TRANSPORTATION IMPACT FEE:

INDEPENDENT ASSESSMENT APPLICATION
&
GUIDELINES

Street and Traffic Division

City of Kansas City, Missouri

Updated on June 2002

TABLE OF CONTENTS

INTRODUCTION

The purpose of this report is to provide information to developers, consultants and the general public on independent study, data collection, procedures and requirements for the alternative computation of the impact fee. The information presented in this document is a mere elaboration and explanation of the terminology contained in Section 39-5 (Individual Assessments) of Chapter 39, the Arterial Street Impact Fees Ordinance. The ordinance provides for conditions and other relevant information for such assessment of fees. If the applicant chooses to conduct the analysis, the applicant will be solely responsible for preparation and funding of the individual assessment.

IMPACT FEE FORMULA: AN OVERVIEW

Following is a brief description of the terminology used in the impact fee formula. The description provides the estimated values of each parameter used in the impact fee formula. All or some of these values can be used as default values for any independent impact fee calculation.

Impact Fee Formula:

Maximum Fee = PK HR VMT x Net Cost/VMT

Where

PK HR VMT = PK HR Trips x % New x Length ÷ 2
Net Cost/VMT = Cost/VMT – Credit/VMT

A. Calculations for New Vehicle Miles of Travel

PK HR VMT = New Vehicle Miles of Travel for a specific land use during PM peak hour

PK HR Trips = Trip generation rate in average PM peak hour trip ends generated per unit of development as reported in the Institute of Transportation Engineers (ITE), 6th Edition, -----------.

% New = The percentage of average PM peak hour trips, expressed as a decimal that constitute new additional vehicle trips added to the arterial system. This factor is used to adjust the trip generation rate that a proposed land development activity will generate to reflect only the percentage of average PM trips that constitute new or additional travel added to the arterial network. These trips that do not represent additional travel are not counted. This factor primarily reflects the need to adjust the new miles of travel for “passer-by” trips already on the road network. Again, ITE, 6th Edition, provides information on estimation of such trips.

Length = Average trip length of trip makers in miles during the PM peak hour. The impact fee traffic studies provide default trip lengths for both north and south service areas in Kansas City. Other ways to estimate the trip length can be used with the approval of the Impact Fee Administrator. The City’s transportation model can also be utilized to estimate average trip length if so desired by the applicants for permit for their consultants.

Default Values = The following default values for average trip lengths were derived by the impact fee traffic study consultants by dividing the non-pass through VMT on the city's major road system in two service areas by the total number of trip ends generated in each service area by each existing development. The computation using the above methodology yielded a reasonable estimate of the average trip length of a trip on the city's major roadway system.

1. Average trip length for North service area = 3.2 miles

2. Average trip length for South service area = 2.4 miles

B. Calculations for Base Cost per New Vehicle Miles of Travel

VMT = PM peak hour vehicle miles of travel at level of service D.

Cost = Typical construction cost, does not include rights-of-way, for one lane wide described as a service unit in the impact fee study. The unit cost was based on the typical roadway sections in the Kansas City's Major Street Plan (MSP) and American Public Works Association (APWA) cross-section sheets. Besides the primary and secondary arterials in the MSP, two types of parkway/boulevards cross-sections were also developed in consultation with the Parks Department. The respective cost of $1,611 and $1,834 per new VMT added to system should be used for estimation unless a very definitive unit cost could be agreed with the administrator.

C. Credit/VMT = Revenue Credits/VMT + Deficiency Credit/VMT

Revenue Credit = Revenue credit must be given for dedicated revenues that will be generated by new developments and used to pay for the same kink of facilities funding through the impact fees. Revenue credits were estimated for State and Federal funding for road improvements, tax increments financing (TIF) district funding for road improvements and outstanding debt payments. The following table provides the revenue credits used to reduce the net cost per service unit and should be used unless a revised estimate can be prepared and agreed upon by the administrator.

	North Service Area	South Service Area
State/Federal Credit per VMT	$483	$550
TIF Credit per VMT	$161	$ 92
Debt Service Credit per VMT	$ 29	$ 0
Deficiency Credit per VMT	$ 82	$ 26
Total	$755	$668

Deficiency Credit = One of the principles of impact fee is that new developments should not be charged for already over-capacity roadways. Therefore, the impact fee is reduced by the percentage of existing development's travel that is in excess of Level of Service (LOS) D. The system wide deficiency costs to reduce the service unit cost was determined as 82 and 26 for the north and south service areas. LOS D is used as the basis for the capacity calculations to determine the deficiencies.

