



Georgia™
Department of
Community Affairs

October 1, 2009

Honorable Richard C. Wolfe
Chair, Troup County Commission
Post Office Box 1149
LaGrange, Georgia 30241-1149

Dear Chairman Wolfe:

Congratulations on the recent adoption of your Capital Improvements Element. Accordingly, the Department is pleased to extend Troup County's status as a Qualified Local Government (QLG) until its next required submittal is due. Please visit our website at www.georgiaplanning.com/planners/qlgdeadlines/ to keep abreast of upcoming planning deadlines for your community.

Please let us know if you find that your annual reporting deadline for your CIE Update is not the best fit for your community, considering that you must use audited financial information for these annual CIE updates. Your community should pick an annual deadline that allows a comfortable time after your audit is finished to complete your annual CIE update, submit to your Regional Commission for the 60-day review and comment period, and then adopt the update prior to the deadline. The available annual CIE update deadlines are February 28, June 30, and October 31 each year. If you would like to change this deadline, please give us a call. Note that your other required comprehensive plan deadlines will be adjusted to match the annual reporting deadline you select, although the year in which these items (such as your next full plan update) are due will not change.

As your community grows according to its plan, Development Impact Fees will help you finance the infrastructure necessary to maintain and improve your local quality of life. If you have any implementation questions or assistance needs with your impact fee program, please contact your Regional Commission or Rebecca Born of our office at 404-679-4859. Best wishes for your continuing success!

Sincerely,

Mike Beatty
Commissioner

MB/nah

cc: Lanier Boatwright, Three Rivers RC Executive Director
Lynne Miller, Three Rivers RC Historic Preservation Planner & Planning Director
Jeannie Brantley, Three Rivers RC Planning Director
Renetta Hobson, DCA Area Planner
Rebecca Born, DCA CIE Coordinator



Georgia, Troup County

Adoption Resolution
Capital Improvements Element
Troup County, Georgia

WHEREAS, Troup County has created a Capital Improvements Element as an amendment to the *Troup County Comprehensive Plan*; and

WHEREAS, the Capital Improvements Element was prepared, submitted and reviewed in accordance with the "Development Impact Fee Compliance Requirements" as adopted by the Board of Community Affairs pursuant to the Georgia Planning Act of 1989;

BE IT THEREFORE RESOLVED, that the Board of Commissioners of Troup County does hereby adopt the Capital Improvements Element, as per the requirements of the Development Impact Fee Compliance Requirements.

Adopted this 15th day of September, 2009.

BY: _____

ATTEST: _____

Capital Improvements Element

An Amendment to the
Troup County Comprehensive Plan



AS ADOPTED – September 15, 2009

ROSS+associates

urban planning & plan implementation

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Capital Improvements Element

An Amendment to the Troup County Comprehensive Plan

Introduction

The purpose of a Capital Improvements Element (CIE) is to establish where and when certain new capital facilities will be provided within a jurisdiction and how they may be financed through an impact fee program. As required by the Development Impact Fee Act, and defined by the Department of Community Affairs in its *Development Impact Fee Compliance Requirements*, the CIE must include the following for each category of capital facility for which an impact fee will be charged:

- the designation of **service areas** - the geographic area in which a defined set of public facilities provide service to development within the area;
- a **projection of needs** for the planning period of the adopted Comprehensive Plan;
- the designation of **levels of service** (LOS) - the service level that will be provided;
- a **schedule of improvements** listing impact fee related projects and costs for the first five years after plan adoption; and
- a description of **funding sources** proposed for each project during the first five years of scheduled system improvements.

System improvements expected to commence or be completed over the coming five years are also shown in the Short-Term Work Program (STWP). The STWP affects new and previously planned capital projects for the upcoming five-year period, beginning with the current year.

Categories for Assessment of Impact Fees

To assist in paying for the high costs of expanding public facilities and services to meet the needs of projected growth and to ensure that new development pays a reasonable share of the costs of public facilities, Troup County has developed this CIE for the categories of libraries, parks and public safety facilities (Fire, jail and Sheriff's Office).

Components of the Impact Fee System

The Troup County Impact Fee System consists of several components:

- The currently adopted Comprehensive Plan, including future land use assumptions and projected future demands;
- Service area population forecasts, based on population, households, dwelling unit and employment forecasts of the Comprehensive Plan;
- Service area definition and designation;
- Appropriate level of service standards for each impact fee eligible facility category;
- A methodology report, which establishes the impact cost of new growth and development and thus the maximum impact fees that can be assessed;
- This Capital Improvements Element to implement the County's proposed improvements; and
- A Development Impact Fee Ordinance, including an impact fee schedule by land use category.

Population and Employment Forecasts

In order to accurately calculate the demand for expanded services for Troup County, new growth and development must be quantified in future projections. These projections include forecasts for population, housing or dwelling units, and employment to the year 2030. These projections provide the base-line conditions from which the level of service calculations are produced. Also, projections are combined to produce what is known as 'day/night population.' This is a method that combines resident population and employees in the county to produce an accurate picture of the total number of persons that rely on certain services, such as law enforcement. The projections used for each public facility category are specified in each public facility chapter. These forecasts are based on the County's current *Comprehensive Plan Update* and revisions developed specifically for this report.

Accurate projections of population, housing units, and employment are important in that:

- Population data and forecasts are used to establish current and future demand for services standards where the Level of Service (LOS) is per capita based.
- Dwelling unit data and forecasts relate to certain service demands that are household based, such as libraries or parks, and are used to calculate impact costs in that the cost is assessed when a building permit is issued. The number of households—defined as *occupied* housing units—is always smaller than the supply of available housing units. Over time, however, each housing unit is expected to become occupied by a household, even though the unit may become vacant during future re-sales or turnovers.
- Employment data is combined with population data to produce 'day/night population' figures. These figures represent the total number of persons receiving services, both in their homes and in their businesses, particularly from 24-hour operations such as fire protection and law enforcement.

Future Growth Projections

Table P-1 presents the county and cities' forecasts for population for each year from 2005 to 2030. The figures in bold are drawn from the *Troup County Comprehensive Plan*—the beginning point for the impact fee program. Figures between the numbers in bold are based on the average annual rate of change between those years. Population forecasts for each city are based on that city's estimated proportional share of total county population in 2030.

The figures shown are, in essence, mid-year estimates reflecting Census Bureau practice. In other words, the increase in population between 2008 and 2009 would actually be from mid-2008 to mid-2009. This forecast methodology and source data reference is also used for the housing unit and employment forecasts that follow.

**Table P-1
Population Forecast
Troup County and Cities**

	Total County	Hogansville	LaGrange	West Point	Remainder of County
2005	62,070	2,520	24,211	5,131	30,208
2006	62,715	2,546	24,462	5,185	30,522
2007	63,366	2,573	24,716	5,239	30,839
2008	64,024	2,600	24,973	5,293	31,159
2009	64,689	2,627	25,232	5,348	31,482
2010	65,361	2,654	25,494	5,403	31,809
2011	66,320	2,693	25,868	5,483	32,276
2012	67,293	2,732	26,248	5,563	32,750
2013	68,280	2,772	26,633	5,645	33,230
2014	69,282	2,813	27,024	5,728	33,718
2015	70,298	2,854	27,420	5,812	34,212
2016	71,259	2,893	27,795	5,891	34,680
2017	72,232	2,933	28,174	5,971	35,154
2018	73,219	2,973	28,559	6,053	35,634
2019	74,220	3,014	28,950	6,136	36,121
2020	75,234	3,055	29,345	6,220	36,614
2021	76,660	3,113	29,901	6,338	37,308
2022	78,113	3,172	30,468	6,458	38,015
2023	79,593	3,232	31,046	6,580	38,736
2024	81,102	3,293	31,634	6,705	39,470
2025	82,639	3,355	32,234	6,832	40,218
2026	84,070	3,413	32,792	6,950	40,914
2027	85,525	3,473	33,359	7,070	41,623
2028	87,006	3,533	33,937	7,193	42,343
2029	88,512	3,594	34,524	7,317	43,076
2030	90,044	3,656	35,122	7,444	43,822

Source: Figures in **bold** are drawn from the Troup County Joint Comprehensive Plan: Community Data Assessment, Technical Addendum, Table 2 (Medium Growth Scenario); intervening years are based on average annual increase between the Plan figures.

City forecasts are based on proportional share of total county population, as observed in 2000 and applied to each year and city.

Table P-2 presents the housing unit forecasts for the county and cities. The figures for the entire county are based on an average household size (2.7 persons) plus an adjustment to account for an average 8% vacancy rate. Again, figures for the cities are based on proportional share of total county population in each given year.

Table P-2
Housing Unit Forecast
Troup County and Cities

	Total County	Hogansville	LaGrange	West Point	Remainder of County
2005	24,883	1,010	9,706	2,057	12,110
2006	25,142	1,021	9,807	2,078	12,236
2007	25,403	1,031	9,908	2,100	12,363
2008	25,667	1,042	10,011	2,122	12,491
2009	25,933	1,053	10,115	2,144	12,621
2010	26,203	1,064	10,220	2,166	12,752
2011	26,587	1,079	10,370	2,198	12,939
2012	26,977	1,095	10,523	2,230	13,129
2013	27,373	1,111	10,677	2,263	13,322
2014	27,774	1,128	10,834	2,296	13,517
2015	28,182	1,144	10,992	2,330	13,715
2016	28,567	1,160	11,143	2,362	13,903
2017	28,957	1,176	11,295	2,394	14,093
2018	29,353	1,192	11,449	2,427	14,285
2019	29,754	1,208	11,606	2,460	14,481
2020	30,161	1,225	11,764	2,493	14,678
2021	30,732	1,248	11,987	2,541	14,957
2022	31,315	1,271	12,214	2,589	15,240
2023	31,908	1,296	12,446	2,638	15,529
2024	32,513	1,320	12,682	2,688	15,823
2025	33,129	1,345	12,922	2,739	16,123
2026	33,703	1,368	13,146	2,786	16,402
2027	34,286	1,392	13,373	2,834	16,686
2028	34,880	1,416	13,605	2,884	16,975
2029	35,484	1,441	13,841	2,933	17,269
2030	36,098	1,466	14,080	2,984	17,568

Source: Figures are based on year 2000 average household size (2.7 persons) and an 8% vacancy rate.

City forecasts are based on proportional share of total county population, as observed in 2000 and applied to each year and city.

Day/Night Population Projections

The day/night population calculation is a combination of the population projections and future employment information. The use of day/night population in impact cost and impact fee calculations is based upon the clear rational nexus between persons and services demanded. There is a proportionality between resident population and business employment, and the resultant need for services.

Table P-3 presents the forecasts for employment growth in the county and its cities, from 2005 to 2030. All employment figures shown here were developed by the County specifically for use in this Report.

Table P-4 presents the calculation of 'day/night' population in the county and cities. This is the combination of residential population and employment in a given year. The 'day/night population' is used to determine level of service standards for facilities that serve both the resident population and business employment. The fire department, for instance, protects one's house from fire whether or not they are at home, and protects stores and offices whether or not they are open for business. Thus, this 'day/night' population is a measure of the total services demanded of a 24-hour provider facility and a fair way to allocate the costs of such a facility among all of the beneficiaries.

