Transportation

Introduction

Development projects bring new residents, workers, deliveries, customers, and visitors, all of whom need to travel to or from the site. This travel involves various modes of mobility—cyclists, vehicles, delivery vehicles, etc. The impacts on the existing transportation network are often examined through a Transportation Impact Assessment (TIA). Once the vehicles arrive at the site, they need to park, which necessitates a Parking Study to determine the required vehicle and bicycle parking stalls to meet the project's demands.

Transportation Impact Assessment (TIA)

Introduction

A TIA assesses the probable traffic of different modes brought to the area by the new development. It models the impacts on current levels of service and provides recommendations for mitigating these impacts. Typically, a TIA also assesses the future performance of the road network without the new development to differentiate between general traffic growth and development-generated traffic.

What does a Transportation Consultant do?

A Transportation Consultant evaluates and analyzes the potential effects of new developments on the transportation network. This involves assessing traffic impacts, proposing mitigation measures, and ensuring that the development complies with transportation policies and regulations.

The main tasks that a Transportation Consultant addresses include:

- **Traffic Impact Analysis**: Evaluating the impact of development on traffic flow and transportation networks.
- **Data Collection and Modeling**: Gathering traffic data, creating traffic models, and conducting simulations.
- **Multi-Modal Assessment**: Considering the impacts on all modes of transportation, including vehicles, cyclists, pedestrians, and transit users.
- **Mitigation Strategies**: Developing recommendations to mitigate negative impacts on the transportation system.
- **Reporting**: Preparing detailed reports that outline findings, analyses, and recommendations.

Types of TIAs

1. Basic Transportation Review (BTR)
    - For developments generating fewer than 30 trips per peak hour.
    - Includes a summary of the development's transportation context, anticipated vehicle trips, and a high-level review of transportation-related elements.
2. Level 1 TIA
    - For developments generating 30 to 80-100 trips per peak hour.
    - Includes a multi-modal evaluation of site design, on-site circulation, access considerations, parking supplies, active transportation considerations, and opening day scenario recommendations.
3. Level 2 TIA
    - For larger developments generating over 80-100 trips per peak hour.
    - Includes all Level 1 components, analysis of future traffic impacts (5-10 years post-completion), safety considerations, and phasing plans.

Terms of Reference (TOR)

The TIA is based on a "Terms of Reference" (TOR) that outlines the study's scope and core assumptions. The TOR may come from recommendations by transportation consultants, pre-established TOR by local governments, or MOTI requests. It's crucial to agree on the TOR before most of the work is undertaken to avoid delays and additional costs.

General TOR List:

- **Introduction**: Project background, study's purpose, proposed development description (land uses, density, parking supplies, site access).
- **Analysis Time Periods**: Weekday AM and PM peak hours, future analysis, and horizon years (opening and opening + 10 years).
- **Existing Conditions**: Road network characteristics, transit, pedestrian and cycling facilities, relevant plans and policies, existing traffic volumes.
- **Future Conditions**: Background traffic growth, peak hour site trip generation, trip distribution, and assignment, future traffic operations, mitigation measures for traffic impacts.
- **Geometric & Safety Review**: Collision history, impact on safety performance.
- **Site Design Review**: Parking supply requirements, site vehicle access, circulation, loading layout, waste collection.
- **Conclusions & Recommendations**: Summary of findings, recommended improvements.

Scope of Work

Typical Components of BTR, Level 1, and Level 2 TIAs:

- Project Details
    - Development proposal details, including land use, size, phasing, access, parking, and loading zones.

    - Relevant background information.
- Development Context
    - Site plan, study area limits, traffic counts, planned changes.
- Traffic Projections
    - Trip generation rates, background growth rates, horizon year analysis, phasing triggers.
- Modifications to Development-Generated Traffic
    - Trip distribution and assignment, internal trips, pass-by percentages, multi-purpose trips, diverted link trips.
- Data Collection and Capacity Analysis
    - Data collection, peak hour analysis, intersection performance, signal/roundabout warrants, Synchro/Sim Traffic Analysis, internal site circulation, left-turn bay requirements.
- Design Criteria
    - Parking requirements, large vehicle circulation, design speeds.
- Safety Analysis
    - Sight distance analysis, accident history, influence on known crash types.
- Other Users
    - Pedestrian, cyclist, transit facilities.

Preliminary Inquiry and Desktop Assessment

Purpose: To identify potential transportation impacts through desktop research and preliminary site visits.

When Needed: Early in the project planning stage to assist with due diligence and feasibility assessments.

Components:

- Review of existing transportation data and studies.
- Preliminary site visit to assess existing transportation infrastructure.
- Identification of key transportation issues and constraints.
- Preparation of a preliminary report summarizing findings and recommendations.

When to Move to Next Step: If potential transportation impacts are identified, proceed to Basic Transportation Review (BTR).

Basic Transportation Review (BTR)

Purpose: To determine the impact of smaller developments on existing transportation infrastructure.

When Needed: For projects expected to generate less than 30 peak hour trips.

Components:

- Summary of the development's transportation context.

- Anticipated vehicle trips generated by the development.
- High-level review of the transportation-related elements of the proposed site plan.

When to Move to Next Step: If the development generates more than 30 peak hour trips, proceed to Level 1 Transportation Impact Assessment (TIA).

Level 1 Transportation Impact Assessment (TIA)

Purpose: To assess the impact of small to medium-sized developments on the adjacent transportation network.

When Needed: For developments generating 30-80 peak hour trips.

Components:
- Multi-modal evaluation of site design.
- On-site circulation considerations.
- Access considerations.
- Proposed parking supplies.
- Recommendations to mitigate and manage development impact.

When to Move to Next Step: If the development generates more than 80 peak hour trips, proceed to Level 2 Transportation Impact Assessment (TIA).

Level 2 Transportation Impact Assessment (TIA)

Purpose: To conduct a comprehensive assessment for larger developments.

When Needed: For developments generating over 80 peak hour trips.

Components:
- All considerations of a Level 1 TIA.
- Impacts of traffic approximately a decade after project completion.
- Safety considerations and phasing plans.
- Recommendations for long-term transportation management.

Post-Construction Monitoring and Maintenance

Purpose: To implement monitoring and maintenance plans post-construction.

When Needed: After construction to ensure the long-term success of transportation and mitigation efforts.

Components:
- Regular maintenance activities to ensure the effectiveness of implemented strategies.

- Monitoring of transportation infrastructure over time.
- Preparation of reports documenting monitoring results and any necessary adjustments.

What is generally required at each stage in the development process?

Due diligence / securing land	• Quick review of transportation elements and possible risks and studies required, and completion of a memo of results.
Preliminary Inquiry	• Preliminary Inquiry and Desktop Assessment • Terms of Reference
Pre-Application	• Terms of Reference • Initial modeling and concept for access and impacts proposed. • Possibly a BTR/TIA
For Rezoning application	• BTR/Level 1/Level 2 depending on number of proposed units and complexity of the application
For Subdivision application	• Preliminary Inquiry and Desktop Assessment • BTR/Level 1/Level 2 – depending on predicted impact of transportation.
For Development Permit application	• BTR/Level 1/Level 2 depending on number of proposed units and complexity of the application
Post construction	• Post Construction Monitoring and Maintenance