IMPACT FEE RATES

The fee rates, presented in the Impact Fee Ordinance, have been calculated using the above formula by using the recognized accepted trip generation rates and other factors based upon acceptable averages. For the convenience of the public, the fee rates that are based on trip generation (and other factors) have been converted to dollar amounts per unit of development. If an independent impact fee assessment is desired by the applicant, it is required that all independent impact fee assessment calculations express the results in rates per unit of development.

IMPACT FEE STUDY METHODOLOGY

The independent impact fee study consists of analyzing the trip generation and trip length characteristics related to the development. For commercial development, the capture and diversion for pass-by trips must be studied. The following data represents the Impact Fee formula input:

A. Trip Generation Rate

B. Average Trip Length

C. New Trip Factor (adjustment for by-passer trips)

D. New Lane Capacity

All applicants who opt to conduct the independent study are requested to contact the Impact Fee Administrator at to schedule a pre-application meeting to discuss the proposed methodology. City staff will cover the basic requirements associated with such an independent study. Based on the information provided by the applicant, the specifics of the methodology will be determined.

The applicant shall provide the following information:

a. Location and ownership arrangement of the development

b. Nature of the development activity in detail

c. Information supporting the circumstances unique to the development which justify the independent calculation/study

d. Preliminary methodology proposal

e. Comparable uses, if applicable

City staff will make the decision whether the development conditions shall be contrasted with other comparable existing projects or, alternatively, studying the proposed development in its specific setting.

Data, Information and Assumption: Requirements

The independent impact fee calculation should be based on data, information and assumptions contained in the Impact Fee Ordinance or other independent sources provided that:

1. The independent source is an accepted national standard source of transportation engineering or planning data, or

2. The independent source is based on actual studies or surveys conducted in the urban area, or with the specific approval of the Impact Fee program administrator or his designee. The work should be carried out by a qualified transportation planner or engineer pursuant to a nationally accepted methodology of transportation planning or engineering.

The following paragraphs gives a detailed explanation about the type of data and the data collection methodologies which are required to be used for the independent assessment of Impact Fee

General Guidelines

1. All independently assessed Impact Fee calculations must be based on sample sizes that would produce statistically significant estimates. The results obtained should be estimated using a 95% confidence interval.

2. The specific details of the site to be studied should be clearly identified. The developer should study required number of locations and base the findings on the weighted average. A minimum of one (1) site must be studied. The limitation of the study to one location will depend on the approval of City staff (based on the adequacy of the information). The site description must include the location (CBD, urban, suburban or rural), the setting (physical location) and the detailed land uses (size and type). To the extent possible, study sites that share driveways with adjacent developments should be avoided.

3. The applicant should provide an explanation regarding how the site(s) being studied is similar to the proposed project. Specifically, the applicant should address land use, adjacent area, and demographic/marketing characteristics of potential customer/patrons.

4. If the applicant is basing the request to reduce the transportation impact fee on a previously submitted traffic study, a copy of the report should be included in the methodology. (There shall be a rebuttable assumption that the traffic impact study is conducted within the last three (3) years. However, this shall not apply where a development order previously approved provides that Chapter 39 of the City code shall supersede such traffic impact study).

5. A map of the project and dimensioned drawing with entrances clearly delineated should be included. The internal traffic flows, parking configuration and traffic counts location should also be provided.

6. The proposed dates of all counts/interviews should be included in the methodology.

Survey Guidelines/Requirements

The survey should be a designed as a standard statistical experiment. The applicant should determine the number of interviews needed to achieve a 95% confidence level and a minimum precision of (+/-) 10%. However, a minimum of five (5) workdays of interviews (2 PM to 6 PM) with a minimum of 25% of the vehicles entering the site being interviewed per day should be conducted. Friday afternoons must be avoided in all circumstances unless a weekend study is required. Manual counts shall also be conducted during this time period. For longer time periods, the interviews/counts must be based on consecutive weekdays.

Survey responses must be recorded in detail, to enable staff to accurately locate origin and destination locations. The closest intersection to the origin or destination is the preferable description. Specific place, address, or nearest major intersection are also satisfactory. During staff review, descriptions other than those listed above may be considered ambiguous and can be declared unusable if staff cannot accurately assess the origin and destination locations.

