Trip Generation In Impact Fees

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INTRODUCTION

In the past decade, communities across the nation, particularly those experiencing rapid growth, have been much more aggressive in developing non-traditional methods of generating local revenue to finance infrastructure. Impact fees have become an increasingly popular source of funds to build capacity in capital-intensive services such as transportation, fire service, and parks.

States without impact fees legislation derive the fundamental parameters on the basis of case law. A limited few states have legislation that establishes some of the basic requirements of an impact fee. Even states that do have legislation addressing impact fees do not always prescribe a specific formula or methodology for calculating them. Consequently, the methods and data used in their formulation are quite varied and the degree of sophistication and accuracy varies as well.

This paper will address issues relating to both the development of transportation impact fees and the data that goes into the impact fee calculation. In particular, trip generation will be discussed and specific problems that have arisen in the use of the ITE trip generation data will be addressed. Results of a national survey of communities having adopted transportation impact fees will be discussed in highlighting trends in the administrative and technical aspects of impact fees.

BACKGROUND ON IMPACT FEES

Before addressing the key issues on which this paper is based, it is important to establish a common understanding about impact fees; what they are and are not; how they can be used and some established legal requirements.

Transportation impact fees are one time charges paid by developers who are developing projects that will create new impacts on the transportation system. The *fee*, to be distinguished from a general purpose *tax*, is specifically to allow local government to build the transportation capacity made necessary by new development. New development can be either "brand new" or renovation as long as the project creates new impacts. The fees can not be used to perform operations and maintenance activities. Some of the other major legal requirements include: (1) the fee can not generate more revenue than is needed to build the capacity; (2) the fees must be earmarked to pay for facilities that will directly benefit the fee payer; and (3) the fees can not be established to correct past deficiencies.

NATIONAL TRENDS

Two years ago, Kimley-Horn & Associates conducted a survey of over 20 communities across the nation, all of which had transportation impact fee systems in place. Reflecting where many of the active impact fees are in effect, half the communities surveyed were located in Florida. Communities in California, Colorado, Pennsylvania, Maryland, Texas and Illinois were also surveyed.

The purpose of the survey was to document how communities handled a variety of administrative and technical issues in constructing their impact fee systems. To obtain this information, each community's transportation impact fee ordinance was reviewed. The following administrative and technical aspects were documented.

Administrative Issues

1. When was the ordinance adopted?
2. Are there administrative procedures contained in the ordinance?
3. Does the community have an administrative procedures manual?
4. In county systems, have cities "opted out or in" to the system?
5. In addition to transportation, has the community adopted impact fees for other services?
6. When does the community assess the impact fee?
7. When is payment required?
8. How many land use categories are contained in the system?
9. How many impact fee districts has the community created.
10. Do the fees vary by district?
11. Are there any land uses that are

exempt from paying impact fees?

12. What credits are offered in the system?
13. Is there a credit given specifically for Transportation Systems Management (TSM) programs?
14. By policy, is the impact fee discounted?
15. Is there an incentive offered to use the standard impact fee schedule as opposed to calculating an independent impact fee for a specific project? If yes, what is the incentive?
16. How many years does a community have before they must refund unused impact fee revenues?
17. In #16 above, is "unused" defined as unspent or unencumbered?
18. Does the ordinance permit a fee payer to conduct a study to calculate a fee specifically for the project or must everyone accept the fee in the adopted fee schedule.
19. Did the community conduct a needs study upon which the impact fee is based?
20. Are vested rights discussed in the ordinance?
21. Does the ordinance mandate periodic reviews and updates of the system?
22. Does the ordinance establish a percentage of the fees that can be used by the community to administer this system? If so, what is the percentage?

Table 1 is a summary of the results of the administrative survey. Significant findings include the following.

