

# **TRAFFIC IMPACT STUDY CRITERIA**

## **City of El Mirage, Arizona**



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## **INTRODUCTION**

The purpose of this document is to provide criteria for the preparation of Traffic Impact Studies for new land developments or additions to existing developments and to establish the report format for these studies.

## **STUDY REQUIREMENTS**

A Traffic Impact Study prepared by a Registered Professional Engineer in the State of Arizona is required for all developments unless waived in writing by the City Engineer. If the Traffic Impact Study is waived, a Traffic Impact Statement is required that includes the total vehicle trips that will be generated by the development, using the Institute of Transportation Engineers (ITE) Trip Generation publication (most recent edition).

## **STUDY CLASSIFICATIONS**

Traffic Impact Studies will be classified into three categories:

- Category I-            Those developments that are estimated to generate 500 vehicle trips or less during either of the a.m. or p.m. peak hours.
  
- Category II-            Those developments that are estimated to generate more than 500 vehicle trips during either of the a.m. or p.m. peak hours but not more than 1,000 peak hour trips.
  
- Category III-            Those developments that are estimated to generate more than 1,000 vehicle trips during either of the a.m. or p.m. peak hours.

The developer should first estimate the number of vehicle trips that will be generated by the proposed development and provide this information along with the other suggested study elements of the Traffic Impact Study to the City for Review and approval prior to the start of construction.

## **TRAFFIC STUDY ANALYSIS AND APPROACH**

The following presents the specific items to be included in a Traffic Impact Study.

### **Study Area**

- |   |                |
|---|----------------|
| a) All site driveways   | All categories |
| b) All major intersections within 1 mile of the study site, either signalized or un-signalized. | All categories |
| c) All driveways where traffic movements could be affected by new driveway traffic movements.   | All categories |
| d) Additional locations as requested by the reviewing agency.                                   | All categories |

### **Study Time Frame**

The study should include, as a minimum, an analysis of the expected traffic conditions for the time period when the development is expected to open. The opening day conditions should include all of the proposed development traffic as if the development was fully completed and occupied.

Additional study years should be included as follows:

Category I: Opening year and 5 years in the future.

Category II: Opening year, 5 years and 10 years in the future.

Category III: Opening year, 5 years, 10 years and 20 years in the future.

The study for phased construction developments should include an analysis for each year that planned new phased construction is to be started. In addition, the required 5, 10 or 20 year analysis after the start of the last phase of the development as stated above for the specific categories.

## **Analysis Time Periods**

The study should include an analysis of the impact of the development traffic for the typical adjacent street peak hour conditions which normally occur within the time periods from 6:00 to 9:00a.m. and 3:30 to 6:30p.m. on a typical weekday and an analysis of the impact of the development daily weekday traffic generated on the adjacent street system and site driveways. In addition, if requested by the City, additional time periods and or weekend analysis may be required in the study if the developer has unusual peaking characteristics or if the adjacent non-site traffic conditions warrant an analysis of other peak traffic time periods.

## **Data Collection**

The traffic impact study should include information on the following existing and proposed conditions within the study area:

### **a) Traffic Volumes**

1. Existing and proposed traffic volumes for the adjacent existing and proposed intersections and driveways to include daily weekday a.m. peak hour and p.m. peak hour (and other time periods as noted in the previous section). Daily traffic volumes should be provided as a 24-hour directional roadway section count and peak hour volumes should be provided by specific intersection or driveway turning movement directions.
2. Existing traffic volume data should be adjusted to average conditions based on City adjustment factors or appropriate adjustment factors available from other public agencies.
3. Projected traffic volumes should be based on available traffic projections from the Maricopa Association of Governments (MAG), other appropriate documented traffic projected sources or historical traffic volume trends. Projected traffic volumes shall include adjustments, as necessary, to reflect other adjacent future development.

### **b) Land Use**

1. Existing and proposed land use in the study area should be discussed and included in the study as it impacts the proposed development street system or driveways.

c) Roadway Conditions

1. Existing and proposed roadway conditions shall be identified including pavement type, width, traffic lanes, medians, curb and gutter, speed limits, horizontal and vertical curvature and traffic control devices.

d) Crash Experience

1. Crash experience should be documented for the past 36 month time period for the adjacent roadway system included within the study area.

### **Trip Generation**

The trip generation for the proposed development shall be estimated using the latest edition of *Trip Generation* published by ITE. Exceptions to the use of this document must be approved by the City and may include actual traffic generation counts from a similar existing facility having the same size and surrounding area characteristics or from other recognized sources that provide trip generation data not included in the ITE manual.

If proposed within the Traffic Impact Study, adjustments to the site traffic generation should be documented to reflect site traffic interaction, pass-by traffic, use of other modes of transportation, carpooling or other means of trip reduction. Trip reduction methods should be discussed with the City prior to use within the report.

### **Trip Distribution and Assignment**

Site traffic shall be assigned to the proposed site driveways and street intersections included within the study area based on an analysis of the market area for the proposed development. The market area will vary based on the type and location of the development. However, as a minimum, the following guidelines should be used:

- Residential trip distribution should be based on the locations of employment and commercial attractions and the available street system.
- Commercial, industrial and office trip distribution should be based on the surrounding population densities and the available street system.

The area to be constructed in the development of the site trip distribution should normally be within a 10 mile radius of the study site. However, other conditions of the proposed development, the adjacent street system and the location of site

traffic attractors and generators may indicate the need to expand or reduce the area of influence.

## **Traffic Analysis**

The study should include the following minimum items for analysis.

