MUNICIPALITY OF ANCHORAGE
Traffic Department

POLICY

Traffic Impact Analysis

The impact of a development on the transportation system depends on the number of trips generated and the routes taken to and from the development site. The Institute of Transportation Engineers *Transportation and Land Development 2nd Edition* states: "A traffic impact analysis (TIA) is a specialized study that projects future transportation conditions and recommends methods to offset both the impacts of the increase in traffic volumes and the changes in traffic operations due to land development. Its purpose is to evaluate the transportation elements of proposed developments and help public officials and private developers meet the complex needs of balancing efficient traffic movement with necessary land access."

A traffic impact analysis can be required through the platting, zoning, or the building permit processes. (Additionally, the Alaska Department of Transportation (ADOT) may require a TIA when State facilities are impacted by a proposed development pursuant to 17 AAC 10.060.) The specific TIA requirements are determined by the Municipal Traffic Engineer and/or their designee. All TIAs must be prepared by a Professional Engineer (licensed under AS 08.48) with traffic related experience. The scope of the TIA can vary depending on the type, size and location of the development.

Following is the Municipal traffic impact analysis policy which includes threshold criteria, study area requirements, data needs, analysis procedures, and report requirements. The process and report outline must be followed. If the process and report outlined are not followed, the report will be returned for correction and resubmittal. The Traffic Department has 20 working days to review and return comments on the submitted TIA.

Pre-submittal Scoping Meeting

- ☑ A pre-submittal scoping meeting shall be set with the Traffic Department and other affected agencies such as Alaska Department of Transportation and Public Facilities when State facilities are impacted.
- ☑ The meeting shall discuss such issues as project description, trip generation and distribution, and study area.
- ☑ The developer/consultant is responsible for submitting (as soon as possible) meeting minutes for approval by the Traffic Engineer pursuant to *Traffic Department Meeting Minutes, Agreements and Understandings Policy*. The final approved minutes will be included in an Appendix with the report. The meeting minutes shall cover:
    1. meeting date,
    2. project identification and general nature of the meeting,
    3. attendees,
    4. specific agreements and understandings reached or directions issued - preferably in a bullet list,
    5. a signature line for the person preparing the documentation, and
    6. a signature line for approval by the Traffic Engineer.
- ☑ A sample agenda follows:

Agenda

Traffic Impact Analysis Scoping Meeting

Date
Traffic Engineering Conference Room – Tudor Road

Purpose of meeting: Determination of the scope of the TIA for the proposed development

Attendees:

Please bring: Project discription (location, size, number and location of driveways), trip generation rates, trip distribution, study area, and any other relevant data

Agenda topics

Trip Generation Rates

Trip Distribution

Study Area – Intersections & roadways to be Studied

Existing Data - volumes, geometrics, accidents

Traffic Growth Rates

Other Development to be Included

Construction Projects Within Study Area

Circulation Issues

Other

Need for a Traffic Impact Analysis

☑ A pre-established trip generation threshold is used to determine if a particular project should conduct a TIA. The typical threshold is 100 trips in the peak hour of the adjacent roadway. An abbreviated analysis can be required for developments generating less trips dependant on location and engineering judgment. A comparison of the requirements for developments generating more than 100 trips in the peak hour and requirements for developments with less than 100 trips is shown below.

☑ The TIA should identify on-site and off-site transportation system improvements needed to accommodate the additional traffic associated with the new development.

Trip Generation Threshold Requirements		
TIA Requirements	Peak Hour Generated Trips	
	< 100[1]	> 100
Pre-submittal meeting	✓	✓
Analysis of Roadway Issues		
Existing conditions analysis within study area	✓	✓
Sight distance evaluation	✓	✓
Nearby driveway locations		✓
Existing traffic conditions at nearby intersections and driveways	✓	✓
Future road improvements		✓
Crash experience in proximity to site		✓
Trip generation of adjacent development		✓
Trip distribution analysis		✓
Background traffic growth		✓
Future conditions analysis at nearby intersections		✓
Mitigation identification and evaluation	✓	✓
Site Issues		
Traffic generation	✓	✓
Traffic distribution		✓
Evaluate number, location & spacing of access points	✓	✓
Evaluate access design, queuing, etc.	✓	✓
Evaluate site circulation	✓	✓
Other Analyses		
Effect on traffic signal progression, analysis of proposed signal locations		✓
Source is the Institute of Transportation Engineers' Transportation and Land Development 2nd Edition Publication		
[1]Possible requirements for developments with laess than 100 trips in the peak hour.		

