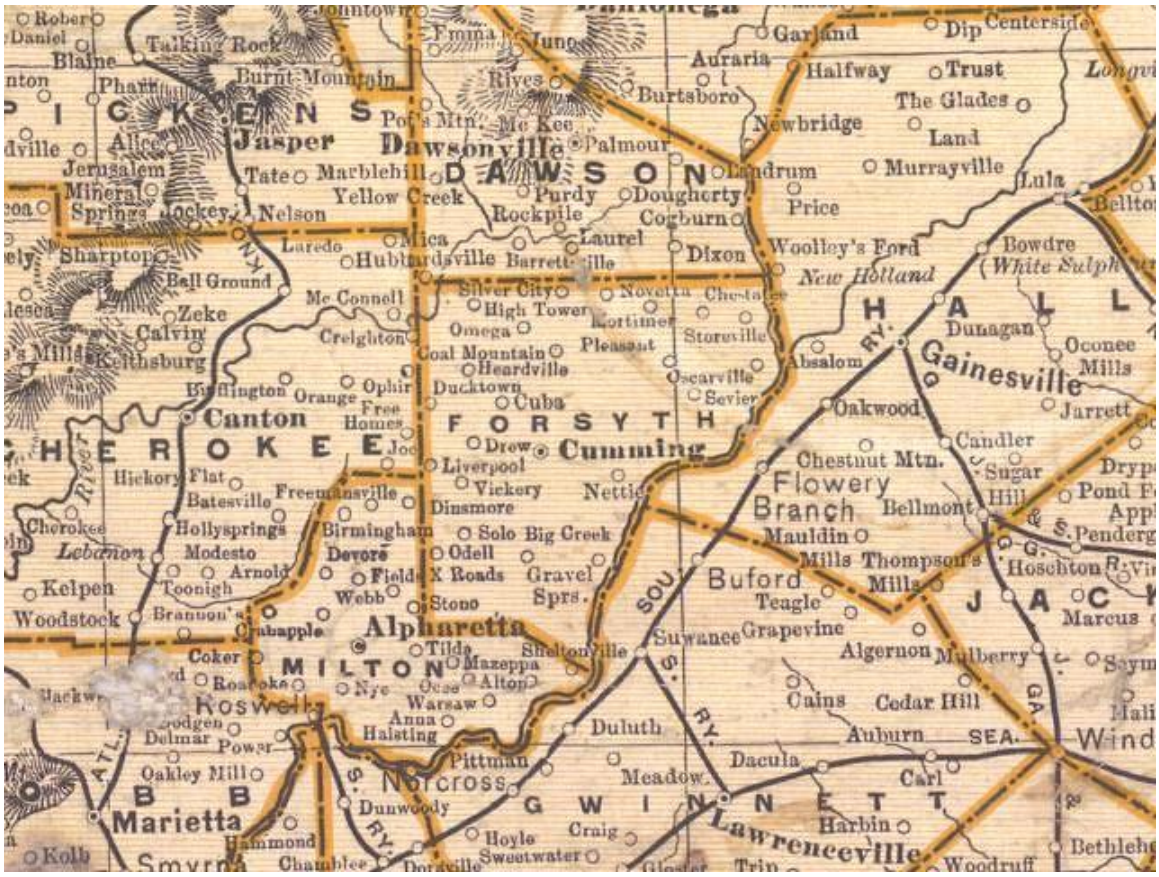
Impact Fee Study

for Forsyth County, Georgia



duncan associates

August 2015

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prepared by

Duncan Associates

Clancy Mullen, Project Manager
360 Nueces St., Suite 2701, Austin, TX 78701
512-423-0480; clancy@duncanassociates.com

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EXECUTIVE SUMMARY

Impact fees are charges assessed on new development to cover the costs of capital improvements needed to accommodate growth. Forsyth County currently imposes impact fees for parks, library and public safety (fire rescue and E-911) facilities. This study updates those fees, and calculates a potential new impact fee for transportation facilities.

Background

The County's current impact fees for parks, libraries and public safety are based on a study prepared in 2003.[1] The fees were all calculated on the basis of a county-wide service area, including the City of Cumming. The fees are assessed per square foot of building, with different rates for residential, retail/commercial, office/business and industrial land uses. Public safety fees are segregated into fire and E-911 components, with the fire fee assessed on both residential and nonresidential development, and the E-911 fee assessed only on residential development. Fire and library revenues are placed in separate accounts for North and South benefit districts, with the boundary line being the westbound lanes of Highway 20 and Buford Dam Road.

Recommendations

The key recommendations from this study can be summarized as follows:

- Combine fire and E-911 fees into a single public safety fee. Assess the fee on both residential and nonresidential development.