The applicant will find it helpful for interviewers to have a good prior knowledge of the places and major intersections in the community that are most likely to be named by interviewees so the interviewers can quickly recognize and record these responses when interviewees give them. Usually some places cannot later be pinpointed when the interview forms are tabulated, disqualifying those interviews as observations. For that reason the applicant is prudent to conduct a quantity of interviews well in excess of the minimum required sample size.

For each survey, the applicant shall plot the location of each origin and destination on a map. Identical responses (different surveys with same origins and destinations) need only be plotted once. To determine whether the trip is to be classified as a new trip, the applicant draws a rectangle on the map with the origin in one corner and the destination in the opposite corner. If the interview site is outside this rectangle the trip is considered a new trip; otherwise it is not. The percent new trip is calculated by dividing the number of new trips by the total number of trips generated at the site.

Machine Counts & Verification

Five (5) day (24 hours) of machine counts are needed (unless otherwise determined by staff in favor of alternate criteria). The applicant must verify the correct operation of the machine counters by observing their proper data logging for thirty (30) minutes.

Manual Counts

Manual counts are to take place during all the hours that surveys are conducted. Driveway machine counts are frequently subject to wide variation given differences in driveway configuration, vehicle speeds and driver behavior turning into and out of driveway aisles. Manual counts taken during the hours of origin/destination surveys have proven to help adjust for these variations. Machine counts shall be adjusted by manual count measurements and documented in the study report.

After the first day of counts and surveys, the applicant must calculate a statistically valid minimum sample size and allow City staff to review machine and manual counts. Meeting with City staff concerning verification of counts and sample size can be done on-site by request.

If the applicant is unable to complete a full five (5) consecutive days of interviews/counts written reasons shall be submitted to the Impact Fee Administrator. The city, at its discretion, may allow the applicant to modify the methodology.

Five (5) copies of the proposed methodology should be delivered to the Impact Fee Administrator. The Administrator will distribute this methodology to other City departments as needed.

If staff concurs with the proposed methodology, the applicant will receive written notification to proceed with study. In the event that staff disagrees with the proposed methodology, those problem areas will be identified for the applicant.

Prior to commencing work on traffic counts/interviews, it is recommended that the applicant receive confirmation from staff on the dates, times, assumptions and conditions of data collection. Failure to obtain such confirmation may result in rejection of study results. Upon receiving staff confirmation, the applicant may initiate the counts/interviews. City staff shall be advised at least one (1) week in advance in writing about the date and time of survey. City staff will visit the study site at random intervals to assure the fidelity of results from the empirical data collected.

The location where interviews and counts are to be taken is dependent upon the type of development. Mechanical counts should be conducted at driveways and across parcel entrances and be calibrated by interviews.

Staff will approve the count methodology based on a dimensioned sketch of the development site and vicinity, including the subject use and surrounding land development. Driveway location and internal traffic flows will determine the location counts and the counting methodology.

TRIP GENERATION

Trip generation is the most commonly studied variable. The existing rate schedule is based on the Trip Generation Guide, 6th Edition, published by the Institute of Transportation Engineers. If this application does not to use the trip generation rates from the Guide than the following procedures should be used to estimate the new rates.

A Trip Generation survey must be conducted in a time period starting at a minimum of one hour before and ending one hour after the subject land use's typical hours of operation. Copies of survey/interview sheets and tally sheets shall be submitted together with the calculation and interpretation of counting results. A map or maps of all origin and destination locations must also be included in the final report. Each origin and destination location must be numbered according to the survey from which it was taken. Type and frequency of entering vehicles shall be recorded in 15-minute intervals. Truck traffic shall be converted into PCUs (passenger car unit equivalent).

If the methodology report only addresses trip generation, procedures to study trip length and capture/diversion should be included. The methodology must justify that only trip generation will be changed and that other factors will remain unchanged.

TRIP LENGTH

Trip length is the second most important variable in the fee formula. The traffic impact study provides the trip length used for the existing rate schedule. If the application opts to estimate an independent trip length, than the following procedure should be used. Any other method approved by the Impact Fee Administrator could also be used to estimate an independent trip length.

Trip length shall be obtained from the survey/interview sheets adequately designed to eliminate any bias in judgments made by the surveyed population. Each survey should be numbered to allow for quick identification on the origin/destination map.

