



Capital Improvements Element & Impact Fees

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CAPITAL IMPROVEMENTS ELEMENT

As required by the State of Georgia, the Capital Improvements Element (CIE) identifies demands placed upon public facilities by new development activity and proposes the means by which Effingham County will meet those demands.

Demand For Public Facilities From New Development

Tischler & Associates, Inc. (TA) calculated the demand for facilities using infrastructure standards or obtained capital improvement projects from planning documents such as utility master plans prepared by local engineering firms. Demand projections for the impact fee study are summarized in Figure 1. These projections were used to calculate the need for capital improvements and to estimate the likely revenue generated by impact fees. For a detailed discussion of the demographic data, please see Appendix A.

Figure 1 – Summary of Projections

Effingham County, Georgia		Year =>	1	2	3	4	5
		2004	2005	2006	2007	2008	2009
DEMAND PROJECTIONS (cumulative)							
P	POPULATION	44,392	46,106	47,820	49,534	51,249	52,963
H	HOUSEHOLDS	15,747	16,379	17,010	17,640	18,269	18,897
J	JOBS	7,926	8,267	8,621	8,992	9,378	9,780
PJ	POPULATION & JOBS	52,318	54,373	56,442	58,526	60,626	62,743
TVT	Total Avg Day Veh Trips	134,489	139,861	145,445	151,291	156,961	162,824
RT	Residential Units:	16,966	17,647	18,327	19,005	19,683	20,360
R1	Detached Units	15,948	16,588	17,227	17,865	18,502	19,138
R2	Attached Units	1,018	1,059	1,100	1,140	1,181	1,222
R3	Unincorp Detached	13,026	13,622	14,216	14,809	15,402	15,993
R4	Unincorp Attached	831	869	907	945	983	1,021
R5	Incorp Detached	2,921	2,966	3,011	3,056	3,100	3,145
R6	Incorp Attached	186	189	192	195	198	201
RVT	Res Avg Day Veh Trips	88,714	92,278	95,832	99,380	102,922	106,461
NRT	NRes Floor Area:	6,832	7,183	7,570	7,986	8,402	8,837
NR1	Goods Producing KSF	2,210	2,300	2,400	2,500	2,610	2,720
NR2	Service Producing KSF	1,130	1,170	1,220	1,280	1,330	1,390
NR3	Government KSF	2,490	2,600	2,710	2,830	2,950	3,070
NR4	Unincorp Goods KSF	663	740	825	910	1,003	1,097
NR5	Unincorp Services KSF	339	373	416	467	509	560
NRVT	NR Avg Day Veh Trips	45,775	47,583	49,613	51,912	54,038	56,362
DB1	ERU Utility Customers		520	1,061	1,623	2,208	2,816
DB6	ERU Wtr/Swr Avg MGD		0.16	0.32	0.49	0.66	0.84
DB10	Incorp Goods KSF	1,547	1,561	1,576	1,591	1,607	1,624
DB11	Incorp Services KSF	791	797	805	814	821	830

Proposed Means to Meet the Demand for Public Facilities

The demand for public facilities is a function of the projected demand units shown above and the infrastructure standards summarized in Figure 2. For each type of public facility addressed in this report, a relationship is established between infrastructure units and demand units. For example, Effingham County currently has 2.8 acres of improved parks per 1,000 persons. In the case of water and sewer utility systems, the need for infrastructure was determined by separate technical studies, such as the engineering master plans. The cost of various infrastructure items have been summarized as cost factors per demand unit (i.e., gallon of average day capacity). Documentation on specific system improvements is contained in the discussion of each type of public facility.

Figure 2 – Summary of Level Of Service Standards

Type of Public Facility	Amount	Infrastructure Units	Per Demand Unit
Parks	2.8	acres of improved parks	1,000 persons
Parks	0.63	sq ft of mjr rec facilities	person
Roads	2.4	arterial lane miles	10,000 VMT*
Public Safety	0.40	sq ft of jail	person
Public Safety	0.02	sq ft of jail	vehicle trip to nonres dev
Public Safety	0.17	equipment	1,000 persons
Public Safety	0.01	equipment	1,000 vehicle trips to nonres dev
Public Safety	0.36	sq ft of buildings	person
Public Safety	0.02	sq ft of buildings	vehicle trip to nonres dev
Water	\$6.67	system improvements	gallon of avg day capacity
Sewer	\$7.06	system improvements	gallon of avg day capacity

* Vehicle Miles of Travel

Service Areas

Effingham County’s CIE and impact fee study addresses the need for infrastructure only within the unincorporated area, except for public safety components of the jail and 911 service. The jail is county operated and serves the unincorporated area of the county and service is provided to the cities through a fee structure paid by the cities for use of the jail. The 911 service is provided to citizens in the unincorporated area and citizens within the cities. The population growth in the unincorporated area is far greater than the population growth in the cities. Therefore, the greater delivery of 911 services is to the unincorporated area. The service area for parks and roads is the entire unincorporated area. The service area for water and sewer infrastructure is limited to the southern portion of the County. There are unique service areas for the water and sewer systems as determined by separate engineering studies. Maps of the water and sewer service areas may be found in Appendix B.

Figure 3 summarizes the demand for growth-related system improvements over the next five years. Detailed information on specific capital improvements is contained in Effingham County’s Capital Improvements Plan and in the impact fee section of this report. Specific plans for capital improvements are discussed in Figures 13, 22, 30, 31, 37 and 43 (see the tables and related text). Pay-as-you-go expenditures total approximately \$13.99 million over the next five

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years. Effingham County will use debt financing for major capital projects, with estimated debt service payments shown at the bottom of Figure 3. Anticipated debt service payments will total approximately \$15.48 million over the next five years. Water and sewer loans are almost 80% of this amount.

Figure 3 – Schedule of Improvements

Effingham County, Georgia			Year =>	1	2	3	4	5		
			2004	2005	2006	2007	2008	2009		
Cumulative Facilities Needed										
C1	Park Land	acres	123	128	132	137	142	147		
C2	Park Improvements	acres	123	128	132	137	142	147		
C7	Pub Saf Jail - Res	sq ft	17,807	18,495	19,183	19,870	20,558	21,245		
C8	Pub Saf Jail - Nonres	sq ft	1,137	1,182	1,232	1,289	1,342	1,400		
C9	Pub Saf Equip - Res	count	8	8	8	8	9	9		
C10	Publ Saf Equip - Nonres	count	0	0	1	1	1	1		
Additional Facilities Needed									<i>Cumulative</i>	
C1	Park Land	acres		5	4	5	5	5	24	
C2	Park Improvements	acres		5	4	5	5	5	24	
C7	Pub Saf Jail - Res	sq ft		688	688	687	688	687	3,438	
C8	Pub Saf Jail - Nonres	sq ft		45	50	57	53	58	263	
C9	Pub Saf Equip - Res	count		0	0	0	1	0	1	
C10	Publ Saf Equip - Nonres	count		0	1	0	0	0	1	
Pay-Go Expenditures									<i>Cumulative</i>	
			1000 's of dollars							
C1	Park Land		\$100	\$80	\$100	\$100	\$100	\$100	\$480	
C2	Park Improvements		\$200	\$160	\$200	\$200	\$200	\$200	\$960	
C3	Road Capacity Projects		\$1,784	\$1,784	\$1,784	\$1,784	\$1,784	\$1,784	\$8,921	
C4	Public Safety Pay-Go Projects		\$0	\$0	\$0	\$0	\$145	\$145	\$145	
C5	Savannah Contract Obligation		\$468	\$487	\$506	\$527	\$547	\$547	\$2,534	
C7	Pub Saf Jail - Res		\$76	\$76	\$76	\$76	\$76	\$76	\$382	
C8	Pub Saf Jail - Nonres		\$5	\$6	\$6	\$6	\$6	\$6	\$29	
C9	Pub Saf Equip - Res		\$0	\$0	\$0	\$270	\$0	\$0	\$270	
C10	Publ Saf Equip - Nonres		\$0	\$270	\$0	\$0	\$0	\$0	\$270	
Total Pay-As-You-Go:			\$2,634	\$2,863	\$2,673	\$2,963	\$2,859	\$2,859	\$13,990	
Debt Service									<i>Cumulative</i>	
			1000 's of dollars							
1	Sewer System		\$901	\$901	\$901	\$901	\$1,842	\$1,842	\$5,444	
2	Water System		\$941	\$941	\$1,479	\$1,479	\$1,983	\$1,983	\$6,822	
3	Pub Saf Adm & Com		\$0	\$0	\$855	\$855	\$855	\$855	\$2,564	
4	Major Recreation Facilities		\$0	\$0	\$0	\$0	\$647	\$647	\$647	
Total Debt Obligations:			\$1,842	\$1,842	\$3,234	\$3,234	\$5,326	\$5,326	\$15,477	
SPLOST Obligations (excludes utility debt):			\$0	\$0	\$855	\$855	\$1,501	\$1,501	\$3,211	

Anticipated Funding Sources

Impact fee revenues are summarized in Figures 4A and 4B (maximum supportable and recommended fees, respectively). The revenue projections shown in Figure 4B are based on the Board of County Commissioners (BOCC) policy amounts for water and sewer fees and the Development Impact Fee Advisory Committee's recommended fee amounts for parks, roads and public safety.

Because each type of impact fee must be accounted for separately, TA provided cash flow summaries in the impact fee analysis for each type of public facility. Over the next five years, impact fees are expected to generate approximately \$17.8 million for funding growth-related system improvements (see Figure 4B). This revenue projection assumes implementation of the recommended fee amounts. Average annual impact fee revenue is projected to be approximately \$3.56 million per year.

For parks and public safety facilities, Effingham County anticipates bond financing of major capital improvements. Special Purpose Local Option Sales Tax (SPLOST) revenue will also be used to meet debt service obligations on these bonds. The impact fee methodologies include credits for SPLOST funding of system improvements.

Figure 4A – Projected Impact Fee Revenue Based On Maximum Fees

Effingham County, Georgia (Current \$ in thousands)	1 2005	2 2006	3 2007	4 2008	5 2009	Cumulative Total	Average Annual
REVENUES							
1 Subtotal Public Safety Fees	\$179	\$180	\$181	\$179	\$180	\$900	\$180
2 Subtotal Park Fees	\$291	\$290	\$290	\$289	\$289	\$1,450	\$290
3 Subtotal Water Fees	\$1,797	\$1,870	\$1,942	\$2,022	\$2,101	\$9,732	\$1,946
4 Subtotal Sewer Fees	\$1,360	\$1,415	\$1,470	\$1,530	\$1,591	\$7,367	\$1,473
5 Subtotal Road Fees	\$1,014	\$1,036	\$1,055	\$1,036	\$1,056	\$5,197	\$1,039
TOTAL FEE REVENUE	\$4,642	\$4,791	\$4,938	\$5,057	\$5,217	\$24,645	\$4,929

Figure 4B – Projected Impact Fee Revenue Based On Recommended Fees

Effingham County, Georgia (Current \$ in thousands)	1 2005	2 2006	3 2007	4 2008	5 2009	Cumulative Total	Average Annual
REVENUES							
1 Subtotal Public Safety Fees	\$123	\$123	\$124	\$123	\$123	\$616	\$123
2 Subtotal Park Fees	\$199	\$198	\$198	\$197	\$197	\$989	\$198
3 Subtotal Water Fees	\$1,040	\$1,082	\$1,124	\$1,170	\$1,216	\$5,632	\$1,126
4 Subtotal Sewer Fees	\$1,300	\$1,353	\$1,405	\$1,463	\$1,520	\$7,040	\$1,408
5 Subtotal Road Fees	\$692	\$706	\$719	\$707	\$720	\$3,544	\$709
TOTAL FEE REVENUE	\$3,353	\$3,462	\$3,570	\$3,659	\$3,777	\$17,822	\$3,564

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As shown in Figures 5A and 5B, the percentage of funding from impact fees varies significantly by type of public facility. Even if implemented at the recommended level, public safety impact fees only pay approximately 17% of the expected cost. Effingham County is planning major expenditures for a new Public Safety Complex and enhancements to the emergency communications system. Because these projects increase the level of service for both existing and future development, impact fees only provide partial funding. At the recommended level, impact fees will pay for 40% of the system improvements for roads and 47% for parks (see Figure 5B).

Effingham County is in a rather unique situation with the launch of water and sewer utility systems in the southern end of the county. The utilities will function as enterprise operations, totally funded by new customers. At the maximum supportable level, impact fees would cover the cost of system improvements. However, the Board of County Commissioners have set a water fee that is significantly less than the maximum supportable amount. Over the next five years, water impact fees are expected to fund approximately 60% of the anticipated cost of system improvements. If water or sewer impact fee revenue does not keep pace with debt service obligations, utility user charges will cover revenue shortfalls. In the short-term, sewer impact fee revenues slightly exceed debt obligations, but the minor surpluses will be depleted over time as the County seeks additional debt financing for future phases of the sewer system.

Figure 5A – Percentage of Costs Covered by Maximum Fees

	<i>Impact Fee Funding</i>
Public Safety	25%
Roads	58%
Parks	69%
Water	100%
Sewer (long-term)	100%

Figure 5B – Percentage of Costs Covered by Recommended Fees

	<i>Impact Fee Funding</i>
Public Safety	17%
Roads	40%
Parks	47%
Water	60%
Sewer (long-term)	100%

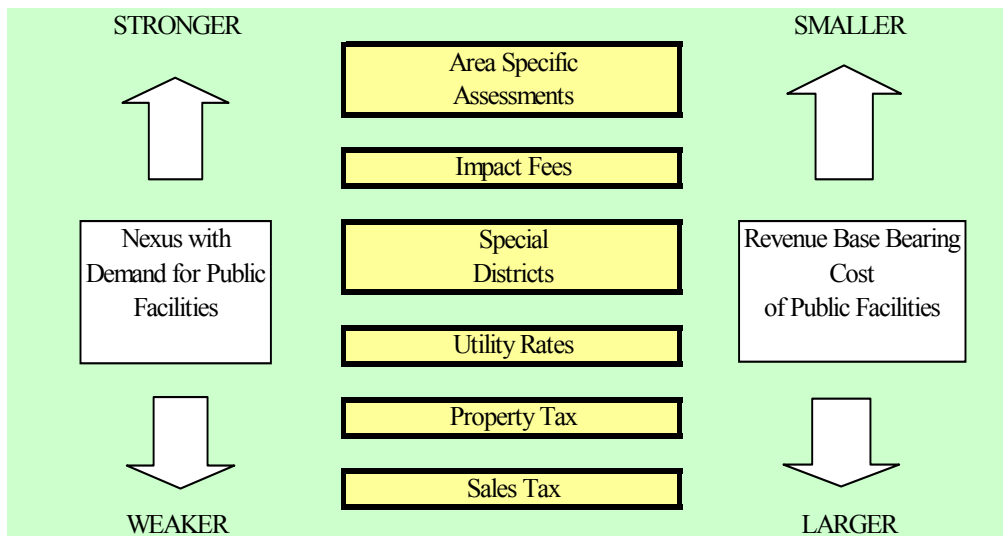
IMPACT FEE SUMMARY

Impact fees are one-time payments used to fund system improvements needed to accommodate development. As documented in this report, Effingham County has complied with all requirements of Georgia’s Development Impact Fees Act. The impact fees are proportionate and reasonably related to the capital facility service demands of new development. Specific costs have been identified using local data and current dollars. With input from Effingham County staff, Tischler & Associates, Inc. (TA) determined demand indicators for each type of public facility and calculated proportionate share factors to allocate costs by type of development. The formulas used to calculate the impact fees are diagrammed in a flow chart for each type of public facility. This report documents the specific factors used to derive the impact fees. Impact fee methodologies also identify the extent to which newly developed properties are entitled to various types of credits to avoid potential double payment of capital costs.

Why Impact Fees?

Infrastructure funding alternatives force decision-makers to wrestle with a dynamic tension between two competing desires. As shown on the left side of Figure 6, various funding options have a strong to weak connection between the source of funds and the demand for public facilities. It is unfortunate that the funding options with the closest nexus to the demand for public facilities also have the smallest revenue base to bear the cost of the public facilities (see the right side of the diagram). For example, only new utility customers pay impact fees. In contrast, all existing customers, plus the new customers that are added each year, pay water and sewer user charges. Therefore, the base of utility user charges continues to increase over time, but the increase in new development is relatively constant from year to year.

