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## **5J-1 Traffic Impact Studies**

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### **A. General**

A traffic impact study may be required for commercial, industrial or residential developments in obtaining access (See Figure 1 [Exhibit A]). The Jurisdictional Engineer must be contacted to determine if additional requirements or guidelines will be required.

1. The most important factors in developing an access plan for a commercial site are a determination of the potential traffic generated by the site and the directional distribution of site-generated traffic on the major approach routes and proposed driveways serving the site. Entrances serving commercial, industrial, or high density residential developments represent an important element in the efficiency and safety of the highway onto which their traffic enters and exits. In order to properly handle traffic from such entrances, the anticipated traffic volumes must be determined by the applicant and submitted to the Jurisdiction.
2. The location of entrances, particularly commercial ones, is a critical factor in minimizing the hazard and disruption to traffic and pedestrians. Sites must be developed to permit entrances to be well located.
3. Adequate storage must be provided on commercial sites so that vehicles do not impede roadway capacity. Adequate storage space is a function of the demand volume, service time per facility, and the number of service facilities available. The geometrics of the internal circulation control a portion of the service time. The service time is dependent upon the time required to maneuver into position and the time necessary to obtain the service. The radii of internal curves should be as large as possible. Buildings should be arranged on the site to allow for the maximum storage available on the site for exiting traffic, and situated so they will not disrupt the free flow of entering traffic.
4. Service station sites should be designed to provide a minimum distance of fifteen feet from the right-of-way line to the near edge of the pump island and comply with zoning ordinance.
5. When property is being developed, consideration must be given to locating the access directly opposite an existing entrance or street connection.
6. To properly review an entrance permit request, the Jurisdiction must be provided with a plan, drawing or sketch of the property or site that is to be served by the access as requested. This may vary from a simple sketch in the case of a type "B" or "C" entrance to a detailed plan in the case of a type "A" entrance. Plans should also include the locations of driveways of adjacent properties and of properties located across the street.
7. In the case of IDOT roadways, comments from the local authorities shall be included regarding the proposed development to allow the IDOT to incorporate the input of local authorities into the final design of the entrance location and to finalize out the IDOT permit. This input should refer to the zoning plan, land use plan, and metro-transportation plan.

## **B. Shopping center and industrial access request**

All entrance permit requests for shopping centers and industrial developments shall, when relevant to the development, include the following data in detail:

1. Type and location of proposed development.
2. Site plan.
3. Location of all proposed entrances, entrances of adjacent properties and entrances across the street, existing and proposed easements, turning lanes on adjacent highways or streets, and internal traffic lanes and parking facilities within the development area. This information shall be sufficiently complete to allow determination of dimensions, the direction of traffic flow, and restrictions caused by plantings, curbing, medians, walls, signing, etc. to traffic.
4. Detailed design of the proposed highway pavement widening, additional lane provisions, relocations, and other improvements considered necessary to the efficient operation of the proposed development.
5. Proposed traffic signal locations.
6. Preliminary drainage data.
7. Gross leasable floor area in square feet.
8. Number of parking spaces.
9. Anticipated total daily trips inbound and outbound during an average twenty-four hour period. Special holiday shopping traffic shall not be used for this estimate.
10. Estimated hourly traffic volumes arriving and departing during the normal peak hour.
11. Estimated distribution of traffic via individual entrances.
12. Estimated distribution of traffic by percentage of total daily trips via major highways from origin to development.
13. Traffic analysis to be completed for total site development even if only part of the area is being developed at time of the entrance request.

Figure 1: Type 'A' entrance determination

IOWA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE DIVISION

TYPE "A" ENTRANCE DETERMINATION CHECK SHEET

EXHIBIT "A"

The efficiency and safety of a highway depends to a large extent upon the amount and character of roadside interference with the movement of traffic. Most of this interference originates in vehicular movements to and from businesses, residences, or other developments along the highways. Accordingly, regulation and overall control of entrances are necessary to provide efficient and safe operation, and to utilize the full potential of the highway investment.