1. Most communities include some administrative procedures in their ordinance but the majority do not have administrative manuals, perse.
2. In most county systems in Florida, the cities opt in.
3. Of communities that have other impact fees besides transportation, most have impact fees for parks.
4. About half of the communities surveyed require payment of the impact fee at the time of building permit.
5. Communities in Florida, more than in other states, use impact fee districts in their systems, but in most cases the fees do not vary by district.
6. A variety of credits are given; credit for gas tax is the most common. Few communities give a credit for TSM.
7. In Florida, communities give a refund if the impact fee is unused after from 5-10 years. In California, no refund is given.
8. Most communities allow the fee payer to conduct a study to determine the fee if the fee payer believes the standard fee is too high.
9. Most communities, where it was possible to determine, had conducted a study of needs prior to developing the impact fee.
10. Most communities require a periodic review/update of the system and most call for this to be done annually.
11. Most Florida communities do retain a percentage (1-3%) for administering the system. Outside Florida, this is not typically done.

Technical Issues

A number of technical issues were documented in the survey. They included:

1. What is the impact fee equation?
2. Is trip generation used in the formula?
3. Is peak hour or daily trip generation used?
4. Is trip length used in the formula?
5. Is percent of new trips used in the formula?
6. What unit cost is used in the formula?
7. Does the community have an adopted Capital Improvement Program (CIP)?
8. What are approximate fees for single family, retail, office and industrial land uses?

Table 2 is a summary of the results of the technical survey.

Communities that are contemplating development of an impact fee may find the approaches taken by others of some general interest. However, caution should be exercised in using the approaches without first confirming that state legislation