Time Period Analyzed

- ☑ In general, the time period analyzed is the year of completion of the project (also known as the build-out). Depending on the size of development, future years, or design year (typically 10 years beyond build-out year), may be required as determined during the pre-submittal meeting.
- ☑ Traffic impacts of other development expected to be completed before or at approximately the same time as the project should be examined in conjunction with the project's impacts. (This is known as "existing plus background").
- ☑ If signals are proposed, a design year of 10 years beyond installation date is required.

Study Area

- ☑ All portions of the roadway network that are significantly affected by the development. The exact study area is typically determined in the pre-submittal meeting.
- ☑ At a minimum, the site access driveways and the first signalized intersection, in each direction along the main roadway, will be reviewed for development impacts.
- ☑ Additional intersections may be required for analysis by the reviewing agencies based on the following criteria (see also 17 AAC 10.070):

  1. intersections on roadways where traffic on any approach is expected to increase as a result of the proposed development by at least 5 percent of the approach capacity;
  2. segments of roadways between intersections where total traffic is expected to increase as a result of the proposed development by at least 5 percent of the approach capacity;
  3. roadways and intersections where the safety of the facilities will deteriorate as a result of the traffic generated by the development.

Project Description

- ☑ The type, intensity (or size), and layout (site plan) of the proposed land use should be presented. The location of the development should also be shown.
- ☑ The location and number of access points (driveways) should be shown. If these are new driveways a description of the distance from major intersections and other existing driveways should be included as well as proposed driveway geometrics. Every effort should be made to align driveways as well as minimizing the number of driveways for the development. (See Municipality of Anchorage (MOA) *Driveway Design Standards* and ADOT *Ch 1190 Highway Preconstruction Manual* for corner clearance, driveway spacing and other driveway design requirements.)

Data Required

- ☑ Roadway classifications based on the *Official Streets and Highway Plan.*
- ☑ Baseline traffic counts: peak hour intersection turning movement counts and daily volumes for all streets and roadways to be analyzed in the study.
- ☑ Information on the number of roadway lanes in the study area.

- ☑ Intersection geometric information (lane striping and how lanes are utilized by motorists, regardless of striping).
- ☑ Traffic signal phasing and timing information.
- ☑ Accident records for study area intersections and key roadway segments, dating back 10 years.
- ☑ An inventory of transit service in the vicinity, including routes, stops, and frequency of service.
- ☑ Inventory of current and planned sidewalks and other pedestrian amenities.
- ☑ Inventory of current and planned bikeways and other bicycle amenities.
- ☑ Level of Service (LOS) standards.
- ☑ Site plan showing internal roadway and other circulation facilities.

Forecasting Traffic

- ☑ Traffic Department approved growth rate for the affected street network.
- ☑ Project baseline traffic to the build-out year and design year.
- ☑ Determine number of trips from other proposed development within the project study area which has already received approval or has already officially submitted a TIA.
- ☑ Use trip generation to determine the amount of traffic expected for the proposed development. The latest edition of the *Institute of Transportation Engineers' Trip Generation Manual* shall be used. Any departure from the Institute of Transportation Engineers rates must be substantiated by actual data collected for a similar development. Desirably, the data should be collected within the MOA. All trip rates must be approved by the Municipal Traffic Engineer.
- ☑ From the above the total build-out volume which is distributed on the roadway network within the study area can be determined for all analysis years. (Total build-out **equals** the projected baseline **plus** other development **plus** the proposed development).

Impact Analysis

- ☑ **Roadway Operations**
  - ✓ Capacity and LOS at intersections (signalized and unsignalized locations) and major links. (Based on the *Highway Capacity Manual* – Latest Edition.)
  - ✓ Signal warrant review.
  - ✓ Adequacy of storage for turning vehicles.
  - ✓ Sight distance at study locations.
- ☑ **Site Access and On-Site Circulation**
  - ✓ Site driveways – capacity and storage. (Ensure there is sufficient on-site storage so site traffic does not back up onto the public roadway, including bicycle and pedestrian facilities.)
  - ✓ Site driveway corner clearance, spacing, and sight distance.
  - ✓ Internal circulation (includes vehicular and pedestrian/bicycle).
  - ✓ Design vehicle and turning radii.
  - ✓ Truck routing to loading dock.
  - ✓ Storage required at drive through facilities.

☑ **Safety**

- ✓ Accident records for the most recent 10 year period.
- ✓ Locations with segments or intersections that exceed 95% upper control limit computed in the Rate Quality Method should be given special attention. This information can be found in the MOA's *Annual Traffic Report* using the Highway Safety Improvement Program Index Ranking.
- ✓ Measures to reduce accidents at the identified segments or intersections.