- Use a single county-wide service area and benefit district for all of the fees, including fire and library fees (which currently have north and south benefit districts).

- Calculate the new road impact fee based on the cost of all arterial streets in the county, including State and Federal highways.

Developer Credits

Developer credits are much more common with regard to road improvements than for the other types of improvements for which the County currently collects impact fees. Developers would be eligible to receive credit against the fees for right-of-way (ROW) dedications and construction for planned arterial road improvements.

When adopting a road impact fee, the ordinance should clearly define the types of eligible improvements, how developer contributions for those improvement costs are valued, and the extent to which such credits would be transportable to other developments in the county. It is recommended that credit for system-expanding arterial road improvements be limited to planned improvements in the County's Short Term Work Plan. Credit for arterial ROW dedication should

[1] Impact Fee Advisory Committee of Forsyth County, Georgia, *A Report to the Forsyth County Board of County Commissioners on Development Impact Fees*, April 28, 2003, and Dr. James C. Nicholas, *Memorandum: Non-residential Public Safety Impact Fees*, September 25, 2003.

be provided where additional ROW is needed to meet the standards of the County's Thoroughfare Plan.

Potential Impact Fees

Table 1 compares current and potential impact fees calculated in this report. The updated park, library and public safety fees are all higher than the current fees that have been in effect since 2004, with public safety fees seeing the biggest percentage increases. Together, the updates to the adopted fees would add $344 to the fee for a single-family unit, raising the total fee from $1,090 to $1,434. The potential road impact fees, if adopted, would amount to $3,014 for a single-family unit, bringing the total single-family fee to $4,448.

Table 1. Impact Fee Update Summary

Land Use Type	Unit	Parks	Library	Public Safety	Subtotal	Roads	Total
Potential Fees							
Single-Family Detached	Dwelling	$776	$148	$510	$1,434	$3,014	$4,448
Multi-Family	Dwelling	$493	$94	$324	$911	$1,909	$2,820
Mobile Home/RV Park	Space	$888	$170	$584	$1,642	$905	$2,547
Retail/Commercial	1,000 sq. ft	$0	$0	$532	$532	$3,884	$4,416
Office	1,000 sq. ft	$0	$0	$227	$227	$3,255	$3,482
Industrial/Warehouse	1,000 sq. ft	$0	$0	$100	$100	$1,050	$1,150
Public/Institutional	1,000 sq. ft	$0	$0	$227	$227	$2,045	$2,272
Current Fees*							
Single-Family Detached	Dwelling	$726	$123	$241	$1,090	$0	$1,090
Multi-Family	Dwelling	$371	$63	$123	$557	$0	$557
Mobile Home/RV Park	Space	$431	$73	$143	$647	$0	$647
Retail/Commercial	1,000 sq. ft	$0	$0	$216	$216	$0	$216
Office	1,000 sq. ft	$0	$0	$86	$86	$0	$86
Industrial/Warehouse	1,000 sq. ft	$0	$0	$52	$52	$0	$52
Public/Institutional	1,000 sq. ft	$0	$0	$86	$86	$0	$86
Potential Change							
Single-Family Detached	Dwelling	$50	$25	$269	$344	$3,014	$3,358
Multi-Family	Dwelling	$122	$31	$201	$354	$1,909	$2,263
Mobile Home/RV Park	Space	$457	$97	$441	$995	$905	$1,900
Retail/Commercial	1,000 sq. ft	$0	$0	$316	$316	$3,884	$4,200
Office	1,000 sq. ft	$0	$0	$141	$141	$3,255	$3,396
Industrial/Warehouse	1,000 sq. ft	$0	$0	$48	$48	$1,050	$1,098
Public/Institutional	1,000 sq. ft	$0	$0	$141	$141	$2,045	$2,186
Percent Change							
Single-Family Detached	Dwelling	7%	20%	112%	32%	n/a	n/a
Multi-Family	Dwelling	33%	49%	163%	64%	n/a	n/a
Mobile Home/RV Park	Space	106%	133%	308%	154%	n/a	n/a
Retail/Commercial	1,000 sq. ft	n/a	n/a	146%	146%	n/a	n/a
Office	1,000 sq. ft	n/a	n/a	164%	164%	n/a	n/a
Industrial/Warehouse	1,000 sq. ft	n/a	n/a	92%	92%	n/a	n/a
Public/Institutional	1,000 sq. ft	n/a	n/a	164%	164%	n/a	n/a

* current residential fees based on average size units in southern U.S. from 2011 American Housing Survey

Source: Potential and current fees from Table 20 (roads), Table 30 (parks), Table 39 (library) and Table 48 (public safety).