In developing an access plan for a commercial site, an important factor is determining the potential traffic to be generated by the site and the directional distribution of site-generated traffic on the major approach routes and proposed entrance serving the site. Entrances serving these areas represent an important element in the efficiency and safety of the highway onto which the site traffic will enter and exit.

To properly handle traffic from these entrances, the anticipated traffic volumes shall be determined by the applicant and submitted to the department before approval will be granted to commence any activities with in the highway rights of way.

If the proposed development is to be located within the limits of a City, the applicant shall be responsible for reviewing the information as required and noted in this "Type "A" Entrance Determination Check Sheet" with City Authorities and shall include, as a part of the submittal to the Department, comments as received from an authorized representative of the City. The development proposal must be consistent with the Metropolitan Area Transportation Plan when the development plan falls within the area.

**PLEASE REFER TO THE IOWA DEPARTMENT OF TRANSPORTATION'S ACCESS POLICY "1995" FOR ADDITIONAL INFORMATION. IN PARTICULAR, REFER TO SECTIONS 112.3 AND 112.5 AS WELL AS SECTION 319.14 OF THE CODE OF IOWA.**

INFORMATION REQUIRED OF THE APPLICANT PRIOR TO RECEIVING DEPARTMENT APPROVAL.

LEGAL DESCRIPTION OF SUBJECT PROPERTY	ATTACHED INFORMATION
GROSS SQUARE FOOTAGE OF DEVELOPMENT UNDER ROOF	_____
SQUARE FOOTAGE OF RETAIL SALES AREA OR GROSS LEASABLE AREA	_____
TOTAL NUMBER OF PARKING STALLS	_____
NUMBER OF ANTICIPATED PEDESTRIAN AND MASS TRANSIT SHOPPERS	_____
YEAR IN WHICH THE DEVELOPMENT WILL INITIALLY OPEN	_____
YEAR IN WHICH THE DEVELOPMENT WILL BE IN TOTAL OPERATION	_____
EXPECTED NUMBER OF EMPLOYEES FOR INITIAL OPENING	_____
EXPECTED NUMBER OF EMPLOYEES FOR FULL OPERATION	_____

**Figure 1** (Continued): Type 'A' entrance determination

DAYS OPEN FOR BUSINESS AND HOURS OF OPERATION

OPEN							
CLOSED							
DAY	SUN.	MON.	TUE.	WED.	THURS.	FRI.	SAT.

**ATTACH PLANS OF THE PROPOSED DEVELOPMENT AREA AND INCLUDE:**

- A. Location of entire development site including location of buildings.
- B. Location of all proposed access locations.
- C. Details of parking lot including traffic flow and drainage features.
- D. Prepare traffic flow charts for each access location.

**BASED ON THE INFORMATION KNOWN AT THIS TIME, ADVISE AS TO THE TYPE OF STORES PROPOSED WITHIN THE DEVELOPMENT AREA AND THE GROSS LEASABLE AREA OF EACH:**

STORES AVAILABLE AT INITIAL OPENING:

TYPE OF STORE	GROSS LEASABLE AREA

STORES AVAILABLE AT TIME OF FULL OPERATION:

TYPE OF STORE	GROSS LEASABLE AREA

**Figure 1 (Continued): Type 'A' entrance determination**

IF THE TRAFFIC GENERATED BY THIS DEVELOPMENT ADVERSELY IMPACTS THE EFFICIENCY AND SAFETY OF THE EXISTING HIGHWAY FACILITY AS DETERMINED THROUGH AN ENGINEERING STUDY INCLUDING A TRAFFIC ANALYSIS, THE APPLICANT SHALL BE REQUIRED TO PROVIDE HIGHWAY MODIFICATIONS AND/OR SIGNALIZATION ALL AT NO EXPENSE TO THE DEPARTMENT.