TABLE 1

ADMINISTRATIVE ISSUES MATRIX

STATE COUNTY/CITY	ORDINANCE # DATE	ADMIN PROC. IN ORD.?	HAVE ADMIN MANUAL?	COUNTY, CITY OPT	OTHER FEES?	WHEN ASSESSED?	WHEN PAID?	# OF LAND USE CATEGORIES	# OF DISTRICTS	DO FEES VARY BY DISTRICT?	LIST EXEMPT LAND USES	LIST CREDITS	CREDIT FOR TIM?	FEE DISCOUNTED ACROSS THE BOARD?	NO STUDY DISCOUNT?	# OF YEARS FOR A REFUND?	ENCUMBERED/ EXPENDED	INDEPENDENT CALCULATION PERMITTED?	STUDY DONE TO JUSTIFY FEE?	VESTED RIGHTS?	PERIODIC REVIEW?	ADMIN RETAINAGE?
FLORIDA:																						
CHARLOTTE COUNTY	87-43 JULY 1, 1987	YES	NO	CITIES IN	YES	CO	CO	5/10	3	NO	NONE	GT	NO	NO	YES, 5%	6	EXPENDED	YES, GEN	YES	YES, COND	NO	YES, 5%
COLLIER COUNTY	89-53 OCT 10, 1989	YES	NO	NO	NO	ANY	ANY	5/13	10	NO	NONE	GT	NO	NO	YES, 15%	6	ENCUMBERED	YES, DET	N/A	YES, COND	BIENNIAL	NO
HERNANDO COUNTY	86-29 JAN 1, 1987	YES	YES	CITIES IN	YES	BP	BP,OPT FOR CO	5/14	4	NO	CHU,CIV	GT	NO	NO	YES, 15%	6	ENCUMBERED	YES, GEN	YES	NO	BIENNIAL	YES, 5%
HILLSBOROUGH COUNTY	86-5 JAN 27, 1986	YES	NO	NO	NO	BP	CO	4/10	10	YES	PB	NONE	YES	YES,72.5%	NO	10	ENCUMBERED	YES, DET	N/A	YES, COND	ANNUAL	YES, 2%
LAKE COUNTY	91R5-1 MARCH 15, 1991	YES	NO	CITIES IN	NO	BP	BP	5/9	7	NO	NONE	GT	NO	YES, 40%	NO	6, EXT 3	ENCUMBERED	YES, DET	YES	NO	NO	NO
CITY OF LAKELAND	87078 JAN 6, 1988	YES	YES	NO	YES	BP	BP	9/52	4	NO	NONE	GT,ADV,LIC,UTIL	NO	NO	NO	7, EXT 3	EXPENDED	YES, GEN	YES	YES	TRIENNIAL	YES, 1%
LEE COUNTY	89-23 SEPT 16, 1987	YES	NO	CITIES IN	NO	BP	BP	4/12	12	NO	NONE	FT,LIC,RAB	NO	NO	YES, 20%	10	ENCUMBERED	YES, GEN	N/A	NO	ANNUAL	YES, 3%
MONROE COUNTY	N/A N/A	YES	NO	NO	YES	BP	CO	6/17	3	NO	AFH,PB	GT	NO	NO	NO	6	ENCUMBERED	YES, GEN	YES	YES, COND	ANNUAL	NO
ORNAGE COUNTY	N/A JAN 1, 1986	YES	NO	MAY OPT IN	YES	BPA	BP	6/21	4	NO	AGR	GT,LIC	NO	YES, 40%	NO	6	ENCUMBERED	YES, GEN	YES	YES	ANNUAL	NO
CITY OF ORLANDO	N/A N/A	YES	NO	NO	NO	BP	BP	6/21	3	YES	AFT,PB	GT,LIC	YES	YES, 16%	NO	6 OR 8	ENCUMBERED	YES, GEN	N/A	YES	ANNUAL	YES, 5%
PALM BEACH COUNTY	88-36 SEPT 20, 1988	YES	NO	CITIES IN	NO	COA	COA OR BY AGRM'T	7/19	40 ZONES 17 AREAS	NO	PB	N/A	NO	NO	NO	6	ENCUMBERED	YES, GEN	YES	NO	ANNUAL	YES, 3%