Comparison of Impact Fee Revenues to Growth Costs

Growth-related capital costs, based on programmed project funding over the next five years, are compared to projected current and proposed impact fee revenues in Table 2. Total needs and revenues are shown for both the current impact fee facilities (parks, libraries and public safety) and proposed road impact fees. In reviewing these figures, it should be kept in mind that programmed funding for growth-related projects over the next five years is not necessarily an accurate reflection of the amounts needed to maintain current levels of service over the long-term. Nevertheless, planned five-year capital expenditures provide a useful basis for comparison purposes.

For the current parks, library and public safety fees, the current level of impact fees for these facilities could be expected to fund only about one-quarter of the planned growth-related expenditures. If the updated fees are adopted at the full net cost attributable to growth calculated in this study, these fees could be expected to cover over 40% of the growth-related planned project costs.

Capacity-expanding, growth-related arterial road expansion projects that would be eligible for impact fee funding amount to about $220 million in planned expenditures over the next five years. This is more than twice as much as the $76 million the County plans to spend on growth-related improvements for the current impact fee facilities of parks, libraries and fire/E-911, as summarized in Table 2.

Currently, new developments are not charged road impact fees, but may be required to dedicate right-of-way or construct major improvements for the expansion of the County's arterial road system. No developer contributions are anticipated for the improvements included in the County's current five-year Short Term Work Program. Yet almost 70% of programmed costs for road improvements over the next five years are needed to add capacity to the arterial system to accommodate growth. About half of that planned, capacity-expanding road funding could be provided by the proposed road impact fees.

Table 2. Projected Growth-Related Costs and Impact Fee Revenues, 2016-2020

	Parks, Library & Fire/EMS	Roads	Total
Projected Impact Fees, 2016-2020 (Current Fees)	$21,572,310	$0	$21,572,310
÷ Growth-Related STWP Funding, 20016-2020	$75,554,051	$220,416,160	$295,970,211
Percent of Growth Costs Paid by Growth (Current Fees)	28.6%	0.0%	7.3%
Projected Impact Fees, 2016-2020 (Proposed Fees)	$32,450,000	$110,000,000	$142,450,000
÷ Short Term Work Program Funding, 2016-2020	$75,554,051	$220,416,160	$295,970,211
Percent of Growth Costs Paid by Growth (Proposed Fees)	42.9%	49.9%	48.1%

Source: Table 8.

INTRODUCTION AND OVERVIEW

Impact fees are charges assessed on new development to cover the costs of capital improvements needed to accommodate growth. Impact fees provide a mechanism to fund public infrastructure necessary to serve new development. Forsyth County currently imposes impact fees for parks, library and public safety (fire rescue and E-911) facilities. This study updates those fees, and calculates a potential new impact fee for transportation facilities.

This section includes background information about the county, and an overview of the legal framework that governs impact fees nationally and within Georgia, the current fee structure, projected fee revenues and growth-related costs, service areas, levels of service, service units and land use categories.

Location and Growth

Forsyth County, Georgia is located north of the City of Atlanta. The City of Cumming, the county seat and the only incorporated municipality in the county, is about 40 miles north of downtown Atlanta. The county's proximity to Atlanta has contributed to an influx of high-earning professionals. The county has the highest median household income of Georgia counties, and the 25th highest nationally.[2]

Most of the residential development in the county has been occurring in the unincorporated area. Population growth in the City of Cumming accounted for only 6.0% of the county's population growth from 2000-2010 (derived from Table 3, below).

Table 3. Population Growth, 1970-2010

	1970	1980	1990	2000	2010
Unincorporated Area	14,897	25,864	41,255	94,187	170,081
City of Cumming	2,031	2,094	2,828	4,220	5,430
County Total	16,928	27,958	44,083	98,407	175,511