Other Impacts

☑ **Goals of Mitigation**

- ✓ Maintain a level of service within a pre-designated standard:
  1. LOS C, if the LOS during opening year is LOS C or better; or
  2. LOS D, if the LOS during the opening year is LOS D or poorer; however, if the LOS is poorer than D, a lower LOS is acceptable if the operation of the roadway does not deteriorate more than 10 percent in terms of delay time or other appropriate measure of effectiveness from the LOS before the development's opening date.
  3. If a roadway has unacceptable LOS without traffic generated by the development, either at the opening date of the development or in the design year of the development, a developer shall make improvements to the roadway so the operation of the roadway does not deteriorate more than 10 percent in terms of delay time or other appropriate measures of effectiveness with the addition of the traffic generated by the development at the opening date of the development or in the design year.
- ✓ Internal circulation and parking layout must provide sufficient queuing distance within the development between the roadway and potential internal block points to ensure no traffic backs up onto the roadway, including bicycle and pedestrian facilities.
- ✓ The Traffic Department will, in its discretion, relax the requirements for mitigation noted in this document, if it finds in writing that the:
  1. roadway facilities only marginally achieve LOS without the traffic generated by the development and would likely fall below an acceptable LOS within 5 years;
  2. traffic generated by the development results in unacceptable LOS; and
  3. cost of mitigating the impacts is disproportionate to the cost of development.

☑ **Mitigation Strategies**

- ✓ Adding capacity (adding through and turn lanes, lengthen turn lanes, signal installation, signal operation changes, etc.).
- ✓ Reducing the intensity or size of the development.
- ✓ Changing existing/proposed access or travel patterns.
- ✓ A development for which a TIA report has been approved shall use signs and markings on approaches to roadways within the development that conform to the latest edition of the *Alaska Traffic Manual.*

☑ **Recommendations**

- ✓ What improvements will adequately mitigate projected impacts?
- ✓ When will they be needed?

✔ The Traffic Department will review and comment on a TIA prepared as outlined in this document and submitted for a proposed development. The department will, in its discretion, request clarification or further analysis of the impacts that it considers necessary to adequately consider the risks presented to the traveling public by the proposed development. If alternative means are proposed by the developer for mitigation of the traffic impacts of the proposed development, the department will select the alternative that provides the greatest public benefit, at the least private cost, and that meets the appropriate LOS on an impacted roadway. If the department accepts a means of mitigation, the mitigation must be successfully completed before the issuance of any Certificate of Occupancy or Conditional Certificate of Occupancy.

Reports

☑ The traffic impact analysis report documents the assumptions, analysis, and findings of the study.
☑ All data should be shown in a graphical format to aid the review process and clarity.
☑ Include a 1 to 2 page executive summary at the beginning of the report and attach technical appendices at the end. Following is an example of a possible outline for the traffic impact analysis report. The outline is derived from the publication: *Transportation and Land Development, 2nd Edition,* Institute of Transportation Engineers, 2002.
☑ Submit 10 copies of the draft and final TIA, along with a CD with report and Appendices in PDF file format.

R. Tkniefel

Robert E. Kniefel, P.E.
Municipal Traffic Engineer
Date: 12-11-06

SAMPLE TABLE OF CONTENTS
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2. Development description
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4. Zoning

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3. Phasing, if appropriate

C. Other

APPENDICES

Illustrations and Tables Commonly Included

- A map showing site location and area of influence.
- A map showing the study area.
- A scale drawing of the existing roadway system serving the site including all driveways serving nearby sites. Also transit, bicycle, and major pedestrian routes, if applicable, along with right-of-way widths and signal locations.
- A map showing zoning with existing and anticipated land uses/developments in the study area.
- Recent or existing daily volumes on roads in study area.
- Current peak hour turning volumes at each location critical to site access or serving major traffic volumes through study area.
- A map showing programmed and applicable planned roadway, transit, bikeway, and pedestrianway improvements affecting site access or traffic flow through the study area.
- A map showing the portion (percentage) of site traffic approaching and departing the area on each roadway.
- Estimated peak hour trips to be generated by each major component of the proposed development; inbound and outbound directions to be shown separately.
- A map of the study area roadway network showing peak hour turning volumes generated by site development.
- A map showing peak hour turning volumes generated by off-site development within study area plus total non-site traffic for the horizon year and trips generated by off-site development within study area.
- A map showing total traffic volumes.
- A map showing recommended off-site transportation improvements, site access points, and on-site circulation, parking features, as appropriate, (more than one figure may be required) and a table describing improvements by location and type. If the development is to proceed in phases, separate maps and tables need to be presented for each phase as well as total build-out.