Figure 6 – Infrastructure Funding Alternatives

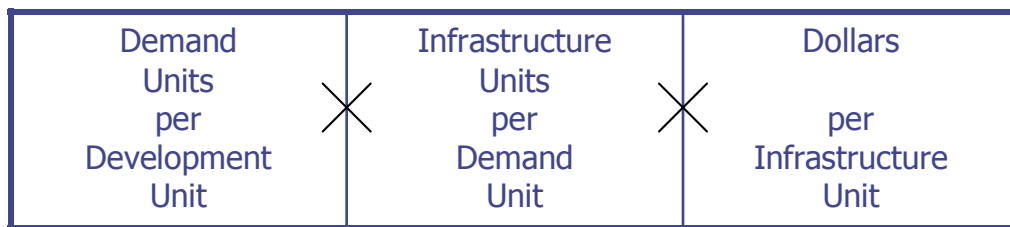


Source: Paul Tischler, Dwayne Guthrie and Nadejda Mishkovsky. 1999. Introduction to Infrastructure Financing. IQ Service Report, Vol. 31, No. 3. Washington, DC: International City/County Management Association.

In Effingham County, elected officials are considering a policy decision to change the funding source for certain types of infrastructure. If the County implements impact fees, it represents a policy decision to shift infrastructure funding from broad-based revenues (i.e., property and sales taxes) to revenues that have a stronger nexus between the fee payers and the demand for public facilities. As a dedicated revenue source, impact fees could provide significant funding for growth-related system improvements in Effingham County.

Basic Understanding of Impact Fees

In contrast to development exactions, which are typically referred to as project-level improvements, impact fees fund growth-related infrastructure that will benefit multiple development projects, or even the entire jurisdiction. The basic steps in a generic impact fee formula are illustrated below. The first step (see the left box) is to determine an appropriate demand indicator for the particular type of infrastructure. The demand indicator measures the number of demand units for each unit of development. For example, an appropriate indicator of the demand for parks is population growth and the increase in population can be estimated from the average number of persons per occupied housing unit. The second step in the generic impact fee formula is shown in the middle box below. Infrastructure units per demand unit are typically called Level-Of-Service (LOS) standards. In keeping with the park example, a common LOS standard is park acreage per thousand people. The third step in the generic impact fee formula, as illustrated in the right box, is the cost of various infrastructure units. To complete the park example, this part of the formula would establish the cost per acre for land acquisition.



When applied to specific types of infrastructure, the generic impact-fee formula is customized using three common impact fee methods that focus on different timeframes. The first method is the cost recovery method. To the extent that new growth and development is served by the previously constructed improvements, Effingham County may seek reimbursement for the previously incurred public facility costs. This method is used for facilities that have adequate capacity to accommodate new development, at least for the next five years. The rationale for the cost recovery approach is that new development is paying for its share of the useful life or remaining capacity of an existing facility. The second basic approach used to calculate impact fees is the incremental expansion cost method. This method documents the current LOS for each type of public facility in both quantitative and qualitative measures. Effingham County will use impact fee revenue to incrementally expand or provide additional facilities as needed to accommodate new development. A third impact fee approach is the plan-based method. This method is best suited for public facilities that have commonly accepted engineering/planning standards or specific improvement plans. Figure 7 summarizes the method(s) used to derive the impact fee for each type of public facility.

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Figure 7 – Fee Methods and Cost Components

Type of Fee	Cost Recovery (past)	Incremental Expansion (present)	Plan-Based (future)
Parks	Not applicable	Land for Parks and Park Improvements	Major Recreation Facilities
Roads	Not applicable	Arterial and Intersection Improvements	Not applicable
Public Safety	Not applicable	Jail and Fire Station Apparatus	911 Communications Center, Radio Tower, EMS and Sheriff Bldgs
Water System	36” Supply Line	Not applicable	Meter/Pump Stations, Water Storage and Mains
Sewer System	Not applicable	Not applicable	Conveyance, Treatment Plant and Reuse Lines

County Commissioners previously established target amounts for water and sewer impact fees during the fiscal evaluations of the new utility systems. The Board of County Commissioners policy amounts for water and sewer impact fees are shown in Figure 8A.

Figure 8A - Impact Fee Summary for Water and Sewer Systems

BOCC Policy Amounts		<i>Water</i>	<i>Sewer</i>	<i>TOTAL</i>
Residential		Per Housing Unit		
210 Detached Housing		\$2,000	\$2,500	\$4,500
221 Attached Housing		\$1,322	\$1,651	\$2,973
Nonresidential	Inches	Per Meter Size		
	0.75	\$2,000	\$2,500	\$4,500
	1.00	\$3,333	\$4,167	\$7,500
	1.50	\$6,667	\$8,333	\$15,000
	2.00	\$10,667	\$13,333	\$24,000
	3.00	\$21,333	\$26,667	\$48,000
	4.00	\$33,333	\$41,667	\$75,000

Figure 8B provides a schedule of maximum supportable impact fees (see upper box) and the impact fee schedule recommended by the Development Impact Fee Advisory Committee (see the lower box). The Committee recommended a cumulative impact fee for parks, roads and public safety facilities of \$1,500 for a detached housing unit. The fee amounts for all other development types were reduced proportionally to be consistent with the Committee’s recommended fee for detached housing.

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Figure 8B – Impact Fee Summary for Other Infrastructure

<i>Maximum Amounts</i>	<i>Parks</i>	<i>Roads</i>	<i>Public Safety</i>	<i>TOTAL</i>
Residential				
210 Detached Housing	\$469	\$1,449	\$281	\$2,199
221 Attached Housing	\$310	\$998	\$186	\$1,494
Nonresidential				
820 Commercial / Shop Ctr 25,000 SF or less		\$3.03	\$0.15	\$3.18
820 Commercial / Shop Ctr 25,001-100,000 SF		\$2.46	\$0.12	\$2.58
820 Commercial / Shop Ctr 100,001-400,000 SF		\$1.82	\$0.09	\$1.91
710 General Office 10,000 SF or less		\$1.76	\$0.07	\$1.83
710 General Office 10,001-25,000 SF		\$1.43	\$0.05	\$1.48
710 General Office 25,001-50,000 SF		\$1.22	\$0.04	\$1.26
720 Medical-Dental Office		\$2.81	\$0.11	\$2.92
610 Hospital		\$1.37	\$0.05	\$1.42
770 Business Park		\$0.99	\$0.04	\$1.03
110 Light Industrial		\$0.54	\$0.02	\$0.56
150 Warehousing		\$0.38	\$0.01	\$0.39
151 Mini-Warehouse*		\$0.19	\$0.00	\$0.19
Other Nonresidential				
320 Lodging (per room)		\$439	\$17	\$456
565 Day Care (per student)		\$349	\$14	\$363
620 Nursing Home (bed)		\$184	\$7	\$191

Development Impact Fee Advisory Committee Recommendation

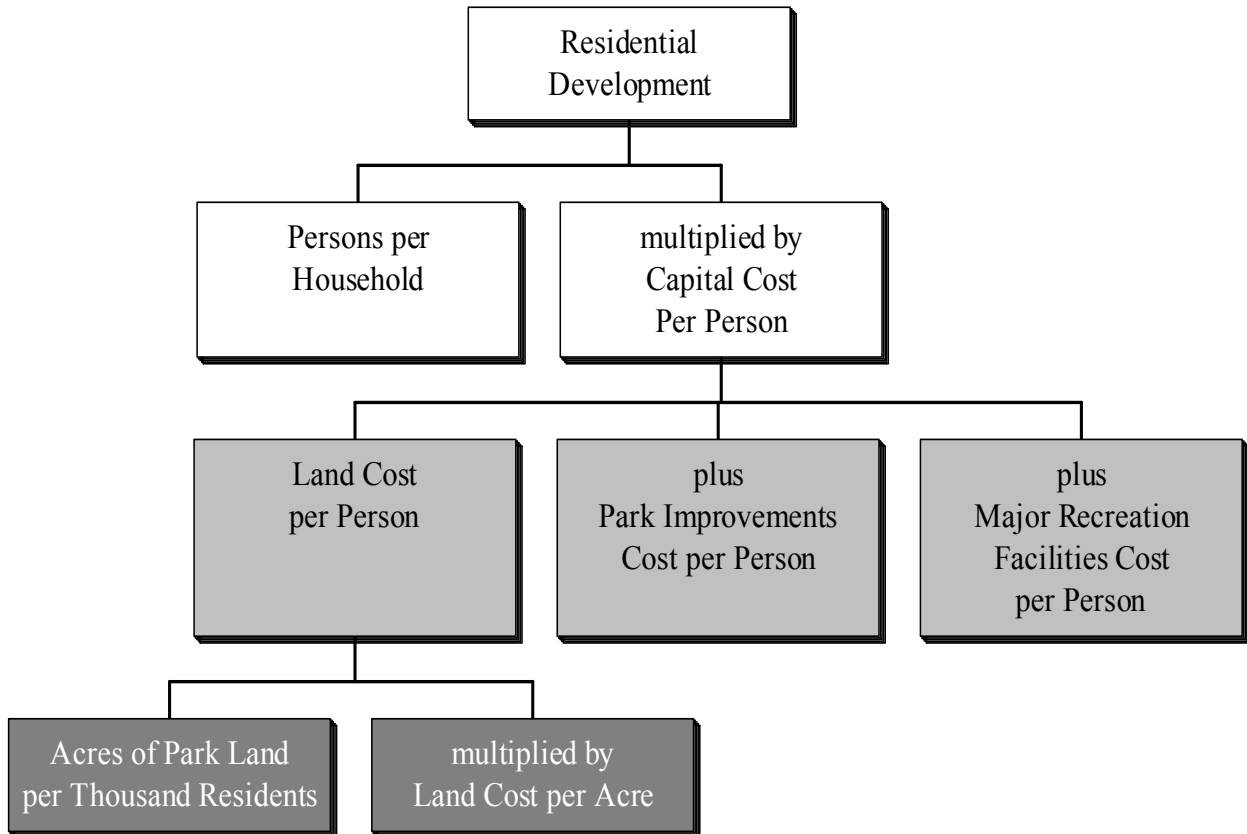
	<i>Parks</i>	<i>Roads</i>	<i>Public Safety</i>	<i>TOTAL</i>
Residential				
210 Detached Housing	\$320	\$988	\$192	\$1,500
221 Attached Housing	\$211	\$681	\$127	\$1,019
Nonresidential				
820 Commercial / Shop Ctr 25,000 SF or less		\$2.07	\$0.10	\$2.17
820 Commercial / Shop Ctr 25,001-100,000 SF		\$1.68	\$0.08	\$1.76
820 Commercial / Shop Ctr 100,001-400,000 SF		\$1.24	\$0.06	\$1.30
710 General Office 10,000 SF or less		\$1.20	\$0.05	\$1.25
710 General Office 10,001-25,000 SF		\$0.98	\$0.03	\$1.01
710 General Office 25,001-50,000 SF		\$0.83	\$0.03	\$0.86
720 Medical-Dental Office		\$1.92	\$0.08	\$2.00
610 Hospital		\$0.93	\$0.03	\$0.96
770 Business Park		\$0.68	\$0.03	\$0.71
110 Light Industrial		\$0.37	\$0.01	\$0.38
150 Warehousing		\$0.26	\$0.01	\$0.27
151 Mini-Warehouse*		\$0.13	\$0.00	\$0.13
Other Nonresidential				
320 Lodging (per room)		\$299	\$12	\$311
565 Day Care (per student)		\$238	\$10	\$248
620 Nursing Home (bed)		\$126	\$5	\$131

* Also used for churches without weekday school or day care functions.

PARKS

The park impact fee is derived using the incremental expansion cost method for traditional active parks and a plan-based component for major recreation facilities. The incremental expansion cost method documents the current Level Of Service (LOS) in both quantitative and qualitative measures. The park impact fee methodology is shown in Figure 9. Cost components were allocated 100% to residential development. The diagram is intended to read like an outline, with lower levels providing a more detailed breakdown of the impact fee components. The park impact fee is derived from the product of persons per household multiplied by the capital cost per person. The boxes in the next level down, with light-grey shading, indicate two cost components for land and improvements. The boxes with dark-grey shading indicate that the land cost per acre is based on a land standard and the cost per acre for a park site.

Figure 9 – Park Impact Fee Methodology Chart



Park Infrastructure Standards and Cost Factors

The incremental expansion cost of parks is based on an inventory of existing parks and actual expenditures on park improvements by Effingham County. As shown in Figure 10, the inventory of improvements represents an investment with a current cost of approximately \$4.97 million. Existing park improvements have an average cost of \$40,000 per acre, or \$112 per person. LOS standards are derived using countywide population.

With 123 acres of land for parks, the existing LOS standard is 2.8 acres of improved park per 1,000 residents. The 2004 population estimate is documented in Appendix A. Maximum supportable impact fees are based on a land cost of \$20,000 per acre. This cost factor was provided by County staff based on knowledge of recent land transactions within Effingham County. In combination, park sites and improvements have a total cost of \$60,000 per acre.

Figure 10 - Incremental Expansion Cost of Parks

<u>Park</u>	<u>Acreege</u>	Softball/ Baseball w Lights	Soccer/ Football	Tennis Ct/ Basketball w Lights	Pavilion	Playground Equipment	Concession & Rest Rooms	Miscellaneous Improvements*
Springfield Rec Complex	14.0	3	1			1	1	\$196,000
Pineora	20.0	4			2	1	1	\$280,000
Sandhill	65.0	5	3	2			1	\$910,000
McCall	5.6	2			1	1	1	\$78,400
Clyo	8.2	1		1	1	1		\$114,800
Baker (excluding lake)	10.2					1	1	\$142,800
TOTAL	123.0	15	4	3	4	5	5	Per Acre Cost
Unit Price		\$150,000	\$50,000	\$35,000	\$44,000	\$40,000	\$64,000	\$14,000
Cost of Improvements		\$2,250,000	\$200,000	\$105,000	\$176,000	\$200,000	\$320,000	\$1,722,000

Existing Level of Service Standards

Total Improvements	\$4,973,000
2004 Population (Total Effingham County)	44,392
Acres of Park Land per 1,000 Persons	2.8
Improvements Cost Per Acre	\$40,000
Improvements Cost Per Person	\$112

* These costs include items such as parking lots, lighting, landscaping and irrigation.

Cost of Miscellaneous Park Improvements

Numerous small capital expenditures are necessary during construction of a County park. Cost estimates for these miscellaneous improvements are documented in Figure 11. Given that the average size for the six parks listed above is approximately 20 acres, the miscellaneous costs were estimated for the development of a typical 20-acre park. Miscellaneous costs average \$14,000 per acre.

Figure 11 – Miscellaneous Cost Per Acre

<i>Item</i>	<i>Cost For A 20-Acre Site</i>
Clearing and Grading	\$30,000
Fencing	\$9,000
Parking	\$40,000
Security Lighting	\$25,000
Sod/Irrigation	\$20,000
Survey/Engineering	\$25,000
Tables/Benches/Trash Containers	\$17,000
Trails/Sidewalks	\$35,000
Trees/Landscaping	\$30,000
Utilities (water, sewer, electric)	\$50,000
Total	\$281,000
Average Per Acre (rounded)	\$14,000

Major Recreation Facilities

Effingham County currently has an all-purpose room at the Springfield Recreation Complex and a community center in Clio. As shown in Figure 12, planned capital improvements include another community center in Sandhill plus construction of a Sports Center. The major recreation facilities will be designed to accommodate the projected population in 2013, which equates to a plan-based cost component of \$50 per person. By using the projected population in 2013 to establish the LOS standard, existing and new development shares the same infrastructure standard of 0.63 square feet of major recreation facilities per person.

Figure 12 – Plan-Based Cost of Major Recreation Facilities

<i>Facility</i>	<i>Square Feet</i>	<i>County Cost</i>	<i>Cost Per Sq Ft</i>
Springfield Rec Complex All-Purpose Room	2,600	\$60,000	\$23
Clio Community Center	5,000	\$175,000	\$35
Future Community Center in Sandhill	5,000	\$300,000	\$60
Future Sports Center	25,000	\$2,500,000	\$100
TOTAL	37,600	\$3,035,000	\$81
Countywide Population in 2013		59,820	
Square Feet Per Person		0.63	
Capital Cost Per Person		\$50	

Projected Needed for System Improvements

A summary of growth-related needs for parks is shown in Figure 13. The need for additional parkland and improvements is derived from the LOS standards and the projected increase in population over the next five years. To accommodate new residential development over the next five years, Effingham County will spend \$960,000 on park improvements. Over the next five years, the County will acquire at least 24 acres of parkland, at a projected cost of \$480,000. Top priority for land acquisition is expansion of the Springfield Recreation Complex. The County anticipates bond financing major recreation facilities over five years with payments made from SPLOST revenue. The first debt service payment of \$647,000 for major recreation facilities is anticipated to occur in 2009.