Table P-3
Employment Forecast
Troup County and Cities

	Total County	Hogansville	LaGrange	West Point	Remainder of County
2005	32,726	961	20,475	4,069	7,221
2006	33,262	961	20,592	4,488	7,221
2007	33,843	961	20,710	4,951	7,221
2008	34,471	961	20,828	5,462	7,221
2009	35,153	961	20,946	6,025	7,221
2010	35,894	961	21,066	6,646	7,221
2011	36,052	965	21,159	6,675	7,253
2012	36,211	969	21,252	6,705	7,285
2013	36,371	974	21,346	6,734	7,317
2014	36,531	978	21,440	6,764	7,349
2015	37,509	1,004	22,014	6,945	7,546
2016	37,645	1,008	22,094	6,970	7,573
2017	37,782	1,011	22,174	6,996	7,601
2018	37,920	1,015	22,255	7,021	7,629
2019	38,058	1,019	22,336	7,047	7,656
2020	38,896	1,041	22,828	7,202	7,825
2021	38,908	1,041	22,835	7,204	7,827
2022	38,920	1,042	22,842	7,206	7,830
2023	38,932	1,042	22,849	7,209	7,832
2024	38,944	1,043	22,856	7,211	7,835
2025	39,015	1,045	22,897	7,224	7,849
2026	39,034	1,045	22,908	7,228	7,853
2027	39,054	1,046	22,920	7,231	7,857
2028	39,073	1,046	22,931	7,235	7,861
2029	39,092	1,047	22,943	7,238	7,865
2030	39,209	1,050	23,011	7,260	7,888

Source: Figures were developed by the County specifically for use in this report.

Table P-4
Day/Night Population Forecasts
Troup County and Cities

	Total County	Hogansville	LaGrange	West Point	Remainder of County
2005	94,796	3,481	44,686	9,200	37,429
2006	95,977	3,507	45,054	9,673	37,743
2007	97,209	3,534	45,426	10,190	38,060
2008	98,495	3,561	45,801	10,755	38,380
2009	99,842	3,588	46,179	11,373	38,703
2010	101,255	3,615	46,560	12,049	39,030
2011	102,372	3,658	47,027	12,158	39,529
2012	103,504	3,702	47,500	12,268	40,034
2013	104,651	3,746	47,979	12,379	40,547
2014	105,813	3,791	48,464	12,492	41,067
2015	107,807	3,858	49,434	12,757	41,758
2016	108,904	3,901	49,889	12,861	42,253
2017	110,015	3,944	50,349	12,967	42,755
2018	111,139	3,988	50,815	13,074	43,263
2019	112,278	4,032	51,286	13,182	43,777
2020	114,130	4,096	52,173	13,422	44,439
2021	115,568	4,154	52,736	13,542	45,136
2022	117,033	4,213	53,310	13,664	45,845
2023	118,525	4,274	53,894	13,789	46,568
2024	120,045	4,336	54,490	13,916	47,305
2025	121,654	4,400	55,131	14,056	48,067
2026	123,104	4,459	55,700	14,178	48,767
2027	124,579	4,519	56,279	14,302	49,479
2028	126,079	4,579	56,868	14,428	50,204
2029	127,604	4,641	57,467	14,556	50,941
2030	129,253	4,706	58,133	14,704	51,710

Day/Night population is the combination of residents and employment in a given year.

Service Area Projections

In **Table P-5** the service area forecasts are presented for a county-wide service areas measured in four ways: county-wide dwelling units (which includes library and parks), county-wide day/night population (Sheriff's Office), county-wide day/night population outside West Point (911), and county-wide day/night population outside LaGrange (fire protection). These are the figures that will be used in subsequent service category chapters to calculate impact costs and fees.

**Table P-5
Service Area Forecasts
2008 - 2030**

	County-wide Dwelling Units (Library, Parks)	County-wide Day/Night Population (Sheriff's Office)	County-wide Day/Night Population EXCEPT West Point (911)	County-wide Day/night population EXCEPT LaGrange and West Point (Fire Protection)
2008	25,667	98,495	85,596	41,940
2009	25,933	99,842	86,304	42,291
2010	26,203	101,255	87,019	42,645
2011	26,587	102,372	87,741	43,187
2012	26,977	103,504	88,470	43,736
2013	27,373	104,651	89,206	44,293
2014	27,774	105,813	90,214	44,858
2015	28,182	107,807	91,236	45,616
2016	28,567	108,904	92,272	46,154
2017	28,957	110,015	93,322	46,699
2018	29,353	111,139	95,050	47,250
2019	29,754	112,278	96,043	47,809
2020	30,161	114,130	97,048	48,535
2021	30,732	115,568	98,065	49,290
2022	31,315	117,033	99,095	50,059
2023	31,908	118,525	100,708	50,842
2024	32,513	120,045	102,026	51,640
2025	33,129	121,654	103,369	52,468
2026	33,703	123,104	104,736	53,226
2027	34,286	124,579	106,130	53,998
2028	34,880	126,079	107,598	54,783
2029	35,484	127,604	108,926	55,582
2030	36,098	129,253	110,277	56,416
Net Increase, 2008-2030:				
	10,431	30,758	24,681	14,476

Cost Adjustments

Cost Adjustments

Calculations related to impact fees are made in terms of the 'present value' of past and future amounts of money, including project cost expenditures and credits for future revenue. The Georgia Development Impact Fee Act defines 'present value' as "the current value of past, present, or future payments, contributions or dedications of goods, services, materials, construction, or money." This Section describes the methodologies used to make appropriate adjustments to project cost figures, both past and future, to convert such costs into current dollars, and to determine the present value of future revenue from new development that would be applied as a credit against impact fees.

Calculations for present value (PV) differ when considering past expenditures versus future costs. In both cases, however, the concept is the same – the 'actual' expenditure made or to be made is adjusted to the current year using appropriate rates (an inflation rate for past expenditures and a deflator for future costs). In essence, the present value is considered in light of an alternate investment strategy – a determination of what the same amount of money would be worth if it were invested rather than spent.

Past Expenditures

Past expenditures are considered in impact fee calculations only for previous expenditures for projects that created excess capacity for new development and are being recouped. An expenditure that was made in the past is converted to PV using the inflation rate of money – in this case the Consumer Price Index (CPI). Although this approach ignores the value of technological innovation (i.e., better computers are available today for the same historic prices) and evolving land prices (often accelerated beyond inflation by market pressures), the approach best captures the value of the money actually spent. For instance, it is not important that you can buy a better computer today for the same price that was paid 5 years ago; what is important is the money was spent 5 years ago and what that money would be worth today had it been saved instead of spent.

**Table C-1
Consumer Price Index -- 1967-2008**

CPI*		Examples of Present Value in 2008		
1967=100%				
1967	100.0	\$ 100,000		
1968	104.2	104,200		
1969	109.8	109,800		
1970	116.3	116,300		
1971	121.3	121,300		
1972	125.3	125,300		
1973	133.1	133,100		
1974	147.7	147,700		
1975	161.2	161,200		
1976	170.5	170,500		
1977	181.5	181,500		
1978	195.4	195,400		
1979	217.4	217,400		
1980	246.8	246,800		
1981	272.4	272,400		
1982	289.1	289,100		
1983	298.4	298,400		
1984	311.1	311,100		
1985	322.2	322,200		
1986	328.4	328,400		
1987	340.4	340,400		
1988	354.3	354,300	\$ 100,000	
1989	371.3	371,300	104,798	
1990	391.4	391,400	110,471	
1991	408.0	408,000	115,157	
1992	420.3	420,300	118,628	
1993	432.7	432,700	122,128	
1994	444.0	444,000	125,318	
1995	456.5	456,500	128,846	
1996	469.9	469,900	132,628	
1997	480.8	480,800	135,704	
1998	488.3	488,300	137,821	\$ 100,000
1999	499.0	499,000	140,841	102,191
2000	515.8	515,800	145,583	105,632
2001	530.4	530,400	149,704	108,622
2002	538.8	538,800	152,075	110,342
2003	551.1	551,100	155,546	112,861
2004	565.8	565,800	159,695	115,871
2005	585.0	585,000	165,114	119,803
2006	603.9	603,900	170,449	123,674
2007	621.1	621,100	175,303	127,196
2008	645.0	\$ 645,000	\$ 182,049	\$ 132,091

Table C-1 shows the historic CPI figures going back to 1967. The approach to bring past expenditures up to current dollars (PV) is straight-forward – the year in which the expenditure is made is inflated to the current year

*Consumer Price Index data is from the U. S. Department of Labor.

using the annual CPI figures. For instance, \$100 spent in 1967 would require the expenditure of \$645 in 2008 just to stay abreast of inflation; the PV of \$100 in 1967, therefore, is \$645. (Other examples are also shown on the table).

Future Project Costs

In order to determine the present value of a project expenditure that will be made in the future, the Net Present Value (NPV) of the expenditure is determined. To determine the NPV of any project cost, two figures are needed – the future cost of the project anticipated in the year the expenditure will be made, and the net discount rate. Given the current cost of a project, that cost is first inflated into the future to the target expenditure year to establish the estimated future cost. The future cost is then deflated to the present using the net discount rate, which establishes the NPV for the project in current dollars. These two formulas are:

$$\text{Future Cost} = \text{Current Cost} \times (1 + \text{Inflation Rate})^{\text{Year of Expenditure} - \text{Current Year}}$$

$$\text{Net Present Value} = \text{Future Cost} \times (1 + \text{Net Discount Rate})^{\text{Current Year} - \text{Year of Expenditure}}$$

In this section two important adjustments are discussed that are required to convert current costs into future cost figures, and then back into current dollars. First, a cost inflator is examined. This adjustment factor is important in determining the future cost of a project, based on current cost estimates. The cost inflator may be based on anticipated inflation in construction or building costs, or on anticipated inflation in the value of money (for capital projects that do not include a construction component). In essence, costs increase over time. By identifying the appropriate inflation rate that is related to the type of project (building, project construction or nonconstruction), current estimates can be used to predict future costs.

The second cost adjustment is a deflator – the Net Discount Rate – based on potential interest earnings. In essence, the Net Discount Rate represents the amount of money that, if invested instead of spent, would be put 'in the bank' now to grow with interest to pay for future costs when the money is needed. The discount rate is both 'net' of taxes and other administrative costs, and is the most risk-free investment available. For the calculations included in this report, an anticipated rate of 3.00% is used, based on the local government's current experience and anticipated conditions.

Cost Inflat

Three different cost inflators are used in the impact fee calculations, based on the type of project being considered. For infrastructure projects, such as roads or ball fields, a 'construction cost inflator' is used. For projects that require construction of a structure (such as a fire station), a 'building cost inflator' is used as the appropriate inflation rate. For all non-construction types of projects (such as a fire truck or park land), an inflation rate is used that is based on the Consumer Price Index. These different types of inflators are discussed below.

Engineering News Record's Cost Indexes

ENR publishes both a Construction Cost Index (CCI) and a Building Cost Index (BCI) for the Atlanta area that are widely used in the construction industry. Both indexes have a materials and labor component. The components that comprise the CCI are: 200 hours of common labor at the local average of common labor rates, plus 25 cwt of standard structural steel shapes at the fabricated local price, plus 1.128 tons of portland cement at the local price, plus 1,088 board-ft of 2 x 4 lumber at the local price. For calculation of the CCI, costs in 1913 are set at 100. The BCI uses a labor component of 68.38 hours of skilled labor at the average local wage rate, plus fringes, for carpenters, bricklayers and structural ironworkers. The materials component is the same as that used in the CCI, and the BCI is also set at 100 in 1913.

Construction Cost Inflator

Table C-2 uses the example of a calculation of the annual average rate of increase reflected in construction costs. For this analysis, the 1999-2008 period is used as a base time period for an estimate of future construction cost increases due to inflation in labor and materials costs.

Table C-2 shows a construction project that cost \$100,000 in 1999, and how much the same project would cost in each subsequent year using the Construction Cost Index published by Engineering News Record for the Atlanta area. Setting the 1999 Construction Cost Index (CCI) at '1.0,' the increase in the CCI as a multiple of 1999 is also shown on the table. The equivalent cost of the same project in each subsequent year is calculated by multiplying the CCI multiplier times \$100,000. When the total for all such projects is summed for the 1999-2008 period, the equivalent average annual rate of increase is calculated as the percentage that would produce the same total. This percentage is used in the text of this analysis as the applicable inflator for future construction projects that will begin in years after 2008.