**A DETAILED GEOMETRIC DESIGN PLAN INCLUDING THE FOLLOWING DIMENSIONAL ELEMENTS SHALL BE PREPARED BY THE APPLICANT AND SUBMITTED TO THE DEPARTMENT:**

- A. Total width of the entrance(s), lane widths and intended land usage.
- B. Location of the entrance(s) along the highway by reference to highway stationing, or if stationing is not available, by a stated distance from a known landmark. (For example, 30 meters west of Lunde Street.)
- C. Location of traffic islands (raised, depressed or painted) by reference to lengths along the highway or entrance baseline and offset distances from edge of highway or entrance.
- D. Radii of all turning roadway curves, lengths of turning bays, turn lanes, taper ratios and lengths and shoulder widths as proposed.
- E. The detail geometric plan shall also include curb details and pavement jointing details where applicable.

**OTHER PLAN SUBMITTAL REQUIREMENTS:**

- A. Details of size and location of proposed drainage structures.
- B. Size and location of existing drainage structures.
- C. Detailed information regarding any proposed changes in existing drainage.
- D. A vertical profile of the entrance(s) approach to the highway.
- E. Pavement and shoulder cross slope information to verify crossover crown controls and pavement drainage.
- F. Grading cross sections when highway widening is required.
- G. Comments regarding the handling of highway traffic during construction.
- H. Pavement marking plans should highway widening be required.

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UPON COMPLETION OF THE ABOVE INFORMATION, PLEASE FORWARD THIS INFORMATION AND ATTACHMENTS AS REQUIRED TO:

RESIDENT MAINTENANCE ENGINEER \_\_\_\_\_

ADDRESS: \_\_\_\_\_

TELEPHONE #: \_\_\_\_\_

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**APPLICANT NOTE: ALL CONTACTS AND SUBMITTAL SHALL BE MADE WITH THE RESIDENT MAINTENANCE ENGINEER'S OFFICE AS NOTED ABOVE.**

**FAILURE ON THE PART OF THE APPLICANT TO PROVIDE THE ENTIRE PACKAGE OF INFORMATION AS DETAILED ABOVE WILL RESULT IN DELAY IN DEPARTMENT REVIEW AND MAY RESULT IN DEPARTMENT DENIAL OF THE APPLICATION.**

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Figure 1 (Continued): Type 'A' entrance determination

**INCLUDE THE FOLLOWING INFORMATION:**

Anticipated total daily trips (inbound and outbound) during an average 24 hour period including existing highway traffic. Special holiday traffic should not be used for this estimate.

If the development is to be completed in stages, use this page for the opening date traffic estimates and the following page for total traffic estimates upon final completion of development area.

In completing the traffic movement estimate, volumes shall be shown for left turns, right turns and straight through movements as well as percentage of trucks involved in each movement for each access location as proposed to serve the development area.