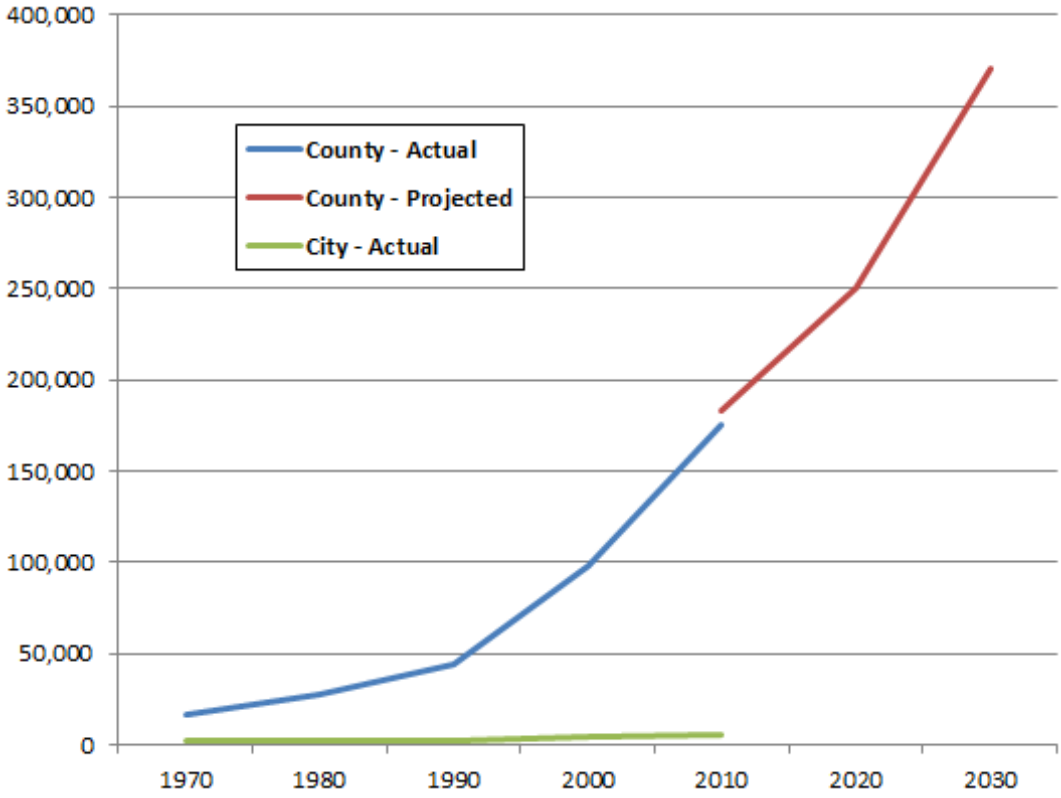
Source: U.S. Census.

[2] In terms of median household income for counties with populations of 65,000 or more, according to the 2012 *American Community Survey* prepared by the US Census Bureau.

Nonresidential development, however, is more concentrated in the county's only city. While in 2010 Cumming's population was just 3.1% of total county population,[3] in 2015 the City accounted for 26.7% of county-wide commercial building square footage, and 6.5% of industrial square footage.[4]

Impact fees can be a significant source of revenue for capital improvements in rapidly-growing areas, and Forsyth County was the 7th fastest growing county in the U.S. over the last decade.[5] Population projections in the County's comprehensive plan anticipate continued rapid growth. The projections indicate that the county will grow from 175,511 in 2010 to 250,059 in 2020 and 370,479 by 2030, as illustrated in Figure 1.

Figure 1. Population Growth, 1970-2030



Source: Table 49 and Table 50 in Appendix A.

[3] Derived from Table 3.
[4] See Table 53 in Appendix A.
[5] Among counties with a 2000 population of at least 10,000, U.S. Census Bureau, *Population Distribution and Change: 2000 to 2010*, Census Brief issued March 2011

Current Fee Structure

The County's current impact fees for parks, library and public safety facilities are summarized in Table 4. The adopted fees are per square foot, but are shown per 1,000 square feet to avoid the use of decimals.

Table 4. Current Impact Fees

				Public Safety		
Land Use	Unit	Parks	Library	Fire	E-911	Total
Residential	1,000 sf	$343	$58	$94	$20	$515
Retail/Commercial	1,000 sf	$0	$0	$216	$0	$216
Office/Business	1,000 sf	$0	$0	$86	$0	$86
Industrial	1,000 sf	$0	$0	$52	$0	$52

Source: Forsyth County, fees effective January 1, 2004.

The current fees have been in place since January 1, 2004. They were based on a study prepared by the Forsyth County Impact Fee Advisory Committee, with the assistance of Dr. James C. Nicholas, in 2003.[6] The fees were all calculated on a county-wide basis, including the City of Cumming as well as the unincorporated area.

Impact Fee Revenues

Public safety fees are segregated into fire and E-911 components. Fire and library fees are placed in separate accounts for North and South benefit districts. Fees collected over the last five years are summarized in Table 5.

