CITY OF WHITEHORSE
GUIDELINES FOR
TRANSPORATION IMPACT ASSESSMENTS

Whitehorse

TABLE OF CONTENTS

1 PURPOSE

The City's Zoning Bylaw states that a Development Officer may require a Transportation Impact Assessment as part of an application for development permit.

The purpose of these guidelines is to provide guidance and information to Proponents of Developments in the preparation of Transportation Impact Assessments regarding:

- The Transportation Impact Assessment Process
- Level of assessment
- Warrant for assessment
- Scope of assessment
- Approval and acceptance of assessment
- Assessment contents
- Assessment methodology
- Submission and reporting requirements

These guidelines are intended to:

- Encourage Proponents and their Consultants to collaborate with the City and External Parties in the preparation and development of Transportation Impact Assessments.
- Integrate Development with the broader transportation network.
- Align Development with the City's transportation bylaws, policies, plans, and goals.
- Aid decision makers in the Development review, approval, and permitting process.
- Aid the City and the Proponent in understanding the cumulative transportation impacts necessitated by Development.

2 DEFINITIONS

TIA: A *TIA* is a Transportation Impact Assessment.

3 SCOPE

These guidelines apply to all developments requiring a Transportation Impact Assessment within the City of Whitehorse.

These guidelines are not exhaustive for the requirements for Transportation Impact Assessment. The City reserves the right to request additional information and additional requirements for Transportation Impact Assessments commensurate with the complexity of the project.

4 REFERENCE DOCUMENTS

The City may refer to various external reference materials during the preparation and review of Transportation Impact Assessments. These include but are not limited to:

- *AASHTO Highway Safety Manual*
- *City of Abbotsford Transportation Impact Assessment Terms of Reference*
- *City of Edmonton Transportation Impact Assessment Guidelines*

- *City of Vancouver Transportation Assessment and Management Study Guidelines for Consultants*
- *ITE Multimodal Transportation Impact Analysis for Site Development*
- *ITE Promoting Sustainable Transportation Through Site Design*
- *TAC Canadian Roundabout Design Guide*
- *TAC Geometric Design Guide for Canadian Roads*
- *TAC Manual for Uniform Traffic Control Devices for Canada*
- *TAC Pedestrian Crossing Control Guide*
- *TAC School and Playground Areas and Zones: Guidelines for Application and Implementation*
- *TAC Traffic Signal and Pedestrian Signal Head Warrant Handbook*

5 TRANSPORTATION IMPACT ASSESSMENT

5.1 GENERAL

A Transportation Impact Assessment (TIA) provides an understanding of the transportation impacts and potential mitigations and improvements required to service, sustain, and integrate a Development with the City's transportation network.

5.2 TIMING OF ASSESSMENT

A Transportation Impact Assessment may be required when changes to land use are anticipated to significantly impact the overall transportation network. TIAs are usually requested as a part of the rezoning, subdivision development, and/or development permit review process.

5.3 WARRANT FOR ASSESSMENT

A Transportation Impact Assessment is generally warranted if any of, but not limited to, the following conditions apply to a Development:

- Change in zoning.
- Subdivision.
- Significant change in land use intensity.
- Generation of more than 100 vehicle trips[1] during the peak hour of the Development or peak hour of an adjacent street.
- Anticipated to cause significant adverse impacts to traffic and/or community safety.
- Subject to significant community concern in the opinion of the City Engineer.

In exception cases, the City reserves the right to request a Transportation Impact Assessment for circumstances not specified in these guidelines.

5.4 LEVEL OF ASSESSMENT

If a Transportation Impact Assessment is warranted and required, there are two levels of assessment:

[1] Number of trips shall be determined using the latest version of the Institute of Transportation Engineers – Trip Generation Manual.

5.4.1 Limited Transportation Impact Assessment

A Limited Transportation Impact Assessment is a limited-scope Transportation Impact Assessment that focuses on select Development-related transportation impacts, issues, and opportunities. A Limited Transportation Impact Assessment is characterized by the following attributes:

- Limited scope of assessment.
- Scope of assessment usually limited to a few particular Development-related transportation issues or opportunities.
- Less level of effort required.
- Low to moderate review process.

5.4.2 Comprehensive Transportation Impact Assessment

A Comprehensive Transportation Impact Assessment is a comprehensive study and analysis of the cumulative transportation impacts relating to a proposed Development. A Comprehensive Transportation Impact Assessment is characterized by the following attributes:

- Comprehensive scope of assessment.
- Scope of assessment usually comprised of all possible transportation issues, opportunities, concerns, or considerations.
- Higher level of effort required.
- Extensive review process.