PASCO COUNTY	88-9 APRIL 5, 1988	YES	NO	CITIES IN	NO	BP	CO	7/22	N/A	N/A	SEE COMMENTS	N/A	NO	YES, 9%	NO	5 OR 8	BOTH	YES, DET	YES	NO	ANNUAL	YES, 1%
ST. LUCIE COUNTY	N/A N/A	YES	NO	CITIES IN	NO	BP	BP	6/20	6	YES	NONE	GT,LIC,RAB	NO	YES, 13%	NO	10	ENCUMBERED	YES, GEN	YES	NO	ANNUAL	YES, 3%
VOLUSIA COUNTY	86-4 JUNE 19, 1986	YES	NO	CITIES IN	N/A	BP	BP	7/19	6	NO	NONE	GT,LIC	YES	NO	YES, 10%	10	ENCUMBERED	YES, GEN	YES	YES	YES, VARIES	YES, 1%
CALIFORNIA:																						
CITY OF BEVERLY HILLS	N/A NOV 15, 1988	NO	NO	NO	N/A	PS	PS & BP	10/26	1	N/A	PB,NPM,RES	N/A	N/A	NO	N/A	NO REFUND	N/A	N/A	N/A	YES	N/A	NO
CITY OF OXNARD	9204:	YES	NO	NO	N/A	BP	BP	4/10	1	N/A	NONE	NONE	NO	NO	NO	NO REFUND	N/A	YES, NONE	YES	NO	BIENNIAL	NO
CITY OF PALO ALTO	JULY 3, 1985 JAN 27, 1986	NO	NO	NO	N/A	BP	BP	1	1	N/A	SEE COMMENTS	NONE	YES	NO	NO	NO REFUND	N/A	YES, NONE	N/A	YES	ANNUAL	NO
CITY OF SAN BUENAVENTURA	88-99 MAY 26, 1988	NO	NO	NO	N/A	N/A	N/A	3/13	1	N/A	PARTIAL EXEMPT FOR AFT	SEE COMMENTS	NO	NO	NO	NO REFUND	N/A	YES, NONE	N/A	NO	NO	NO
PENNSYLVANIA:																						
UPPER MERION TOWNSHIP	904-470 DEC 5, 1984	NO	NO	N/A	NO	BP	BP OR BY AGRM'T	8/35	3	N/A	NONE	NONE	NO	NO	NO	NO REFUND	N/A	NO	YES	NO	ANNUAL	NO
COLORADO:																						
CITY OF GREELY	N/A FEB 18, 1986	NO	NO	N/A	YES	BP	BP	3/9	1	N/A	NONE	NONE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MARYLAND:																						
ANNE ARUNDEL COUNTY	830-87 SEPT 17, 1987	YES	NO	CITIES IN	YES	BPA OR ZCA	BP OR ZC	8/13	3	NO	NPM,PB	GT	NO	NO	NO	6	ENCUMBERED	YES, GEN	N/A	NO	YES, VARIES	NO
MONTGOMERY COUNTY	87-84 JULY 29, 1986	YES	YES	N/A	NO	P	BP	3/8	2	YES	PB	NONE	NO	NO	NO	VARIES	N/A	YES, GEN	YES	YES, COND	BIENNIAL	NO
TEXAS:																						
CITY OF FARMERS BRANCH	1533 NOV 5, 1984	YES	NO	N/A	NO	BP	BP OR BY AGRM'T	1	1	N/A	RES	NONE	NO	NO	NO	15	N/A	NO	N/A	NO	ANNUAL	NO
ILLINOIS:																						
DUPAGE COUNTY	8078-Ord-88 JAN 1, 1989	YES	YES	MAY OPT IN	NO	FP-AP-BP	FP-AP-BP	7/16	11	YES	PB	GT,ADV,RAB,MT	YES	NO	YES, 30%	6	ENCUMBERED	YES, GEN	NO	NO	ANNUAL	SEE COMMENTS