Table 5. Impact Fee Revenue by Type and Area, 2010-2014

	Impact Fees Collected By Year					2010-2014
Fee Type, District	2010	2011	2012	2013	2014	Total
Fire, North District	$46,191	$68,881	$99,631	$140,026	$211,419	$566,147
Fire, South District	$260,395	$322,049	$634,363	$706,476	$688,872	$2,612,155
Subtotal, Fire	$306,586	$390,930	$733,994	$846,502	$900,290	$3,178,302
E-911	$59,336	$69,081	$122,258	$162,822	$163,065	$576,563
Public Safety Total	$365,922	$460,011	$856,252	$1,009,324	$1,063,356	$3,754,865
Parks, County-Wide	$1,023,793	$1,191,291	$2,104,940	$2,807,507	$2,803,872	$9,931,404
Library, North District	$23,734	$30,978	$48,762	$82,280	$117,039	$302,793
Library, South District	$148,127	$169,122	$306,438	$389,322	$356,223	$1,369,233
Library, Total	$171,862	$200,100	$355,200	$471,602	$473,262	$1,672,025
Total Revenue*	$1,561,577	$1,851,402	$3,316,392	$4,288,433	$4,340,490	$15,358,294

* excludes administrative charge

Source: *Annual Update: Forsyth County, Georgia Impact Fee Program*, 2010, 2011, 2012, 2013 and 2014,

[6] Impact Fee Advisory Committee of Forsyth County, Georgia, *A Report to the Forsyth County Board of County Commissioners on Development Impact Fees*, April 28, 2003; Dr. James C. Nicholas, *Non-Residential Public Safety Impact Fees*, September 25, 2003

Projected impact fee revenues are county-wide, consistent with this study's recommendation that all of the fees have a single, county-wide benefit district. Given the County's recent and projected growth, it would be reasonable to assume that, if impact fee rates are unchanged, future annual revenues will be at least equal the average amount received annually over the last two years. As shown in Table 6, revenues from the County's current impact fees for parks, libraries and public safety (fire/E-911) have been very consistent the last two years, averaging $4.3 million annually. Assuming no change in the impact fee structure or growth rate, the County's current impact fees should generate at least $21.6 million over the next five years.

If the updated fees calculated in this report are adopted at 100%, the park, library and public safety fees could be expected to generate about $32.5 million over the next five years. This estimate is based on a comparison of updated to current fees for the major land use categories. The projected revenue from the updated fees is more than 50% higher than the revenue that could be expected if current fees are retained.

Table 6. Projected Impact Fee Revenue, Updated Fees

	Parks	Library	Public Safety	Total
2013 Collections	$2,807,507	$471,602	$1,009,324	$4,288,433
2014 Collections	$2,803,872	$473,262	$1,063,356	$4,340,490
Average Annual Revenue, 2013-2014	$2,805,690	$472,432	$1,036,340	$4,314,462
x Five Years	5	5	5	5
Projected 5-Year Revenue w/ Current Fees	$14,028,450	$2,362,160	$5,181,700	$21,572,310
Projected 5-Year Revenue w/ Current Fees	$14,028,450	$2,362,160	$5,181,700	$21,572,310
x Avg. Updated/Old Fee Ratio	1.20	1.35	2.40	n/a
Projected 5-Year Revenue w/ Updated Fees	$16,818,000	$3,183,000	$12,449,000	$32,450,000
Percent Increase in Revenue	19.9%	34.7%	140.2%	50.4%

Source: 2013-2014 collections from Table 5; average updated to current fee ratio is average change from current to updated fee for all land use categories except mobile home park, derived from Table 1.

Projecting potential road impact fee revenue if the County were to adopt the proposed road impact fees is somewhat more difficult, because of the lack of historical impact fee revenue data. However, recent public safety impact fee revenues provide a useful benchmark, because public safety fees, like the proposed road fees, are charged on both residential and nonresidential development. While there is some variation by land use, on average the proposed road impact fees are 8.83 times the updated public safety fees. This would lead one to expect that road impact fees, if adopted at 100% of the proportionate fair-share amounts calculated in this study, could generate about $110 million in revenues over the next five years, as summarized in Table 7.

Table 7. Projected Road Impact Fee Revenue

Projected Five-Year Public Safety Revenue	$12,449,000
x Avg. Road Fee/Updated Public Safety Fee	8.83
Projected Five-Year Road Fee Revenue	$110,000,000

Source: Projected annual public safety revenue from Table 6; average new road fee to updated public safety fee ratio is average of ratios for all categories except mobile home park derived from Table 1.

Growth-Related Capital Needs

Growth-related capital costs, based on programmed project funding over the next five years, are compared to projected current and proposed impact fee revenues in Table 8. Total needs and revenues are shown for both the current impact fee facilities (parks, libraries and public safety) and for the proposed road impact fees. In reviewing these figures, it should be kept in mind that programmed funding for growth-related projects over the next five years reflects (a) available funding (including the current unavailability of road impact fee revenue, and park, library and public safety fees that have not been updated in 12 years), and (b) short-term capital priorities, rather than long-term growth-related costs. Consequently, planned 5-year expenditures on growth-related projects may be lower or higher than what is needed to maintain current levels of service over the long-term. Nevertheless, they provide a useful basis for comparison purposes.