5.5 SCOPE OF ASSESSMENT

The scope of assessment shall be determined in advance between the Proponent, the Proponent's Consultant and the City. The scope of a Transportation Impact Assessment may discuss and address transportation issues and opportunities related to the Development including but not limited to any of the following topics:

- Site design, circulation, access, integration
- Road safety
- Traffic
- Transit
- Active transportation
- On-site parking, on-street parking
- Transportation Demand Management
- Integration with the broader transportation network
- Transportation monitoring and evaluation

5.5.1 Scope of Study and Assessment Methodology

The scope of study shall be determined in advance between the Proponent, the Proponent's Consultant, and the City.

5.6 AUTHORITY HAVING JURISDICTION

Where a development is located within City limits and only impacts the City's transportation network, the City of Whitehorse is the authority having jurisdiction over the TIA process including scoping, reviews, approvals, and acceptance.

Where a development is anticipated to impact another external government, that organization shall be an authority having jurisdiction over the TIA process including scoping, reviews, approvals, and acceptance.

6 TIA PROCESS

Development of a TIA is a collaborative process between the Proponent and the City. It is important that all parties are engaged early and continually throughout the process to manage expectations and ensure a timely process.

6.1 SCREENING AND PRE-SCOPING

Proponents are encouraged to engage with the City as early as possible to discuss their Development and confirm requirements to complete a Transportation Impact Assessment.

When the City becomes aware of a development, the City will assess the need and level of assessment required for a Transportation Impact Assessment.

The need for a Transportation Impact Assessment will usually be discussed at a Pre-Application meeting between the City and the Proponent.

6.2 KICK-OFF MEETING

At the start of a TIA process, a kick-off meeting should be held between the Proponent, the Proponent's Consultant, the City, and any other relevant parties to confirm the scope of assessment, scope of study, level of assessment, deliverables, and any issues and opportunities regarding the Development.

6.3 APPROVAL OF SCOPE

Following the Kickoff Meeting, the scope of assessment and scope of study of the TIA shall be confirmed in writing and approved by the City.

Draft TIAs that are submitted without an approved scope of study will not be accepted by the City.

6.4 DATA COLLECTION

The Proponent and the Proponent's Consultant are to collect any necessary data for the Transportation Impact Assessment. All data that is collected shall be given to the City.

6.5 DRAFT TIA – REVIEW

A draft TIA shall be submitted to the City for review. The City will review the assessment and assessment findings and provide comment to be resolved for the final TIA.

Incomplete or poor quality submittals will not be reviewed by the City and will be reissued to the Proponent for resubmittal in two weeks' time. A draft TIA submitted without an approved scope of work will also be issued for resubmittal in two weeks.

6.6 FINAL TIA – APPROVAL AND ACCEPTANCE

Following review and final revisions, a final TIA shall be issued to the City for approval and acceptance.

6.7 REVISIONS

Characteristics of a Development may change during the planning and design process. Proponents are to notify the City of any major and significant changes to the Development. Any significant to a Development that has previously submitted a TIA must resubmit a new TIA to reflect the changes in the Development.

7 ROLES AND RESPONSIBILITIES

7.1 CITY OF WHITEHORSE

7.1.1 City Engineer

The City Engineer provides acceptance of Transportation Impact Assessments. The City Engineer's roles and responsibilities include:

- Keeping informed of the TIA process through the Transportation Engineer.
- Approving and accepting the Final TIA.
- Assigning or delegating roles and responsibilities to the Transportation Engineer.

7.1.2 Development Officer

The Development Officer is the main point of contact for all Development related inquiries and liaises with the Proponent to apprise them of requirements and connect them with appropriate City personnel.

7.1.3 Transportation Engineer

The Transportation Engineer is the main point of contact at the City throughout the preparation of Transportation Impact Assessments.

The Transportation Engineer's roles and responsibilities include:

- Liaising with the Proponent's Consultant to determine the scope of Transportation Impact Assessment
- Reviewing submittals by the Proponent and the Proponent's Consultant.
- Informing the Development Officer of the TIA process and status.
- Informing the City Engineer of the TIA process and status.
- Acting as the City Engineer in the final approval and acceptance of a TIA.