- a) Traffic flow conditions, including the level of service using the latest edition of the *Highway Capacity Manual* (Special Report 209, Transportation Research Board)
  1. An analysis of the existing traffic conditions.
  2. An analysis of the future non-site traffic conditions.
  3. An analysis of the traffic conditions with the addition of site traffic.
- b) Roadway capacity conditions using generally accepted daily volume traffic demand compared to roadway cross sections.
  1. Existing traffic conditions
  2. Future non-site traffic conditions.
  3. Future traffic conditions with the addition of site traffic.
- c) Intersection and driveway traffic control device requirements using results of the items below and the Federal Highway Administrations (FHWA) *Manual on Uniform Traffic Control Devices for Streets and Highways* (edition adopted by the Arizona Department of Transportation)
  1. Existing conditions.
  2. Future non-site conditions.
  3. Future total traffic conditions.
- d) Intersection and driveway geometrics using recognized accepted formulas with documentation provided within the report.
  1. Analyze adequacy or need for additional through traffic lanes or auxiliary right or left turn lanes for existing, future non-site and future total traffic conditions and include storage requirements.

2. Analyze potential conflicts of proposed driveway locations with existing and/or proposed adjacent driveways or intersection traffic lane configurations for the future total traffic conditions.
- e) Crash summary and identification of trends and/or potential safety hazards.
  - f) Other analysis as requested by the City or as may be required due to the type and location of the proposed development.
    1. Weaving analysis.
    2. Parking analysis.
    3. On-site circulation including queuing analysis at major on-site turning movement locations.
    4. Site access quantity, location and traffic lane configuration.
  - g) Mitigation measurements

All recommended on-site and off-site improvements required to mitigate projected traffic congestion or safety issues shall be identified with the resultant traffic flow conditions indicated for comparison to the “before conditions”.

## **REPORT FORMAT**

The Traffic Impact Study should include the following items and report sections:

- a) Title page.
- b) Table of contents and list of figures and tables.
- c) Introduction including description of project, purpose of report and executive summary.
- d) Proposed development description including location, land use and proposed use. Include vicinity map on site plan.
- e) Study area description.
- f) Existing conditions including site land use, adjacent roadway description and traffic volumes. Include summary of existing traffic counts, graph of existing (adjacent) daily and peak hour traffic and roadway condition diagrams.



- g) Projected traffic including site traffic generations, distributions and assignment and non-site traffic for each time period to be analyzed. Include tabular data as needed to show trip rate formulas used in the study and a summary of the site traffic assignment. Graphics should be included showing the daily and peak hour volumes for each analysis time period included in the study for both the site and non-site traffic.
- h) Total traffic should be shown for each analysis time period.
- i) Traffic analysis showing tabular and graphic results of the analyses.
- j) Summary and conclusions.
- k) Appendix providing any material related to the traffic study data collection and study results.

## **COORDINATION WITH OTHER PUBLIC AGENCIES**

If applicable, the requirements for the Traffic Impact Study as noted in this document may need to be coordinated with the requirements of other local agencies such as adjacent cities or towns, the Maricopa County Department of Transportation or the Arizona Department of Transportation. Any deviation from the requirements of this document due to the requirements of other agencies should be presented in written form to the City for review and approval or denial.

## **REPORT SUBMITTALS**

A minimum of four (4) copies of the report shall be submitted to the City for review. Additional copies of the report may be required for review by other adjacent public agencies.

## **DECELERATION LANE CRITERIA**

Use the City of El Mirage [Deceleration Lane Criteria](#) Memorandum

# CITY OF EL MIRAGE STANDARD DETAIL 259 DRIVEWAY CRITERIA



	RESIDENTIAL		COMMERCIAL INDUSTRIAL	
	SINGLE FAMILY	MULTI-FAMILY	SINGLE BUSINESS	MULTI-BUSINESS
STD. CONSTRUCTION DTL.	COP P1255-1 (1)	MAG 250-1 & 2	MAG 250-1 & 2	MAG 250-1 & 2
STANDARD WIDTH (TWO WAY)	16 FEET	24 FEET	30 FEET	30 FEET
MINIMUM WIDTH (TWO WAY)	16 FEET	24 FEET	24 FEET	24 FEET
MAXIMUM WIDTH (TWO WAY)	24 FEET	40 FEET (2)	30 FEET	40 FEET (2)
MINIMUM SPACE BETWEEN DRIVES (INSIDE EDGE TO INSIDE EDGE)	10 FEET	150 FEET	150 FEET	150 FEET
MIN. DISTANCE FROM INTERSECTION (INSIDE EDGE TO INSIDE EDGE)	5 FEET	150 FEET (3)	150 FEET (3)	150 FEET (3)
MAX. NUMBER OF DRIVEWAYS	2	2 PER FIRST 19 UNITS 3 PER 1200' FRONTAGE 4 PER 2600' FRONTAGE	2 PER STREET	1 PER 225' FRONTAGE 2 PER 800' FRONTAGE 3 PER 1200' FRONTAGE 4 PER 2600' FRONTAGE

**NOTES:**

- 1) Modify City of Phoenix Detail P1255-1 to show 4' wide ADA pedestrian pass. This detail may also be used on Arterials streets.
- 2) High volume driveway with (2) outbound approach lanes, requires deceleration lane unless otherwise approved by the City Engineer and increased to forty-six (46) feet with addition of raised median.
- 3) May be reduced to forty (40) feet on Collector and Residential Streets.
- 4) All driveway wings or PC's will began no closer than five (5) feet from any property line.