pre-approved TDM measures, including active transportation, land use, parking management, and transit. Point values for each TDM measure were assigned based on the anticipated impact on mode shift, VKT, and GHG emissions. TDM measures with a higher cost/benefit are worth more points toward the target. Applicants can earn additional points by providing synergistic combinations of TDM measures that work together to drive mode shift and reduce GHG. For example, a bike share membership is more impactful when there is a dedicated bike share station provided within the new development.

This assessment should include a discussion of how the proposed development meets the City of Port Moody's TDM requirements. Larger-scale developments (typically Level 3 TIAs) must estimate the anticipated impact of TDM measures on trip generation and parking demand. For example, research suggests that providing subsidized transit passes will likely result in a larger reduction in trips and parking demand compared to providing dedicated carshare spaces. Proponents should review the technical references provided in the TDM requirements to better understand anticipated impacts of different TDM measures on mode shift, VKT, and GHG. Proponents must document the assumptions behind their estimates.

6.0 OPERATIONAL ANALYSIS

6.1 Analysis Time Periods

The time of day used in the analysis should reflect the heaviest peak conditions for the site traffic plus background traffic. Residential developments peak during the weekday AM and PM Peak Hours, while shopping centres typically peak on weekends (when the background traffic is lower). Careful consideration should be given to seasonal peaks when selecting analysis time periods. For example, areas such as Rocky Point Park may peak on summer weekends but not winter weekends; therefore, a development near Rocky Point Park may need to be analyzed for typical weekday peak as well as summer weekend peak.

A Level 2 TIA should include, at minimum, analysis time periods reflecting existing conditions, development completion year (“opening day”), and a five-year horizon after opening day. For a multi-phase development, the analysis should include the opening day of each phase and a five-year horizon after the completion of the final development phase. City staff may require a five-year horizon and a ten-year horizon, depending on the magnitude of the development (typically for Level 3 TIAs).

6.2 Required Data Collection

Based on the study area and analysis time periods, data should be obtained either by field data collection or, available traffic data from the City. Traffic count data may be used in a TIA if the counts are less than two years old, unless the proposed development is located adjacent to an area where local traffic patterns or volumes have recently changed due to previous development or road network improvements.

If studies are proposed during the “off-season” where observed current conditions may not reflect typical peak conditions (for example, when school is not in session), approval from the City is needed in advance. If supported, the TIA should identify a seasonal adjustment factor that should be applied to the collected data to reflect typical peak conditions.

Capacity analysis data must include cars, trucks, and pedestrians. For some studies, City staff may request a further classification of trucks, bicycles, and buses.

The scope of the data collection may include turning movement counts, Automated Traffic Recorder (ATR) corridor counts, gap studies, pedestrian counts, parking counts, or any other counts deemed necessary to satisfy the TIA scope. Summarized data collection sheets should be included in an appendix to the report.

6.3 Development of Background Traffic Base

The development of the background traffic base is the foundation on which the capacity analysis is built on; therefore, careful consideration should be given in determining the appropriate factors to be used. Below is a recommended process to follow in developing background traffic base.

6.3.1 *Removal of Existing Site Vehicle Trips*

For developments proposed on sites with existing active uses, where traffic associated with the current site activity may impact the TIA results, these vehicle trips should be removed

from the background traffic base. To estimate the number of vehicle trips that needed to be removed, one of these approaches should be taken:

- Conduct driveway counts at existing sites (for exclusive access points); or,
- Calculate site vehicle trips using the ITE Trip Generation Manual and an estimate of the size and type of land use.

6.3.2. *Establishment of Annual Growth Rate*

A background traffic base needs to account for local and regional growth in traffic. This growth should be accounted for in two ways:

- Adding traffic projections for all developments under construction or approved within the study area, and which are to be completed within the horizon year identified in the TIA; and,
- Using a fixed annual growth rate to account for growth in traffic with origins and destinations outside the study area.

The City can provide the consultant with traffic projections from upcoming developments in the study area, if applicable. The consultant should apply an annual growth rate of 0.5% on all arterials and collectors passing through the study area, in addition to the projected traffic from local developments. If no local development traffic projections are available, the consultant should apply a 1% annual growth rate to all roads in the study area. In some cases, where a large development nearby is projected to generate traffic that will exceed a 1% annual growth, The City may request a higher growth rate. This will be discussed with staff at the beginning of the TIA.

Note that annual growth rate should also be applied to pedestrian and bike movements in the study area.