Table C-2
Construction Cost Inflator -- CCI

Year	Amount	CCI*		Effect of Inflation	
		1913=100	1998=1.0	CCI	Avg. Rate =
					3.879837%
1999	\$ 100,000.00	3849.39	1.0000	\$ 100,000.00	\$ 100,000.00
2000		4105.86	1.0666	\$ 106,662.61	\$ 103,879.84
2001		4045.52	1.0510	\$ 105,095.09	\$ 107,910.21
2002		4189.12	1.0883	\$ 108,825.55	\$ 112,096.94
2003		4374.69	1.1365	\$ 113,646.32	\$ 116,446.12
2004		4611.31	1.1979	\$ 119,793.27	\$ 120,964.04
2005		4829.74	1.2547	\$ 125,467.67	\$ 125,657.25
2006		4893.35	1.2712	\$ 127,120.14	\$ 130,532.55
2007		5259.37	1.3663	\$ 136,628.66	\$ 135,597.00
2008		5801.13	1.5070	\$ 150,702.58	\$ 140,857.94
				\$ 1,193,941.89	\$ 1,193,941.89

* Construction Cost Index.
Source: *Engineering News Record*, Annual (December) Indices.

Building Cost Inflator

The inflator for future construction costs for buildings is based on ENR's Building Cost Index for each year from 1999 through 2008, and is calculated in the same manner as described above for the Construction Cost Inflator. Table C-3 shows the results.

**Table C-3
Building Cost Inflatior -- BCI**

Year	Amount	BCI*		Effect of Inflation	
		1913=100	1998=1.0	BCI	Avg. Rate =
					3.204070%
1999	\$ 100,000.00	2,816.44	1.0000	\$ 100,000.00	\$ 100,000.00
2000		2,947.56	1.0466	\$ 104,655.52	\$ 103,204.07
2001		2,928.63	1.0398	\$ 103,983.40	\$ 106,510.80
2002		2,942.62	1.0448	\$ 104,480.12	\$ 109,923.48
2003		3,018.37	1.0717	\$ 107,169.69	\$ 113,445.51
2004		3,321.80	1.1794	\$ 117,943.22	\$ 117,080.38
2005		3,599.04	1.2779	\$ 127,786.85	\$ 120,831.71
2006		3,624.54	1.2869	\$ 128,692.25	\$ 124,703.25
2007		3,624.54	1.2869	\$ 128,692.25	\$ 128,698.83
2008		3,768.88	1.3382	\$ 133,817.16	\$ 132,822.43
				\$ 1,157,220.46	\$ 1,157,220.46

* Building Cost Index.

Source: *Engineering News Record*, Annual (December) Indices.

CPI Inflatior

For projects that do not involve construction, only the future value of money needs to be considered (without regard to inflation in labor or materials costs). For this calculation, the Consumer Price Index (CPI) is used, assuming past experience will continue into the foreseeable future.

Table C-4 shows the CPI figures for every year since 1967, with 1967 being 100%. In 2008 the CPI is 644.951% of the 1967 CPI. Thus, an amount of money saved in 1967 would be worth 6.45 times its 1967 face value in 2008, including interest earned and discounted for inflation. The first column under the CPI heading shows the annual CPI percentages. Using 2008 as the base (2008=1.0), the second column under CPI on the table shows the multipliers that would convert an amount of money spent in each year into year 2008 present value dollars.

Using an annual amount of \$10,000 as an example, the multipliers yield the figures shown for the CPI on the table under the Present Value heading. Cumulatively, the \$420,000 spent over the 1967-2008 period would have a total present value of just over a million dollars. Considering the present value figures for the \$10,000 annual expenditures, an 'average' overall inflation rate of almost 4.08% yields the same total amount over the same period.

The 42-year average of annual CPI change (the period of 1967-2008) shown on Table C-4 includes years of great variation, and may not be the best indicator of future change. While the historic CPI multipliers reflect major swings in interest and inflation in the past, these rates have moderated considerably in recent years as inflation has become a primary target of federal monetary policy. Looking only at the change in CPI from 1999 to 2008, an average annual inflation rate of about 3.02% best captures the change over that period. This lower inflation rate (compared to the 1967-2008 period) is assumed to be experienced 'on average' in future years, and is used for inflator calculations for future nonconstruction expenditures.

Table C-4
Non-Construction Cost Inflator -- CPI
Based on Historic Consumer Price Index

Year	Amount	CPI		Present Value		
		1967=100%*	2008.=1.0	CPI	Inflator =	
					4.07591%	
1967	\$ 10,000.00	100.0	6.44951	\$ 64,495.10	51,446.84	
1968	10,000.00	104.2	6.18955	61,895.49	49,432.04	
1969	10,000.00	109.8	5.87387	58,738.71	47,496.14	
1970	10,000.00	116.3	5.54558	55,455.80	45,636.05	
1971	10,000.00	121.3	5.31699	53,169.91	43,848.82	
1972	10,000.00	125.3	5.14725	51,472.55	42,131.57	
1973	10,000.00	133.1	4.84561	48,456.12	40,481.58	
1974	10,000.00	147.7	4.36663	43,666.28	38,896.21	
1975	10,000.00	161.2	4.00094	40,009.37	37,372.92	
1976	10,000.00	170.5	3.78270	37,827.04	35,909.29	
1977	10,000.00	181.5	3.55345	35,534.49	34,502.98	
1978	10,000.00	195.4	3.30067	33,006.70	33,151.74	
1979	10,000.00	217.4	2.96666	29,666.56	31,853.43	
1980	10,000.00	246.8	2.61325	26,132.54	30,605.96	
1981	10,000.00	272.4	2.36766	23,676.62	29,407.34	
1982	10,000.00	289.1	2.23089	22,308.92	28,255.66	
1983	10,000.00	298.4	2.16136	21,613.64	27,149.09	
1984	10,000.00	311.1	2.07313	20,731.31	26,085.86	
1985	10,000.00	322.2	2.00171	20,017.10	25,064.26	
1986	10,000.00	328.4	1.96392	19,639.19	24,082.67	
1987	10,000.00	340.4	1.89469	18,946.86	23,139.53	
1988	10,000.00	354.3	1.82035	18,203.53	22,233.32	
1989	10,000.00	371.3	1.73701	17,370.08	21,362.60	
1990	10,000.00	391.4	1.64781	16,478.05	20,525.98	
1991	10,000.00	408.0	1.58076	15,807.62	19,722.12	
1992	10,000.00	420.3	1.53450	15,345.02	18,949.75	
1993	10,000.00	432.7	1.49053	14,905.27	18,207.62	
1994	10,000.00	444.0	1.45259	14,525.92	17,494.56	
1995	10,000.00	456.5	1.41282	14,128.17	16,809.42	
1996	10,000.00	469.9	1.37253	13,725.28	16,151.12	
1997	10,000.00	480.8	1.34141	13,414.12	15,518.59	Inflator =
1998	10,000.00	488.3	1.32081	13,208.09	14,910.84	3.02086%
1999	10,000.00	499.0	1.29249	12,924.87	14,326.89	13,071.53
2000	10,000.00	515.8	1.25039	12,503.90	13,765.81	12,688.24
2001	10,000.00	530.4	1.21597	12,159.71	13,226.70	12,316.19
2002	10,000.00	538.8	1.19701	11,970.14	12,708.70	11,955.04
2003	10,000.00	551.1	1.17030	11,702.98	12,211.00	11,604.49
2004	10,000.00	565.8	1.13989	11,398.92	11,732.78	11,264.21
2005	10,000.00	585.0	1.10248	11,024.80	11,273.29	10,933.91
2006	10,000.00	603.9	1.06798	10,679.76	10,831.79	10,613.30
2007	10,000.00	621.1	1.03839	10,383.91	10,407.59	10,302.09
2008	10,000.00	645.0	1.00000	10,000.00	10,000.00	10,000.00
1967-08	\$ 420,000.00			\$1,068,320.44	\$1,068,320.43	
1999-08	\$ 100,000.00			\$114,748.99		\$114,748.99

*Consumer Price Index data is from the U. S. Department of Labor.

NPV Net Discount Rate

The Consumer Price Index is also used in determining the current value of money that will be spent in the future, based on inflation (the Net Present Value). In essence, the approach compares the expenditure to placing the funds in a savings account. That is, if one planned to spend \$10,000 in 2010, how much would need to be placed in a savings account now to have \$10,000 at that time? Since impact fees deal in public dollars, no deduction for taxes is required in the calculations.

Library Services

Introduction

The Troup County Library System provides library services through a two facilities located in LaGrange and Hogansville. These libraries are operated and maintained by financial contributions from the State of Georgia, Troup County, and the Library System. The libraries provide services to all residents of Troup County through a variety of information and materials, facilities and programs. The library system serves all persons on an equal basis in meeting their educational, recreational, civic, economic and spiritual needs.

Demand for library services is almost exclusively related to the county's resident population. Businesses make some use of public libraries for research purposes, but the use is incidental compared to that of the families and individuals who live in the county. Thus, a library services system impact fee is limited to future residential growth.

**Table L-1
Inventory of Library Facilities**

Facility	Square Feet	Collection Materials
LaGrange	31,591	119,371
Hogansville	3,000	19,744
	34,591	139,115

Service Area

Materials, facilities and services of the Troup County libraries are equally available to the County's population. The entire county is considered a single service district for library services. An improvement in any part of the county increases service to all parts of the county to some extent.

Level of Service

The year 2008 level of service is determined by an inventory of the existing library facility and collection materials (with a useful life of at least ten years), as shown above in **Table L-1**. Level of service calculations, shown in **Table L-2**, determine that the facility provides 5.420 collection materials and 1.3477 square feet of library space per dwelling unit to serve the current population.

**Table L-2
Current Level of Service Calculation**

Existing Square Feet	2008 Dwelling Units	SF per dwelling unit
34,591	25,667	1.3477

Existing Collection Materials	2008 Dwelling Units	Collection Materials/ dwelling unit
139,115	25,667	5.420

FUTURE DEMAND

The County has adopted a level of service for library facilities based on the current level of service in facility space and collection materials. There is no existing deficiency. In **Table L-3**, the facility space and collection materials levels of service figure from Table L-2 are used to calculate future demand in square feet and collection volumes between 2008 and 2030. The additional number of forecasted dwelling units to the year 2030 is multiplied by the level of service to produce the future demand figures. Based on the adopted LOS, future growth will demand 14,058 additional square feet of library space by the year 2030 in order to maintain the adopted level of service. In addition, 56,537 collection materials will need to be added to serve new growth to 2030. Ultimately, more collection materials will need to be acquired in order to account for future collection material discards (see Table L-5).

**Table L-3
Future Demand Calculation**

SF per dwelling unit	Number of New Dwelling Units (2008-30)	SF Demanded by New Growth
1.3477	10,431	14,058

Collection Materials/ dwelling unit	Number of New Dwelling Units (2008-30)	Collection Materials Demanded
5.420	10,431	56,537

Table L-4 presents the expected facility space demand in an annual format, accompanied by library facility projects proposed to meet (and exceed) this demand. These projects could be re-configured; it is the addition of 14,058 square feet that is required to serve new growth to 2030, not the specific configuration.¹

**Table L-4
Future Library Facility Projects**

Year	New Dwelling Units	SF Demanded (annual)	Running Total: SF Demanded	Project	Net New Square Footage
2008	0	0			
2009	267	359	359		
2010	269	363	722		
2011	384	518	1,240		
2012	390	526	1,766		
2013	396	533	2,299		
2014	402	541	2,841	Hogansville (expansion)	3,000
2015	407	549	3,390		
2016	385	519	3,909		
2017	390	526	4,435		
2018	396	533	4,968		
2019	401	541	5,509		
2020	407	548	6,056		
2021	572	770	6,827		
2022	582	785	7,612		
2023	594	800	8,412	West Point Library	15,000
2024	605	815	9,227		
2025	616	830	10,057		
2026	574	773	10,830		
2027	583	786	11,616		
2028	594	800	12,416		
2029	604	814	13,230		
2030	614	828	14,058		
Total to Meet New Growth Demand:					18,000

¹ The proposed Hogansville Library expansion, for example, faces significant issues for expansion at the current site. The site itself has limited space, and the facility would revert to city ownership should the library be moved. Replacement square footage at another location would not be impact fee eligible (since it replaces existing space), but any square footage in a new facility beyond the current facility size (3,000 square feet) could be eligible.