LEGEND: BP - PRIOR TO ISSUE OF BUILDING PERMIT, BPA - AT BUILDING PERMIT APPLICATION, CO - PRIOR TO ISSUE OF CERT. OF OCCUPANCY, COA - AT COMMENCEMENT OF DEV. ACTIVITY, PS - AT PROJECT SUBMITTAL, ZCA - AT ZONI NG CERT. APPLICATION, ANY - PRIOR TO ISSUE OF ANY PERMIT, BY AGRM'T - ACCORDING TO NBOOT. AGREEMENT, FP-AP-BP - PRIOR TO ISSUE OF FINAL PLAT, ACCESS PERMIT, OR BUILDING PERMIT, WHICHEVER IS FIRST

TABLE 2
TECHNICAL ISSUES MATRIX

STATE COUNTY/CITY	NEEDS OR FACILITY-BASED?	IMPACT FEE EQUATION	TRIP RATE	TRIP RATE PEAK-HOUR?	TRIP LENGTH	% NEW TRIPS	COST	ADOPTED CIP	SINGLE FAMILY	RETAIL	OFFICE	INDUSTRIAL
FLORIDA:												
CHARLOTTE COUNTY	NEEDS	(1/2((TR x TL)/LC) x CLM) - CR	YES, V	NO	YES, V	NO	$429,121	N/A	$851 PER UNIT	$1,359 PER 1000 SF	$1,410 PER 1000 SF	$435 PER 1000 SF
COLLIER COUNTY	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES, V	YES, V	N/A	N/A	$310 PER UNIT	$1,053 PER 1000 SF	$387 PER 1000 SF	$183 PER 1000 SF
HERNANDO COUNTY	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES	YES	N/A	YES	$564 PER UNIT	$1362 PER 1000 SF	$428 PER 1000 SF	$187 PER 1000 SF
HILLSBOROUGH COUNTY	NEEDS	1/2((TR x TL/LC) x CLM) x (1 - %ILR) x OF	YES, V	NO	YES, V	NO	N/A	YES	$738 PER UNIT	$1,580 PER 1000 SF	$1,210 PER 1000 SF	$370 PER 1000 SF
LAKE COUNTY	NEEDS	1/2((TR x TL/LC) x CLM) x OF	YES	NO	YES	NO	$226,300	YES	$298 PER UNIT	$816 PER 1000 SF	$270 PER 1000 SF	$264 PER 1000 SF
CITY OF LAKELAND	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES, V	YES, V	N/A	N/A	$1,039 PER UNIT	$3,326 PER 1000 SF	$1,226 PER 1000 SF	$137 PER 1000 SF
LEE COUNTY	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES	YES	$550,000	YES	$1,034 PER UNIT	$1,571 PER 1000 SF	$1220 PER 1000 SF	$803 PER 1000 SF
MONROE COUNTY	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES, V	YES, V	$390,000	N/A	$1,610 PER UNIT	$1,235 PER 1000 SF	$1,022 PER 1000 SF	$594 PER 1000 SF
ORANGE COUNTY	NEEDS	OF x (1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES, V	YES, V	N/A	N/A	$1,061 PER UNIT	$3,874 PER 1000 SF	$1,994 PER 1000 SF	$612 PER 1000 SF
CITY OF ORLANDO	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR x (OF x NAF)	YES, V	NO	YES, V	YES, V	N/A	N/A	$909 - $951 PER UNIT	$2,770 - $3765 PER 1000 SF	$1,474 - $1,789 PER 1000 SF	$526 - $549 PER 1000 SF
PALM BEACH COUNTY	NEEDS	RES: 1/2(TR/LC) x (3 x CLM) NON-RES: 1/2(TR/LC) x CLM	YES, V	NO	YES, V	NO	$375,000	N/A	$1,045 PER UNIT	$2,679 PER 1000 SF	$482 PER 1000 SF	$161 PER 1000 SF
PASCO COUNTY	NEEDS	(1/2((TR x TL)/LC) x CLM) x OF	YES, V	NO	YES, V	NO	$493,000	N/A	$307 PER UNIT	$160 PER 1000 SF	$920 PER 1000 SF	$240 PER 1000 SF
ST. LUCIE COUNTY	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES, V	YES, V	N/A	N/A	$172 - $3,086 PER UNIT	$266 - $3,144 PER 1000 SF	$55 - $651 PER 1000 SF	$44 - $321 PER 1000 SF
VOLUSIA COUNTY	NEEDS	(1/2((TR x TL x NP)/LC) x CLM) - CR	YES, V	NO	YES, C	NO	$400,000	YES	$706 PER UNIT	$3,570 PER 1000 SF	$990 PER 1000 SF	$430 PER 1000 SF
CALIFORNIA:												
CITY OF BEVERLY HILLS	FACILITY	TR x CPT	YES, V	YES	NO	NO	CPT = $4,900	N/A	N/A	$24,500 PER 1000 SF	$13,720 PER 1000 SF	$4,900 PER 1000 SF
CITY OF OXNARD	FACILITY	TR x CPT	YES, V	YES	NO	NO	CPT = $91.85	YES	$1,083 PER UNIT	$2,158 PER 1000 SF	$1,349 PER 1000 SF	$500 PER 1000 SF
CITY OF PALO ALTO	FACILITY	TC/PD	NO	N/A	NO	NO	N/A	N/A	N/A	$1,200 PER 1000 SF	$1,200 PER 1000 SF	$1,200 PER 1000 SF
CITY OF SAN BUENAVENTURA	FACILITY	TR x CPT	YES, V	YES	NO	NO	N/A	N/A	$5,345 PER UNIT	$4,130 PER 1000 SF	$4,415 PER 1000 SF	$1,380 PER 1000 SF
PENNSYLVANIA:												
UPPER MERION TOWNSHIP	FACILITY	TR x (1/2(TC/IPC))	YES, V	YES	NO	NO	N/A	YES	$989 PER UNIT	$7,310 PER 1000 SF	$2,880 PER 1000 SF	$1,020 PER 1000 SF
COLORADO:												
CITY OF GREELY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$231 - $385 PER UNIT	$1,734 - $3,179 PER ACRE	$1,734 - $3,179 PER ACRE	$1,734 - $2,312 PER ACRE
MARYLAND:												
ANNE ARUNDEL COUNTY	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	NO	YES, V	YES, V	N/A	N/A	$356 PER UNIT	$942 PER 1000 SF	$740 PER 1000 SF	$166 PER 1000 SF
MONTGOMERY COUNTY	FACILITY	TIV x CPT	YES, V	NO	YES, V	YES, V	N/A	YES	$1,489 - $1,591 PER UNIT	$3,025 - $3,244 PER 1000 SF	$3,355 - $3,587 PER 1000 SF	$1,459 - $1,560 PER 1000 SF
TEXAS:												
CITY OF FARMERS BRANCH	FACILITY	TC/PD	NO	N/A	NO	NO	N/A	YES	N/A	$500 PER 1000 SF	$500 PER 1000 SF	$500 PER 1000 SF
ILLINOIS:												
DUPAGE COUNTY	NEEDS	(1/2((TR x TL x NT)/LC) x CLM) - CR	YES, V	YES	YES, V	YES, V	$400,000	YES	$459 - $908 PER UNIT	$220 - $551 PER 1000 SF	$1,292 - $2,298 PER 1000 SF	$130 - $332 PER 1000 SF