6.3.3. *Accounting for Transportation Network Improvements*

Any changes in the transportation network which will change traffic patterns in the study area (allowing vehicle movements which are currently restricted, for example) during the horizon year for the TIA should be included in the future traffic base. Potential diversion in traffic volumes should be estimated.

6.4. Development of Site Trip Generation, Distribution, and Assignment

All trip generation, distribution, assignment, and modal split assumptions should be calculated in accordance with industry standards and accepted techniques. City staff expect the applicant to use figures, land use codes, and methodologies described in the ITE Trip Generation Manual and Handbook.

Any assumptions made that are considered less conservative than the figures used in the above publications should be justified with well documented sources. In the case where the applicant does not have a breakdown of commercial land uses, the City requires the consultant to perform sensitivity analysis to account for the variability in estimated vehicle trips that may be generated by the development. The sensitivity analysis should cover at least two scenarios, showing mix of commercial uses with low and high vehicle trip rates.

6.4.1. *Trip Generation*

Conducting traffic surveys at other similar developments is a common and acceptable method for establishing trip rates with local considerations. These field-collected trip rates are sometimes significantly lower than the rates noted in the ITE Trip Generation Manual. In order for City staff to assess lower trip rates, the following information should be considered:

- Surveys should be conducted at a minimum of two properties;
- Vehicle trip rates vary with walking distance to rapid transit. When surveying similar development, the consultant should note the distance to transit for each of the surveyed properties;
- Some developments have shared driveways and may not be suitable candidates for a trip generation survey;
- Trip generation can vary with weather conditions; and,
- Surveys should not be done on sites during transit disruptions, adjacent road closures, or any other factor that may affect the quality of the data.

For Level 2 TIAs, the trip generation assessment should only consider vehicle trips.

For Level 3 TIAs, the trip generation assessment should consider multi-modal trips for on all road users such as pedestrians, cyclists, transit patrons or car use as a passenger or driver. In addition, this assessment should capture trips generated outside of peak hours in addition to peak hour trips.

6.4.2. Internal Capture, Pass-by, and Diverted Trips

Mixed use developments typically benefit from internal capture; that is, trips between two or more uses within the same site (a resident walking to a restaurant on site, for example). In addition, some commercial land uses, such as grocery stores, benefit from pass-by or diverted trips; that is, trips made by vehicles that are already on the road network. One of the benefits of a mixed-use development is the ability to reduce the number of added vehicle trips to the network by allowing internal capture and pass-by or diverted trips. Consultants are encouraged to apply these reduction factors to the trip generation calculations. This methodology is described in detail in the ITE Trip Generation Handbook.

The ITE Trip Generation Handbook also states that sound engineering judgment should be practiced when applying internal capture and other trip reduction methods, as the reduction rates vary and sometimes should not even be applied for specific land use code. Specifically, the Handbook states that internal capture rates should not be used with Land Use Code 820 (Shopping Centre). City staff recommends that in a situation where the applicant does not know the types of commercial uses on site, sensitivity analysis should be performed.

6.4.3. Trip Distribution and Assignment

The directions from which traffic will approach and depart the site vary depending on the types of uses in the proposed development. Generally, residential traffic patterns in Port Moody favour the direction of Vancouver (westbound) in the AM and eastbound in the PM. For employment centres or tourist attractions in Port Moody, trip patterns may have a different distribution.

For small projects, it should be sufficient for the consultant to distribute the new vehicle trips based on existing traffic patterns. For larger developments, however, a separate

distribution for each land use group (residential, commercial, office, etc.) may be warranted. The consultant should discuss the assumptions with City staff prior to completing this phase of the TIA.

Trip assignment assumptions should reflect the most probable travel patterns expected. They should consider logical routings, available and projected roadway capacities, and travel times.

6.5. Analysis of Future Background and Total Traffic

Total traffic represents background plus site traffic. For each of the analysis time periods, total traffic analysis should be conducted. The analysis of future traffic is not limited to intersection capacity analysis. Any traffic movement created or worsened by the proposed development should be identified.

For smaller-scale developments (typically Level 2), the City will provide guidance on future background traffic. For larger-scale developments (typically Level 3), the proponent will be required to update the City's Cumulative Development Transportation Model (CDTM) to include future post-development traffic developed in the VISUM platform.