Table L-5 presents the figures for collection material demand. Materials demanded by new growth are calculated in the first columns. Note that the 'Materials Demanded (annual)' column represents the number of materials that must be purchased in order to meet new growth's demand.

**Table L-5
Future Collection Materials Demanded**

Year	New Growth Demand			Plus Discarded Materials	Total Materials Needed (annual)	
	New Dwelling Units	Materials Demanded (annual)	Running Total			
2008	0	0	0	0	0	
2009	267	1,445	1,445	14	1,459	
2010	269	1,460	2,905	15	1,475	
2011	384	2,083	4,988	21	2,104	
2012	390	2,114	7,102	21	2,135	
2013	396	2,145	9,247	21	2,166	
2014	402	2,176	11,424	22	2,198	
2015	407	2,208	13,632	22	2,230	
2016	385	2,087	15,719	21	2,108	
2017	390	2,116	17,835	21	2,137	
2018	396	2,145	19,980	21	2,166	
2019	401	2,174	22,154	22	2,196	
2020	407	2,204	24,357	22	2,226	
2021	572	3,098	27,456	31	3,129	
2022	582	3,157	30,613	32	3,189	
2023	594	3,217	33,829	32	3,249	
2024	605	3,278	37,107	33	3,311	
2025	616	3,340	40,447	33	3,373	
2026	574	3,108	43,556	31	3,139	
2027	583	3,162	46,718	32	3,194	
2028	594	3,217	49,935	32	3,249	
2029	604	3,273	53,208	33	3,306	
2030	614	3,329	56,537	33	3,362	
56,537					565	57,102
Total to Meet new Growth Demand						56,537

For collection materials the number of new items demanded by new growth that will be retained for at least 10 years is increased by an anticipated discard rate of 1.0% for "weeded" materials. This rate represents the number of materials required to meet the demand, as well as those "weeded" from the collection in a normal year. By including the weeded materials, the resulting 'total materials needed' reflects the total number of items required annually to maintain the LOS once these non-impact fee eligible materials are discarded. 56,537 new materials will be needed to meet the demand of new growth to the year 2030; a total of 57,102 items will need to be purchased to maintain the level of service for new and existing development and to account for discarded materials (56,537 items for new growth, plus 565 items to account for discarded materials).

FUTURE COSTS

The building floor area and new collection materials needed to serve new growth identified in Tables L-4 and L-5 are used to calculate the future cost to meet service demand, as shown in **Tables L-6** and **L-7**. The costs are shown in current dollars, and then adjusted to reflect the net present value. For facility construction (Table L-6), the cost of construction is adjusted to reflect the construction cost inflation factor, before conversion to net present value.² Library facility construction cost is based on estimated costs of comparable facilities. Because the second proposed facility represents more square feet than are required to serve new growth to 2030, it is not entirely impact fee eligible. (The value of this excess capacity—representing facility space available to serve new growth beyond the current planning horizon—can be recouped through impact fee collections after 2030.)

Table L-6
Facility Costs to Meet Future Demand

Year	Project	Square Footage	Gross Cost*	Adjusted Construction Cost**	Const. Cost - Net Present Value**	% for New Growth	New Growth Cost (NPV)
2014	Hogansville (expansion)	3,000	\$600,000	\$724,990	\$607,168	100.00%	\$607,168
2023	West Point Library	15,000	\$3,000,000	\$4,814,748	\$3,090,404	73.72%	\$2,278,247
		18,000	\$3,600,000	\$5,539,739	\$3,697,572		\$2,885,415

*Cost is based on comparable facility cost estimates.

**Adjusted cost is based on building construction cost estimate adjustment (Table C-3); net present value is based on anticipated interest earnings.

² For more information on the cost inflator factor and net present value, see the 'Cost Adjustments' section of this report.

In Table L-7 collection materials costs are estimated, forecasted state aid is subtracted, and the resulting cost estimates are converted into a net present value figure.³ The percentage of the cost attributable for new growth in each year is based on the percentage of total items demanded that are attributable to new growth's demand (drawn from Table L-5).

**Table L-7
Collection Materials Costs to Meet Future Demand**

Year	Materials Needed (annual)	Gross Cost*	State Aid**	Net Local Cost	Adjusted Cost (Inflation)***	Net Present Value (Adjusted Cost)***	% for New Growth	New Growth Cost (NPV)
2009	1,459	\$43,649.41	(\$10,936.67)	\$32,712.74	\$33,700.94	\$32,719.36	99.04%	\$32,405.37
2010	1,475	\$44,128.33	(\$11,050.26)	\$33,078.06	\$35,106.74	\$33,091.47	98.98%	\$32,754.91
2011	2,104	\$62,964.90	(\$11,212.37)	\$51,752.53	\$56,585.75	\$51,783.98	99.00%	\$51,267.23
2012	2,135	\$63,879.38	(\$11,376.86)	\$52,502.52	\$59,139.94	\$52,545.07	99.02%	\$52,028.23
2013	2,166	\$64,807.28	(\$11,543.76)	\$53,263.52	\$61,809.57	\$53,317.48	99.03%	\$52,800.56
2014	2,198	\$65,778.71	(\$11,713.10)	\$54,065.60	\$64,635.65	\$54,131.34	99.00%	\$53,589.65
2015	2,230	\$66,734.03	(\$11,884.94)	\$54,849.09	\$67,553.16	\$54,926.90	99.01%	\$54,385.12
2016	2,108	\$63,077.73	(\$12,047.34)	\$51,030.39	\$64,748.58	\$51,113.13	99.00%	\$50,603.99
2017	2,137	\$63,931.07	(\$12,211.96)	\$51,719.11	\$67,604.81	\$51,813.46	99.02%	\$51,304.23
2018	2,166	\$64,796.07	(\$12,378.83)	\$52,417.24	\$70,587.19	\$52,523.50	99.03%	\$52,014.18
2019	2,196	\$65,702.81	(\$12,547.98)	\$53,154.83	\$73,742.80	\$53,273.37	99.00%	\$52,739.65
2020	2,226	\$66,591.61	(\$12,719.44)	\$53,872.17	\$76,995.71	\$54,003.24	99.01%	\$53,469.44
2021	3,129	\$93,628.70	(\$12,960.51)	\$80,668.18	\$118,776.23	\$80,880.84	99.01%	\$80,079.60
2022	3,189	\$95,415.59	(\$13,206.16)	\$82,209.43	\$124,702.20	\$82,442.84	99.00%	\$81,615.58
2023	3,249	\$97,205.86	(\$13,456.45)	\$83,749.41	\$130,875.81	\$84,004.20	99.02%	\$83,176.79
2024	3,311	\$99,059.98	(\$13,711.49)	\$85,348.49	\$137,403.77	\$85,625.48	99.00%	\$84,772.03
2025	3,373	\$100,918.76	(\$13,971.37)	\$86,947.39	\$144,206.40	\$87,247.24	99.02%	\$86,393.64
2026	3,139	\$93,933.50	(\$14,213.23)	\$79,720.27	\$136,214.05	\$80,011.40	99.01%	\$79,221.35
2027	3,194	\$95,573.49	(\$14,459.29)	\$81,114.21	\$142,782.59	\$81,426.92	99.00%	\$80,611.19
2028	3,249	\$97,211.44	(\$14,709.60)	\$82,501.84	\$149,612.24	\$82,836.67	99.02%	\$82,020.81
2029	3,306	\$98,907.66	(\$14,964.24)	\$83,943.41	\$156,825.00	\$84,301.17	99.00%	\$83,459.62
2030	3,362	\$100,602.80	(\$15,223.30)	\$85,379.51	\$164,326.46	\$85,760.75	99.02%	\$84,919.05
	57,102	\$1,708,499.07	(\$282,499.14)	\$1,425,999.93	\$2,137,935.59	\$1,429,779.80		\$1,415,632.23

*Cost is based on average unit cost of \$29.92 per item.

**State aid is based on most recent average of \$0.34 per capita towards collection materials purchase.

***Adjusted cost is based on on CPI adjustment (Table C-4); net present value is based on anticipated interest earnings.

³ For more information on the cost inflator factor and net present value, see the 'Cost Adjustments' section of this report.

Fire Protection

Introduction

Fire protection is provided by the County to the entire county, with the exception of the Cities of LaGrange and West Point, by the county Fire Department. The capital value of this service is based upon fire stations, administrative office space, land, and apparatus. In 2008, fire protection services were provided by 12 facilities with a combined square footage of 38,920, utilizing a total of 36 heavy vehicles. **Table F-1** presents the summary 2008 inventory of facilities and heavy vehicles in the county.

Table F-1
Inventory of Fire Facilities

<u>Description</u>	<u>Square Feet</u>	<u>Heavy Vehicles</u>
<i>Facility Space</i>		
Station 1	5,000	
Station 2	3,000	
Station 3	3,200	
Station 4	5,520	
Station 5	3,200	
Station 6	2,400	
Station 7	2,400	
Station 8	1,800	
Station 9	3,200	
Station 10	3,200	
Station 11	3,000	
Station 12	3,000	
<i>Heavy Vehicles</i>		
Engine		17
Tanker		9
Rescue		2
Tractor		1
Staff		5
Support & Utility		2
	38,920	36

Service Area

The Department, providing fire protection, operates as a coordinated system, with each station backing up the other stations in the system. The backing up of another station is not a rare event; it is the essence of good fire protection planning. All stations do not serve the same types of land uses, nor do they all have the same apparatus. It is the strategic placement of personnel and equipment that is the backbone of good fire protection. Any new station would relieve some of the demand on the other stations. Since the stations would continue to

operate as “backups” to the other stations, everyone in the county would benefit by the construction of the new station since it would reduce the “backup” times the station nearest to them would be less available. For these reasons the entire county (excepting LaGrange and West Point, which operate independent fire departments) is considered a single service area for the provision of the fire protection because all residents and employees within this area have equal access to the benefits of the County program.

Level of Service

The level of service for fire protection in Troup County is measured in terms of number of heavy vehicles (engines, tankers, etc.), and the number of square feet of fire station space, per day/night population in the service area. Day/night population is used as a measure in that fire protection is a 24-hour service provided continuously to both residences and businesses in the service area. **Table F-2** presents the calculation of the year 2008 level of service.

**Table F-2
Current Level of Service Calculation**

Existing Square Feet	2008 day/night population	SF per Day/night population
38,920	41,940	0.9280

Existing Heavy Vehicles	2008 day/night population	Heavy Vehicles/Day/night pop
36	41,940	0.000858

FUTURE DEMAND

For the purposes of impact fee calculations the County has determined that a level of service, based on the current LOS, would be adequate to serve the future service area population then projected for the year 2030. The adopted LOS standards from Table F-2 are thus multiplied by the forecasted day/night population increase to produce the expected future demand in **Table F-3**. The 'day/night population increase' figure is taken from Table P-5. There is no existing deficiency in facility space or heavy vehicles.

**Table F-3
Future Demand Calculation**

SF per Day/night population	Day/night Pop Increase (2008-30)	SF Demanded by New Growth
0.9280	14,476	13,433

Heavy Vehicles/Day/night pop	Day/night Pop Increase (2008-30)	New Heavy Vehicles Demanded
0.000858	14,476	12

Tables F-4 and F-5 provide an annual breakdown of the demand for stations and equipment following the adopted level of service standards. The facility projects shown in Table F-4 are based on the County's desire to increase the inventory of fire stations in a balanced way; the final projects could be reconfigured, with 13,433 square feet ultimately impact fee eligible.