Figure 13 – Park Infrastructure Needs

Effingham County, Georgia	Year =>	1	2	3	4	5			
	2004	2005	2006	2007	2008	2009			
Cumulative Facilities Needed									
C1	Park Land	acres	123	128	132	137	142	147	
C2	Park Improvements	acres	123	128	132	137	142	147	
Additional Facilities Needed									
C1	Park Land	acres		5	4	5	5	5	<i>Cumulative</i>
C2	Park Improvements	acres		5	4	5	5	5	24
Pay-Go Expenditures									
			1000 's of dollars					<i>Cumulative</i>	
C1	Park Land		\$100	\$80	\$100	\$100	\$100	\$100	\$480
C2	Park Improvements		\$200	\$160	\$200	\$200	\$200	\$200	\$960
Debt Service									
			1000 's of dollars						
5	Major Recreation Facilities		\$0	\$0	\$0	\$0	\$647	\$647	

SPLOST Revenue Credit

Georgia’s Development Impact Fee Act requires credit for the present value of revenues that are anticipated to be available to pay for system improvements [see OCGA 36-71-4(r)]. The present value of estimated principal payments per capita is shown in Figure 14. The revenue credit of \$43 is subtracted from the major recreation facilities cost factor of \$50 per person, to yield a net cost of \$7 per person.

Figure 14 – Principal Payment Credit for Major Recreation Facilities

<i>FY</i>	<i>Principal Payment</i>	<i>Projected Population</i>	<i>Principal Payment Per Person</i>
2008-09	\$506,729	52,963	\$9.57
2009-10	\$532,066	54,677	\$9.73
2010-11	\$558,669	56,391	\$9.91
2011-12	\$586,603	58,105	\$10.10
2012-13	\$615,933	59,820	\$10.30
		Total	\$49.60
		Discount Rate	5.00%
		Present Value	\$42.87

Park Fee Calculations

Standards used in the calculation of park impact fees are shown in the boxed area of Figure 15. The park impact fee is the product of persons per household multiplied by the net capital cost per person, reduced by 7.2% to account for vacant residential units in Effingham County. For example, the fee for detached housing units is 2.89 x 175 x 0.928, or \$469 per housing unit.

Figure 15 - Park Impact Fee Schedule

	<i>Standards:</i>
<i>Persons Per Household</i>	
Detached Housing	2.89
Attached Housing	1.91
<i>Level Of Service</i>	
Park Acreage per 1,000 People	2.8
Park Land Cost per Acre	\$20,000
Park Land Cost per Person	\$56
Park Improvements Cost per Person	\$112
Major Recreation Facilities Cost Per Person	\$50
Major Recreation Facilities Credit Per Person	(\$43)
Net Capital Cost Per Person	<u>\$175</u>
Residential Vacancy Rate	<u>7.2%</u>
<i>Maximum Supportable Impact Fee per Housing Unit</i>	
Detached Housing	\$469
Attached Housing	\$310

Anticipated Funding Sources for Park Facilities

As shown in Figure 16, Effingham County should receive \$289,000 annually in park impact fee revenue, if the maximum supportable fee schedule is imposed solely on new houses constructed in the unincorporated area.

In comparison, growth-related park expenditures average \$646,000 annually over the next nine years. In the table below, annual data are calculated for years 6-8 but hidden from view to enable the table to be printed on one page. Revenues exceed costs because of debt service for major recreation facilities. The cash flow analysis assumes Effingham County will construct the future Sport Center and Sandhill Community Center in 2009, at a combined cost of \$2.8 million. If this amount is bond financed over five years at 5% annual interest, the projected debt service payments are \$647,000 per year. Effingham County will use SPLOST revenue to cover the anticipated annual deficits that begin in 2009 and end in 2013.

The cash flow summary provides an indication of the impact fee revenue and expenditures necessary to meet the growth-related demand for park and recreation facilities. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs. See Appendix A for discussion of the development projections that drive the cash flow analysis.

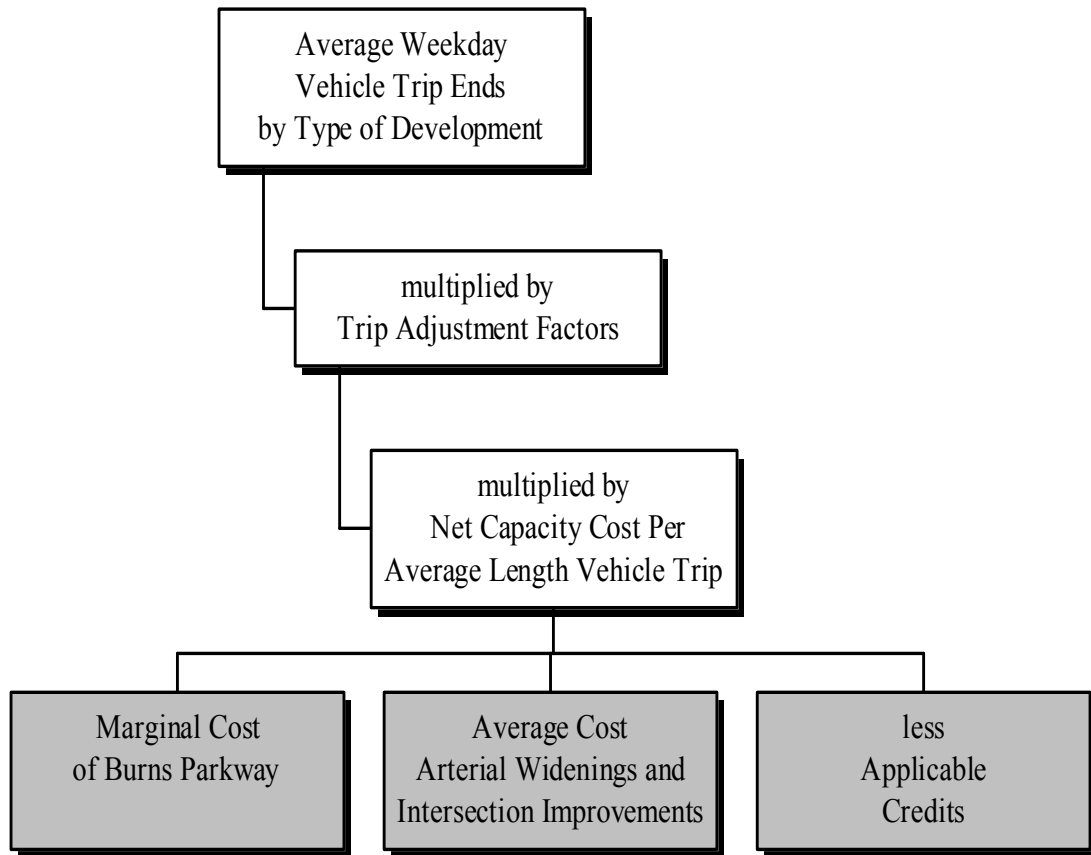
Figure 16 – Projected Cash Flow for Parks

Effingham County, Georgia (Current \$ in thousands)	1 2005	2 2006	3 2007	4 2008	5 2009	9 2013	Cumulative Total	Average Annual
REVENUES								
13 Park Fee - Detached H	\$279	\$279	\$278	\$278	\$277	\$277	\$2,500	\$278
14 Park Fee - Attached Hs	\$12	\$12	\$12	\$12	\$12	\$12	\$105	\$12
Subtotal Park Fees	\$291	\$290	\$290	\$289	\$289	\$289	\$2,605	\$289
CAPITAL COSTS								
Land for Parks	\$100	\$80	\$100	\$100	\$100	\$100	\$860	\$96
Park Improvements	\$200	\$160	\$200	\$200	\$200	\$200	\$1,720	\$191
Mjr Rec Fac Debt Service	\$0	\$0	\$0	\$0	\$647	\$647	\$3,234	\$359
Subtotal Parks & Rec Costs	\$300	\$240	\$300	\$300	\$947	\$947	\$5,814	\$646
NET CAPITAL FACILITIES CASH FLOW - Parks							<i>Current \$ in thousands</i>	
Annual Surplus (or Deficit)	(\$9)	\$50	(\$10)	(\$11)	(\$658)	(\$658)	(\$3,208)	(\$356)
Cumulative Surplus (or Deficit)	(\$9)	\$42	\$32	\$21	(\$636)	(\$3,208)		

ROADS

As shown in Figure 17, trip generation rates by type of development are multiplied by the net capital cost per unit of trip capacity (i.e., an average weekday vehicle trip) to yield the road impact fees. The incremental expansion cost methodology includes adjustments for commuting patterns, pass-by trips and average trip length variation by type of land use. The diagram below reads like an outline, with lower levels providing a more detailed breakdown of the impact fee components. For example, the capital cost of roads is based on two components. The first is the estimated cost of Burns Parkway, which only includes Rights-Of-Way (ROW) and engineering costs. This new major arterial road will run basically parallel to State Highway 21 and provide an alternative route for travel to I-95 and Savannah. The second cost component is for widening several existing arterials, plus intersection improvements that will enhance the carrying capacity of the County’s arterial road network.

Figure 17 - Road Fee Methodology Chart



Trip Generation

Trip generation rates are from the reference book Trip Generation (Institute of Transportation Engineers, 2003). The Effingham County road impact fees are based on average weekday vehicle trip ends. A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate road impact fees, trip generation rates are adjusted to avoid double counting each trip at both the origin and

destination points. Therefore, the basic trip adjustment factor is 50%. As discussed further below, the impact fee methodology includes additional adjustments to make the fees proportionate the infrastructure demand for particular types of development.

Adjustment for Journey-To-Work Commuting

Residential development has a larger trip adjustment factor of 60% to account for commuters leaving Effingham County for work. According to the Nationwide Personal Transportation Study (see Table 28, Federal Highway Administration, 1999) home-based work trips are typically 32% of production trips (i.e., all out-bound trips, which are 50% of all trip ends). Also, U.S. Census 2000 data from Table P26 in Summary File 3 indicates that 62% of Effingham’s workers travel outside the County for work. In combination, these factors (0.32 x 0.50 x 0.62 = 0.10) support the higher allocation of trips to residential development.

Adjustment for Pass-By Trips

Data contained in the book Trip Generation (see Table VII-1 of the 5th edition, 1991) indicates an inverse relationship between shopping center size and pass-by trips. Therefore, appropriate trip adjustment factors have been calculated according to shopping center size (see Figure 18). For commercial / shopping center development, the trip adjustment factor is less than 50% because retail uses attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For a small-size shopping center of 50,000 square feet of floor area, the ITE manual indicates that on average 48% of the vehicles that enter are passing by on their way to some other primary destination. The remaining 52% of attraction trips have the shopping center as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 52% multiplied by 50%, or approximately 26% of the trip ends.

Figure 18 – Commercial Trip Rates and Adjustment Factors

Floor Area (thousands)	Shp Ctr Pass-by Trips*	Shp Ctr Trip Adj Factor	Weekday - 2003 Data			
			<i>Shopping Centers</i> (ITE 820)		<i>General Office</i> (ITE 710)	
			Trip Ends	Rate/KSF	Trip Ends	Rate/KSF
10	69.41%	15%	1,520	152.03	227	22.66
25	56.46%	22%	2,758	110.32	459	18.35
50	48.29%	26%	4,328	86.56	782	15.65
100	41.31%	29%	6,791	67.91	1,334	13.34
200	35.33%	32%	10,656	53.28	2,275	11.37
400	30.22%	35%	16,722	41.80	3,879	9.70

Source: Trip Generation, Institute of Transportation Engineers, 2003.

* Based on the ITE data in Table VII-1 of the 5th edition of Trip Generation, the best trendline correlation between pass-by trips and floor area is a power curve. The equation used to derive the pass-by trip percentage is $116.63 \times (KSF^{-0.2254})$.

Vehicle Miles of Travel

Vehicle Miles of Travel (VMT) is the product of the number of vehicle trips multiplied by the average trip length. Intermediate steps in deriving the average trip length include documentation of the lane-mile network (i.e., travel lanes measured in miles) and defining lane capacity. These factors are discussed below.

Arterial Lane Miles

An inventory of roads in Effingham County is shown in Figure 19. System improvements for the purpose of impact fees are defined as arterials roads that are the responsibility of Effingham County. All County arterials currently have two travel lanes, thus the number of lane miles is double the linear mileage, or 147.4 lane miles.

Figure 19 – Road Inventory

<i>Classification</i>	<i>Miles</i>	<i>Lane Miles</i>
Federal Interstate	6.8	
State Routes	121.9	
Arterial Roads	73.7	147.4
Collector Roads	130.3	
Local Roads	511.8	
TOTAL	844.4	

Source: Effingham County GIS Project Manager.

Lane Capacity

The road impact fees are based on a lane capacity standard of 4,100 vehicles per lane, obtained from the Florida Department of Transportation Highway Capacity Manual. This lane capacity is from Table 4-2, which provides generalized annual average daily volumes for areas transitioning into urban areas. For non-state roadways, a four-lane divided roadway operating at LOS “C” has an estimated capacity of 16,400 vehicles, or 4,100 vehicles per lane.

Average Trip Length

The average trip is determined through a series of iterations using spreadsheet software because the VMT calculations include the same adjustment factors used in the impact fee calculations (i.e., residential commuting adjustment, commercial pass-by adjustment and average trip length adjustment by type of land use, as discussed below). Knowing current vehicle trips, lane-miles currently accommodating the existing travel and lane capacity, it is possible to derive the average trip length. TA determined the average trip length on County arterials to be approximately 4.2 miles. The basic formula for calculating the average trip length is to multiply the lane miles by the capacity and divide by the number of vehicle trips (discussed below).

Trip Length Adjustment by Land Use

The road impact fee methodology includes a percentage adjustment to account for trip length variation by type of land use. As documented in Table 5 of the National Personal Transportation Survey (NPTS) published by the Federal Highway Administration in 1999, vehicle trips from residential development are approximately 127% of the average trip length. The residential trip

length adjustment factor includes data on home-based work trips, social and recreational purposes. Conversely, shopping trips associated with commercial development are roughly 62% of the average trip length while other nonresidential development typically accounts for trips that are 76% of the average trip length.

Vehicle Travel Demand from Development in Effingham County

The relationship between development units in Effingham County (over the next six years) and travel demand is documented in the following two tables. Figure 20 summarizes all of the input variables discussed above. The variables at the top of the table (with green shading) are ITE trip rates and adjustment factors. The variables in the middle of the table (with light blue shading) are Census and NPTS data (see the residential commuting adjustment and the average trip length adjustments by type of land use). The variables at the bottom of the table (with yellow shading) have already been discussed, except for the County cost factor of \$282,000 per lane mile. This cost factor is based on planned improvements by Effingham County, as documented in the road improvements plan (see Figure 22).

Figure 20 – Input Variables for Arterial Street Needs Analysis

Detached Weekday VTE per Unit	9.57
Attached Weekday VTE per Unit	6.59
Goods Production VTE/KSF	4.96
Services Weekday VTE/KSF	67.91
Gov Weekday VTE/KSF	14.49
Services Trip Adj Factor	29%
All Other Nonres Trip Adj	50%
Residential Vacancy Rate	7.2%
Residential Trip Adj Factor	60%
Residential Trip Length	127%
Commercial Trip Length	62%
Other Nonres Trip Length	76%
First Projection Year	2005
Arterial Capacity Per Lane	4,100
Arterial Avg Miles/Trip	4.19
Cost per Lane-Mile	\$282,000

Development projections are multiplied by the input variables from the previous table to yield average weekday travel demand on County arterial streets. Demographic data shown at the top of Figure 21 are discussed further in Appendix A. Trip generation rates and trip adjustment factors convert projected development into average weekday vehicle trips, shown with grey shading. For example, in the year 2010 the projected 19,774 detached housing units will produce 105,367 weekday trips, which is about 62% of the total vehicle trips on County arterial streets (i.e., 168,854 in 2010).

