Traffic Impact Studies

- Any new or revised land use will result in change of traffic volumes and patterns
- Change of traffic will impact the transportation facilities in the vicinity of the site
- Development may be approved if transportation facilities will maintain acceptable operations (without or with mitigation measures)

Scope and Tasks

- Time periods for analyses
  - a.m. peak
  - p.m. peak
  - midday peak
- Trip generation and distribution
- Trip assignment
- Operational analyses
  - Intersection
  - Arterial
  - Freeway
- Scenarios
  - Existing
  - Background
  - Total (Background + Site)
Trip Generation

- **Trip generation manual (ITE)**
  - Vehicle trips (total in + total out)
  - Regression models and average rates
  - Daily and peak periods (adjacent street and generator)

- **General guidelines**
  - Regression model: $\geq 20$ data points with $R^2 > 0.75$
  - Average rate: s.d. $\leq 100\%$ of average rate

- **Example:**
  Estimate trip generation for Land Use Code 130 (Industrial Park) of 800,000 sq. ft. of GFA, on a weekday during the morning peak hour of adjacent street traffic.

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**Types of Vehicle Trips**

- **Primary**
  - Specific for site visiting
  - New to adjacent street

- **Pass-by**
  - New to site but not to adjacent streets

- **Diverted**
  - New to site and adjacent streets, but not to the area
Example
Trip Generation, Distribution, Assignment

Estimate the trip generation and Driveway 1 intersection traffic volumes for a shopping center with 580,000 sq. ft. of gross leasable area during the weekday p.m. peak hour. Assume 15% pass-by trips and 20% of total site traffic using Driveway 1. Trip distribution is about 20% west, and 80% east for non pass-by trips.

![Diagram of traffic volumes and distribution]

Related Terms
- Node: Intersection
- Link: Street that connects nodes or zones
- Zone: Development site that generates new trips
- Gate: Origin/destination for distributing the site-generated trips
- Path: A set of nodes and links that serves trips between a zone and a gate
Study Scenarios

- Existing: Traffic demand and intersection geometry prior to site development.
- Background: The condition when the site will be developed, but without site-generated traffic
- Total (Background + Site): Background condition plus the traffic generated by the site

Framework of TIS Report

- Executive summary
- Scope and objectives
- Description of site and vicinity area
- Existing conditions
- Anticipated nearby development (background)
- Trip generation, distribution, assignment
- Future (total) traffic demands
- Operations with the site development
- Recommendations