**Table F-4
Future Fire Facility Projects**

Year	Day/night Pop Increase	SF Demanded (annual)	Running Total: SF Needed	Project	Net New Square Footage
2008	0	0			
2009	351	325	325		
2010	354	329	654		
2011	542	503	1,157		
2012	549	510	1,666		
2013	557	517	2,183		
2014	565	524	2,707		
2015	759	704	3,411		
2016	538	499	3,910		
2017	545	505	4,416	Future Station A	3,400
2018	552	512	4,928		
2019	559	519	5,446		
2020	726	673	6,120	Future Station B	3,400
2021	755	700	6,820		
2022	769	714	7,534		
2023	783	727	8,261		
2024	798	741	9,001		
2025	827	768	9,769	Future Station C	3,400
2026	759	704	10,473		
2027	772	716	11,189		
2028	785	729	11,918		
2029	799	741	12,659	Future Station D	3,400
2030	834	774	13,433		
Total to Meet New Growth Demand:					13,600

**Table F-5
Future Heavy Vehicles Demanded**

Year	Day/night Pop Increase	New Vehicles Demanded (annual)	Net New Vehicles
2008	0	0.00	0
2009	351	0.30	0
2010	354	0.30	1
2011	542	0.46	1
2012	549	0.47	2
2013	557	0.48	2
2014	565	0.48	3
2015	759	0.65	3
2016	538	0.46	4
2017	545	0.47	4
2018	552	0.47	5
2019	559	0.48	5
2020	726	0.62	6
2021	755	0.65	6
2022	769	0.66	7
2023	783	0.67	8
2024	798	0.69	8
2025	827	0.71	9
2026	759	0.65	10
2027	772	0.66	10
2028	785	0.67	11
2029	799	0.69	12
2030	834	0.72	12

FUTURE COSTS

The future facility and heavy vehicle plans of the Department are shown on the schedules in **Tables F-6** and **F-7**. The costs are shown in current dollars, and then adjusted to reflect the net present value. For facility construction (Table F-6), the cost of construction is adjusted to reflect the construction cost inflation factor, before conversion to net present value.⁴

Table F-6
Facility Costs to Meet Future Demand

Year	Project	Square Footage	Cost*	Adjusted Construction Cost**	Const. Cost - Net Present Value**	% for New Growth	New Growth Cost (NPV)
2017	Future Station A	3,400	\$629,000	\$835,453	\$640,305	100.00%	\$640,305
2020	Future Station B	3,400	\$629,000	\$918,359	\$644,119	100.00%	\$644,119
2025	Future Station C	3,400	\$629,000	\$1,075,218	\$650,525	100.00%	\$650,525
2029	Future Station D	3,400	\$629,000	\$1,219,787	\$655,696	95.09%	\$623,518
		13,600	\$2,516,000	\$4,048,817	\$2,590,644		\$2,558,466

*Cost is based on comparable facility cost estimates (\$185 per square foot).

**Adjusted cost is based on building construction cost estimate adjustment (Table C-3); net present value is based on anticipated interest earnings.

Note that the square footage figure shown here for the last facility project is not entirely impact fee eligible, since this project creates excess capacity beyond that required to serve new growth to 2030 (but recoupable through impact fees after 2030).

⁴ For more information on the cost inflator factor and net present value, see the 'Cost Adjustments' section of this report.

**Table F-7
Heavy Vehicle Costs to Meet Future Demand**

Year	New Vehicles	Gross Cost*	Adjusted Cost (Inflation)**	Net Present Value (Adjusted Cost)**	% for New Growth	New Growth Cost (NPV)
2017	Engine	\$350,000	\$457,504	\$350,638	100.00%	\$350,638
2020	Engine	\$350,000	\$500,230	\$350,852	100.00%	\$350,852
2023	Engine	\$350,000	\$546,948	\$351,065	100.00%	\$351,065
2025	Engine	\$350,000	\$580,492	\$351,207	100.00%	\$351,207
2027	Engine	\$350,001	\$616,095	\$351,350	100.00%	\$351,350
2029	Engine	\$350,002	\$653,882	\$351,494	100.00%	\$351,494
2017	Tanker	\$325,000	\$424,825	\$325,593	100.00%	\$325,593
2020	Tanker	\$325,000	\$464,500	\$325,791	100.00%	\$325,791
2025	Tanker	\$325,000	\$539,028	\$326,121	100.00%	\$326,121
2029	Tanker	\$325,001	\$607,174	\$326,386	100.00%	\$326,386
2018	Ladder Truck	\$450,000	\$605,988	\$450,912	100.00%	\$450,912
2026	Ladder Truck	\$450,000	\$768,893	\$451,643	100.00%	\$451,643
		\$4,300,004	\$6,765,558	\$4,313,052		\$4,313,052

*Estimated costs based on comparable vehicles.

**Adjusted cost is based on on CPI adjustment (Table C-4); net present value is based on anticipated interest earnings.

Sheriff's Office

Introduction

The County Sheriff's Office operates the County Jail and provides primary law enforcement to the unincorporated portion of the county through the Sheriff's Patrol. In addition, the Office provides backup to the city police departments, investigatory services throughout the county, as well as court security, warrant issuance, and other related activities. Impact fee calculations for the Sheriff's Office functions will be based on a service area that includes the entire county.

Service Area

The entire county is considered a single service area for the provision of Sheriff's Office services because all residents and employees in the county have equal access to the benefits of the program.

Level of Service

The year 2008 level of service is determined by an inventory of the square footage used by the Sheriff's Office. Statistics are shown in **Table S-1**.

Table S-1
Inventory of Sheriff's Office Facilities

Facility	Square Feet
Jail Administration	10,500
Sheriff's Office Administration	6,909
Detention	139,100
	<hr/>
	156,509
	<hr/>

The level of service for Sheriff's Office services in Troup County is measured in terms of square footage per day/night population in the service area. Day/night population is used as a measure in that the Sheriff's Office is a set of law enforcement services provided to both residences and businesses in the service area. The year 2008 LOS is shown in **Table S-2**.

**Table S-2
Current Level of Service Calculation**

Current Square Feet	2008 day/night population	SF per Day/night population
156,509	98,495	1.5890

FUTURE DEMAND

The County has determined that it would adopt a LOS based on the current LOS. In **Table S-3** this adopted level of service, based on the LOS calculated in Table S-2, is applied to future growth. The 'day/night population increase' figure is calculated from Table P-5. The additional number of forecasted day/night population to the year 2030 is multiplied by the adopted level of service to produce the future demand figure. There is no existing deficiency.

**Table S-3
Future Demand Calculation**

SF per Day/night population	Day/night Pop Increase (2008-30)	SF Demanded by New Growth
1.5890	30,758	48,874

Future jail expansion projects are contemplated to meet future demand. **Table S-4** presents the annual forecasted square footage demand, accompanied by the proposed facility expansion project. These projects could be reconfigured; 48,874 square feet are ultimately impact fee eligible.

**Table S-4
Future Facility Projects**

Year	Day/night Pop Increase	SF Demanded (annual)	Running Total: SF Demanded	Project	Net New Square Footage
2008	0	0			
2009	1,347	2,140	2,140		
2010	1,413	2,245	4,385		
2011	1,117	1,775	6,160		
2012	1,132	1,799	7,959		
2013	1,147	1,822	9,781		
2014	1,162	1,847	11,628		
2015	1,994	3,168	14,796		
2016	1,097	1,743	16,539		
2017	1,111	1,765	18,304		
2018	1,124	1,787	20,091	Expansion	25,000
2019	1,138	1,809	21,900		
2020	1,852	2,943	24,843		
2021	1,438	2,285	27,128		
2022	1,465	2,328	29,455		
2023	1,492	2,371	31,827		
2024	1,520	2,416	34,243		
2025	1,609	2,556	36,799	Expansion	25,000
2026	1,450	2,304	39,103		
2027	1,475	2,343	41,446		
2028	1,500	2,383	43,830		
2029	1,526	2,424	46,254		
2030	1,649	2,620	48,874		
Total New Square Footage:					50,000

FUTURE COSTS

Future costs to meet the square footage demanded by new growth to 2030 are shown in **Table S-6**. Estimated project costs are based on comparable facility costs. The costs are shown in current dollars, and then adjusted to reflect the net present value. For facility construction, the cost of construction is adjusted to reflect the construction cost inflation factor, before conversion to net present value.⁵ Note that a portion of the second project is not impact fee eligible; this is due to the fact that in using rounded numbers for estimated facility space, some excess capacity would be created. Since this excess capacity is available to serve new growth beyond the current planning horizon, the value of this excess capacity can be recouped from that growth once the current forecasted population and employment has arrived.

**Table S-5
Project Costs to Meet Future Demand**

Year	Project	Square Feet	Cost*	Adjusted Construction Cost**	Const. Cost - Net Present Value**	% for New Growth	New Growth Cost (NPV)
2018	Expansion	25,000	\$4,650,000	\$6,374,134	\$4,742,954	100.00%	\$4,742,954
2025	Expansion	25,000	\$4,650,000	\$7,948,752	\$4,809,126	95.49%	\$4,592,450
		50,000	\$9,300,000	\$14,322,886	\$9,552,080		\$9,335,404

*Cost based on estimates for comparable facilities (\$186 per square foot).

**Adjusted cost is based on building construction cost estimate adjustment (Table C-3); net present value is based on anticipated interest earnings.

⁵ For more information on the construction cost inflator and net present value, see the 'Cost Adjustments' section of this report.

Emergency Communications

Introduction

Troup County operates the county 911 service for the entire county, with the exception of the City of West Point; all aspects of the emergency communications activities are administered from a central location.

Service Area

The entire county—excepting West Point—is considered a single service area for the provision of the emergency communications services because all residents and employees in the county outside West Point have equal access to the benefits of the program.

Level of Service

The current level of service is determined by an inventory of the current square footage of the facility operated by the County. Statistics for the facility are shown in **Table E-1**.

**Table E-1
Current Inventory of 911 Facility**

Facility	Square Feet
Emergency Communications	3,000

The level of service for emergency communications services in Troup County is measured in terms of square footage per day/night population in the service area. Day/night population is used as a measure in that emergency communications is a set of services provided to both residences and businesses in the service area. **Table E-2** presents a calculation of the current level of service, based on the current facility space and day/night population.

**Table E-2
Current Level of Service Calculation**

Current Square Feet	2008 day/night Population	SF per Day/night Population
3,000	85,596	0.0350

FUTURE DEMAND

The County has determined that it would adopt a LOS based on a need to add and addition 1,800 square feet in facility space in order to serve the current population. In **Table E-3**, a calculation is carried out to, first, determine the desired level of service in 2008 (following the addition of square feet) and, second, to apply that desired LOS to the current service area population in order to identify any current excess capacity or existing deficiency. Based on this calculation, there is an existing deficiency of 1,800 square feet in facility space.

**Table E-3
Adopted Level of Service Calculation**

Existing Square Feet	3,000
Additional Square Feet Demanded*	<u>1,800</u>
Total Square Feet (2008)	4,800
Total Square Feet (2008)	4,800
Day/night population in 2008	<u>85,596</u>
Square Feet/day/night population	0.056077
Square Feet/day/night population	0.056077
Service Population in 2008	<u>85,596</u>
Current Demand in Square Footage	4,800
Current Demand in Square Feet	4,800
Existing Square Feet	<u>3,000</u>
Existing Deficiency (Square Feet)	(1,800)

*Additional square footage demand is based on department plans for facility space in the Government center.

In **Table E-4** the adopted level of service standards, based on the desired LOS for facility space and the LOS calculated in Table E-3, is applied to future growth. The 'day/night population increase' figure is calculated from Table P-5. The additional number of forecasted day/night population to the year 2030 is multiplied by the adopted level of service to produce the future demand figure. Again, there is an existing deficiency of 1,800 square feet in facility space, meaning that a total of 3,000 square feet must be provided to both serve new growth (1,384 square feet) and remedy the deficiency.

**Table E-4
Future Demand Calculation**

SF per Day/night Population	Day/night Pop Increase (2008-30)	SF Demanded by New Growth
0.0561	24,681	1,384
Existing Deficiency		1,800
Facility Space Replaced		<u>3,000</u>
Total SF Needed		6,184

Two future projects are contemplated to meet future demand for facility space. **Table E-5** presents the annual forecasted square footage demand, accompanied by the proposed facility expansion project. These projects could be reconfigured; 1,384 square feet is ultimately impact fee eligible.