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Figure 21 – Street Capacity Needs

Year->	Base	1	2	3	4	5	6	Cumulative
Effingham Co., GA	2004	2005	2006	2007	2008	2009	2010	Increase
DEMAND DATA								
DETACHED UNITS	15,948	16,588	17,227	17,865	18,502	19,138	19,774	
ATTACHED UNITS	1,018	1,059	1,100	1,140	1,181	1,222	1,262	
GOODS KSF	2,210	2,300	2,400	2,500	2,610	2,720	2,840	
SERVICES KSF	1,130	1,170	1,220	1,280	1,330	1,390	1,450	
GOV KSF	2,490	2,600	2,710	2,830	2,950	3,070	3,210	
DETACHED TRIPS	84,979	88,393	91,797	95,195	98,589	101,979	105,367	
ATTACHED TRIPS	3,735	3,885	4,035	4,184	4,333	4,482	4,631	
GOODS TRIPS	5,481	5,704	5,952	6,200	6,473	6,746	7,043	
SERVICES TRIPS	22,254	23,042	24,027	25,208	26,193	27,375	28,556	
GOV TRIPS	18,040	18,837	19,634	20,503	21,373	22,242	23,256	
TOTAL TRIPS	134,489	139,861	145,445	151,291	156,961	162,824	168,854	
ARTERIAL VMT	604,208	628,445	653,220	678,700	703,723	729,238	755,279	
ARTERIAL LN MI	147.4	153.3	159.3	165.5	171.6	177.9	184.2	36.8
ANL ARTERIAL LN MI		5.9	6.0	6.2	6.1	6.3	6.3	
ANL CAPACITY COST		\$1,700,000	\$1,700,000	\$1,700,000	\$1,700,000	\$1,800,000	\$1,800,000	\$10,400,000
LN MI PER 10,000 VMT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	

Arterial Road Infrastructure Standard

As shown at the bottom of Figure 21 above, Effingham County’s current standard for arterial roads is 2.4 lane miles per 10,000 vehicle miles of travel. In order to maintain its current standard, the arterial road network will need to expand from 147.4 lane miles in 2004, to 184.2 lane mile in 2010. Anticipated travel demand will require an increase of approximately 6.1 arterial road lane miles each year.

Projected Need for System Improvements

Figure 22 summarizes the cost of system improvements that will be needed to accommodate the projected, countywide increase in traffic over the next six years. The first three line items are for Burns Parkway ROW and engineering costs, from the southern county border to Hwy 119. Construction costs for Burns Parkway will be funded by Georgia Department of Transportation. The State is requesting 200 feet of ROW along the entire 12.3 miles of Burns Parkway. For the purpose of impact fees, the County’s current standard for collector road ROW (i.e., 80 feet) will be considered the upper limit for project level improvements. ROW dedications greater than 80 feet will be considered system improvements that will be eligible for site-specific impact fee credits or developer reimbursement agreements.

Because this major arterial would not be constructed if Effingham County were to stop growing, the cost of ROW and engineering is allocated to the net increase in vehicle trips from 2004 to 2010. Construction will begin with the southern section of the road in 2005. The northern section of Buns Parkway will begin construction in 2006.

In the table below, line items 4-11 are improvements to existing arterials and intersections in Effingham County. These road projects will be constructed with pay-as-you-go funding. The

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average cost allocation to the projected total vehicle trips in 2010 ensures new development will only pay for its proportionate share of the pay-go projects.

Figure 22 – Road Improvements Plan

#	Location	From	To	Lanes 2004	Lanes 2010	Miles	Lane-Mile Increase	County's Cost
Marginal Cost Allocation								
1	Burns Parkway ROW	County Line	Little McCall	0	4	5.0	20.0	\$1,455,000
2	Burns Parkway ROW	Little McCall	Hwy 119	0	2	7.3	14.6	\$2,124,000
3	Burns Parkway Engineering (15% of \$28 million)							\$4,200,000
						Subtotal	34.6	\$7,779,000
						Net Increase in Total County Average Weekday VMT from 2004 to 2010		151,071
						Capacity Cost Per VMT		\$51
Average Cost Allocation								
4	Goshen Road	Burns Pkwy	Hodgeville Rd	2	4	1.7	3.4	\$769,402
5	Hodgeville Rd	County Line	Goshen Rd	2	2	1.9	0.0	\$677,982
6	Goshen Road	Hwy 21	Burns Pkwy	2	2	2.0	0.0	\$354,162
7	Hwy 21 & Ebenezer Rd Intersection							\$200,000
8	Hwy 21 & McCall Rd (Springfield Intersection)							\$475,000
9	Hwy 21 & McCall Rd (Rincon Intersection)							\$200,000
10	Hwy 30 & Kolic Helmley Intersection							\$125,000
11	Hwy 80 & Old River Rd Intersection							\$125,000
						Subtotal	3.4	\$2,926,546
						Total County Average Weekday VMT in 2010		755,279
						Capacity Cost Per VMT		\$3
						Total	38.0	\$10,705,546
						Cost Per Lane Mile (rounded)		\$282,000
						Total Cost Per VMT		\$54

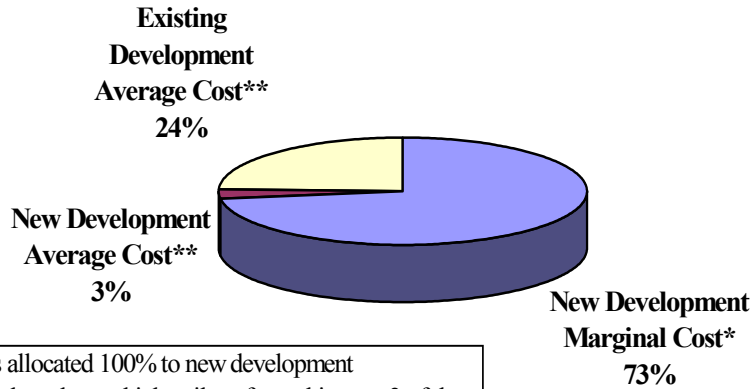
Source: Effingham County Capital Improvements Plan, 5/03.

Cost Allocation Considerations

Reasonably allocating the cost of transportation system improvements requires consideration of several transportation planning challenges. Because road networks are “open” systems, expanded capacity is quickly absorbed by driver adaptations. For example, drivers may change their route of travel, departure times and even mode (i.e., automobile, bicycle, walking or transit) to take advantage of road improvements. Given the fact that existing development will benefit from planned improvements, along with the legislative mandate that impact fees may not be used to correct existing deficiencies, road impact fees use a conservative approach whereby 24% of the cost for road improvements has been attributed to existing development. As shown in Figure 23, approximately 76% of the cost of system improvements is directly attributable to new development.

Figure 23 – Transportation Plan Cost Allocation

	<i>Estimated Cost</i>
	<i>(in millions)</i>
New Development Marginal Cost*	\$7.78
New Development Average Cost**	\$0.32
Existing Development Average Cost**	\$2.60
TOTAL	\$10.71



* Cost of projects allocated 100% to new development
 ** Cost allocation based on vehicle miles of travel in year 3 of the six-year improvements plan. Existing development's share is approximately \$430,000 per year.

Credit Evaluation

A credit for future revenue is only necessary if there is potential double payment for capacity projects needed to accommodate new development. Because road impact fees will only cover a portion of the cost of planned improvements, Effingham County will also use Special Purpose Local Option Sales Tax (SPLOST) revenue to fund system improvements. As shown in Figure 24, existing development’s CIE cost is divided by average weekday vehicle trips to yield an annual credit per vehicle trip. A present value adjustment accounts for the time-value of the future payments, funded by SPLOST revenue. The discounted revenue credit per trip will lower the impact fees to avoid potential double payment for system improvements by new development.

Figure 24 – SPLOST Revenue Credit

<i>Year</i>	<i>Existing Development's CIE Cost</i>	<i>Avg Weekday Vehicle Trips</i>	<i>Credit Per Trip</i>
2005	\$434,000	139,861	\$3.10
2006	\$434,000	145,445	\$2.98
2007	\$434,000	151,291	\$2.87
2008	\$434,000	156,961	\$2.77
2009	\$434,000	162,824	\$2.67
2010	\$434,000	168,854	\$2.57
TOTAL	\$2,604,000		\$16.96
		Discount Rate	5.00%
		Present Value	\$14.42

Road Impact Fee Input Variables

Factors used to derive the road impact fees are shown in Figure 25. Impact fees for nonresidential development are typically based on floor area. However, the impact fees for few types of nonresidential development have unique demand units. For example, impact fees for lodging are based on the number of rooms and fees for day care facilities are based on the number of students. The fee categories listed below should cover common development types. For unique development types not represented by any of the categories listed, Effingham County may allow, or require, trip generation estimates to be provided by a licensed professional traffic engineer or certified planner.

Capital cost for the average length trip is derived from level-of-service components shown near the bottom of Figure 25. The capital cost for the average length trip is the product of the average trip length multiplied by the trip length adjustment factor and the capital cost per vehicle mile of travel. For example, the capital cost for the average length trip from residential development is 4.19 miles, multiplied by 1.27, multiplied by \$54, or \$287 per trip.

EFFINGHAM COUNTY CIE & IMPACT FEES

Figure 25 – Road Fee Input Variables

ITE Code	Residential	Commercial / Shopping Ctrs	Other Nonresidential
Weekday Vehicle Trip Ends			
<u>Residential (per Housing Unit)</u>			
210 Detached Housing	9.57		
221 Attached Housing	6.59		
<u>Nonresidential (per 1,000 Square Feet of Floor Area)</u>			
820 Commercial / Shop Ctr 25,000 SF or less		110.32	
820 Commercial / Shop Ctr 25,001-100,000 SF		67.91	
820 Commercial / Shop Ctr 100,001-400,000 SF		41.80	
710 General Office 10,000 SF or less			22.66
710 General Office 10,001-25,000 SF			18.35
710 General Office 25,001-50,000 SF			15.65
720 Medical-Dental Office			36.13
610 Hospital			17.57
770 Business Park			12.76
110 Light Industrial			6.97
150 Warehousing			4.96
151 Mini-Warehouse*			2.50
<u>Other Nonresidential</u>			
320 Lodging (per room)			5.63
565 Day Care (per student)			4.48
620 Nursing Home (bed)			2.37
Trip Adjustment Factors	60%		50%
Commercial / Shop Ctr 25,000 SF or less		22%	
Commercial / Shop Ctr 25,001-100,000 SF		29%	
Commercial / Shop Ctr 100,001-400,000 SF		35%	
Level Of Service			
Average Trip Length (miles)	4.19	4.19	4.19
Average Trip Length Adjustment	127%	62%	76%
Cost Per VMT	\$54	\$54	\$54
Capacity Cost for Avg Length Trip	\$287	\$140	\$171
Revenue Credit Per Trip	(\$15)	(\$15)	(\$15)
Net Capital Cost Per Trip	\$272	\$125	\$156
Residential Vacancy Rate	7.2%		

Maximum Supportable Road Impact Fees

The input variables discussed above were used to derive the maximum supportable impact fees shown in Figure 26. For example, the development impact fee for a single-family detached house is the product of the trip generation rate (9.57), multiplied by the residential commuting pattern adjustment factor (0.60), multiplied by the net capital cost per trip (\$272), multiplied by the residential occupancy rate (1 - 0.072 = 0.928) which equates to \$1,449 per housing unit.

Figure 26 - Road Impact Fee Schedule

<i>Maximum Supportable Road Impact Fee</i>	Residential	Commercial / Shopping Ctrs	Other Nonresidential
<u>Residential (per housing unit)</u>			
210 Detached Housing	\$1,449		
221 Attached Housing	\$998		
<u>Nonresidential Per Square Foot of Floor Area</u>			
820 Commercial / Shop Ctr 25,000 SF or less		\$3.03	
820 Commercial / Shop Ctr 25,001-100,000 SF		\$2.46	
820 Commercial / Shop Ctr 100,001-400,000 SF		\$1.82	
710 General Office 10,000 SF or less			\$1.76
710 General Office 10,001-25,000 SF			\$1.43
710 General Office 25,001-50,000 SF			\$1.22
720 Medical-Dental Office			\$2.81
610 Hospital			\$1.37
770 Business Park			\$0.99
110 Light Industrial			\$0.54
150 Warehousing			\$0.38
151 Mini-Warehouse*			\$0.19
<u>Other Nonresidential</u>			
310 Lodging (per room)			\$439
565 Day Care (per student)			\$349
620 Nursing Home (bed)			\$184

* Also used for churches without weekday school or day care functions.

Projected Cash Flow for Roads

As shown in Figure 27, road impact fee revenue averages \$1.04 million per year over the six-year time frame used in the cash flow analysis. Over the next six years, road capacity projects will have an average cost of \$1.78 million per year. If necessary, funds may be accumulated for several years in order to construct a major project. Annual deficits will require SPLOST revenue to adequately fund the County’s road plan.

The cash flow summary provides an indication of the impact fee revenue and expenditures necessary to meet the demand for arterial road system improvements. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs. See Appendix A for discussion of the development projections that drive the cash flow analysis.

Figure 27 – Cash Flow Summary for Transportation

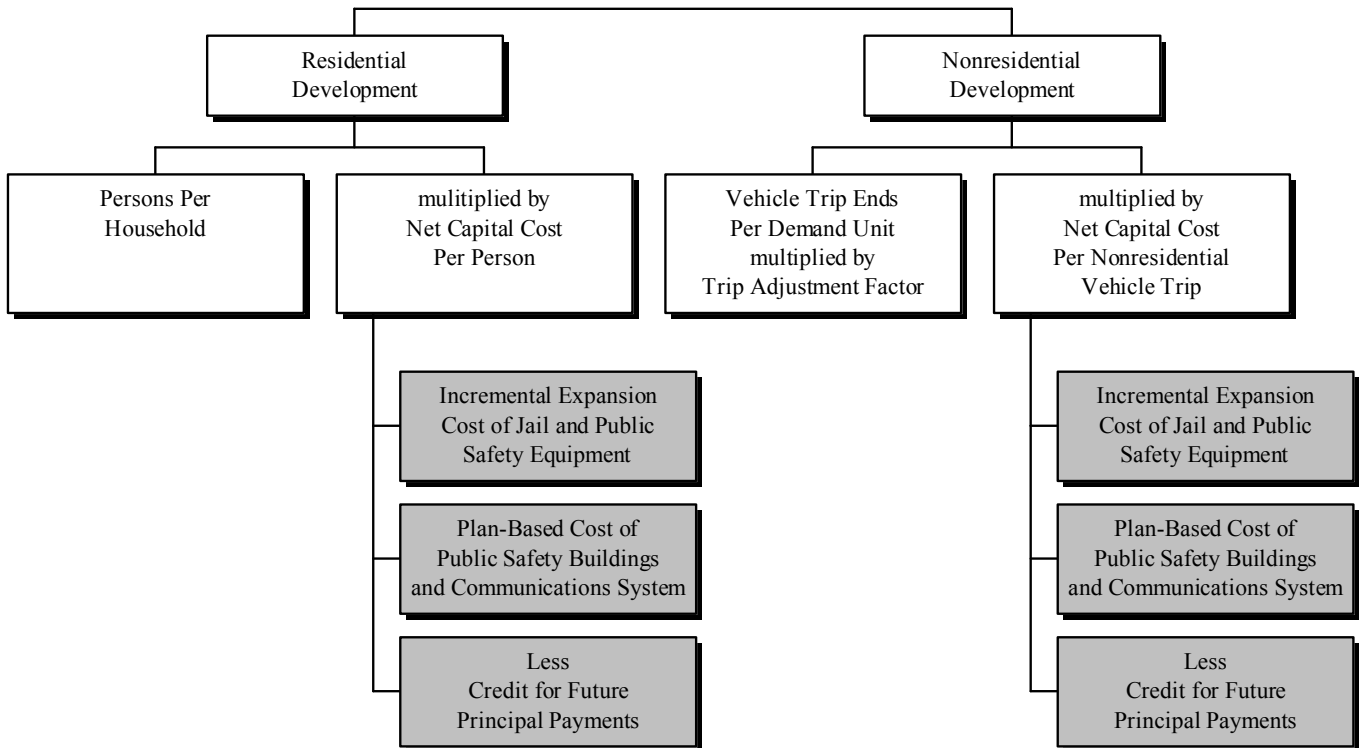
Effingham County, Georgia (Current \$ in thousands)	1 2005	2 2006	3 2007	4 2008	5 2009	6 2010	Cumulative Total	Average Annual
REVENUES								
19 Road Fee - Detached	\$863	\$861	\$859	\$858	\$857	\$857	\$5,156	\$859
20 Road Fee - Attached	\$38	\$38	\$38	\$38	\$38	\$38	\$227	\$38
21 Road Fee - Goods	\$29	\$32	\$32	\$36	\$36	\$39	\$203	\$34
22 Road Fee - Services	\$84	\$105	\$125	\$105	\$125	\$125	\$669	\$112
6 Subtotal Road Fees	\$1,014	\$1,036	\$1,055	\$1,036	\$1,056	\$1,059	\$6,255	\$1,043
CAPITAL COSTS								
Road Capacity Projects	\$1,784	\$1,784	\$1,784	\$1,784	\$1,784	\$1,784	\$10,706	\$1,784
Debt Service (not applicable)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Road CIE Projects	\$1,784	\$1,784	\$1,784	\$1,784	\$1,784	\$1,784	\$10,706	\$1,784

NET CAPITAL FACILITIES CASH FLOW - Roads	<i>Current \$ in thousands</i>							
Annual Surplus (or Deficit)	(\$770)	(\$749)	(\$729)	(\$748)	(\$728)	(\$726)	(\$4,450)	(\$742)
Cumulative Surplus (or Deficit)	(\$770)	(\$1,519)	(\$2,248)	(\$2,996)	(\$3,725)	(\$4,450)		

PUBLIC SAFETY

The public safety impact fee addresses the need for facilities that provide service in the unincorporated area of Effingham County, such as the 911 Communications Center and County Jail. Cities pay a user fee for use of the jail. The 911 services to the cities are minimal when compared to the growth rate of the unincorporated area of the county versus the cities. As shown in Figure 28, public safety impact fees use different demand indicators for residential and nonresidential development. Residential impact fees are calculated on a per capita basis and then converted to a proportionate fee amount by type of housing, based on household size. To calculate nonresidential impact fees, TA recommends using vehicle trips as the best demand indicator for public safety facilities. Trip generation rates are highest for commercial developments, such as shopping centers, and lowest for industrial/warehouse development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for public safety from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, do not accurately reflect the demand for service. If employees per thousand square feet were used as the demand indicator, public safety impact fees would be too high for office and institutional development. If floor area were used as the demand indicator, public safety impact fees would be too high for industrial development. Also, sheriff officers respond to traffic accidents, which are directly proportionate to trip generation rates.

