DO IMPACT FEES PAY FOR THE INFRASTRUCTURE COSTS REQUIRED BY NEW DEVELOPMENTS?

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ABSTRACT

This study investigated impact fees used by counties and communities to pay for infracture costs required by development and found that the impact fees do not pay the full costs of the infrastructure required by the new development. The major impact fees are for roads and schools, however, impact fees are also routinely used for fire protection, police protection, emergency services, correctional facilities, parks, libraries, government buildings and drainage. Florida was used as a proxy for the 34 states that use impact fees. Since roads and schools cause the highest burden on the communities experiencing growth, comparisons of cost vs. impact fee revenues were limited to roads and schools.

INTRODUCTION

The purpose of this research was to determine if impact fees pay for the infrastructure costs required by new single-family developments. Impact fees are used by counties, municipalities, special districts, and school districts to pay for the costs of additional infrastructure required as a result of new development. The major impact fees typically imposed are for roads and schools, however, impact fees are also routinely charged for fire protection, police protection, emergency medical services, correctional facilities, parks, libraries, government buildings, and drainage. Impact fees in this paper do not include water and sewer costs because in many communities these utilities are independently owned and normally charge for sewer and water taps when building permits are obtained.

Impact fees are used in 34 states in the U.S. and their use stretches across the nation from Hawaii to New Hampshire. Table 1 provides the total average impact fee for each state as well as the average impact fees for roads, drainage, parks, libraries, fire protection, police protection, government buildings, schools, and other impact fees. Other impact fees include categories of expenses such as correctional facilities and the costs required for administering the impact fee system. The total impact fees levied by the states vary widely for a three bedroom, 2,000 sf single-family home from the highest fees levied by Virginia ($38,151) and California ($29,740) to the lowest fees of Oklahoma ($647) and Missouri ($861). The average impact fee for the 34 states which have counties or municipalities that levy impact fees is $6,603 for a three bedroom, 2,000 sf single-family home. School impact fees, although not levied in some states, are the highest category of impact fee averaging $5,076.

A literature review revealed some important results concerning impact fees. Moon (2006), in his study on Florida impact fee adoptions, found that rapid growth promotes impact fee adoptions, and that counties are more prone to

adopting impact fees when neighboring counties have adopted them. Concerning the effect impact fees have on existing homeowners, Yinger (1998) found that impact fees result in a small capital gain on existing homeowners and do not adversely affect developers. Furthermore, Ihlanfeldt and Shaughnessy (2004) found that impact fees reduce millage rates, and the present value of property tax savings are about equal to the effects of impact fees on housing prices. One of the objections often used to sway opinions against impact fees is the theory that impact fees make low cost housing unaffordable. Concerning the effects of impact fees on multi-family housing construction in Florida, Burge and Ihlanfeldt (2006) found that nonwater/sewer impact fees cause an increase in the construction of multi-family housing within inner suburban areas because nonwater/sewer impact fees reduce the developer's cost of obtaining project approval enough to offset the cost of the impact fees.

Table 1

Single-Family Unit (3BR, 2,000 sf on 10,000 sf Lot)