**Table E-5
Future 911 Facility Projects**

Year	Day/night Pop Increase	SF Demanded (annual)	Running Total: SF Demanded*	Project	Net New Square Footage*
2008	0	0.0	4,800	New Space	(4,800)
2009	708	39.7	4,840		6,000
2010	715	40.1	4,880		
2011	722	40.5	4,920		
2012	729	40.9	4,961		
2013	736	41.3	5,002		
2014	1,009	56.6	5,059		
2015	1,022	57.3	5,116		
2016	1,036	58.1	5,174		
2017	1,050	58.9	5,233		
2018	1,729	97.0	5,330		
2019	992	55.6	5,386	Expansion	184
2020	1,005	56.3	5,442		
2021	1,017	57.1	5,499		
2022	1,030	57.8	5,557		
2023	1,613	90.5	5,647		
2024	1,318	73.9	5,721		
2025	1,343	75.3	5,797		
2026	1,368	76.7	5,873		
2027	1,394	78.1	5,951		
2028	1,468	82.3	6,034		
2029	1,328	74.5	6,108		
2030	1,351	75.8	6,184		

Total to Meet New Growth Demand: 1,384

*Reflects current deficiency.

FUTURE COSTS

Future costs to meet the square footage demanded by new growth to 2030 are shown in **Table E-6**. Estimated project costs are based on comparable facility costs. The costs are shown in current dollars, and then adjusted to reflect the net present value. For facility construction, the cost of construction is adjusted to reflect the construction cost inflation factor, before conversion to net present value.⁶ Note that a portion of the first project is not impact fee eligible; this represents the existing deficiency in facility space that is not impact fee eligible.

Table E-6
Project Costs to Meet Future Demand

Year	Project	Square Footage	Cost*	Adjusted Construction Cost**	Const. Cost - Net Present Value**	% for New Growth	New Growth Cost (NPV)
2008	New Space	6,000	\$1,608,000	\$1,608,000	\$1,608,000	20.00%	\$321,600
2019	Expansion	184	\$49,312	\$69,762	\$50,397	100.00%	\$49,312
		6,184	\$1,657,312	\$1,677,762	\$1,658,397		\$370,912

*Cost (actual and estimated) is based on actual construction costs for 2008 project (\$268 per square foot).

**Adjusted cost is based on building construction cost estimate adjustment (Table C-3); net present value is based on anticipated interest earnings.

⁶ For more information on the construction cost inflator and net present value, see the 'Cost Adjustments' section of this report.

Parks and Recreation Services

Introduction

Public recreational opportunities are available in Troup County through a number of parks facilities operated by the County. Demand for recreational facilities is almost exclusively related to the county's resident population. Businesses make some incidental use of public parks for office events, company softball leagues, etc., but the use is minimal compared to that of the families and individuals who live in the county. Thus, the parks and recreation impact fee is limited to future residential growth.

Service Area

The county park system operates as part of a county-wide system of parks. Parks and recreational facilities are made available to the county's population without regard to the political jurisdiction within which the resident lives. In addition, the facilities are provided equally to all residents, and often used on the basis of the programs available, as opposed to proximity of the facility. For instance, children active in the little leagues play games at various locations throughout the county, based on scheduling rather than geography. Other programs are located only at certain centralized facilities, to which any Troup County resident can come. As a general rule, parks facilities are located throughout the county, and future facilities will continue to be located around the county so that all residents will have recreational opportunities available on an equal basis. Thus, the entire county is considered a single service area for parks & recreation.

Level of Service

Table PR-1 provides an inventory of the acreage of parks under the control of the County in 2008. This total acreage of developed parks is equivalent to 34.15 acres per 1,000 dwelling units. In addition to park land and components (i.e., ball fields, playgrounds, etc.), the County operates 133,390 square feet of centers (recreation, community and senior); an inventory is shown in **Table PR-2**.

In addition to the parks acreage and facility space levels of service, a level of service can also be calculated for park facilities such as ball fields, football fields, etc. The current inventory of facilities is used to calculate the current LOS in these categories in **Table PR-3**. Note that other types of components may exist now or in the future in the county; this listing is not exhaustive, but includes all

**Table PR-1
Inventory of Park Acres**

Facility	Acres	Facility	Acres
<i>Hogansville</i>		<i>LaGrange & Unincorporated Area</i>	
Hendrix Stadium	5.0	Boyd Park	11.0
Hogansville Gym	5.0	Callaway Stadium	5.0
McGhee Field	7.0	Calumet Park	5.0
Rec & Senior Ctr.	15.0	County Snr. Center	5.0
Sportsplex	30.0	Dixie Park	4.0
Strozier Field	3.0	Dunson Park	17.0
		Eastside Park	32.0
		Easy Street Park	1.0
<i>subtotal</i>	65.0	Edgewood Park	2.0
		First Tee (golf)	43.0
<i>West Point</i>		Granger Park	33.0
City Park	25.0	Gray Hill Park	10.0
Senior Center	4.0	Harris Complex	40.0
Sixth Avenue Park	3.5	Jackson St. Park	5.0
12th Street Pool	4.0	Lindsey St. Park	1.0
		Mike Daniel Rec. Ctr.	19.0
		Pyne Rd. Park	476.0
<i>subtotal</i>	36.5	Shulford Fields	36.0
		Union St. Park	2.0
		Westside Park	14.0
		Wm. Griggs Rec. Ctr.	14.0
		<i>subtotal</i>	775.0
		Grand Total:	876.5

component types being included in the impact fee program.⁷

**Table PR-2
Inventory of Facility Space**

Facility	Square Feet
County Senior Center	11,600
Gray Hill Community Ctr	5,200
Hogansville Rec. Center	16,080
Hogansville Senior Center	6,800
Mike Daniel Rec. Center	68,000
West Point Senior Center	5,024
Wm. Griggs Rec. Center	20,686
	133,390

**Table PR-3
Current Level of Service Calculation**

Total Park Acreage	2008 Dwelling Units	AC/1,000 Dwelling Units
876.5	25,667	34.15

Component Type	Current Inventory (2008)	LOS per 1,000 Dwelling Units
Ball Fields	36	1.403
Camping Areas	1	0.039
Football Field	5	0.195
Gymnasium	6	0.234
Pavilions/Shelters	11	0.429
Picnic Tables	120	4.675
Playgrounds	18	0.701
Pool	5	0.195
RR/Concess.	24	0.935
Running Track	2	0.078
Soccer Fields	0	0.000
Tennis Courts	18	0.701
Trails*	8	0.312

*Includes walking paths and nature trails.

Total Facility Square Footage	2008 Dwelling Units	SF/1,000 Dwelling Units
133,390	25,667	5,197

FUTURE DEMAND

The County has adopted a level of service standard for parks acreage, facility space, and developed components based on the year 2008 LOS (Table PR-3), except in the case of ball fields, playgrounds, tennis courts, rest room/concession buildings, and soccer fields. For these five facility categories a different calculation is carried out, shown in **Table PR-4**.

⁷ The County, for example, plans on adding boat ramps through the state's "Go Fish" program, with no funding coming from impact fee collections towards those projects.

**Table PR-4
Future Level of Service Determination**

Existing Ball Fields	36	Existing Playgrounds	18
Ball Fields to be Added (2008-2030)	<u>7</u>	Playgrounds to be Added (2008-2030)	<u>4</u>
Total Ball Fields in 2030	43	Total Playgrounds in 2030	22
Total Ball Fields in 2030	43	Total Playgrounds in 2030	22
Dwelling Units in 2030	36,098	Dwelling Units in 2030	36,098
Ball Fields/1,000 Dwelling Units	1.191206	Playgrounds/1,000 Dwelling Units	0.609454
Ball Fields/1,000 Dwelling Units	1.191206	Playgrounds/1,000 Dwelling Units	0.609454
Dwelling Units in 2008	<u>25,667</u>	Dwelling Units in 2008	<u>25,667</u>
Current Demand for Ball Fields	30.6	Current Demand for Playgrounds	15.6
Current Demand for Ball Fields	30.6	Current Demand for Playgrounds	15.6
Existing Ball Fields	<u>36.0</u>	Existing Playgrounds	<u>18.0</u>
Excess Capacity (Ball Fields)	5.4	Excess Capacity (Playgrounds)	2.4
<hr/>			
Existing Tennis Courts	18	Existing RR/Concess.	24
Tennis Courts to be Added (2008-2030)	<u>3</u>	RR/Concess. to be Added (2008-2030)	<u>5</u>
Total Tennis Courts in 2030	21	Total RR/Concess. in 2030	29
Total Tennis Courts in 2030	21	Total RR/Concess. in 2030	29
Dwelling Units in 2030	36,098	Dwelling Units in 2030	36,098
Tennis Courts/1,000 Dwelling Units	0.581752	RR/Concess./1,000 Dwelling Units	0.803371
Tennis Courts/1,000 Dwelling Units	0.581752	RR/Concess./1,000 Dwelling Units	0.803371
Dwelling Units in 2008	<u>25,667</u>	Dwelling Units in 2008	<u>25,667</u>
Current Demand for Tennis Courts	14.9	Current Demand for RR/Concess.	20.6
Current Demand for Tennis Courts	14.9	Current Demand for RR/Concess.	20.6
Existing Tennis Courts	<u>18.0</u>	Existing RR/Concess.	<u>24.0</u>
Excess Capacity (Tennis Courts)	3.1	Excess Capacity (RR/Concess.)	3.4
<hr/>			
Existing Soccer Fields	0		
Soccer Fields Needed Today (2008)	<u>1</u>		
Total Soccer Fields Desired in 2008	1		
Total Soccer Fields Desired in 2008	1		
Dwelling Units in 2008	25,667		
Soccer Fields/1,000 Dwelling Units	0.038961		
Soccer Fields/1,000 Dwelling Units	0.038961		
Dwelling Units in 2008	<u>25,667</u>		
Current Demand for Soccer Fields	1.0		
Current Demand for Soccer Fields	1.0		
Existing Soccer Fields	<u>0.0</u>		
Existing Deficiency (Soccer Fields)	(1.0)		

In Table PR-4, the desired level of service is calculated for each facility type based on the current inventory, the number of units to be added between today (2008) and 2030, and the dwelling unit forecast. For example, the 'ball fields' calculation begins with the current inventory (36 ball fields). To this is added the number of ball fields the County plans to construct between now and 2030 (7 ball fields), for a total of 43 ball fields in 2030. 43 ball fields (in 2030) divided by the total number of dwelling units in the county in 2030 (36,098 dwelling units) produces a level of service of 1.191 ball fields per dwelling unit. This is the desired level of service. The LOS is then applied to the current number of dwelling units (25,667 in 2008) to calculate the current demand at the desired level of service. The result is a current demand for 30.6 ball fields. Since the current inventory is 36 ball fields, this results in excess capacity of 5.4 ball fields.⁸ This process is repeated for the playgrounds, tennis courts and rest room/concession buildings, each of which result in current excess capacities. The soccer field calculation is somewhat different.

For soccer fields, the calculation shown in PR-4 is carried out to identify a current deficiency. With no soccer fields in the current inventory, the County has determined that the level of service for this facility category should be based on a single field serving the current population. One field, divided by the current number of dwelling units (25,667 in 2008), produces the level of service figure (0.039 fields per dwelling unit). Since there is no field in the current inventory, we know that the first soccer field constructed will be needed to serve existing dwelling units. Thus, there is an existing deficiency of one soccer field.

Table PR-5 shows the future demand in parks acreage, facility space and components based on the adopted LOS standard for parks acreage, facility space and developed components. The increase in dwelling units between 2008 and 2030 is multiplied by the level of service standards to produce the future demand. The 'new dwelling units' figure is taken from Table P-5. Note that these figures do not take into account any existing deficiency or excess capacity situations. The ball fields figure, for example, is a future demand for 12.4 fields. From Table PR-4 we know that there is excess capacity of 5.4 ball fields, meaning that the net new demand is actually 7 ball fields. There is an existing deficiency in soccer fields; there are no other existing deficiencies.