Figure 28 – Public Safety Impact Fee Methodology Chart



Cost Allocation for Public Safety

The proportionate share factors shown in Figure 29 are used to allocate capital costs to residential and nonresidential development. For residential development, the proportionate share factor is based on estimated person hours of non-working residents, plus the non-working hours of resident workers. Based on 2000 census data, Effingham County’s population is divided almost equally between residents that work and those that do not work. For resident workers, two-thirds of a day (i.e., 16 hours) is allocated to residential demand. Time spent at work (i.e., 8 hours) is allocated to nonresidential development. In 2000, the U.S. Census Bureau estimated that 5,728 residents worked in Effingham County. Therefore, total jobs include 431 non-resident workers that commute into Effingham County for work. Based on estimated person hours, the cost allocation for residential development is 94% while nonresidential development accounts for 6% of the demand for public safety infrastructure.

Figure 29 – Proportionate Share Factors for Public Safety

	<u>Demand Units in 2000</u>	<i>Demand Hours/Day</i>	<i>Person Hours</i>
Residential			
Total Population	37,535		
Residents Not Working	20,324	24	487,776
Resident Workers	17,211		
Residents Working in Effingham Co.*	5,728	16	91,648
Residents Working Outside of County*	11,483	16	183,728
		Residential Subtotal	<u>763,152</u>
			94%
Nonresidential			
Jobs Located in Effingham County	6,159		
Residents Working in Effingham Co.*	5,728	8	45,824
Non-Resident Workers	431	8	3,444
		Nonresidential Subtotal	<u>49,268</u>
			6%
		TOTAL	<u>812,420</u>

* Source: Table P26 from SF3, Census 2000.

Public Safety Infrastructure Cost Standards

Figure 30 includes both incremental expansion and plan-based cost components. The top two sections of the table address the need for expanding existing infrastructure, such as the jail and major public safety equipment with a useful life of more than ten years. The current square feet of jail and the current count of recently acquired public safety equipment were allocated to 2004 demand units to yield the current quantitative standards and cost factors.

The bottom section of Figure 30 lists the capital cost of future projects needed to provide essential public safety services in Effingham County. LOS standards are derived using projected demand units in 2011, including existing demand units in 2004 plus projected demand units that will be added by 2011. This methodology ensures new development is not paying for an increase in LOS standards. The Public Safety Complex, 911 Communications/EMS Center and Radio Tower will be constructed in 2007 with bond financing. Given a five-year bond term, the LOS standard for the plan-based public safety projects is derived using demand units in 2011. Because population and nonresidential vehicle trips associated with existing development are included in the LOS determination, both existing and new development share the same LOS standard.

Average weekday vehicle trips associated with nonresidential development are derived from estimated nonresidential floor area, trip generation rates and trip adjustment factors, as discussed above in the road impact fee section. Documentation of the demographic data used in the impact fee study may be found in Appendix A.

EFFINGHAM COUNTY CIE & IMPACT FEES

Figure 30 – Level Of Service Standards for Public Safety Facilities

Incremental Expansion Cost of Jail

<i>Site</i>	<i>Square Feet</i>	<i>\$/SF</i>	<i>Total Cost</i>
Existing Jail	18,944	\$111	\$2,100,000
	Proportionate Share	2004 Demand Units	Cost per Demand Unit
Residential	94%	44,392 persons	\$44.46
Nonresidential	6%	45,775 nonres veh trips	\$2.75
Sq Ft Per Person	0.40		
Sq Ft Per Nonres Vehicle Trip	0.02		

Incremental Expansion Cost of Public Safety Equipment

<i>Site</i>	<i>Count</i>	<i>Unit Cost</i>	<i>Total Cost</i>
Fire Station Pumpers	4	\$342,000	\$1,368,000
Fire Station Tankers	4	\$197,000	\$788,000
TOTAL	8	\$269,500	\$2,156,000
	Proportionate Share	2004 Demand Units	Cost per Demand Unit
Residential	94%	44,392 persons	\$45.65
Nonresidential	6%	45,775 nonres veh trips	\$2.82
Equipment Per 1,000 Persons	0.17		
Equip Per 1,000 Nonres Veh Trips	0.01		

Plan-Based Cost of Public Safety Buildings

<i>Year</i>	<i>Site</i>	<i>Square Feet</i>	<i>\$/SF</i>	<i>Total Cost</i>
2007	Public Safety Complex	12,000	\$142	\$1,700,000
2007	911 Com/EMS Ctr & Radio Tower	5,000	\$400	\$2,000,000
2009	Sheriff Storage Bldg	1,800	\$81	\$145,000
2010	South Precinct	3,000	\$150	\$450,000
TOTAL		21,800	\$197	\$4,295,000
		Proportionate Share	2011 Demand Units	Cost per Demand Unit
Residential		94%	56,391 persons	\$71.59
Nonresidential		6%	61,277 nonres veh trips	\$4.20
Square Feet Per Person		0.36		
Sq Ft Per Nonres Vehicle Trip		0.02		

Projected Need for Public Safety System Improvements

Growth-related public safety infrastructure needs are summarized in Figure 31. Adding together both the residential and the nonresidential demand for jail space indicates an increase from 18,944 square feet in 2004 to 24,143 square feet in 2011, an increase of 5,199 square feet over seven years. The projected cumulative cost of jail expansion needed to accommodate new development is \$577,000 over the next seven years. To maintain the current LOS standard for public safety equipment, Effingham County must expand its fleet from eight vehicles in 2004 to eleven vehicles in 2011, at a cumulative cost of \$809,000.

The pay-as-you-go projects (line item C4) include a storage building for use by the County Sheriff in 2009 and a south precinct building planned for construction in 2010. The debt service expenditures that begin in 2007 are for the planned improvements listed in the previous table (i.e., Public Safety Complex, 911 Communications/EMS Center and Radio Tower).

Figure 31 – Public Safety Infrastructure Needs

Effingham County, Georgia	Year =>	1	2	3	4	5	6	7			
	2004	2005	2006	2007	2008	2009	2010	2011			
Cumulative Facilities Needed											
C7	Pub Saf Jail - Res	sq ft	17,807	18,495	19,183	19,870	20,558	21,245	21,933	22,621	
C8	Pub Saf Jail - Nonres	sq ft	1,137	1,182	1,232	1,289	1,342	1,400	1,461	1,522	
C9	Pub Saf Equip - Res	count	8	8	8	8	9	9	9	10	
C10	Publ Saf Equip - Nonres	count	0	0	1	1	1	1	1	1	
Additional Facilities Needed											
C7	Pub Saf Jail - Res	sq ft		688	688	687	688	687	688	688	<i>Cumulative</i>
C8	Pub Saf Jail - Nonres	sq ft		45	50	57	53	58	61	61	4,814
C9	Pub Saf Equip - Res	count		0	0	0	1	0	0	1	385
C10	Publ Saf Equip - Nonres	count		0	1	0	0	0	0	0	2
Pay-Go Expenditures											
			1000 's of dollars							<i>Cumulative</i>	
C4	Public Safety Pay-Go Projects		\$0	\$0	\$0	\$0	\$145	\$450	\$0	\$595	
C7	Pub Saf Jail - Res		\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$534
C8	Pub Saf Jail - Nonres		\$5	\$6	\$6	\$6	\$6	\$7	\$7	\$7	\$43
C9	Pub Saf Equip - Res		\$0	\$0	\$0	\$270	\$0	\$0	\$270	\$270	\$539
C10	Publ Saf Equip - Nonres		\$0	\$270	\$0	\$0	\$0	\$0	\$0	\$0	\$270
Debt Service											
			1000 's of dollars								
3	Pub Saf Adm & Com		\$0	\$0	\$855	\$855	\$855	\$855	\$855	\$855	\$4,273

SPLOST Revenue Credit

To avoid potential double payment for the Public Safety Complex and communications system, the present value of future principal payments will be deducted from the public safety impact fees (see Figure 32). Estimated principal payments assume the financing of approximately \$3.7 million over five years at 5% annual interest. Consistent with the cost-allocation methodology, principal payments are split between residential and nonresidential development, then divided by annual demand units.

Figure 32 – Principal Payment Credit for Public Safety Facilities

<i>Year</i>	<i>SPLOST Principal Payments</i>	<i>Residential Share 94%</i>	<i>Nonresidential Share 6%</i>	<i>Countywide Population</i>	<i>Nonresidential Vehicle Trips</i>	<i>Principal Payments Per Person</i>	<i>Principal Payments Per NRVT</i>
2007	\$669,607	\$629,430	\$40,176	49,534	51,912	\$12.71	\$0.77
2008	\$703,087	\$660,902	\$42,185	51,249	54,038	\$12.90	\$0.78
2009	\$738,241	\$693,947	\$44,294	52,963	56,362	\$13.10	\$0.79
2010	\$775,154	\$728,644	\$46,509	54,677	58,856	\$13.33	\$0.79
2011	\$813,911	\$765,077	\$48,835	56,391	61,277	\$13.57	\$0.80
TOTAL	\$3,700,000	\$3,478,000	\$222,000			\$65.61	\$3.93
					Discount Rate	5.00%	5.00%
					Present Value	\$56.72	\$3.40

Public Safety Fee Input Variables

LOS standards used to derive the public safety impact fees are shown in the boxed area at the top of Figure 33. Trip generation rates and adjustment factors were described above in the roads impact fee section.

Figure 33 – Public Safety Fee Input Variables

<i>ITE</i>	<i>Standards:</i>	
<i>Code</i>		
<i>Persons Per Household</i>		
210 Detached Housing	2.89	
221 Attached Housing	1.91	
<i>Average Weekday Vehicle Trip Ends per 1,000 Sq Ft</i>		
820 Commercial / Shop Ctr 25,000 SF or less		110.32
820 Commercial / Shop Ctr 25,001-100,000 SF		67.91
820 Commercial / Shop Ctr 100,001-400,000 SF		41.80
710 General Office 10,000 SF or less		22.66
710 General Office 10,001-25,000 SF		18.35
710 General Office 25,001-50,000 SF		15.65
720 Medical-Dental Office		36.13
610 Hospital		17.57
770 Business Park		12.76
110 Light Industrial		6.97
150 Warehousing		4.96
151 Mini-Warehouse		2.50
<i>Average Weekday Vehicle Trip Ends</i>		
320 Lodging (per room)		5.63
565 Day Care (per student)		4.48
620 Nursing Home (bed)		2.37
<i>Trip Adjustment Factors</i>		
Commercial / Shop Ctr 25,000 SF or less		22%
Commercial / Shop Ctr 25,001-100,000 SF		29%
Commercial / Shop Ctr 100,001-400,000 SF		35%
All Other Nonresidential		50%
<i>Level of Service</i>		
	<u>Per Person</u>	<u>Per Trip</u>
Incremental Expansion Cost of Jail	\$44.46	\$2.75
Incr Expansion Cost of Public Safety Equipment	\$45.65	\$2.82
Plan-Based Cost of Public Safety Buildings	\$71.59	\$4.20
Principal Payment Credit	(\$56.72)	(\$3.40)
Net Capital Cost Per Demand Unit	\$104.98	\$6.37
Residential Vacancy Rate	7.2%	

Maximum Supportable Public Safety Impact Fees

Figure 34 provides a schedule of maximum supportable public safety impact fees. The fee for residential development includes the residential vacancy rate from the 2000 Census, which reduces the impact fees by 7.2%. The adjustment is necessary because fees will be collected from all housing units when building permits are issued, yet on average only 92.8% of housing units are occupied and thus creating a demand for public safety facilities.

Figure 34 – Public Safety Fee Schedule

<i>Maximum Supportable Public Safety Impact Fee</i>	
<u>Residential (per housing unit)</u>	
210 Detached Housing	\$281
221 Attached Housing	\$186
<u>Nonresidential Per Square Foot of Floor Area</u>	
820 Commercial / Shop Ctr 25,000 SF or less	\$0.15
820 Commercial / Shop Ctr 25,001-100,000 SF	\$0.12
820 Commercial / Shop Ctr 100,001-400,000 SF	\$0.09
710 General Office 10,000 SF or less	\$0.07
710 General Office 10,001-25,000 SF	\$0.05
710 General Office 25,001-50,000 SF	\$0.04
720 Medical-Dental Office	\$0.11
610 Hospital	\$0.05
770 Business Park	\$0.04
110 Light Industrial	\$0.02
150 Warehousing	\$0.01
151 Mini-Warehouse*	\$0.00
<u>Other Nonresidential</u>	
310 Lodging (per room)	\$17
565 Day Care (per student)	\$14
620 Nursing Home (bed)	\$7

* Also used for churches without weekday school or day care functions.

Projected Cash Flow for Public Safety

Due to significant debt service for the new Public Safety Complex and communications system, projected costs exceed projected impact fee revenue. As shown in Figure 35, public safety impact fees generate \$180,000 per year in revenue. This revenue projection is based on the demographic data described further in Appendix A and the maximum supportable impact fees shown above. Capital costs average approximately \$893,000 per year. SPLOST revenue will be required to match the projected deficits.

The cash flow summary provides an indication of the impact fee revenue and expenditures necessary to meet the demand for public safety facilities. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs. See Appendix A for discussion of the development projections that drive the cash flow analysis.