State	Roads	Drainage	Parks	Libraries	Fire	Police	Gov Bldg	Schools	Other	Total
Arkansas	$1,039	n/a	$659	n/a	$472	$162	n/a	n/a	n/a	$2,332
Arizona	2,193	563	1,994	385	464	387	544	n/a	612	7,142
California	5,267	2,003	7,890	685	768	895	2,775	4,907	4,460	29,740
Colorado	2,218	1,114	3,252	605	336	276	417	1,142	582	9,942
Delaware	n/a	n/a	328	138	517	62	112	n/a	n/a	1,157
Florida	2,937	31	929	220	295	248	434	3,684	257	7,192
Georgia	869	n/a	713	164	333	153	54	n/a	11	2,297
Hawaii	1,836	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1,836
Idaho	1,721	n/a	1,503	n/a	n/a	88	n/a	n/a	28	3,340
Illinois	658	n/a	1,232	100	500	400	1,050	2,229	75	6,244
Indiana	1,630	n/a	1,176	n/a	n/a	n/a	n/a	n/a	n/a	2,806
Kansas	2,401	905	465	n/a	n/a	n/a	n/a	n/a	n/a	3,771
Louisiana	834	1,609	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2,443
Maryland	2,120	n/a	885	823	1,166	125	n/a	7,462	350	12,931
Missouri	861	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	861
Montana	1,094	n/a	n/a	n/a	190	n/a	n/a	n/a	n/a	1,284
N Carolina	822	n/a	420	n/a	n/a	n/a	n/a	2,653	n/a	3,895
Nebraska	2,466	n/a	334	n/a	n/a	n/a	n/a	n/a	n/a	2,800
New Ham	1,722	n/a	840	n/a	190	n/a	n/a	2,765	n/a	5,517
New Mexico	2,297	1,974	1,255	n/a	313	227	n/a	n/a	60	6,126
Nevada	1,660	n/a	930	n/a	n/a	n/a	n/a	900	126	3,616
Ohio	3,964	n/a	1,125	n/a	325	184	366	n/a	n/a	5,964
Oklahoma	647	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	647
Oregon	3,207	645	3,195	n/a	n/a	n/a	n/a	n/a	n/a	7,047
Pennsylvania	2,220	1,610	1,000	n/a	n/a	n/a	n/a	n/a	250	5,080
S Carolina	887	n/a	485	553	368	69	n/a	n/a	234	2,596
Tennessee	1,519	n/a	547	n/a	378	282	n/a	1,400	2,071	6,197
Texas	1,452	n/a	830	n/a	n/a	n/a	n/a	n/a	n/a	2,282
Utah	1,422	766	2,422	n/a	239	141	n/a	n/a	360	5,350
Virginia	13,621	n/a	5,049	626	807	n/a	446	17,602	n/a	38,151
Vermont	329	n/a	1,087	836	404	80	n/a	6,255	n/a	8,991
Washington	1,394	856	1,388	n/a	565	62	86	3,450	n/a	7,801
W Virginia	n/a	751	n/a	n/a	603	135	n/a	10,655	n/a	12,144
Wisconsin	94	785	2,559	589	349	481	n/a	n/a	n/a	4,857
National Av	2,121	1,052	1,588	476	457	235	628	5,076	678	6,603

Source: Duncan Associates (August, 2007)

METHODOLOGY

Limitations and Assumptions

Since attempting to determine if impact fees pay for the infrastructure costs required for new single-family homes in all 34 states that charge impact fees is beyond the capability of this study, Florida was used as a proxy for all 34 states for two reasons. First, 41 out of 67 counties in Florida currently use impact fees to offset the cost of infrastructure growth related development. Second, Florida is one of the fastest growing states in the U.S.

Water and sewer costs are not included as impact fees in this study because in many communities these utilities are independently owned and normally charge for sewer and water taps when building permits are obtained. In addition, these utilities are normally already in place when construction on new residential units begins, whereas, new schools and roads must be built to accommodate new development as it occurs.

The comparisons of cost vs. average impact fees charged will be limited to schools and roads because the costs involved with new roads and new schools are much higher than other infrastructure costs.

Finally, although impact fees are typically levied on all residential structures and on commercial buildings, this study will be limited to comparing the costs vs. the average impact fees charged to single-family, 2,000 sf homes.

School Costs vs. School Impact Fees

The methodology used by Henderson, Young & Company (2007) to calculate the costs of educational facilities per dwelling unit in Lake County, Florida was used in this study to calculate the costs of educational facilities in Santa Rosa County, Florida. Santa Rosa County was chosen for this part of the study because the County currently does not have a school impact fee, and also because the costs involved in building a new elementary school were available. The data for constructing the new Bennett C. Russell Elementary School in Santa Rosa County follow:

Construction contract, architect, and engineering fees: $19,594,637

Cost of land: land swap

Cost of furniture, equipment, fixtures, and other expenses: $1,449,614

Total building cost: $21,044,251

Funding: public education capital outlay, local capital outlay taxes, ½% sales tax, and certificates of participation.