⁸ The value of this excess capacity can be recouped through impact fee collections, since the capacity is available to serve new growth. At present, the County is not including any recoupment in the parks & recreation impact fee calculations.

**Table PR-5
Future Demand Calculation**

AC/1,000 Dwelling Units	Number of New Dwelling Units (2008-30)	Acres Demanded by New Growth
34.15	10,431	356.2

Adopted LOS per 1,000 Dwelling Units	New Components Demanded (2008-2030)	
1.191	12.4	Ball Fields
0.039	0.4	Camping Areas
0.195	2.0	Football Field
0.234	2.4	Gymnasium
0.429	4.5	Pavilions/Shelters
4.675	48.8	Picnic Tables
0.609	6.4	Playgrounds
0.195	2.0	Pool
0.803	8.4	RR/Concess.
0.078	0.8	Running Track
0.039	0.4	Soccer Fields
0.582	6.1	Tennis Courts
0.312	3.3	Trails*

*Includes walking paths and nature trails.

LOS per 1,000 Dwelling Units	Number of New Dwelling Units (2008-30)	Square Feet Demanded by New Growth
5,197.0	10,431	54,210.6

Table PR-6 presents a schedule of future park acreage demand, and projects to meet that demand, based on the adopted LOS. While the specific land acquisition projects may be re-configured over time, 356.2 new acres are ultimately impact fee eligible.

**Table PR-6
Future Park Land Acquisition**

Year	New Dwelling Units	AC Demanded (annual)	Running Total: AC Demanded	Project	New Acres
2008	0	0.0			
2009	267	9.1	9.1		
2010	269	9.2	18.3		
2011	384	13.1	31.4		
2012	390	13.3	44.7		
2013	396	13.5	58.3		
2014	402	13.7	72.0		
2015	407	13.9	85.9		
2016	385	13.2	99.0	New Park A	125.0
2017	390	13.3	112.4		
2018	396	13.5	125.9		
2019	401	13.7	139.6		
2020	407	13.9	153.5		
2021	572	19.5	173.0		
2022	582	19.9	192.9		
2023	594	20.3	213.1		
2024	605	20.7	233.8		
2025	616	21.0	254.8	New Park B	106.2
2026	574	19.6	274.4		
2027	583	19.9	294.3		
2028	594	20.3	314.6		
2029	604	20.6	335.2		
2030	614	21.0	356.2	New Park C	125.0
Total to Meet New Growth Demand:					356.2

FUTURE COSTS

Table PR-7 is a listing of the future capital projects costs for the developed components and facility space required in order to maintain the adopted level of service standards. The 'units to be added' figures are drawn directly from Table PR-5, less any calculated excess capacity, and rounded up to the next whole facility. As a result, some portions of these projects are not impact fee eligible since they provide excess capacity beyond that demanded by currently forecasted growth. And in the case of 'soccer fields,' the units to be added figure is not entirely eligible since one of the fields is required to meet the existing deficiency. Because the County cannot construct a portion of a facility, but must provide developed components in 'whole' numbers, not all of the gymnasium projects are impact fee eligible. New growth to 2030 requires 2.4 gymnasiums in order to maintain the current LOS (see table PR-5). However, 3 gymnasiums will have to be built, since 2 gyms is not enough, and there is no such thing as 0.4 of a gymnasium. So 3 gymnasiums will be built, and 0.6 of one gym will be excess capacity that can be recouped through future impact fee collections from growth beyond 2030.

Table PR-7
Future Park Facility Costs

Year	Facility Type	Units to be Added (2008-2030)	Cost per Unit*	Gross Cost	Adjusted Cost (Inflation)**	Net Present Value (Adjusted Cost)**	% for New Growth	Net Cost to New Growth
2010	Swimming Pool	1	\$600,000	\$600,000	\$647,461	\$610,294	100.00%	\$610,294
2020	Swimming Pool	1	\$600,000	\$600,000	\$947,385	\$664,477	100.00%	\$664,477
2016	Ball Fields	3	\$250,000	\$750,000	\$1,016,977	\$802,811	100.00%	\$802,811
2025	Ball Fields	4	\$250,000	\$1,000,000	\$1,909,991	\$1,155,576	100.00%	\$1,155,576
2018	Gymnasium	1	\$750,000	\$750,000	\$1,097,422	\$816,585	100.00%	\$816,585
2030	Gymnasium	2	\$750,000	\$1,500,000	\$3,465,604	\$1,808,673	70.00%	\$1,266,071
2014	Tennis Courts	3	\$60,000	\$180,000	\$226,183	\$189,425	100.00%	\$189,425
2020	Soccer Fields	2	\$200,000	\$400,000	\$631,590	\$442,984	20.00%	\$88,597
2009	Concess./Rest Room	2	\$225,000	\$450,000	\$467,459	\$453,844	100.00%	\$453,844
2014	Concess./Rest Room	2	\$225,000	\$450,000	\$565,458	\$473,562	100.00%	\$473,562
2025	Concess./Rest Room	1	\$225,000	\$225,000	\$429,748	\$260,005	100.00%	\$260,005
2009	Playgrounds	2	\$160,000	\$320,000	\$332,415	\$322,733	100.00%	\$322,733
2014	Playgrounds	2	\$160,000	\$320,000	\$402,103	\$336,755	100.00%	\$336,755
2016	Senior Center (sf)	18,070	\$125	\$2,258,774	\$3,062,829	\$2,417,826	100.00%	\$2,417,826
2025	Recreation Center (sf)	36,140	\$125	\$4,517,547	\$8,628,476	\$5,220,370	100.00%	\$5,220,370
				\$14,321,321	\$23,831,103	\$15,975,920		\$15,078,931

*Costs estimates are based on comparable facility costs.

**Adjusted cost is based on construction cost estimate adjustment (Table C-2); net present value is based on anticipated interest earnings.

Project cost estimates are based on comparable facilities where no current estimate is available from the County; these gross costs have been converted to net present value figures.⁹

Table PR-8 presents the estimated costs for the land acquisition projects. The cost estimate for land acquisition is based on comparable land acquisition costs (\$25,000 per acre). The costs are shown in current dollars, and then adjusted to reflect the net present value.¹⁰

⁹ For more information on net present value, see the 'Cost Adjustments' section of this report.

**Table PR-8
Land Acquisition Costs**

Year	Project	Acres	Gross Cost*	Adjusted Cost (Inflation)**	Net Present Value (Adjusted Cost)**	% for New Growth	New Growth Cost
2016	New Park A	125.0	\$3,125,000	\$3,965,075	\$3,130,067	100.00%	\$3,130,067
2025	New Park B	106.2	\$2,655,000	\$4,403,444	\$2,664,156	100.00%	\$2,664,156
2030	New Park C	125.0	\$3,125,000	\$6,014,560	\$3,138,954	100.00%	\$3,138,954
		356.2	\$8,905,000	\$14,383,080	\$8,933,177		\$8,933,177

*Estimated acquisition costs based on an average of \$25,000 per acre.

¹⁰ For more information on the construction cost inflator and net present value, see the 'Cost Adjustments' section of this report.

Road Improvements

Introduction

The information in this chapter is derived from, or taken directly from, engineering and project reports prepared by the County for the various road improvement projects. Level of service calculations, as well as determinations of need, are based on engineering carried out by the County; project cost estimates come from both the State and the County.

Service Area

The service area for these road projects is defined as the entire county. In that these road projects are recognized as providing primary—if not exclusive—capacity to properties within the county, the county has been adopted as the service area for the purpose of assessing impact fees. All new development within the county will be assessed the road impact fee, as calculated in this section. The road network within the county is considered in its entirety; improvements in any part of this portion of the network improve capacity, to some measurable extent, throughout the county.

Level of Service Standards

Level of service for roadways and intersections is measured on a 'letter grade' system that rates a road within a range of service from A to F. Level of service A is the best rating, representing unencumbered travel; level of service F is the worst rating, representing heavy congestion and long delays. This system is a means of relating the connection between speed and travel time, freedom to maneuver, traffic interruption, comfort, convenience and safety to the capacity that exists in a roadway. This refers to both a quantitative measure expressed as a service flow rate and an assigned qualitative measure describing parameters. *The Highway Capacity Manual, Special Report 209*, Transportation Research Board (1985), defines level of service A through F as having the following characteristics:

1. LOS A: free flow, excellent level of freedom and comfort;
2. LOS B: stable flow, decline in freedom to maneuver, desired speed is relatively unaffected;
3. LOS C: stable flow, but marks the beginning of users becoming affected by others, selection of speed and maneuvering becomes difficult, comfort declines at this level;
4. LOS D: high density, but stable flow, speed and freedom to maneuver are severely restricted, poor level of comfort, small increases in traffic flow will cause operational problems;
5. LOS E: at or near capacity level, speeds reduced to low but uniform level, maneuvering is extremely difficult, comfort level poor, frustration high, level unstable; and
6. LOS F: forced/breakdown of flow. The amount of traffic approaching a point exceeds the amount that can transverse the point. Queues form, stop & go. Arrival flow exceeds discharge flow.

The traffic volume that produces different level of service grades differs according to road type, size, signalization, topography, condition and access. Post-improvement LOS conditions are based on the County's calculations.

Proposed Level of Service

The adopted level of service is based on Level of Service "D" for arterials and major collector roads within the service area. This level of service is used to calculate existing deficiencies, and would be reflected in any projects that are less than 100% impact fee eligible.

Forecasts for Service Area

Projects that provide road capacity intended to serve new growth to the year 2030 by road widening, new road construction or other capacity improvements have been identified by the County and are shown in **Table R-1**. This is not an inclusive list of all County road projects. Local share of the project costs as shown are estimated, based on an estimated 20% participation by the County; final construction costs may vary.

Table R-1
Road Projects and Estimated Costs

Project ID	Project	from	to	Description	Total Cost*	Local Cost*
4	Bass Cross Rd	US 29	SR 54	Arterial Widening	\$7,391,000	\$1,478,200
5	Callaway Church Rd	SR 109	Upper Glass Springs	Arterial Widening	\$5,455,000	\$1,091,000
6	Cameron Mill Rd	SR 219	Whitaker Rd	Arterial Widening	\$13,369,000	\$2,673,800
7	Colquitt St	US 27	Davis Rd	Arterial Widening	\$7,088,000	\$1,417,600
8	Davis Rd	SR 109	US 27	Arterial Widening	\$16,287,000	\$3,257,400
9	Davis Rd	SR 109	Hammett Rd	Arterial Widening	\$10,928,000	\$2,185,600
10	Gabbettville Rd	US 29	Bartley Rd	Arterial Widening	\$13,965,000	\$2,793,000
11	Greenwood St	US 29	Mooty Bridge Rd	Arterial Widening	\$3,886,000	\$777,200
12	Lukkens Industrial Blvd	US 29	US 27	Arterial Widening	\$15,500,000	\$3,100,000
13	Lukkens Industrial Blvd (West Ext)	US 29	South LaGrange Loop	New Roadway	\$3,067,000	\$613,400
14	Lukkens Industrial Blvd (East Ext)	US 27	Davis Rd	New Roadway	\$5,528,000	\$1,105,600
15	Hammett Rd	I-185 Connector	Young's Mill Rd	Arterial Widening	\$10,458,000	\$2,091,600
16	Young's Mill Rd	Waugh Rd	Hammett Rd	Connector Widening	\$5,176,000	\$1,035,200
17	South LaGrange Loop	SR 109	SR 219	New Roadway	\$20,719,000	\$4,143,800
18	North LaGrange Loop	SR 109	US 27	New Roadway	\$25,064,000	\$5,012,800
21	Mooty Bridge Rd	US 27	Wares Cross Rd	Arterial Widening	\$17,568,000	\$3,513,600
22	Orchard Hill Rd	Lukkens Ind Blvd	SR 219	Arterial Widening	\$8,447,000	\$1,689,400
23	Tin Bridge Rd	Hammett Rd	US 29	Arterial Widening	\$8,516,000	\$1,703,200
24	Upper Big Springs Rd	Davis Rd	Knott Rd	Arterial Widening	\$9,862,000	\$1,972,400
25	Wares Cross Rd	SR 219	US 27	Arterial Widening	\$6,196,000	\$1,239,200
27	SR 54	US 29	Meriwether County	Arterial Widening	\$9,780,000	\$1,956,000
28	SR 109	US 29	Alabama	Arterial Widening	\$27,746,000	\$5,549,200
30	SR 109	Callaway Church Rd	Meriwether County	Arterial Widening	\$16,195,000	\$3,239,000
31	SR 219	US 27	Davis Rd	Arterial Widening	\$7,148,000	\$1,429,600
32	SR 219	I-85	Bartley Rd	Arterial Widening	\$7,668,000	\$1,533,600
35	US 27	I-85	I-185	Arterial Widening	\$13,252,000	\$2,650,400
36	US 27	I-185	Old Chiplely Rd	Arterial Widening	\$10,058,000	\$2,011,600
39	US 29	Young's Mill Rd	SR 54	Arterial Widening	\$41,482,000	\$8,296,400
					\$347,799,000	\$69,559,800

*Total cost figures provided by the County Engineering Department; local cost based on anticipated 20% share of total cost.