Figure 35 – Cash Flow Summary for Public Safety

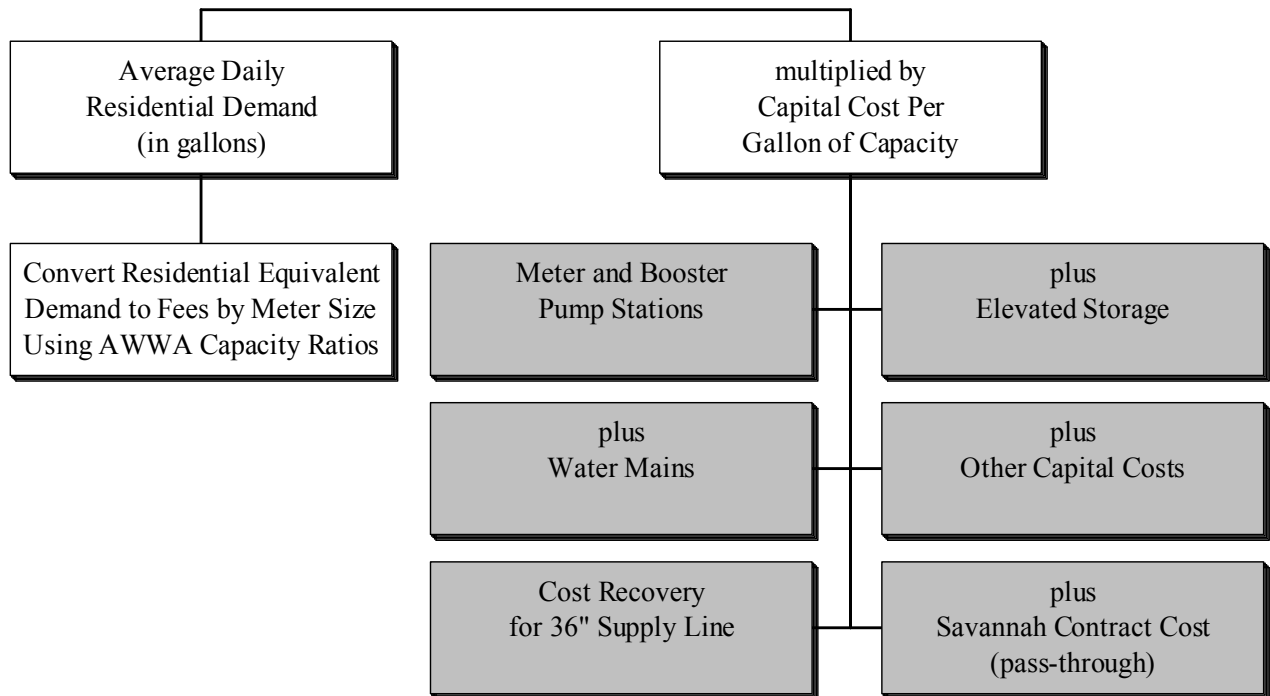
Effingham County, Georgia (Current \$ in thousands)	1 2005	2 2006	3 2007	4 2008	5 2009	6 2010	7 2011	Cumulative Total	Average Annual
REVENUES									
1 Pub Saf Fee - Detached	\$167	\$167	\$167	\$166	\$166	\$166	\$166	\$1,166	\$167
2 Pub Saf Fee - Attached l	\$7	\$7	\$7	\$7	\$7	\$7	\$7	\$49	\$7
3 Pub Saf Fee - Goods	\$1	\$1	\$1	\$1	\$1	\$1	\$1	\$6	\$1
4 Pub Saf Fee - Services	\$4	\$5	\$6	\$5	\$6	\$6	\$6	\$39	\$6
1 Subtotal Public Safety Fees	\$179	\$180	\$181	\$179	\$180	\$180	\$180	\$1,260	\$180
CAPITAL COSTS									
Jail Expansion	\$81	\$82	\$83	\$82	\$83	\$83	\$83	\$577	\$82
Additional Pub Saf Equip	\$0	\$270	\$0	\$270	\$0	\$0	\$270	\$809	\$116
Public Safety Debt Service	\$0	\$0	\$855	\$855	\$855	\$855	\$855	\$4,273	\$610
Public Safety Pay-Go Projects	\$0	\$0	\$0	\$0	\$145	\$450	\$0	\$595	\$85
Subtotal Public Safety Costs	\$81	\$351	\$937	\$1,206	\$1,082	\$1,388	\$1,207	\$6,254	\$893
NET CAPITAL FACILITIES CASH FLOW - Public Safety								<i>Current \$ in thousands</i>	
Annual Surplus (or Deficit)	\$98	(\$171)	(\$757)	(\$1,027)	(\$902)	(\$1,207)	(\$1,027)	(\$4,993)	(\$713)
Cumulative Surplus (or Deficit)	\$98	(\$73)	(\$830)	(\$1,857)	(\$2,759)	(\$3,966)	(\$4,993)		

WATER SYSTEM

Water impact fees are based on the net capital cost per gallon of average daily system capacity. As shown in Figure 36, four steps have been used to determine the net capital cost. The major cost factor is for water system improvements needed to accommodate new development. Hussey, Gay, Bell & DeYoung (HGBD) identified growth-related system improvements in the Southern Effingham County Water Distribution Master Plan (March 2002). A map of the water service area may be found in Appendix B.

Water impact fees are the product of the net capital cost per gallon of system capacity multiplied by the consumption standard per equivalent residential connection. Impact fees for larger meters are derived from capacity ratios published by the American Water Works Association (AWWA).

Figure 36 - Water System Impact Fee Methodology Chart



Water Demand Projections

The Water Master Plan standard of 300 gallons per day per equivalent residential connection has been used to derive the water impact fee for Effingham County. The average demand divided by the average household size for detached units equates to a standard of 104 gallons per person per day.

Effingham County should initiate its utility service by the end 2004 when the wastewater treatment plant begins operation. Water and sewer utilities anticipate equivalent residential demand of 300 gallons per average day. Therefore, water demand projections and the

anticipated number of customers will be based on the wastewater master plan, as below in sewer impact fee section.

Water System Improvements

A summary of the Capital Improvements Element (CIE) for the water system improvements is shown in Figure 37. According to the Water Master Plan, growth-related projects include meter and booster pump stations, elevated storage, water mains, and other capital costs. The table below identifies specific capital costs by water service areas. Effingham County will spend \$33.4 million to provide 6.2 MGD is system capacity, which equates to a capital cost of \$5.38 per gallon of system capacity.

Figure 37 - Water System Capital Improvements Summary

	<i>Location</i>	<i>Cost Estimate</i>
<i>Meter and Booster Pump Stations</i>		
1	Service Area 1A	\$1,575,000
2	Service Area 2A	\$700,000
3	Service Area 2B	\$0
4	Service Area 3A	\$500,000
5	Service Area 3B	\$0
	Subtotal	\$2,775,000
<i>Elevated Storage</i>		
1	Service Area 1A	\$1,040,000
2	Service Area 2A	\$800,000
3	Service Area 2B	\$950,000
4	Service Area 3A	\$800,000
5	Service Area 3B	\$660,000
	Subtotal	\$4,250,000
<i>Water Mains</i>		
1	Service Area 1A	\$5,706,800
2	Service Area 2A	\$1,171,075
3	Service Area 2B	\$1,247,150
4	Service Area 3A	\$2,997,150
5	Service Area 3B	\$1,521,300
	Subtotal	\$12,643,475
<i>Other Capital Costs</i>		
1	Service Area 1A	\$5,678,200
2	Service Area 2A	\$1,628,925
3	Service Area 2B	\$1,502,850
4	Service Area 3A	\$3,202,850
5	Service Area 3B	\$1,718,700
	Subtotal	\$13,731,525
	GRAND TOTAL	\$33,400,000
	Water Demand at Build-Out (avg day gallons)*	6,200,000
	Capital Cost Per Gallon of Capacity	\$5.38

Source: Southern Effingham County Water Master Plan, HGBD, 3/02.

* Excludes Rincon Service Area 1B (0.8 MGD).

Cost Recovery Component

Effingham County has oversized its major 36” water supply line to accommodate future development. The water impact fee includes a cost recovery component based on the \$8 million cost of water supply line. As shown in Figure 38, dividing the average day capacity into the capital cost yields \$1.29 per gallon of capacity.

Figure 38 - Water System Cost Recovery

	<i>Project</i>	<i>Location</i>	<i>Fiscal Year</i>	<i>Original Cost*</i>
1	36" Supply Line			\$8,000,000
2				
			TOTAL	\$8,000,000
			Average Day Gallons at Capacity*	6,200,000
			Capital Cost per Gallon of Capacity	\$1.29

* Cost based on reimbursement of ECP in the form of future tax credits.

Water Fee Calculations

LOS standards used to derive the water system impact fee are shown in the boxed area of Figure 39. Effingham County will impose fees based on water meter size and their respective capacity. The capacity ratios by meter size are from the Manual of Water Supply Practices (M6), by the American Water Works Association.

The Savannah contract cost of \$3.00 per gallon of capacity is a pass-through amount that Effingham is obligated to collect on behalf of the City of Savannah. This amount represents the capacity charge for Savannah’s capital cost to supply potable water to Effingham County. After 2009, the contractual obligation drops from \$900 to \$650 per equivalent residential unit, which is a decrease from \$3.00 to \$2.16 per gallon of average day capacity. After 2009, the maximum supportable water impact fee would decrease from \$3,456 to \$3,204 per detached housing unit, if all other cost factors remain unchanged.

The interest cost of \$1.85 per gallon of capacity is based on the cumulative interest associated with borrowing \$33.4 million (see the above Water System CIE Summary) over 20 years, with an annual interest rate of 3%. The cumulative interest, estimated to be \$11.5 million, divided by the water system capacity of 6.2 million gallons per day, yields the interest cost of \$1.85 per gallon of capacity.

Figure 39 - Water System Impact Fee Schedule

				<i>Standards:</i>
Persons Per Household				
Detached Housing				2.89
Attached Housing				1.91
Level Of Service				
Gallons per Person per Day				104
Growth-Related CIE Cost per Gallon				\$5.38
Cost Recovery per Gallon for Oversizing				\$1.29
Savannah Contract Cost per Gallon of Capacity				\$3.00
Interest Cost per Gallon of Capacity				\$1.85
Net Capital Cost per Gallon of Capacity				\$11.52
<hr/>				
Maximum Supportable Impact Fees				
<u>Residential</u>				<u>Per Housing Unit</u>
Detached Housing				\$3,456
Attached Housing				\$2,284
<u>Nonresidential</u>				<u>Per Meter</u>
<i>Meter Size (inches)*</i>		<i>Capacity Ratio</i>		
0.75	Displacement	1.0		\$3,456
1.00	Displacement	1.7		\$5,760
1.50	Displacement	3.3		\$11,520
2.00	Compound	5.3		\$18,432
3.00	Compound	10.7		\$36,864
4.00	Compound	16.7		\$57,600
<hr/>				
Impact Fees Proposed by County Commissioners				
<u>Residential</u>				<u>Per Housing Unit</u>
Detached Housing				\$2,000
Attached Housing				\$1,322
<u>Nonresidential</u>				<u>Per Meter</u>
<i>Meter Size (inches)*</i>		<i>Capacity Ratio</i>		
0.75	Displacement	1.0		\$2,000
1.00	Displacement	1.7		\$3,333
1.50	Displacement	3.3		\$6,667
2.00	Compound	5.3		\$10,667
3.00	Compound	10.7		\$21,333
4.00	Compound	16.7		\$33,333

* Fees for meters larger than four inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Cash Flow Analysis of Water System

Because the Savannah pass-through obligation decreases after 2009, the cash flow summary only covers the next five years. Through the year 2009, water impact fee revenue is expected to average \$1,126,000 per year (see Figure 40) if implemented at the level proposed by the County Commissioners. The contractual obligation to Savannah is projected to average \$507,000 per year. The water system debt service payments shown below assumes Effingham County finances improvements for Water Service Area 1A in Year 1, Service Areas 2A and 2B in Year 3, Service Area 3A in Year 5 and Service Area 3B in Year 7. Even with the phase-in of water system bonds, impact fee revenue is not sufficient to cover debt obligations through the year 2009. On-going user charges paid by water customers will cover the projected deficits.

To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs. See Appendix A for discussion of the development projections that drive the cash flow analysis. The projected ERU increase is from the Effingham County Water System Financial Analysis dated 9/4/03.

Figure 40 – Projected Water System Cash Flow

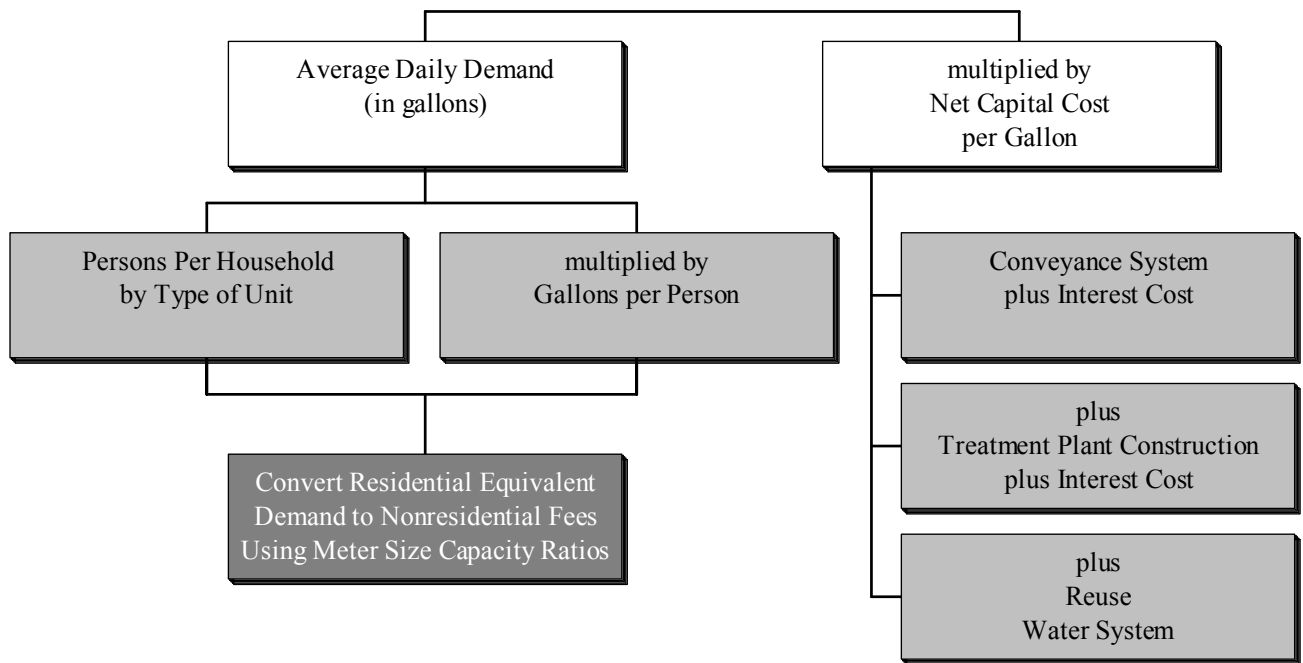
Effingham County, Georgia (Current \$ in thousands)	1 2005	2 2006	3 2007	4 2008	5 2009	Cumulative Total	Average Annual
REVENUES							
15 Water Fee - ERU	\$1,040	\$1,082	\$1,124	\$1,170	\$1,216	\$5,632	\$1,126
16						\$0	\$0
4 Subtotal Water Fees	\$1,040	\$1,082	\$1,124	\$1,170	\$1,216	\$5,632	\$1,126
CAPITAL COSTS							
Savannah Contract	\$468	\$487	\$506	\$527	\$547	\$2,534	\$507
Water Sys Debt Service	\$941	\$941	\$1,479	\$1,479	\$1,983	\$6,822	\$1,364
Subtotal Water Costs	\$1,409	\$1,428	\$1,985	\$2,005	\$2,530	\$9,357	\$1,871

NET CAPITAL FACILITIES CASH FLOW - Water	<i>Current \$ in thousands</i>						
Annual Surplus (or Deficit)	(\$369)	(\$346)	(\$861)	(\$835)	(\$1,314)	(\$3,725)	(\$745)
Cumulative Surplus (or Deficit)	(\$369)	(\$715)	(\$1,575)	(\$2,411)	(\$3,725)		

SEWER SYSTEM

Effingham County is constructing a new sanitary sewer system in the southern portion of the county. The sewer service area map is at the end of this report (see Appendix B). Sewer system impact fees are based on the capital improvements cost per gallon for additional system capacity. Capacity expansion includes the cost of growth-related conveyance system improvements plus construction of a new wastewater treatment plant. As shown in Figure 41, the capital cost per gallon of capacity was multiplied by a wastewater generation rate per person and average household size, to yield the proportionate impact fee by type of housing. Nonresidential fees are derived from capacity ratios according to the size of the new connection’s water meter.

Figure 41 - Sewer System Impact Fee Methodology Chart



Projected Sewer Demand

Stevenson & Palmer Engineers prepared the Southern Effingham County Wastewater Feasibility Study (dated 6/02) which projected sewer flow to reach 4.85 Million Gallons per Day (MGD) by the year 2020. However, the 9/04/03 financial analysis anticipates more conservative connections to the utility system. As shown in Figure 42, the more conservative projections were converted to wastewater flow using an average day demand of 300 gallons for an equivalent residential unit.

Figure 42 - Projected Annual Sewer System Demand

	FY	Million Gallons Per Avg Day	Water/Sewer* Customers	Annual Increase	
				Customers	MGD
base	03-04	0.00	0		
future 1	04-05	0.16	520	520	0.16
future 2	05-06	0.32	1,061	541	0.16
future 3	06-07	0.49	1,623	562	0.17
future 4	07-08	0.66	2,208	585	0.18
future 5	08-09	0.84	2,816	608	0.18
future 6	09-10	1.03	3,449	633	0.19
future 7	10-11	1.23	4,107	658	0.20
future 8	11-12	1.44	4,791	684	0.21
future 9	12-13	1.65	5,503	712	0.21
future 10	13-14	1.87	6,243	740	0.22
future 11	14-15	2.10	7,013	770	0.23
future 12	15-16	2.34	7,813	800	0.24
future 13	16-17	2.59	8,646	833	0.25
future 14	17-18	2.85	9,512	866	0.26
future 15	18-19	3.12	10,412	900	0.27
future 16	19-20	3.40	11,349	937	0.28

* Financial Analysis, 9/4/03.