Average annual interest rate: 4.715%

Total expected interest paid over 25 years on $20.0 million borrowed: $23,996,472

Present value (discount rate 2.133%) of interest cost = $14,157,918

School busses required: none (bussing children contracted to private business)

Student capacity: 900

Estimated new dwelling units per year = 1,492

Estimated students per dwelling unit = 0.42

Steps required to calculate costs of educational facilities follow:

Step 1. Calculate the cost of the facilities per student using Equation 1.

Cost per Student = Cost of Educational Facilities/Student Capacity **(1)**

Step 2. Calculate the cost of the educational facilities per dwelling unit using Equation 2.

Cost per Dwelling Unit (DU) = Cost per Student x Students per DU **(2)**

Step 3. Calculate the estimated yearly costs for new schools per year using Equation 3.

Est. Yearly Costs for New Schools = Cost per DU x Number of New DUs/Year **(3)**

Step 4. Compare the estimated yearly costs for new facilities to the number of new DUs per year x the average Florida school impact fee.

Transportation Costs vs. Transportation Impact Fees

The methodology used by Duncan Associates (July, 2007) to calculate the costs of transportation per dwelling unit (DU) in Destin, Florida is used in this study to calculate the costs of new roads, including sidewalks and bike paths, in Destin. The calculations prepared by Duncan Associates are used because the data required for this type of analysis requires the resources of an engineering company or large consulting firm. The formula used by Duncan Associates to calculate road (transportation) costs is shown as Equation (4).

Transportation Costs = EDUs x NETCOST/EDU **(4)**

Where: EDUs = VMT/Single-family VMT
VMT = TRIPRATE X % NEW X LENGTH
NETCOST/EDU = COST/EDU – CREDIT/EDU
COST/EDU = GROWTHCOST/NEWEDUs
GROWTHCOST = COST – DEFICIENCY
SINGLE-FAMILY VMT = Relative vehicle-miles by typical single-family detached DU
TRIPRATE = Weekday average daily trips (ADT) per detached DU
% NEW = % of ADT that are primary
LENGTH = Ratio of average trip length to average single-family national average
COST = Total net cost of planned capacity minus expanding improvements for roads, sidewalks, etc. and funding from local or dedicated revenue
DEFICIENCY = The cost of remedying existing deficiencies, if applicable
NEWEDUs = Projected increase in single-family DUs over planning period
CREDIT/EDU = Revenue Credit per EDU, if appropriate

RESULTS

Impact fees are used in 41 of the 67 counties in Florida. Most of the Florida counties with impact fees are in the southern, central, and northeastern areas of the state. Table 2 provides the total impact fee for each county with impact fees, and also provides each county's impact fees for roads, drainage, parks, libraries, fire protection, police protection, government buildings, schools, and other impact fees, such fees for administering the impact fee system and correctional facilities. The total impact fees for a three bedroom, 2,000 sf home vary widely among the counties from the highest fees levied by Collier County ($24,428) and Manatee County ($15,529) to the lowest fees of Okaloosa County ($781) and Levy County ($1,249). The average impact fee for counties with impact fees and counties with municipalities that have impact fees is $7,192 which is higher than the national average of $6,603. The average impact fees for schools and roads, $3,684 and $2,937 respectively, are the highest average impact fees levied in Florida, with the average impact fee of $929 for parks coming in a distant third. According to Duncan Associates (July, 2007) "Over the last four years impact fees have increased about 77 percent, while construction costs have increased about 19 percent. The increases were most pronounced in Florida, where school fees, which saw the largest increases, are becoming more common and are being aggressively increased."

School Costs vs. Average Florida School Impact Fees

The costs used are the actual costs experienced by Santa Rosa County when building the Bennett C. Russell Elementary School. The methodology used is from a study done by Henderson, Young Company (2007).