While the projects listed in Table R-1 add new capacity, any portion of either project that will meet an existing deficiency will reduce the net increase of capacity available to new growth and development. It is important to identify what portion of these projects goes toward meeting an existing deficiency in that this portion of the total project cost cannot be funded through impact fees. In **Table R-2** figures are given for the base year trip volume on the projects, as well as the base year capacity at LOS "D." These figures are presented as average annual daily trips (AADT).

For some projects there is no current volume or trip capacity. These are new road segments that do not yet exist, and so do not have any current statistics. For the other projects, where the volume exceeds the capacity, a deficiency exists; the cost to remedy an existing deficiency is not impact fee eligible. There are no existing deficiencies identified for these road projects.

**Table R-2
Current Road Capacity and Deficiencies**

Project ID	Volume (trips)	Capacity (trips)	Excess Capacity	Existing Deficiency
4	1,564	16,400	14,836	0
5	4,930	15,600	10,670	0
6	14,600	18,400	3,800	0
7	6,233	17,200	10,967	0
8	9,630	17,200	7,570	0
9	12,600	14,000	1,400	0
10	1,238	16,300	15,062	0
11	11,270	17,200	5,930	0
12	6,740	17,200	10,460	0
13	0	0	0	0
14	0	0	0	0
15	3,290	16,400	13,110	0
16	940	16,000	15,060	0
17	0	0	0	0
18	0	0	0	0
21	10,250	17,200	6,950	0
22	4,930	16,000	11,070	0
23	3,970	16,400	12,430	0
24	3,630	17,100	13,470	0
25	2,300	17,000	14,700	0
27	5,780	17,000	11,220	0
28	7,890	17,100	9,210	0
30	8,560	17,800	9,240	0
31	13,020	17,200	4,180	0
32	6,540	17,000	10,460	0
35	6,930	21,000	14,070	0
36	4,930	18,400	13,470	0
39	5,620	17,100	11,480	0

The next step in these calculations is to identify the net trip capacity added by each of the road improvement projects that is available to new growth. The 'net added capacity' figures for each project are shown in **Table R-3**. In this table, the 'post improvement added capacity' is the capacity added for each road segment project, following completion. The 'net added capacity' figure is the 'added capacity' figure less the 'existing deficiency' figure (from the previous table). The final calculation shown in this table is the identification of the portion of project costs that are attributable to new growth—the impact fee eligible project costs. This percentage is based on the 'net added capacity' figure as a percentage of the 'post improvement capacity' figure.

**Table R-3
Post-Improvement Statistics**

Project ID	Post-Improvement ADDED Capacity	Existing Deficiency	Net ADDED Capacity	% Impact Fee Eligible
4	16,400	0	16,400	100.00%
5	15,600	0	15,600	100.00%
6	18,400	0	18,400	100.00%
7	17,200	0	17,200	100.00%
8	17,200	0	17,200	100.00%
9	14,000	0	14,000	100.00%
10	16,300	0	16,300	100.00%
11	17,200	0	17,200	100.00%
12	17,200	0	17,200	100.00%
13	34,400	0	34,400	100.00%
14	34,400	0	34,400	100.00%
15	16,400	0	16,400	100.00%
16	16,000	0	16,000	100.00%
17	34,400	0	34,400	100.00%
18	34,000	0	34,000	100.00%
21	17,200	0	17,200	100.00%
22	16,000	0	16,000	100.00%
23	16,400	0	16,400	100.00%
24	17,100	0	17,100	100.00%
25	17,000	0	17,000	100.00%
27	17,000	0	17,000	100.00%
28	17,100	0	17,100	100.00%
30	17,800	0	17,800	100.00%
31	17,200	0	17,200	100.00%
32	17,000	0	17,000	100.00%
35	21,000	0	21,000	100.00%
36	18,400	0	18,400	100.00%
39	17,100	0	17,100	100.00%

New Trip Capacity Added to Road Network: 545,400

Some of the added volume will be due to current traffic that diverts from existing roads onto these segments, following the completion of the project. In addition, some of this volume may be “pass-through” traffic that does not originate or end in the County. Ultimately, this means that the County can expect to collect less than 100% of the eligible project costs.

FUTURE COSTS

Table R-4 presents a calculation of the impact fee eligible project costs for the road improvement projects from Table R-1. The total local cost for each project, from R-1, is multiplied by the ‘% impact fee eligible’ figure, from Table R-3, to produce the portion of local project costs that is impact fee eligible. The local costs have been

adjusted to reflect increasing construction costs, and converted to net present value figures, based on the estimated construction year.¹¹

**Table R-4
Eligible Cost Calculation**

Year	Project ID	Local Cost	Adjusted Cost (Inflation)*	Net Present Value (Adjusted Cost)*	% Impact Fee Eligible	Eligible Cost
2009	4	\$1,478,200	\$1,535,552	\$1,490,827	100.00%	\$1,490,827
2010	5	\$1,091,000	\$1,177,300	\$1,109,718	100.00%	\$1,109,718
2011	6	\$2,673,800	\$2,997,248	\$2,742,907	100.00%	\$2,742,907
2011	7	\$1,417,600	\$1,589,086	\$1,454,239	100.00%	\$1,454,239
2012	8	\$3,257,400	\$3,793,116	\$3,370,134	100.00%	\$3,370,134
2012	9	\$2,185,600	\$2,545,046	\$2,261,241	100.00%	\$2,261,241
2013	10	\$2,793,000	\$3,378,526	\$2,914,346	100.00%	\$2,914,346
2013	11	\$777,200	\$940,133	\$810,967	100.00%	\$810,967
2014	12	\$3,100,000	\$3,895,375	\$3,262,315	100.00%	\$3,262,315
2014	13	\$613,400	\$770,782	\$645,517	100.00%	\$645,517
2015	14	\$1,105,600	\$1,443,168	\$1,173,428	100.00%	\$1,173,428
2015	15	\$2,091,600	\$2,730,219	\$2,219,918	100.00%	\$2,219,918
2016	16	\$1,035,200	\$1,403,700	\$1,108,094	100.00%	\$1,108,094
2016	17	\$4,143,800	\$5,618,868	\$4,435,587	100.00%	\$4,435,587
2017	18	\$5,012,800	\$7,060,927	\$5,411,612	100.00%	\$5,411,612
2017	21	\$3,513,600	\$4,949,185	\$3,793,138	100.00%	\$3,793,138
2018	22	\$1,689,400	\$2,471,981	\$1,839,386	100.00%	\$1,839,386
2019	23	\$1,703,200	\$2,588,866	\$1,870,252	100.00%	\$1,870,252
2020	24	\$1,972,400	\$3,114,369	\$2,184,356	100.00%	\$2,184,356
2021	25	\$1,239,200	\$2,032,581	\$1,384,088	100.00%	\$1,384,088
2022	27	\$1,956,000	\$3,332,779	\$2,203,359	100.00%	\$2,203,359
2023	28	\$5,549,200	\$9,821,985	\$6,304,358	100.00%	\$6,304,358
2024	30	\$3,239,000	\$5,955,402	\$3,711,210	100.00%	\$3,711,210
2025	31	\$1,429,600	\$2,730,524	\$1,652,012	100.00%	\$1,652,012
2026	32	\$1,533,600	\$3,042,809	\$1,787,330	100.00%	\$1,787,330
2027	35	\$2,650,400	\$5,462,675	\$3,115,287	100.00%	\$3,115,287
2028	36	\$2,011,600	\$4,306,920	\$2,384,637	100.00%	\$2,384,637
2029	39	\$8,296,400	\$18,452,114	\$9,918,920	100.00%	\$9,918,920
		\$69,559,800	\$109,141,233	\$76,559,183		\$76,559,183

*Adjusted cost is based on on construction cost adjustment (Table C-2); net present value is based on anticipated interest earnings.

¹¹ For more information on the cost inflator factor and net present value, see the 'Cost Adjustments' section of this report.

Exemption Policy

Troup County recognizes that certain office, retail trade and industrial development projects provide extraordinary benefit in support of the economic advancement of the city's citizens over and above the access to jobs, goods and services that such uses offer in general. To encourage such development projects, the Troup County Board of Commissioners may consider granting a reduction in the impact fee for such development projects upon either the determination and relative to the extent that the business or project represents extraordinary economic development and employment growth of public benefit to Troup County, or the extent to which an affordable housing project provides benefit to the community, in accordance with adopted exemption criteria. It is also recognized that the cost of system improvements otherwise foregone through exemption of any impact fee must be funded through revenue sources other than impact fees.

TROUP COUNTY COMPREHENSIVE PLAN

Short Term Work Program Amendment

(2009–2013)

Project	Start Year					Responsible Party	Estimated Cost	Anticipated Funding Source(s)
	2009	10	11	12	13			
Library Collection Materials	X					Board of Commissioners	\$32,719	99% Impact Fees, General Fund
Library Collection Materials		X				Board of Commissioners	\$33,091	99% Impact Fees, General Fund
Library Collection Materials			X			Board of Commissioners	\$51,784	99% Impact Fees, General Fund
Library Collection Materials				X		Board of Commissioners	\$52,545	99% Impact Fees, General Fund
Library Collection Materials					X	Board of Commissioners	\$53,317	99% Impact Fees, General Fund
E911 facility expansion	X					Board of Commissioners	\$1,608,000	20% Impact Fees, General Fund
Swimming Pool		X				Board of Commissioners	\$610,294	100% Impact Fees
2 Concession stand/restroom facilities	X					Board of Commissioners	\$453,844	100% Impact Fees
2 Playgrounds	X					Board of Commissioners	\$322,733	100% Impact Fees
Bass Cross Rd (road widening)	X					Board of Commissioners	\$1,490,827	100% Impact Fees
Callaway Church Rd (road widening)		X				Board of Commissioners	\$1,109,718	100% Impact Fees
Cameron Mill Rd (road widening)			X			Board of Commissioners	\$2,742,907	100% Impact Fees
Colquitt St (road widening)			X			Board of Commissioners	\$1,454,239	100% Impact Fees
Davis Rd - SR 109 to US 27 (road widening)				X		Board of Commissioners	\$3,370,134	100% Impact Fees
Davis Rd - SR 109 to Hammett Rd (road widening)				X		Board of Commissioners	\$2,261,241	100% Impact Fees
Gabbettville Rd (road widening)					X	Board of Commissioners	\$2,914,346	100% Impact Fees
Greenwood St (road widening)					X	Board of Commissioners	\$810,967	100% Impact Fees