LEGEND: TR - TRIP RATE, TL - TRIP LENGTH, INT - % NEW TRIPS, LC - LANE CAPACITY, TC - TOTAL COST, CR - CREDITS, %ILR - % INTERSTATE AND LOCAL ROADS, IPC - IMPROVEMENT IN PEAK-HOUR CAPACITY, CPT - COT PER TRIP, NAF - NETWORK ADJ FACTOR, TIV - TRAFFIC IMPACT VALUE, PD - PROJECTED DEVELOPMENT, CLM - COST PER LANE MILE, DG - DISCOUNT FACTOR, V - VARIES, C - CONSTANT, GT - GASOLINE TAX, LIC - LICENSE FEE, R&B - ROAD AND BRIDGE FEE, ADV - AD VALOREM TAX, UTIL - UTILITY TAX, MT - MATCHING TAXES

(where applicable) or case law will allow a given approach.

TRIP GENERATION ISSUES

One of the variables that is used in the vast majority of impact fee systems is trip generation. Trip generation data is used in transportation impact fees to measure the demand that different land uses create for roadway capacity.

In developing a transportation impact fee system, most communities limit the number of land use categories to a few in each of the following general categories: residential, commercial, industrial, institutional, office, recreational and services. They do this, not because of a lack of trip generation data, but rather because of the administrative difficulties involved in maintaining a system that contains a long list of land use categories.

A number of difficulties have been encountered in using ITE trip generation data. In addition, many communities have wrestled with the concern of whether the ITE rates are, in fact, applicable in their community. The balance of this paper will address some of the more common problems associated with using the ITE data and some recommendations will be offered. Further, issues related to the use of ITE versus locally compiled trip generation data will be discussed.

ISSUES INVOLVED IN USING ITE TRIP GENERATION DATA

Many of the problems encountered in the use of ITE trip generation data in impact fee systems are no different than the problems encountered in the use of the ITE data for other purposes. The principal difference has more to do with the *direct* effect trip generation has on the fee, itself, and consequently, the data tends to be more carefully scrutinized in the impact fee than it is, perhaps, in other applications. In most systems, if the trip generation rate increases by 10%, as an example, a 10% increase in the impact fee (before credits) will result. With impact fees over $3,500 per single family unit (in some communities) a 10-15% change in the trip generation rate can make a significant difference to the developer building a 300 home subdivision, particularly since the fee is traditionally paid at a time in the development process when cash flow is likely to be tight.

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 4th Edition contains trip generation data for over 90 land use categories. In addition to the obvious concerns associated with small sample sizes, low R^2 values and the like, there are other concerns in using the ITE data that are especially relevant when developing an impact fee. Some of these are summarized below.

Changing Technology. Since the first ITE Trip Generation Manual was published using data that went as far back as 1966, there have been numerous technological as well as industry changes in the way businesses are set up and operate. For example, service stations have certainly experienced enormous changes in both the service they offer and the way it is provided. The independent variable that is commonly used when discussing service stations is "pump". Yet, what is a pump? Is it the number of hoses, the entire casing around the hoses, the number of service positions? As pump technology has changed, it has become more difficult to determine how the independent variable should be applied. Additionally the services provided at today's service stations vary greatly from the services provided in years past. Sometimes, service stations of today look more like convenience stores than places where gas and auto repairs can be purchased. Another common problem deals with how car washes that are part of a service station are handled. The ITE includes trip generation rates specifically for car washes. But is it reasonable to calculate a separate trip rate for car washes when the car wash is part of the service station? Probably not. As for the definition of "pump", we believe that the number of service positions is the best interpretation. In some cases where the project is half service station, half convenience store, it may be desirable to take a special traffic count to establish trip generation. According to ITE, a 2,500 sf convenience store will generate over 2,000 trips per day. A 10 pump service station will generate approximately 1,300 trips per day. How you classify a hybrid will be of enormous concern to the developer! It is probably not reasonable to calculate the trip generation for each use separately since common sense would dictate that many shared trips will occur. The 5th Edition of the Trip Generation Manual may resolve some of this.