7.2 PROPONENT

7.2.1 Proponent

The Proponent is main point of contact on behalf of the Development. The Proponent's roles and responsibilities include:

- Keeping apprised of requirements associated with Transportation Impact Assessments.
- Retaining an third-party Consultant to carry out the Transportation Impact Assessment.

7.2.2 Consultant

The Consultant is the primary developer of the Transportation Impact Assessment. The Consultant is deemed to be a neutral third-party who acts independently of the City and the

Proponent in preparation of a Transportation Impact Assessment. The Consultant is expected to be a Professional Traffic Engineer with licensing in the Yukon. The Consultant's roles and responsibilities include:

- Preparation of Transportation Impact Assessments that fulfill the requirements set out by the City.
- Working together with the City's Transportation Engineer.

7.3 EXTERNAL PARTIES

Depending on Development characteristics, an External Reviewer may be engaged from time to time to aid in the TIA review, acceptance, and approval process.

7.3.1 External Review – Department of Highways and Public Works, Government of Yukon

Developments that are anticipated to have a significant impact to the transportation network managed by the Government of Yukon shall include a reviewer from Department of Highways and Public Works, Government of Yukon. External Reviewer has the same roles and responsibilities as the Transportation Engineer and City Engineer.

8 ASSESSMENT METHODOLOGY

All assumptions must be documented with substantive rationale. Transportation Impact Assessments with unsubstantiated assumptions will not be accepted.

8.1 ANTICIPATED FUTURE DEVELOPMENTS

Anticipated future developments within the study area limits and study horizon that are deemed to be beyond regular traffic growth shall be confirmed with the City.

8.2 DESIGN PEAK HOUR OF ANALYSIS

An appropriate design peak hour of analysis shall be chosen and confirmed with the City.

Typical weekday peak hours of analysis in Whitehorse include:

- AM – Morning (07:00-09:00)
- MD – Midday (11:00-13:00)
- PM – Afternoon (15:00-18:00)

8.3 ENGINEERING STANDARDS

Transportation Association of Canada design guidance and City of Whitehorse Servicing Standards shall be used for adjacent streets and roadways.

8.4 EXISTING AND FUTURE TRANSPORTATION NETWORK

The existing and future transportation network shall be confirmed with the City and the City's Transportation Master Plan.

8.5 HORIZON YEARS OF ANALYSIS

Appropriate horizon years of analysis shall be chosen for the TIA and confirmed with the City.

Typical horizon years of analysis include:

- Without Development traffic
  - Existing conditions
  - Opening day
- With Development traffic
  - Opening Day (for each phase)
  - Opening Day + 5 years (from completion)
  - Opening day of development + 10 years

8.6 MODE ASSIGNMENT

Mode assignments shall assume the all trips are taken by vehicle for conservative estimates.

8.7 RELEVANT BACKGROUND MATERIAL

All relevant background material shall be considered in the preparation of a Transportation Impact Assessment. All relevant background shall be confirmed with the City

8.8 STUDY AREA LIMITS

A reasonable study area shall be chosen for the Transportation Impact Assessment. The study area shall be confirmed in advance with the City.

8.9 TRAFFIC ENGINEERING METHODOLOGY

The latest version of traffic engineering guidance shall be used and documented. These include but are not limited to:

- HCS
- Highway Capacity Manual
- Highway Safety Manual
- SIDRA
- Synchro

8.10 TRAFFIC PROJECTION METHODOLOGY

Best practices for traffic engineering to develop traffic projections shall be used.

8.11 TRAFFIC VOLUME GROWTH RATE

A 2.0% traffic growth rate is typical and may be used with caution on City transportation impact assessments. The Proponent is to confirm whether a 2.0% traffic growth rate is acceptable by comparing it to the overall traffic growth rate in the Study Area Limits.

8.12 TRIP GENERATION METHODOLOGY

Trip generation shall be taken using the latest version of the Institute of Transportation Engineers - Trip Generation Manual. Trip generation rates shall use vehicle trip generation rates to estimate site traffic volumes as this represents the worst case scenario. Trip generation rates shall be confirmed with the City.

8.13 TRIP DISTRIBUTION

Trip distribution and traffic assignment parameters shall be confirmed with the City.

8.14 ROAD SAFETY

Existing road safety conditions shall be quantified or estimated using the latest collision statistics, near-miss technology, or Safety Performance Functions in the Highway Safety Manual (AASHTO, 2010).