City of Port Moody only accepts analysis done using the HCM 2010 or HCM 6th Edition methodologies. The City accepts capacity analysis reports done using the following software products¹:

- **Synchro/SimTraffic** by Trafficware
- **Vistro** by PTV Group
- **HCS** by McTrans and
- **Sidra Intersection** by Sidra Solutions

All study area intersections should be evaluated for each of the time periods. Summaries are to be provided in a table within the body of the report. Analysis sheets should be included in an appendix. For each intersection, the analysis must include the Level of Service (LOS), average delay, and volume to capacity (V/C) ratios for overall intersection operations and individual critical movements (note: v/c ratio can only be reported for individual movements).

The consultant should obtain all signal timing plans from the City. It should be assumed that all existing coordinated intersections will remain coordinated in the future; therefore, signal optimization should be adjusted manually to ensure that phases are coordinated, even if that does not provide the most optimized local cycle time and phases. In addition, in keeping with Port Moody's vision of a walkable community, the consultant should ensure that all optimized signals allow sufficient time for pedestrian crossings, even if that may result in less than optimized signal time for traffic flow.

For signalized intersections, the capacity analysis should identify specific movement or overall intersections exceeding the following performance thresholds:

¹ The most recent version is preferred, but the City will also accept capacity reports prepared using software products updated within the last two years.

- V/C ratio of 0.90 (individual movement);
- Level of service (LOS) D (overall intersection) or E (individual movement);
- Queues for an individual movement are projected to exceed available turning lane storage or extend into the upstream intersection(s).

For un-signalized intersections, the analysis must identify the following:

- Level of service (LOS) E or greater; and
- The estimated 95th percentile queue length for an individual movement exceeds the available queue storage, or extends into the upstream intersection(s).

7.0 MULTI-MODAL ANALYSIS

This assessment should consider impacts and gaps for pedestrians, cycling, transit, safety, parking, loading, electrification, and micromobility/MaaS that are not addressed in the operational analysis. The technical assessment should be informed by the results of the multi-modal trip generation assessment in the previous step.

For each mode/area, a technical assessment should be conducted to understand the impacts and gaps, as follows:

- Pedestrian assessment should compare pedestrian facilities in the study area to the BC Active Transportation Design Guide (see Section C and E).
- Cycling assessment should compare cycling facilities within the study area to the BC Active Transportation Design Guide (see Section D and E).
- Transit assessment should review access to - and the accessibility of – the nearest transit facilities and amenities, in comparison to the TransLink Bus Stop Design Guidelines.
- Electrification assessment should identify opportunities for electrification such as EV charging stations.
- Micromobility/MaaS review should identify potential type of micromobility modes and the associated facilities as well as safety implications. See Section H of the BC Active Transportation Design Guide.

These assessments should identify gaps that could prevent travel from the development from meeting the City's goals. The findings of the assessment should inform the next step, development of recommendations.

Level 3 TIAs are required to include a qualitative and quantitative assessment, meaning proponents should comment on how the quality of the proposed pedestrian, cycling, and transit facilities align with the estimated demand. Proponents must demonstrate that the proposed facilities are scaled appropriately to the anticipated number of peak hour pedestrian, cycling, and transit users and provide rationale for these assumptions.

For example, if the multi-modal trip generation suggests there will be a higher volume of peak hour pedestrian and cycling trips, then the proposed development should separate pedestrian and cyclist facilities, as per the recommendations in the BC Active Transportation Design Guide (see Table C-5 and E-21).

7.1 Safety Considerations

During the initial consultation with the City, staff may request that the TIA include a discussion and an evaluation of potential safety issues that could result from the development (typically for Level 2 or 3 TIAs). Below are some safety issues that may be identified:

- Pedestrian, cyclist and motorist interactions: this involves a review of driveways, walkways, intersections, and interactions for parking facilities and ramps;

- Weaving: Typically occurs within closely-spaced intersections where vehicles have to make quick lane changes;
- Gap Study*: Increase in traffic through a side street may not have sufficient gaps in traffic along the main road to make left or right turns; and,
- Stopping Sight Distance**: a new access point is on an inside curve, top of hill or, obstructed by trees/landscape and may not allow for sufficient stopping sight distance.