Pass-by Traffic. There is a general lack of data that addresses pass-by traffic. While insignificant in many land uses, in most of the convenience type businesses like service stations, fast food restaurants and convenience stores, a significant percentage of their trips come from the existing

stream of traffic and consequently, when assessing a project's impact these trips should be quantified. In mixed use developments this is also critical.

Special Operational Conditions. In a study conducted in Orlando, Florida we found a significant reduction in parking demand at a hotel that was located close to the airport and offered complimentary shuttle service back and forth. We can surmise that had we been studying trip generation, we would have recorded a lower than "typical" trip generation rate as well. Unfortunately, it isn't always possible to learn about the operational conditions that were present at the study sites represented in ITE and therefore, it is hard to know if the site you are concerned with is "special" or not. One effective way to address this issue is to allow developers who believe their projects are "special" to prove it by collecting data. This an equitable way to treat the developers and a good way to get free data collection for your agency. A set of procedures for conducting these studies should be developed so that you get what you need and the developer knows what is expected.

Land Use Segregation In Trip Generation Estimates. Occasionally, we encounter land uses that are not represented in ITE, perse, but they may contain uses for which ITE has collected data. An example of this is a golf course clubhouse. We had the experience of having an impact fee assessed for the clubhouse (the golf course had been built for years and they were finally building the clubhouse). Since ITE doesn't have trip generation data for clubhouses, individually, the responsible agency decided to calculate the impact fee for the clubhouse by segregating the individual land uses that comprise a clubhouse (restaurant, lounge, office, retail) and applying the fee for the individual land uses. The result was a very high impact fee. The developer felt that the clubhouse would not, by itself, generate many new trips. Most of the trips to the clubhouse would be made by golfers who had already been accounted for in the golf course impact fee.

In instances like this, common sense is key. We were able to obtain copies of the studies which comprise the ITE trip rate for golf courses. We found that they were based on courses that had clubhouses and therefore, it became clear that the trip rate in ITE included trips for both the golf course and the clubhouse.

Many other examples could be cited where trip generation data, either the absence of it or the lack of information about the sites represented in the trip rate presented problems. Part of the solution lies in better documentation of the trip generation studies that comprise an ITE trip rate and ITE in the 5th Edition, we're told, is making improvements in this area. Secondly, allowing developers to conduct trip generation studies using an established methodology, with good documentation, is also a potential solution.

In impact fees, where trip generation is a very visible component that has a dramatic effect on the fee developers pay, we are seeing increased scrutiny and questions about the accuracy of the trip rates we use. Deviation from national standards *may* produce a more equitable trip rate in a given area, but caution is urged. Local studies that produce trip rates that exceed ITE trip rates will be especially vulnerable, especially if the number of local studies represented in the trip rate are fewer than the studies representing the ITE trip rate. With all the concerns associated with using the national standard, ITE is still recognized as a superior source of data. The use of local data is reasonable in some circumstances but it does not always produce better data. Further, selecting one or more land use categories to conduct publicly funded trip generation studies can "throw up a red flag" to the representatives of the land use categories that are not being studied, particularly if the studies produce lower trip rates than those found in ITE.

Having a provision for independent studies by developers is the easiest and most efficient method for dealing with questions about trip generation. The data produced through these studies may or may not be appropriate or adequate to justify changing the trip rates in your impact fee formula, but it at least, can be used on a case by case basis. Developing a standard methodology for these studies will aid both the developer and your agency so that both understand what is required and independent studies can be reviewed and processed efficiently.

CONCLUSIONS

This paper has addressed a variety of issues relating to transportation impact fees and in particular, the trip generation rates that go into their calculation. Trip generation rates are being more closely scrutinized in their application in impact fees because of the dramatic effect they have on the fees themselves.

National research indicates a wide range of approaches taken to the development of impact fees, with some consistency found statewide.

Use of ITE data is common practice in impact fees, but there are a number of shortcomings that were discussed. These can be overcome through a practical common sense approach to their use coupled with a provision in the impact fee ordinance that allows developers to conduct independent studies of their projects' trip generation. A well documented methodology for these studies will promote efficiency in both the production and review of these studies by government agencies.