Sewer System Improvements

A summary of Effingham County’s Capital Improvements Element (CIE) for the sewer system is shown in Figure 43. The Phase I conveyance system will be constructed in 2004 and cost \$5.5 million. To accommodate the projected wastewater flow through 2020, the County will spend an additional \$5.5 million to expand the conveyance system. The initial reuse system for reclaimed water is expected to cost \$3.9 million. Because the conveyance and reuse lines are sized for the larger 2020 system, Effingham County is taking a conservative approach by using the lower cost factors for the 2020 system in the impact fee calculations.

A new wastewater plant will initially cost \$4 million for 1 MGD of capacity. Based on the increase in customers and flow projections, the Phase 1 plant will only be adequate for approximately 9-10 years.

Figure 43 - Sewer System Capital Improvements Summary

	<i>Phase I System</i>	<i>2020 System</i>
Capital Cost		
Conveyance	\$5,500,000	\$11,000,000
Treatment	\$4,000,000	
Reuse Line	\$3,900,000	\$3,900,000
Capacity*	1.00	4.85
* average day gallons in millions		
Cost Per Gallon of Capacity		
Conveyance	\$5.50	\$2.26
Treatment	\$4.00	
Reuse Line	\$3.90	\$0.80

Source: Southern Effingham County Waste Water System Feasibility Study, Stevenson & Palmer Engineering, 6/02.

Maximum Supportable and Proposed Sewer Impact Fees

The LOS standards used to derive the sewer impact fee are shown in the boxed area of Figure 44. Fees for nonresidential development are based on water meter sizes and their capacity relative to a one-inch meter. Capacity ratios convert the impact fee for the equivalent residential unit into a proportionate fee for larger meter sizes. The capacity ratios by meter size are from the American Water Works Association (i.e., maximum gallons per minute data from Manual 6, page 28).

The sewer impact fees include the interest cost for construction of the 2020 system improvements, assuming financing over 20 years at 3% annual interest. Effingham County intends to make debt service payments from impact fee revenue. If impact fee revenue is the sole funding for the debt service payments, a credit for other revenue sources is not needed.

EFFINGHAM COUNTY CIE & IMPACT FEES

Figure 44 - Sewer Impact Fees

		<i>Standards:</i>	
Persons Per Household			
	Detached Housing		2.89
	Attached Housing		1.91
Level Of Service			
	Gallons per Person per Day		104
	Conveyance System Cost per Gallon of Capacity		\$2.26
	Treatment Cost per Gallon of Capacity		\$4.00
	Water Reuse Cost Per Gallon of Capacity		\$0.80
	Interest Cost Per Gallon of Capacity		\$1.66
	Net Capital Cost per Gallon of Capacity		<u>\$8.72</u>
Maximum Supportable Impact Fees			
<u>Residential</u>		<u>Per Housing Unit</u>	
	Detached Housing		\$2,616
	Attached Housing		\$1,728
<u>Nonresidential</u>		<u>Per Meter</u>	
<i>Meter Size (inches)*</i>	<i>Capacity Ratio</i>		
0.75	Displacement 1.0		\$2,616
1.00	Displacement 1.7		\$4,360
1.50	Displacement 3.3		\$8,720
2.00	Compound 5.3		\$13,952
3.00	Compound 10.7		\$27,904
4.00	Compound 16.7		\$43,600
Impact Fees Proposed by County Commissioners			
<u>Residential</u>		<u>Per Housing Unit</u>	
	Detached Housing		\$2,500
	Attached Housing		\$1,651
<u>Nonresidential</u>		<u>Per Meter</u>	
<i>Meter Size (inches)*</i>	<i>Capacity Ratio</i>		
0.75	Displacement 1.0		\$2,500
1.00	Displacement 1.7		\$4,167
1.50	Displacement 3.3		\$8,333
2.00	Compound 5.3		\$13,333
3.00	Compound 10.7		\$26,667
4.00	Compound 16.7		\$41,667

* Fees for meters larger than four inches will be based on annualized average day demand and the net capital cost per gallon of capacity.

Projected Cash Flow for Sewer Facilities

Figure 45 summarizes sewer impact fee revenue and capital costs for the next five years. Impact fees should generate approximately \$1.4 million per year for sewer system improvements, assuming implementation of proposed BOCC fee schedule that sets the sewer fee for a detached house at \$2,500.

Projected capital costs reflect the debt service on bonds for Phase 1 construction in 2005. Phase 2 expansion of the sewer system (4.85 MGD capacity) is not needed until 2009. The increase in debt service, beginning in 2009 yields annual deficits, but sewer impact fees are adequate to fund system improvements over the next five years.

The cash flow summary provides an indication of the impact fee revenue and expenditures necessary to meet the demand for public facilities. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the impact fee revenue and capital costs. See Appendix A for discussion of the development projections that drive the cash flow analysis. The projected ERU increase is from the South Effingham County Wastewater System Financial Analysis dated 9/4/03.

Figure 45 – Cash Flow Summary for Sanitary Sewer

Effingham County, Georgia (Current \$ in thousands)	1 2005	2 2006	3 2007	4 2008	5 2009	Cumulative Total	Average Annual
REVENUES							
17 Sewer Fee - ERU	\$1,300	\$1,353	\$1,405	\$1,463	\$1,520	\$7,040	\$1,408
18						\$0	\$0
5 Subtotal Sewer Fees	<u>\$1,300</u>	<u>\$1,353</u>	<u>\$1,405</u>	<u>\$1,463</u>	<u>\$1,520</u>	\$7,040	\$1,408
CAPITAL COSTS							
<i>Sewer Debt Service</i>	\$901	\$901	\$901	\$901	\$1,842	\$5,444	\$1,089
NET CAPITAL FACILITIES CASH FLOW - Sewer							
Annual Surplus (or Deficit)	<u>\$399</u>	<u>\$452</u>	<u>\$504</u>	<u>\$562</u>	<u>(\$322)</u>	\$1,596	\$319
Cumulative Surplus (or Deficit)	\$399	\$851	\$1,355	\$1,917	\$1,596		

IMPLEMENTATION AND ADMINISTRATION

Along with the required annual report, impact fees should be periodically evaluated and updated to reflect recent data. One approach is to adjust for inflation using the Construction Cost Index published by Engineering News Record (ENR). This index could be applied to the impact fee schedule. If cost estimates or demand indicators change significantly, the County should redo the fee calculations.

As specified in the Development Impact Fees Act, there are certain accounting requirements that will be met by Effingham County. Impact fees must be deposited in separate interest bearing ledger accounts. Fees must be spent within six years of when they are collected, with the expenditures limited to system improvements identified in the CIE.

Credits and Reimbursements

A general requirement that is common to impact fee methodologies is the evaluation of credits. A revenue credit may be necessary to avoid potential double payment situations arising from one-time impact fee plus the payment of other revenues that may also fund growth-related capital improvements. The determination of credits is dependent upon the impact fee methodology used in the cost analysis. There are three basic approaches used to calculate impact fees and each is linked to different credit methodology.

The first major type of impact fee method is a cost recovery approach. This method is used for facilities that have adequate capacity to accommodate new development for at least a five to six year time frame. The rationale for the cost recovery is that new development is paying for its share of the useful life or remaining capacity of the existing facility. When using a cost recovery method, it is important to determine whether new development has already contributed toward the cost of existing public facilities (i.e., a past revenue credit). Outstanding principal and interest payments are typically subtracted from the value of the asset that was oversized for new development.

A second basic approach used to calculate impact fees is the incremental expansion cost method. This method documents current factors and it is best suited for public facilities that will be expanded incrementally in the future. Because new development will provide front-end funding of infrastructure, there is a potential for double payment of capital costs due to future principal payments on existing debt for public facilities. A credit is not necessary for interest payments because interest costs were not included in the impact fees.

A third basic approach used to calculate impact fees is the plan-based method. This method is based on future capital improvements needed to accommodate new development. The plan-based method may be used for public facilities that have commonly accepted service delivery factors to determine the need for future projects or the jurisdiction plans to significantly increase the current factors and it has a financially feasible strategy to cover the cost of existing deficiencies. If a plan-based approach is used to derive impact fees, the credit evaluations should focus on future bonds and revenues that will fund planned capital improvements.

Specific policies and procedures related to site-specific credits will be addressed in the ordinance that establishes the impact fees. Project improvements normally required as part of the development approval process are not eligible for credits against impact fees. If a developer constructs a system improvement included in the fee calculations, it will be necessary to either reimburse the developer or provide a credit against the fees in the area that benefits from the system improvement. The latter option is more difficult to administer because it creates unique fees for specific geographic areas. Based on TA's experience, it is better for the County to establish a reimbursement agreement with the developer that constructs a system improvement. The reimbursement agreement should be limited to a payback period of no more than ten years and the County should not pay interest on the outstanding balance. The developer must provide sufficient documentation of the actual cost incurred for the system improvement. Effingham County should only agree to pay the lesser of the actual construction cost or the estimated cost used in the impact fee analysis. If the County pays more than the cost used in the fee analysis, there will be insufficient fee revenue. Reimbursement agreements should only obligate the County to reimburse developers annually according to actual fee collections from the benefiting area.

Service Areas

To ensure a substantial benefit to development paying impact fees, Effingham County has evaluated collection and expenditure zones for public facilities that may have distinct benefit areas. The County has shown that developments paying fees will benefit from the provision of additional capital improvements in their service area. In Effingham County, impact fees for parks, roads and public safety facilities will benefit new development throughout the entire unincorporated area. Effingham County's water and sewer service will only be available in the southern portion of the county (see the service area maps in Appendix B). The utility service area will expand over time as system improvements are constructed. The staging of system expansion may be found in the water and sewer engineering studies prepared for Effingham County.

APPENDIX A

MEMORANDUM

TO: David Rutherford, Effingham County Administrator
 FROM: Tischler & Associates, Inc.
 DATE: November 1, 2004
 SUBJECT: **Demographic Data and Development Projections**

In this memo, Tischler & Associates, Inc. (TA) documents the demographic data and development projections that will be used in the capital improvements element and impact fee study for Effingham County, Georgia. Although long-range projections are necessary for planning capital improvements, a shorter time frame of five to six years is critical for the impact fees analysis. Level-of-service standards will be calibrated using FY2003-2004 data and the first projection year for the cash flow model will be FY2004-2005.

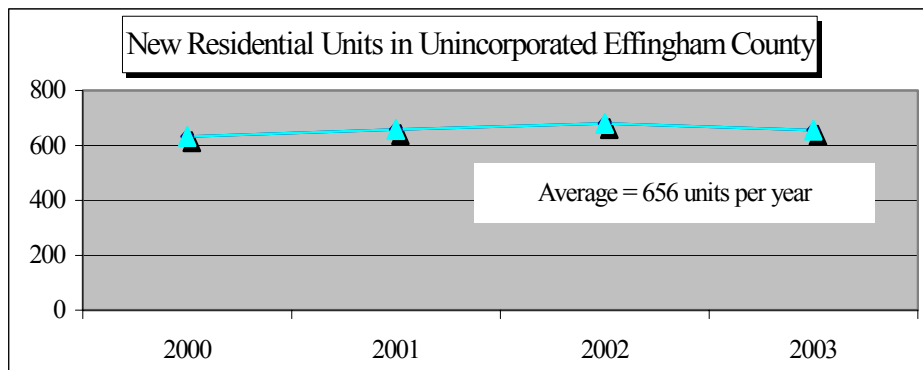
Recent Residential Construction

Figure A1 indicates calendar year 2000 through 2003 residential building permit data for the unincorporated area of Effingham County. Annual residential construction has averaged 656 housing units over the past four years. According to 2000 census data, the housing stock is approximately 94% detached units and 6% attached units. The impact fee study assumes this ratio holds constant through 2020.

Figure A1 – Unincorporated Area Residential Building Permits

	<i>Detached*</i>	<i>Attached</i>	<i>Total</i>
Total County Units in 2000	13,316	853	14,169
Unincorporated Area Permits			
2000	632		632
2001	658		658
2002	680		680
2003	655		655
<i>New Unincorporated Area Units</i>	2,625	0	2,625
<i>Estimated New Units in Municipalities</i>			172
Total County Units in 2004			16,966

* Includes single-family detached and mobile homes.



Future Population

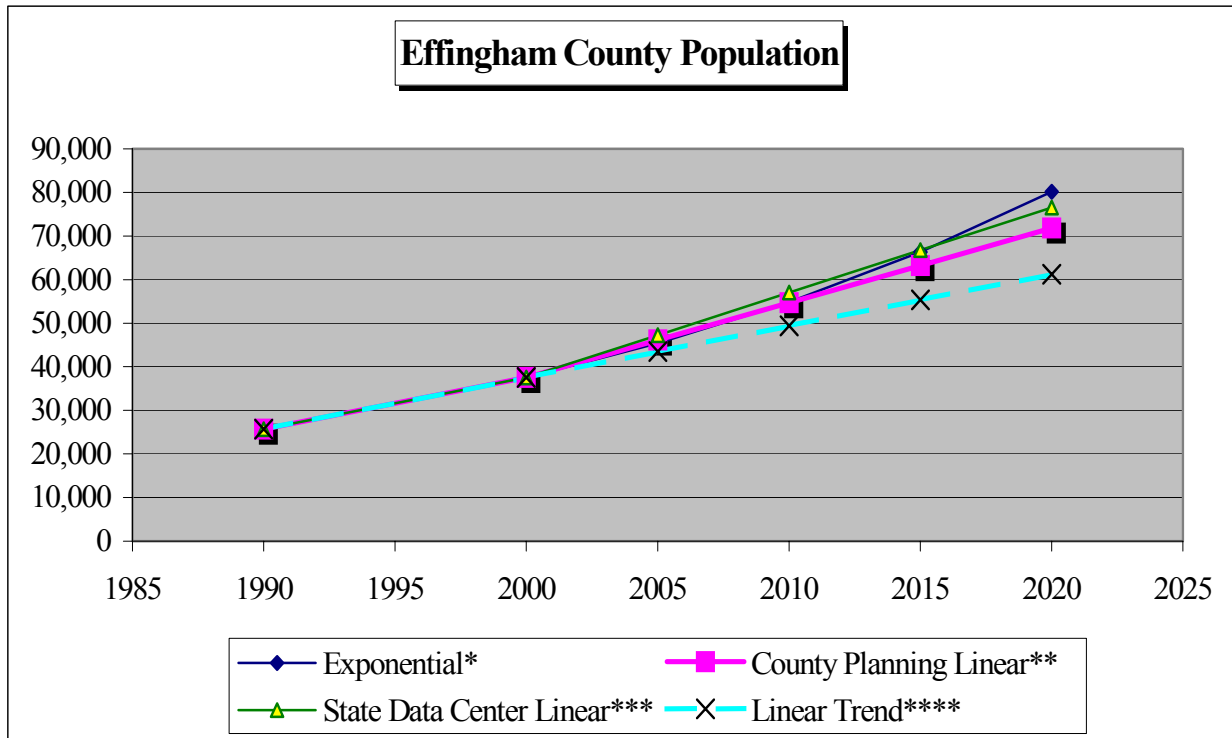
Based on census data and residential construction activity, County staff prepared a short-range population projection for Effingham County, which TA extended through 2020 (see Figure A2). The County Planning Linear projection forecasts a population of 46,106 residents by 2005. Although they will not be used in the impact fee study, TA has also shown faster and slower growth alternatives.

Figure A2 – Alternative Population Projections

Effingham County, Georgia

Annual Change (c)	Base Value (d)	Method	1990 estimates => (x)	2000	2005	2010	2015	2020	Avg Anl Increase 2000-2020
3.87%	37,535	Exponential*	25,687	37,535	45,373	54,848	66,301	80,146	2,131
4.57%	37,535	County Planning Linear**	25,687	37,535	46,106	54,677	63,248	71,819	1,714
5.19%	37,535	State Data Center Linear***	25,687	37,535	47,276	57,018	66,759	76,500	1,948
	37,535	Linear Trend****	25,687	37,535	43,459	49,383	55,307	61,231	1,185

- * Compound growth rate based on 1990 and 2000 Census counts.
- ** Simple growth rate set to match Effingham County Planning Department projection for 2005.
- *** Growth rate set to yield State Data Center projection for 2020.
- **** Average annual increase based on 1990 and 2000 census counts.