Existing and anticipated road safety issues and opportunities in the Study Limits shall be confirmed with the City.

8.15 SWEPT PATH ANALYSIS

Swept path analysis shall be conducted for loading zones, solid waste handling, and parkades. Swept path analysis shall be conducted using AutoTurn or a similar software. Design vehicles shall be confirmed with the City.Assessment Contents

8.16 EXECUTIVE SUMMARY

An executive summary is intended to provide a succinct high level overview of Transportation Impact Assessment, the Development, and the results and recommendations.

8.17 INTRODUCTION

The introduction shall provide a brief overview of the proposed Transportation Impact Assessment and Development.

8.18 SITE CHARACTERISTICS

This section shall discuss the existing and proposed site characteristics. At minimum, this section shall discuss the following:

- Site details.
  - Municipal address.
  - Size.
- Existing conditions
  - Current use.
  - Access.
  - Buildings.
  - Existing zoning.
  - Location of adjacent community centres of interest.
  - Parking.
  - Surrounding land use.
- Proposed use
  - Development details
    - Development phasing, schedule, date of occupancy.
    - Development size (number of units, GFA uses).
    - Proposed zoning.
    - Site plan and renderings.
  - Access

- Buildings
- Parking

8.19 TRANSPORTATION CONTEXT

This section shall discuss the existing and proposed transportation context of the development. At minimum, this section shall discuss the following:

- Relevant City bylaws, strategies, plans, policies.
- Existing transportation network (walking, cycling, transit, driving, goods movement, emergency response).
- Proposed transportation network (walking, cycling, transit, goods movement, emergency response).

8.20 SCOPE OF ASSESSMENT

At minimum, this section shall discuss the scope of assessment and study area.

8.21 ASSESSMENT OF SITE DESIGN

This section assess the transportation characteristics of the site design. At minimum this section shall discuss:

- Accesses
  - Access design.
  - Number of accesses
  - Access control.
  - Access proximity.
  - Sightlines for turning vehicles.
- On-Site Parking
  - Accessible parking.
  - Bicycle parking.
  - Parking supply.
- Pickup/drop off
  - Length of loading zone.
  - Queue length and queue spillback.
- Site Design
  - Accessibility.
  - Traffic calming.
  - Turning movements and swept path analysis.
- Traffic circulation
  - On-site pedestrian circulation.
  - On-site cycling circulation.
  - On-site traffic circulation.

8.22 ASSESSMENT OF WALKING NETWORK

This section assesses the integration of the site development with the broader walking network. At minimum, this section shall discuss:

- Existing and proposed walking network.
- Pedestrian crossing control.
- Pedestrian desire lines.
    - Identify existing and proposed pedestrian desire lines.
    - Identify existing sidewalks, multi-use pathways.

8.23 ASSESSMENT OF CYCLING NETWORK

This section assesses the integration of the site development with the broader cycling network. At minimum, this section shall discuss:

- Existing and proposed cycling network.
- Bicycle crossing control.
- Bicycle desire lines.
- Bicycle end of trip facilities.
- Bicycle parking.

8.24 ASSESSMENT OF TRANSIT NETWORK

This section assesses the integration of the site development with the broader transit network. At minimum, this section shall discuss:

- Existing and proposed transit network.
- Transit stops.
- Transit facilities: shelters, benches.
    - Identify existing and proposed transit user desire lines.
    - Identify existing and proposed transit stop locations.
    - Recommend transit stop locations that integrate with the network.

8.25 ASSESSMENT OF TRAFFIC NETWORK

This section assesses the integration of the site development with the broader traffic network. At minimum, this section shall discuss:

- Methodology
    - Traffic data
    - Key parameters
    - Key assumptions and limitations
    - Traffic modelling software
- Background traffic characteristics
    - Road network description
    - Traffic volumes
    - Operating conditions
- Development related traffic characteristics
    - Trip generation
    - Trip distribution
    - Trip assignment
- Future traffic characteristics
    - Opening Day

        - Road network description
        - Traffic volumes
        - Operating conditions
    - Short Term
        - Road network description
        - Traffic volumes
        - Operating conditions
    - Long Term
        - Road network description
        - Traffic volumes
        - Operating conditions
- Proposed traffic characteristics
- Background Operating Conditions
    - Short term horizon
        - Road network description
        - Traffic volumes
        - Operating conditions
    - Long Term Horizon
        - Road network description
        - Traffic volumes
        - Operating conditions

8.26 ASSESSMENT OF PARKING AND/OR LOADING

This section assesses the parking and/or loading requirements of the site development and on-street parking. At minimum, this section shall discuss:

- Parking demand
- Parking supply
- Loading zones
- Goods movement

8.27 ASSESSMENT OF COMMUNITY AND NEIGHBOURHOOD IMPACTS

This section assesses the community and neighbourhood transportation impacts of the proposed development. This section shall discuss

- Location of development with respect to adjacent community considerations.
- Potential adverse transportation impacts.
- Shortcutting and traffic calming.