Table 2

Single-Family Unit (3 BR, 2,000 sf on 10,000 sf Lot)

County	Roads	Drainage	Parks	Library	Fire	Police	Gov't Bldg	Schools	Other	Total
Alachua	$2,104	n/a	$252	n/a	$152	n/a	n/a	n/a	n/a	$2,508
Brevard	4,208	n/a	558	$64	106	$38	$250	$4,445	$232	9,901
Broward	457	n/a	1,396	n/a	n/a	n/a	n/a	1,844	n/a	3,697
Charlotte	5,080	n/a	1,660	160	400	300	780	n/a	n/a	8,380
Citrus	4,853	n/a	723	251	497	257	625	2,109	n/a	9,315
Clay	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7,034	n/a	7,034
Collier	8,884	n/a	3,299	506	1,195	318	807	9,206	213	24,428
Dade	1,275	n/a	4,365	n/a	441	255	413	2,448	n/a	9,197
DeSoto	2,534	n/a	370	163	398	538	647	4,563	n/a	9,213
Flagler	3,900	n/a	733	n/a	185	n/a	n/a	3,600	n/a	8,418
Gilchrist	1,750	n/a	n/a	n/a	n/a	n/a	1,000	750	n/a	3,500
Glades	3,363	n/a	365	n/a	93	n/a	n/a	4,322	n/a	8,143
Hardee	1,348	n/a	292	146	193	152	349	n/a	146	2,626
Hendry	2,490	n/a	n/a	n/a	n/a	n/a	n/a	5,101	n/a	7,591
Hernando	3,627	n/a	501	154	229	99	362	4,266	n/a	9,238
Highlands	1,649	n/a	189	61	190	58	n/a	2,901	171	5,219
Hillsboro.	1,894	n/a	468	538	137	304	n/a	2,000	n/a	5,341
Indian Riv.	5,202	n/a	1,463	483	278	244	206	1,756	245	9,877
Lake	2,189	n/a	411	242	258	138	n/a	7,055	n/a	10,293
Lee	6,736	n/a	1,155	n/a	570	632	n/a	4,309	857	14,259
levy	1,046	n/a	150	n/a	53	n/a	n/a	n/a	n/a	1,249
Manatee	7,013	n/a	971	n/a	582	839	n/a	6,124	n/a	15,529
Marion	3,047	n/a	n/a	n/a	212	n/a	n/a	n/a	n/a	3,259
Martin	2,688	n/a	2,255	438	333	428	550	4,374	n/a	11,066
Monroe	430	n/a	340	242	105	150	n/a	n/a	64	1,331
Nassau	984	n/a	431	n/a	110	136	210	3,726	n/a	5,597
Okaloosa	577	n/a	113	76	n/a	15	n/a	n/a	n/a	781
Orange	2,236	n/a	724	n/a	229	238	n/a	3,807	n/a	7,234
Osceola	4,126	n/a	679	n/a	159	n/a	n/a	6,567	n/a	11,531
Palm Beach	4,002	n/a	2,340	136	355	300	113	1,931	n/a	9,177
Pasco	5,176	n/a	627	97	420	n/a	n/a	1,674	241	8,235
Pinellas	1,420	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1,420
Polk	5,485	n/a	617	145	202	175	n/a	4,082	72	10,778
Putnam	1,577	n/a	187	n/a	159	n/a	n/a	2,217	n/a	4,140
Santa Rosa	1,265	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1,265
St Johns	3,096	n/a	629	n/a	418	157	315	2,290	n/a	6,905
St Lucie	1,628	n/a	431	125	97	164	329	2,536	n/a	5,310
Sarasota	4,484	n/a	1,364	291	357	150	207	474	328	7,655
Seminole	1,110	n/a	684	73	348	262	400	639	n/a	3,516
Sumter	1,402	n/a	n/a	n/a	397	n/a	n/a	n/a	n/a	1,799
Volusia	1,438	31	828	n/a	171	108	256	6,066	n/a	8,898
State Aver.	2,937	31	929	220	295	248	434	3,684	257	7,192

Source: Duncan Associates (August, 2007)

Step 1. Calculate the total cost of the facilities per student Using Equation 1.