Persons Per Household

As shown in Figure A3, Effingham County had 14,169 housing units in 2000. The blended, or weighted average, household size in 2000 for all housing types was 2.84 persons per household. TA recommends the use of two residential categories in the impact fee calculations.

Differentiating impact fees by type of housing helps make the fees proportionate to the demand for public facilities. Detached housing units average 2.89 persons per household. Attached units, such as townhouses, duplexes and apartments, average 1.91 persons per household.

Figure A3 – Household Size by Units in Structure

<i>Units in Structure</i>	<i>Renter & Owner</i>			<i>Hsg Units</i>	<i>Vacancy Rate</i>
	<i>Persons</i>	<i>Hsehlds</i>	<i>PPH</i>		
1-Detached	23,698	8,081	2.93	8,659	6.7%
1-Attached (Townhouse)	172	65	2.65	66	1.5%
Two (Duplex)	450	240	1.88	240	0.0%
3 or 4	84	62	1.35	84	26.2%
5 or more	650	343	1.90	461	25.6%
Mobile Homes	12,238	4,358	2.81	4,657	6.4%
Other	4	2	2.00	2	0.0%
Total SF3 Sample Data	37,296	13,151	2.84	14,169	7.2%
100-Percent Data	37,287	13,151	2.84	14,169	
			Vacant HU	1,018	

2000 Persons Per Household

	<u>Persons</u>	<u>Hsehlds</u>	<u>PPH</u>	<u>Hhld Mix</u>	<u>Hsg Mix</u>
SFD & MH (detached units)	35,936	12,439	2.89	95%	94%
All Other (attached units)	1,360	712	1.91	5%	6%
Group Quarters	248				
Sample Difference	(9)	0			
TOTAL	37,535	13,151			

Employment Projections

In addition to data on residential development, the calculation of impact fees requires data on nonresidential development in Effingham County. The impact fee study will convert projected jobs to nonresidential floor area using square feet per employee multipliers. TA uses the term “jobs” to refer to employment by place of work (i.e., located within Effingham County). The recommended exponential job forecast shown in Figure A4 is based on the historic increase in jobs according to data from the Georgia Department of Labor. Even with this optimistic forecast, the jobs-to-housing ratio in Effingham County only increase slightly from 0.43 in 2000 to 0.56 by the year 2020.

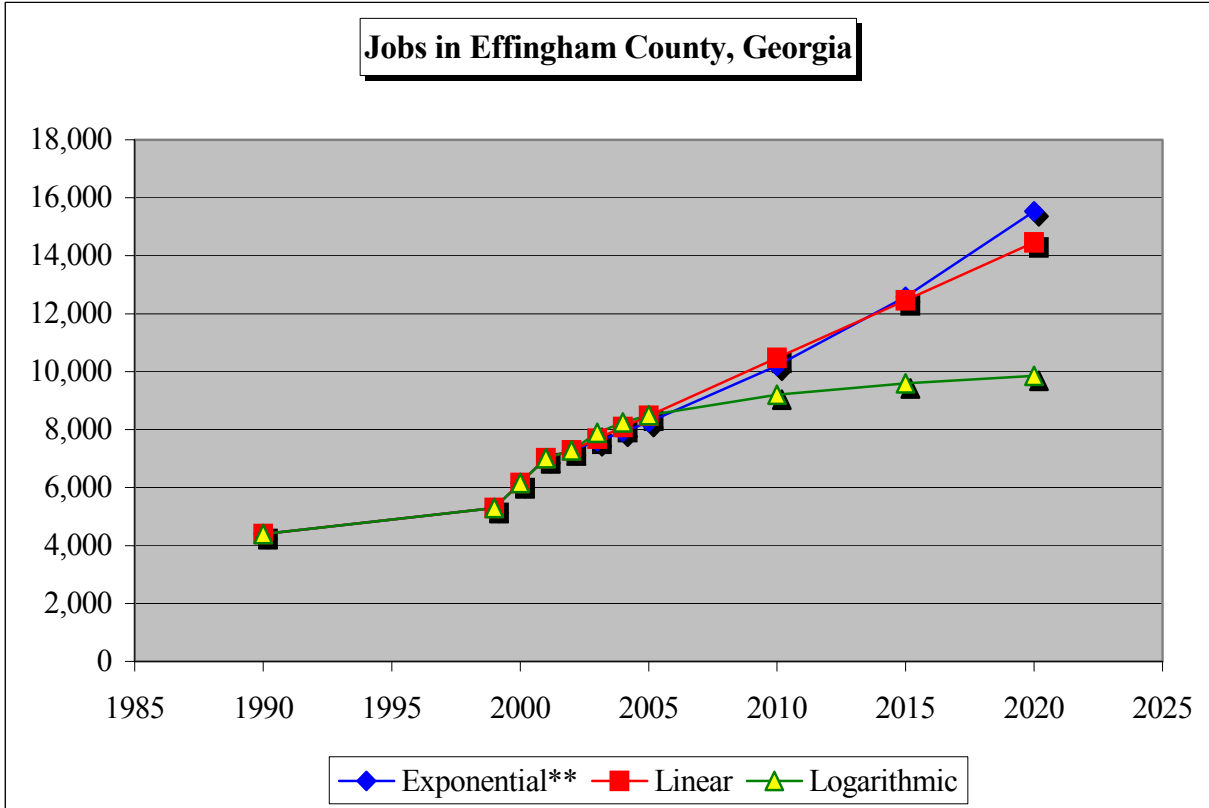
EFFINGHAM COUNTY CIE & IMPACT FEES

Figure A4 – Job Forecast

Annual Change (c)	Base Value (b)	Method	Five-Year Increments										
			1990	1999	2000	2001	2002	2003	2004	2005	2010	2015	2020
			estimates*					projection years (x) =>					
								1	2	3	8	13	18
4.29%	7,287	Exponential**	4,400	5,301	6,159	7,016	7,287	7,600	7,926	8,267	10,200	12,586	15,531
5.47%	7,287	Linear	4,400	5,301	6,159	7,016	7,287	7,685	8,084	8,482	10,475	12,467	14,459
12.00%	7,287	Logarithmic	4,400	5,301	6,159	7,016	7,287	7,893	8,248	8,499	9,208	9,595	9,862

* Georgia Department of Labor and U.S. Census Bureau.

** Recommended by TA.



Employees Per Square Foot of Nonresidential Development

To convert job projections to gross floor area of nonresidential development, TA used average square feet per employee multipliers derived from national data published by the Institute of Transportation Engineers (ITE) and the Urban Land Institute (ULI). Impact fee methodologies may also use the number of employees per thousand square feet (KSF) to differentiate fees by type of nonresidential development. In Figure A5, gray shading indicates three nonresidential development prototypes that will be used by TA to calculate vehicle trips and estimate potential impact fee revenue as part of the impact fee cash flow analysis. The prototype development for goods-producing jobs is warehousing. The prototype for service jobs is a 100,000 square foot shopping center. The prototype for public sector jobs is an elementary school.

Figure A5 – Employee and Building Area Ratios

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit*	Wkdy Trip Ends Per Employee*	Emp Per Dmd Unit**	Sq Ft Per Emp
Commercial / Shopping Center						
820	25K gross leasable area	1,000 Sq Ft	110.32	na	3.33	300
820	50K gross leasable area	1,000 Sq Ft	86.56	na	2.86	350
820	100K gross leasable area	1,000 Sq Ft	67.91	na	2.50	400
820	200K gross leasable area	1,000 Sq Ft	53.28	na	2.22	450
820	400K gross leasable area	1,000 Sq Ft	41.80	na	2.00	500
General Office						
710	10K gross floor area	1,000 Sq Ft	22.66	5.06	4.48	223
710	25K gross floor area	1,000 Sq Ft	18.35	4.43	4.15	241
710	50K gross floor area	1,000 Sq Ft	15.65	4.00	3.91	256
710	100K gross floor area	1,000 Sq Ft	13.34	3.61	3.69	271
Industrial						
770	Business Park***	1,000 Sq Ft	12.76	4.04	3.16	317
151	Mini-Warehouse	1,000 Sq Ft	2.50	56.28	0.04	22,512
150	Warehousing	1,000 Sq Ft	4.96	3.89	1.28	784
140	Manufacturing	1,000 Sq Ft	3.82	2.13	1.79	558
110	Light Industrial	1,000 Sq Ft	6.97	3.02	2.31	433
Other Nonresidential						
720	Medical-Dental Office	1,000 Sq Ft	36.13	8.91	4.05	247
620	Nursing Home	bed	2.37	6.55	0.36	na
610	Hospital	1,000 Sq Ft	17.57	5.20	3.38	296
565	Day Care	student	4.48	28.13	0.16	na
530	High School	student	1.71	19.74	0.09	na
520	Elementary School	student	1.29	15.71	0.08	na
520	Elementary School	1,000 Sq Ft	14.49	15.71	0.92	1,084
320	Lodging	room	5.63	12.81	0.44	na

* Trip Generation, Institute of Transportation Engineers, 2003.

** Employees per demand unit calculated from trip rates, except for Shopping Center data, which are derived from Development Handbook and Dollars and Cents of Shopping Centers, published by the Urban Land Institute.

*** According to ITE, a Business Park is a group of flex-type buildings served by a common roadway system. The tenant space includes a variety of uses with an average mix of 20-30% office/commercial and 70-80% industrial/warehousing.

Jobs by Type of Nonresidential Development

Figure A6 indicates 2001 job estimates for both the public and private sectors. Nonresidential development prototypes were selected to approximate floor area data obtained from the Effingham County Board of Tax Assessors. Effingham County currently has almost six million square feet of nonresidential development.

Figure A6 – Jobs and Floor Area Estimates

	2001 Jobs*		Square Feet Per Employee	2001 Est Floor Area	Tax Assessor Sq Ft in 2002**
Private Sector					
<i>Goods Producing</i>					
Manufacturing	1,775				
Construction	568				
All Other Goods	145				
Subtotal	2,488	35.5%	784	1,950,000	
<i>Service Producing</i>					
Retail	952		500	480,000	
Accommodation/Food Services	445		400	180,000	
Wholesale & Warehousing	133		784	100,000	
All Other Services	961		247	240,000	
Subtotal	2,491	35.5%	401	1,000,000	
Total Private Sector	4,979			2,950,000	3,227,711
Exempt (churches, etc. excluding County and public school buildings)					1,026,883
Public Sector	2,037	29.0%	1,084	2,210,000	1,603,204
GRAND TOTAL	<u>7,016</u>		735	<u>5,160,000</u>	<u>5,857,798</u>

* Source: Georgia Department of Labor.

** Chief Appraiser, Effingham County Board of Tax Assessors.

Development Projections

The demographic data shown in Figure A7 will be used as key inputs to the impact fee study. Population was converted to households using the declining persons per household ratios shown below. TA converted households into housing units by assuming the 2000 residential vacancy rate of 7.2% remains constant over time.

The annual increases shown at the bottom of Figure A7 indicate an additional 676 housing units and 349,000 square feet of nonresidential floor area per year. Nonresidential acreage is expected to increase by 40 acres per year, assuming an average floor-to-land area ratio of 0.20.

EFFINGHAM COUNTY CIE & IMPACT FEES

Figure A7 – Annual Demographic Data

Effingham County, Georgia	2000	2004	2005	2010	2015	2020
<i>Cumulative</i>		<i>Base Yr</i>	<i>1</i>	<i>6</i>	<i>11</i>	<i>16</i>
Population in Hseholds	37,287	44,144	45,858	54,429	63,000	71,571
Pop in Group Quarters*	248	248	248	248	248	248
Total Countywide Population	37,535	44,392	46,106	54,677	63,248	71,819
Jobs	6,159	7,926	8,267	10,200	12,586	15,531
Housing Units	14,169	16,966	17,647	21,036	24,414	27,789
Jobs to Housing Ratio	0.43	0.47	0.47	0.48	0.52	0.56
Residential Vacancy Rate	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%
Households	13,151	15,747	16,379	19,525	22,660	25,793
Persons Per Household	-0.7%	2.84	2.80	2.80	2.79	2.78
<u>Job Distribution</u>						
Goods Producing	35.5%	35.5%	35.5%	35.5%	35.5%	35.5%
Service Producing	35.5%	35.5%	35.5%	35.5%	35.5%	35.5%
Government	29.0%	29.0%	29.0%	29.0%	29.0%	29.0%
<u>Nonres Sq Ft (x 1,000)</u>						
	<i>SF/job</i>					
Goods Producing	784	1,710	2,210	2,300	2,840	3,500
Service Producing	400	870	1,130	1,170	1,450	1,790
Government	1,084	1,940	2,490	2,600	3,210	3,960
Total		4,520	5,830	6,070	7,500	9,250
Avg Sq Ft Per Job		734	736	734	735	735
<u>Nonres Acreage</u>						
	<i>FAR</i>					
Total Nonresidential	0.2	519	669	697	861	1,062
2004-2020						
<u>Annual Increase</u>		03-04	04-05	09-10	14-15	<i>Avg Anl</i>
Population		1,714	1,714	1,714	1,714	1,714
Jobs		326	340	420	518	475
Housing Units		685	682	676	675	676
Goods Producing KSF**		90	90	120	140	132
Service Producing KSF**		50	40	60	80	68
Government KSF**		100	110	140	170	149
Nonresidential Acreage		28	28	37	45	40

* The 2000 group quarters population is assumed to remain constant through 2020.

** KSF = square feet of floor area in thousands.

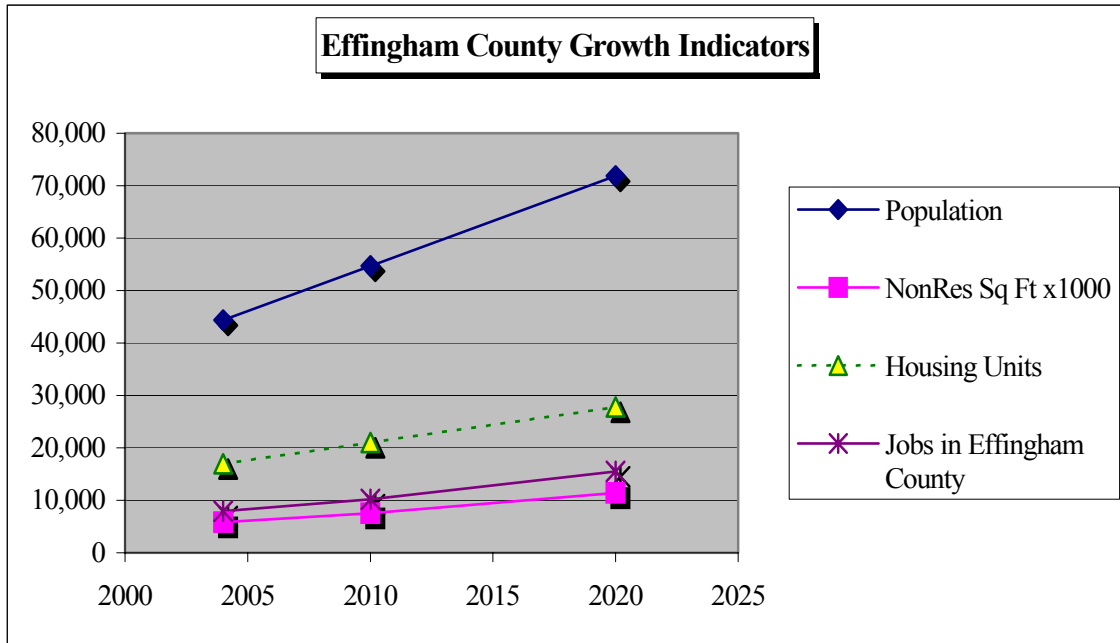
Demand Indicators for Capital Improvements

Key growth indicators for population, nonresidential floor area, housing units and jobs are summarized in Figure A8. The absolute increase in housing units is greater than the projected increase in jobs. However, in terms of growth rates, the simple (i.e., not compounded) annual growth rate for residential development is approximately 4% while nonresidential development increases slightly faster at approximately 6% per year.

Figure A8 – Summary of Growth Indicators

Effingham County, Georgia

	2004	2010	2020	2004 to 2020 Average Annual	
				Increase	Growth Rate
Population	44,392	54,677	71,819	1,714	3.9%
NonRes Sq Ft x1000	5,830	7,500	11,410	349	6.0%
Housing Units	16,966	21,036	27,789	676	4.0%
Jobs in Effingham County	7,926	10,200	15,531	475	6.0%



APPENDIX B – WATER AND SEWER SERVICE AREA MAPS