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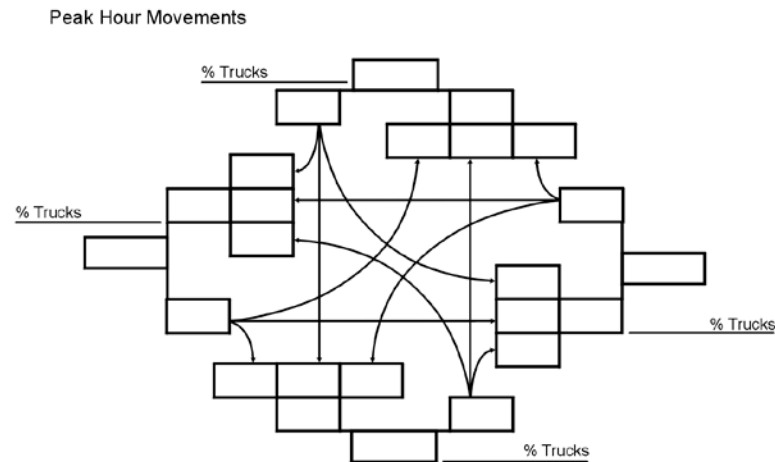
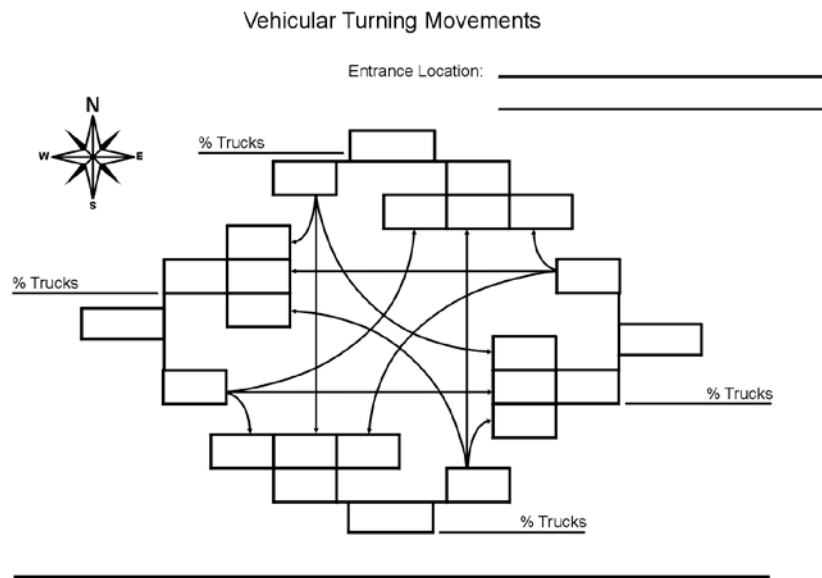
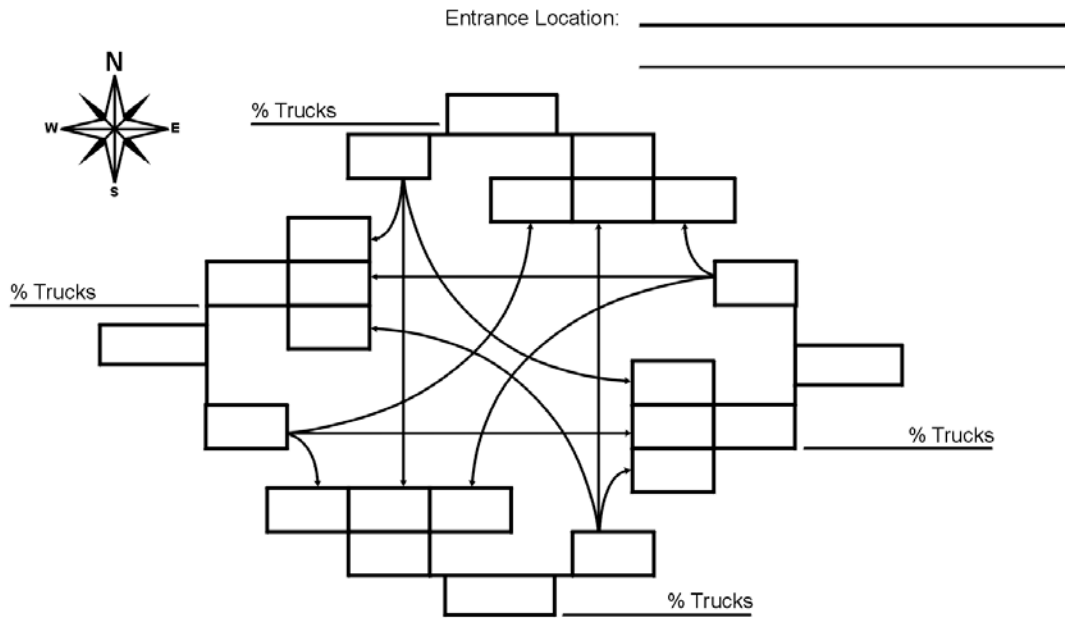


Figure 1 (Continued): Type 'A' entrance determination

THIS ESTIMATE HAS BEEN PREPARED FOR THE YEAR \_\_\_\_\_, THE YEAR TOTAL COMPLETION OF THE DEVELOPMENT AREA IS ANTICIPATED.

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Vehicular Turning Movements



Peak Hour Movements