The upper part of the table looks at just the current parks, library and public safety fees. For these facilities, over half of programmed expenditures are for capacity expansion, and should be considered growth-related. The current level of impact fees for these facilities could be expected to fund only about one-quarter of the planned growth-related expenditures. If the updated fees are adopted at the full net cost attributable to growth calculated in this study, these fees could be expected to cover over 40% of the growth-related planned project costs.

Table 8. Summary of Growth-Related Costs and Impact Fee Revenues, 2016-2020

	Parks	Library	Public Safety	Total w/o Roads
Growth-Related STWP Funding, 2016-2020	$57,166,000	$1,953,483	$16,434,568	$75,554,051
÷ Short Term Work Program Funding, 2016-2020	$61,629,000	$5,919,646	$22,315,762	$89,864,408
Percent Growth-Related	92.8%	33.0%	73.6%	84.1%
Projected Impact Fees, 2016-2020 (Current Fees)	$14,028,450	$2,362,160	$5,181,700	$21,572,310
÷ Growth-Related STWP Funding, 20016-2020	$57,166,000	$1,953,483	$16,434,568	$75,554,051
Percent of Growth Costs Paid by Growth (Current Fees)	24.5%	120.9%	31.5%	28.6%
Projected Impact Fees, 2016-2020 (Proposed Fees)	$16,818,000	$3,183,000	$12,449,000	$32,450,000
÷ Short Term Work Program Funding, 2016-2020	$57,166,000	$1,953,483	$16,434,568	$75,554,051
Percent of Growth Costs Paid by Growth (Proposed Fees)	29.4%	162.9%	75.7%	42.9%

	Total w/o Roads	Roads	Total w/ Roads
Growth-Related STWP Funding, 20016-2020	$75,554,051	$220,416,160	$295,970,211
÷ Short Term Work Program Funding, 2016-2020	$89,864,408	$315,834,943	$405,699,351
Percent Growth-Related	84.1%	69.8%	73.0%
Projected Impact Fees, 2016-2020 (Current Fees)	$21,572,310	$0	$21,572,310
÷ Growth-Related STWP Funding, 20016-2020	$75,554,051	$220,416,160	$295,970,211
Percent of Growth Costs Paid by Growth (Current Fees)	28.6%	0.0%	7.3%
Projected Impact Fees, 2016-2020 (Proposed Fees)	$32,450,000	$110,000,000	$142,450,000
÷ Short Term Work Program Funding, 2016-2020	$75,554,051	$220,416,160	$295,970,211
Percent of Growth Costs Paid by Growth (Proposed Fees)	42.9%	49.9%	48.1%

Source: Growth-related and total STWP funding from Table 63 in Appendix G; projected 5-year revenues from Table 6 and Table 7.

The lower part of the table adds road project costs and potential road impact fee funding. Capacity-expanding, growth-related projects that would be eligible for impact fee funding amount to about $220 million in planned expenditures over the next five years, which is more than twice as much as the $76 million the County plans to spend on growth-related improvements for the current impact fee facilities (parks, libraries and fire/E-911).

Currently, new developments are not charged road impact fees, and according to County staff are rarely required to dedicate right-of-way or construct major improvements for the expansion of the County's arterial road system. No developer contributions are anticipated for the improvements included in the County's current 5-year Short Term Work Program. Yet almost 70% of programmed costs for road improvements over the next five years are needed to add capacity to the arterial system accommodate growth. About half of that planned, capacity-expanding road funding could be provided by the proposed road impact fees.

Legal Framework

The *Georgia Development Impact Fee Act*, chapter 36-71, Georgia Code Annotated, was passed by the legislature in 1990. All developer exactions for "system improvements" must comply with the requirements of the Act. System improvements are defined as "public facilities" that provide service to the community at large, as opposed to "project improvements," which are improvements that are designed primarily to serve a particular development project. "Capital improvement" is defined as "an improvement with a useful life of ten years or more." Public facilities are defined to include water, wastewater, roads, stormwater, parks, public safety and library facilities. To be eligible to adopt impact fees, a local government must have adopted a capital improvements element that sets out a schedule of capital improvements needed over the planning horizon of the comprehensive plan, including anticipated funding sources.

The *Development Impact Fee Act* provides some general guidance on how impact fees are to be calculated. The Act mandates that the fees:

- "shall not exceed a proportionate share of the cost of system improvements;"
- "shall be calculated and imposed on the basis of service areas;"
- "shall be calculated on the basis of levels of service … that are applicable to existing development as well as the new growth and development;" and
- "shall be calculated on a basis that is net of credits for the present value of revenues that will be generated by new growth and development based on historical funding patterns and that are anticipated to be available to pay for system improvements, including taxes, assessments, user fees, and intergovernmental transfers."