The measured trip length should be shown on each survey from next to each response concerning the origin or destination end of the trip. The total trip length per survey should be shown in the lower right hand corner of each survey sheet. For diverted trips, a drawing showing the most likely route should be either in the lower left hand corner of each survey or on an attached sheet. A summary trip length table by day of interview and broken down by common trip lengths and locations should also be included.

In analyzing the survey information, each survey should be reviewed and the two trip ends classified as primary, diverted or pass-by. The average trip length impact variable shall then be calculated according to the following formula:

$$\frac{\text{S (lengths of primary trip ends)} \div 2 \text{ S (diverted trip end lengths)}}{\text{number of primary and diverted trip ends surveyed}}$$

VALIDITY

The City staff shall be contacted to verify the validity of the first data sample. In case of irregularities or other problems, the survey methodology might be changed or data adjustments applied. This is designed to avert later rejection of the final report and a requirement to repeat the study (e.g. due to a low percentage of survey responses).

THE FINAL REPORT

The results of the study should be incorporated into a written signed and sealed report. Although the study results may be summarized for the entire period studied, the results for each day must be clearly shown and significant differences discussed. Upon the completion of the study, the applicant will submit five (5) copies of the final report.

INCOMPLETE STUDIES

If the study does not provide sufficient information in the report or fails to follow the approved methodology, the study may be rejected and the applicant will be required to submit all information necessary to complete the report. Upon establishing the completeness of the submitted final report, staff will make a final determination within no more than 60 days. Written review findings will be forwarded to applicant. No study will be accepted unless it is certified by a transportation engineer registered in the State of Missouri or a duly certified transportation planner.

APPROVAL

After the issuance of impact fee study and fee rate approval, the applicant will be informed in writing about the approved rate. The final transportation impact fee amount will be determined based on development size and the approved impact fee rate(s).

APPEALS

If the applicant disagrees with staff’s written opinion, an appeal can be filed pursuant to section 39-5(f) of the chapter 39, the Arterial Street Impact Fees Ordinance

APPENDIX: APPLICATION FOR INDEPENDENT ASSESSMENTS

Application for Impact Fee Calculations for New Developments Requiring an Independent Assessment

(When either the specific land use is not available in the impact fee ordinance schedule or the applicant does not agree with the rates in the schedule**)**

Name of Applicant: ____

Name of Development: ____

Address: ____
____
____

Location of Development (North/South of Missouri River): ____________________

CPC Case Number: ____

Ordinance Number: ____

Date: ________________

Table 1

Provide Information on the Proposed Land Uses for Independent Assessment

A **Land Use Type**	**B** **Unit**	**C** **Proposed Number of Units**

Impact Fee Calculations for New Developments Requiring an Individual Assessment

(Impact Fee Administrator will complete the following information and prepare a separate sheet (Table 2) for Land Use)

Scenario #1 (ITE Manual has an Equivalent Trip Generation Rate Comparable to Schedule of Impact Fee)

1. Trip Generation Rate from ITE Table # =

2. Trip Generation Rate in Impact Fee Schedule =

3. Impact Fee Rate from Schedule =

4. Impact Fee Charges = Units (Column C of Table 1) * Line#3 =

Scenario #2 (If ITE Manual does not have a Trip Generation Rate Comparable to Schedule of Impact Fee then Use the Basic Impact Fee Formula)

1. Trip Generation Rate from ITE Table # =

2. Impact Fee Formula Parameters from Traffic Study:

		North of Missouri River	South of Missouri River
a. Average Trip Length	=	3.2 miles	2.4 miles
b. Net Cost	=	$ 856	$ 1,166
c. % NEW	=	(to be determined on case by case basis)	
d. Constant	=	2	2
e. Discount Factor	=	50%	50%

3. Total Impact Fee = Units (Column C of Table 1) * Line#2(a) * Line#2(b) * Line#2(c) * Line#2(d) * Line#2(e) =

Scenario #3 (Based on Independent Traffic Study, if Agreed by Impact Fee Administrator)

1. Impact Fee determined through the Study =

.

Table 2

Land Use Type	Proposed Number of Units	Impact Fee Assessed
Total		

Total Fee Assessed: ____

Benefit District: ____

Signature of Impact Fee Administrator: ______________________________

Date: _______________