Construction costs	$19,594,637
Furniture, equipment, etc. costs	1,449,614
PV of expected interest on loan	14,157,918
Total Cost	$35,202,169

Cost per Student = Cost of Educational Facilities/Student Capacity **(1)**

Cost per Student = $35,202,169/900 = $39,114

Step 2. Calculate the cost of the facilities per dwelling unit using Equation 2.

Cost per Dwelling Unit (DU) = Cost per Student x Students per DU **(2)**

Cost per DU = $39,114 x 0.42 = $16,428

Step 3. Calculate the estimated yearly costs for new schools using Equation 3.

Estimated yearly Costs for New Schools = Cost per DU x Number of New DUs per year **(3)**

Estimated Yearly Costs for New Schools = $16,428 x 1,492 = $24,510,576

Step 4. Compare the estimated yearly costs for new facilities ($24,510,576) to the estimated total school impact fees for 1,492 new DUs calculated as follows:

Total estimated yearly impact fees = 1,492 (new DUs) x $3,684 (av. Florida school impact fee) = $5,496,528

The estimated yearly costs for new schools ($24,510,576) clearly exceed the estimated school impact fees revenue.

Transportation Costs vs. Transportation Impact Fees in Destin, Florida

Unlike the analysis of school costs in Santa Rosa County vs. the average school impact fee in Florida completed above where the required data was available primarily through the Santa Rosa School Board, obtaining the data for the transportation costs in Destin would require extensive research and analysis, probably by an engineering firm or large consulting firm. In addition, whereas the calculations required for school costs are fairly straightforward, the calculations for transportation costs are much more complex and time consuming. Therefore, the methodology and results of the study conducted by Duncan Associates (July, 2007) are used to determine the costs of improving the roads, sidewalks and bike paths required by the planned growth in Destin.

The Duncan Associates study estimates that 3,513 single-family equivalent dwelling units (EDUs) in Destin will be added during the period 2006 – 2030. The study also estimates the total cost for improvements to the transportation infrastructure to be $16,518,861. Therefore, the cost per EDU is equal to the total estimated cost of the transportation infrastructure improvements ($16,518,861) divided by the total number of planned EDUs (3,513), which is equal to $4,702. The transportation cost per EDU in Destin is $4,702 which is much higher than Destin's current transportation impact fee of $471 and higher than the transportation impact fee recommended by the Duncan Associates study of $4,377. The calculated cost per EDU is also higher than the Florida average roads impact fee which is $2,937.

The estimated future costs of the transportation infrastructure in Destin clearly is higher than the estimated transportation impact fee revenues from Destin's current transportation impact fee, the new transportation impact fee estimated by the Duncan Associates study, and the average Florida roads impact fee.

CONCLUSION

Impact fees are used by counties, municipalities, school districts, and special districts to pay for the costs of additional infrastructure required as a result of new development. The highest cost impact fees are for schools and roads, however, impact fees in lower dollar amounts are also used for fire and police protection, government buildings, emergency medical services, correctional facilities, parks, libraries, and drainage. Impact fees have a wide appeal to geographical areas experiencing growth and 34 states in the U.S. currently have impact fees in force. Since attempting to determine if impact fees pay for the infrastructure costs required for the growth in single-family homes in all 34 states was beyond the capability of this study, Florida was used as a proxy for all 34 states because 41 out of 67 counties in Florida have impact fees, and Florida is one of the fastest growing states in the U.S. The analysis of cost vs. impact fees was limited to school impact fees and road impact fees since the dollar value of all other impact fees pales in comparison to the impact fees for schools and roads. The results indicate that the costs of the infrastructure for the roads and schools required by the estimated growth were significantly higher than the impact fees charged. There are two primary reasons for this finding. First, because of the decisions handed down from many court cases on impact fees in Florida, impact fees can only be used to supplement current funding for growth infrastructure. This means that counties and school districts that have a budget line item for capital development, or have a sales tax in force which must be used for roads or schools, must deduct these funding sources from the total costs of the infrastructure when calculating impact fees. The second, and probably the most important reason why estimated infrastructure costs are greater than impact fees is because county commissioners and school board members are overly influenced to keep impact fees low by developers and other real estate interests.

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