8.28 ASSESSMENT ON TRANSPORTATION DEMAND MANAGEMENT

This section assesses the proposed development and alignment with transportation demand management principles. This section shall discuss:

- Proposed transportation demand management measures.
- Bicycle end of trip facilities.

8.29 ASSESSMENT OF TRANSPORTATION MONITORING AND EVALUATION

This section assesses the proposed development and alignment with its transportation goals. This section shall discuss:

- Monitoring and evaluation plan.
- Milestones.

8.30 DISCUSSION

A discussion including sources of data, key assumptions, sensitivity analyses, and sources of error could be included for each assessment or as a standalone section.

8.30.1 Sources Data

This section discusses sources of data, data limitations, and data gaps.

8.30.2 Key Assumptions

This section discusses key assumptions used in the development of the Transportation Impact Assessment.

8.30.3 Sensitivity Analysis

This section assesses how sensitive the assessment findings are to varying input parameters.

8.30.4 Sources of Error

This section discusses potential sources of error arising from the findings of this report and their overall impact on the assessment findings.

8.30.5 Recommendations and Mitigations

A section on recommendations and mitigations can be included for each assessment or as a standalone final section. This section shall assess recommendations and mitigations that address the transportation impacts associated with this development. Recommendations shall include:

- Identify worst-case scenario (vehicle only) mitigation measures to accommodate the proposed development. This is for illustrative purposes only.
- Identify ideal mitigation measures and transportation demand management measures to accommodate the development that align with the City's values, visions, and goals.
- Identify coordination opportunities with existing and proposed City projects.

8.30.6 Appendices

This section shall include all appendices and supporting documentation for the transportation impact assessment. This section may include the following:

- Correspondence between City and Proponent regarding:
  - Scope of Work.
  - Terms of Reference.
  - Deviances/Variances from these guidelines with supporting rationale.
  - Confirmations by the City regarding project direction.
- Transportation/traffic data

- Signal timing plans
- Spreadsheet files and figures of trip generation, trip assignment, and trip volumes of complex projects that require multi-layered analyses including interim stages.
- Outputs from traffic modelling software including but not limited to:
  - Synchro
  - SimTraffic
  - SIDRA
- Warrants
  - Pedestrian crossing control warrant.
  - Traffic signal warrant.
- Site plans and renderings of proposed development.
- Maps.
- Renderings of proposed development.

9 SUBMISSION AND REPORTING REQUIREMENTS

Transportation Impact Assessments should be prepared and submitted as per best practices in the industry.

9.1 FIGURES

All figures must be clearly legible and interpretable. Figures must include captions clearly describing their purpose. Figures shall be numbered accordingly.

Traffic analysis figures shall make clear distinctions between AM, MD, and PM traffic through use of parenthesis or showing data on separate figures.

Existing traffic conditions, trip distribution, and combined traffic should be clearly separated on different figures.

9.2 TABLES

All figures must be clearly legible and interpretable. Figures must include captions clearly describing their purpose. Figures shall be numbered accordingly.

9.3 FORMATTING

Submittals to the City shall be formatted in a logical way that is easy to read and review by the City.

9.4 SUBMITTALS

Submittals to the City shall be submitted in electronic pdf format. Upon request, electronic copies of software files may be requested by the City.

9.5 DELIVERABLES

9.5.1 Terms of Reference

Prior to engaging work on the TIA, the Proponent and Proponent's Consultant shall submit a Terms of Reference that is comprised of a draft table of contents, a map of the proposed study area, and some discussion on the limits of the proposed study area. This step is intended to help quantify the expectations and scope of work at the early stages of the development of the TIA.

9.5.2 Draft TIA

A draft TIA in report format issued for review.

9.5.3 Final TIA

The final TIA must be revised following comments from the City. The final TIA must be stamped and sealed by a Professional Engineer specializing in transportation and traffic operations with PTOE designation registered in the Yukon Territory.