Determining the "proportionate share" of the cost of planned improvements that is attributable to growth is at the heart of any impact fee methodology. The third bulleted phrase provides the most guidance, and captures one of the most fundamental principles of impact fees, which is that the fees should not charge new development for a higher level of service than is provided existing development. While impact fees can be based on a higher level of service than is currently being

provided to existing development, a source of funding other than impact fees must be identified and committed to remedy the deficiency.

The fourth bulleted phrase reflects another fundamental impact fee principle, which is that new development should not have to pay more than its proportionate share when multiple sources of payment are considered. If impact fees are based on a higher-than-existing level of service, the fees should be reduced by a credit that accounts for the contribution of new development toward remedying the existing deficiencies.

A similar situation arises when the existing level of service has not been fully paid for. Outstanding debt on existing facilities that are counted in the existing level of service will be retired, in part, by revenues generated from new development. Given that new development will pay impact fees to provide the existing level of service for itself, the fact that new development may also be paying for some of the cost of facilities that provide that same level of service for existing development could result in new development paying for more than its proportionate share. Consequently, impact fees should be reduced to account for future payments that will retire outstanding debt on existing facilities.

In general, credits against impact fees are not necessarily required for other types of funding that have historically been used for, or that are committed to be used for growth-related, capacity-expanding improvements. While new development may contribute toward such funding, so does existing development, and both existing and new development benefit from the higher level of service that the additional funding makes possible. To insist that historical capacity funding patterns must be continued after the adoption of impact fees, and that new development is entitled to an offset for its contribution to those funding sources, would be to argue that local governments cannot require "growth to pay for growth" unless they have always done so. As long as the fees are based on new development paying to maintain existing levels of service that have been paid for in full by existing development, and additional funding can reasonably be used to raise the level of service for existing and new development alike, no additional revenue offsets are warranted.

The *Act* imposes a number of important requirements for the imposition and collection of impact fees.

- The fees may not be collected earlier than the issuance of a building permit.
- The ordinance must include an impact fee schedule for each service area.
- Credit must be given for system improvements provided by the developer.
- The ordinance must provide an option for individual assessment of impact fees for a particular project, as well as a procedure for certification of the impact fee for a particular project for a period of 180 days.
- The fees can be used to recoup previous expenditures made to construct system improvements in anticipation of growth.
- Exemptions may be granted for economic development or affordable housing projects, provided the exemption is funded through a revenue source other than impact fees.

- The impact fees collected can only be spent for the category of system improvements for which the fees were collected and in the same service area.

- Prior to the adoption of an impact fee ordinance, a Development Impact Fee Advisory Committee, with at least 50% of the members representing the development, building or real estate industries, must be appointed to review the proposed ordinance.

- Impact fees must be refunded if they are not encumbered or spent within six years.

Several amendments to the state enabling act became effective on July 1, 2007. In addition to some provisions applicable only to the City of Atlanta, the accounting requirements were amended. The changes were to require the recording of the address of each property for which impact fees are paid, the amount of each category of fees and the date of payment. In addition, for each exemption granted, the record must include the address, the reason for the exemption, and the revenue source used to pay for the exemption.

Study Methodology

There are two basic methodologies used in impact fee analysis, which may be called "plan-based" and "standards-based." The plan-based approach generally uses a more complex level of service (LOS) measure than the standards-based approach. The two approaches are briefly described as follows.

The **standards-based** approach typically uses a simple, system-wide ratio of capacity to demand, such as "5 acres of park land per 1,000 residents." Because of the simplicity of this LOS standard, fees can be calculated without a long-range master plan. For example, if the cost of an acre and the number of people associated with a single-family home is known, a growth-related park impact fee cost can be calculated for a single-family home.

In contrast, the **plan-based** approach typically uses a LOS standard that is locationally-specific, such as "every road facility shall function at LOS D or better." In order to calculate a fee with this type of LOS standard, it is necessary to project where new development will occur in order to determine what improvements will be needed to accommodate growth, which is the essence of a facility master plan. The plan-based approach essentially divides the cost of needed improvements over the planning horizon by the anticipated growth.

Because the LOS standard in a plan-based approach focuses on individual facilities, there are generally some facilities that are not functioning at the desired level, and thus there are generally some existing deficiencies. With the standards-based approach, it is possible to set the LOS equal to the existing system-wide LOS, thus avoiding the creation of existing deficiencies. Another important difference between the two approaches relates to the flexibility of spending impact fee funds. With plan-based fees, the fees should only be spent on improvements identified in the master plan, and if growth does not occur as planned, the master plan and impact fees should be revised. With standards-based fees, the fees can be spent on any improvement in the service area that will expand system capacity.