**Gap studies should be conducted in the field using a TDC-Ultra board by JAMAR Technologies ("JAMAR Board") and calculated using the methodology outlined in the TAC Manual. In some cases, gaps and sight distance issues may warrant an installation of a new traffic signal.*

***Stopping Sight Distance should be calculated using the methodology outlined in the TAC Geometric Design Guide for Canadian Roads (2017) manual and field measurements at the proposed location of a new site access.*

8.0 Recommendations

The final section of the TIA should include recommendations for actions to be taken by the City of Port Moody and the applicant. The recommendations should adhere to the City's long-term vision of as adopted in the recent OCP and Master Transportation Plan. The recommendations should consider the impacts and gaps identified in the operational and multi-modal analysis (see Sections 5 and 6). Potential recommendations include improvements to site permeability, walking connectivity, cycling connectivity, transit amenities, EV charging, micromobility end-of-trip facilities, and congestion management.

- *Site Permeability:* Developments should create short, direct connections for walking and cycling by providing pass-through routes and/or short blocks to encourage a higher proportion of walking and cycling trips. Developments should permit walking and cycling connections through the site, and should not create barriers or circuitous networks.
- *Walking Connectivity:* Developments should contribute to a safe, comfortable, and accessible walking infrastructure to encourage higher walk mode share, lower vehicle-kilometers travelled, and lower transportation-related fatalities. The BC Active Transportation Design Guidelines provide guidance on desirable design criteria for pedestrian facilities. Projects must include high-quality sidewalks and pedestrian facilities that meet the desirable criteria of the guidelines.
- *Cycling Connectivity:* Developments should contribute to a safe and comfortable cycling infrastructure that is accessible for people of all ages and abilities to encourage higher cycling mode share, lower vehicle-kilometers travelled, and lower transportation-related fatalities. Developments should deliver cycling facilities that align with the City's plans and meet the desirable criteria of the BC Active Transportation Design Guidelines within the subject area.
- *Electrification:* Developments should meet or exceed Zoning Bylaw requirements for EV charging in order to lower GHG emissions.
- *Micromobility/MaaS:* Developments should support micromobility by providing appropriate end-of-trip facilities for private and shared devices, in line with Section H of the BC Active Transportation Design Guidelines.
- *Transit Amenities:* Developments should enhance transit amenities. TransLink's Bus Stop Design Guidelines identify design guidance and amenities for bus stops, including accessibility requirements, bus pads, shelters, benches, garbage cans, signage, and lighting. Developments should ensure that bus stops located on the internal roadways within a development or on the frontage of the site have all recommended amenities and accessibility metrics in place.
- *Congestion Management:* Developments should contribute to efficient, safe, and reliable transportation networks. Developments should identify opportunities to optimize traffic signals and upgrade intersections to facilitate the safe and reliable movement of people and goods using all modes of transportation.

9.0 SPECIAL STUDIES

This section covers special studies that do not require a full scope of a TIA as outlined in Section 3. Consultants doing special studies should still be familiar with the items outlined in Section 3, as these items also apply to special studies. Prior to commencing with a special study, the consultant should verify the scope with the City. The special studies covered in this section include OCP amendments, parking variance studies, loading access studies, and safety studies.

9.1. OCP Amendments

If a development application requires an OCP amendment, and the applicant only wishes to pursue an OCP amendment and not rezoning, a special TIA can be done. This special TIA can omit the requirements set in Sections 3.3, 3.4, and 3.11 related to parking and loading, but must still include all the information outlined in the remaining sections.

9.2. Parking Variance Studies

There are many cases, especially on small lots, where the number of parking stalls that can be accommodated may limit the development potential of the lot. In these cases, some applicants may only wish to do a parking variance study to explore the uses the site can support. These types of studies only need to cover the requirements set in Sections 3.3, 3.4 and 3.11. Note that loading access should still be included in parking variance studies, as it is directly related to the amount of parking space available.

9.3. Loading Access Studies

Loading Access help determine if development designs can accommodate service vehicles that will access the site. Based on input may require a relocation of a loading bay or an increase in the size of truck that typically services the site. Similar to parking variance studies, the ability for a site to relocate a loading bay or be served by a larger truck may limit the development potential and uses on the site. Typical loading access studies should at a minimum account for: grades, turning path movements, heights, type and dimensions of service vehicles and facility locations to be serviced. For these cases, a loading access study can be done. Loading access studies only need to cover the requirements set in Sections 3.3, 3.4 and 3.5.

9.4. Safety Studies

Safety studies are useful in identifying locations where safety concerns alone may limit a new development or site access relocation. Such concerns may include hidden driveways, sightline constraints (vertical and horizontal), or lack of adequate pedestrian facilities. If an applicant wishes to assess safety concerns prior to engaging in a full site design and TIA, a safety study can be done. All safety studies should be done according to the methodologies set in the TAC Manual. In addition, collision data can be obtained directly from ICBC.