The County's current impact fees for parks, library and public safety (fire rescue/E-911) are based on studies that use a standards-based approach. This is probably the most appropriate methodology for these facility types, and it will be retained in the update of those fees.

A standard-based approach is also recommended for the potential road impact fees developed in this study. When used for road impact fees, the standard-based approach is generally referred to as the "consumption-based approach." The concept is that new development should pay for the cost of replacing the capacity that the additional traffic consumes in the major roadway system. It is based on the existing system-wide level of service, expressed as a ratio of vehicle-miles of travel (VMT) to vehicle-miles of capacity (VMC). VMC is based on the local jurisdictions adopted level of service (which is LOS "D" for Forsyth County per the *Forsyth County Comprehensive Plan*).

In the "traditional" consumption-based approach, a ratio of one VMC per VMT is assumed. However, most functioning major road systems have a higher ratio system-wide, because traffic does not tend to be evenly distributed according to roadway capacity. If the average system-wide VMC/VMT ratio is one, any roadway that is under-capacity must be balanced by an equivalent roadway that is over-capacity. To address this issue, the "modified" consumption-based approach uses a ratio that is somewhere in between a 1.00 VMC/VMT ratio and the existing ratio. While the existing VMC/VMT ratio could be used, it generally is not used in order to acknowledge that some major roadways (especially lower classified roads such as collectors and some minor arterials) will either not ever approach their maximum capacity or currently have considerable vacant adjacent land that will eventually take access to them.

This study calculates the potential road impact fee using the standard consumption-based methodology. However, it would also support road impact fees based on any VMC/VMT ratio between 1.00 and the actual existing VMC/VMT ratio, if the County is interested in more aggressive cost recovery.

Service Areas

The *Development Impact Fee Act* defines "service area" as "a geographic area … in which a defined set of public facilities provide service to development within the area. Service areas shall be designated on the basis of sound planning or engineering principles or both." It further provides that "Development impact fees shall be calculated and imposed on the basis of service areas." Impact fee schedules must be developed that apply to each service area, and impact fees collected in a service area must be spent on improvements located within the same service area.

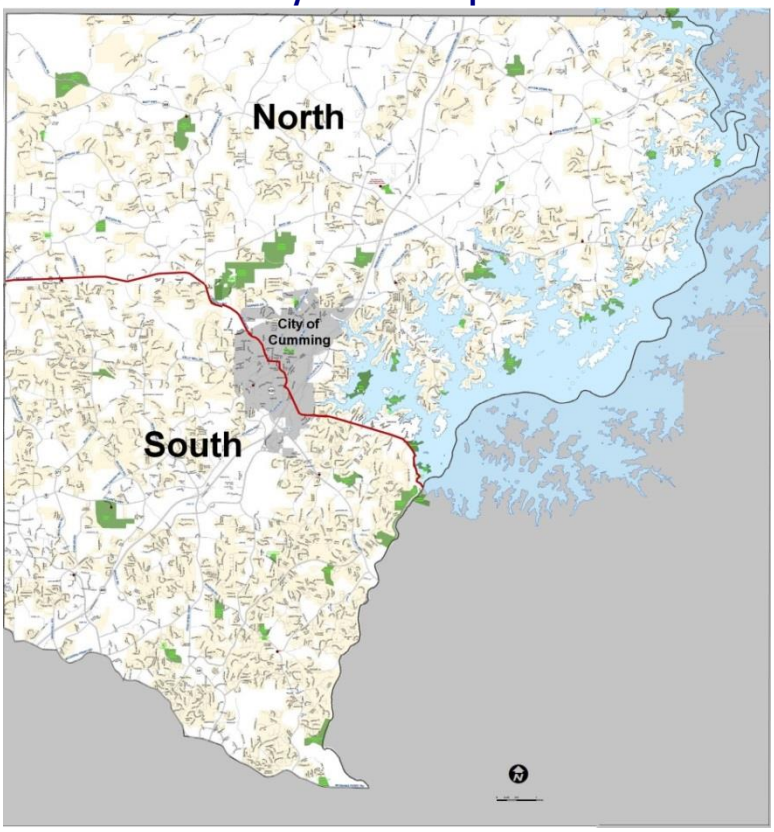
The County's current fees for park, library and public safety facilities are all calculated on the basis of a single county-wide service area. The County's impact fee ordinance provides for a single park service area that encompasses all of the unincorporated area. It further provides that the county is divided into north and south service areas for library and fire impact fees, with the boundary line being the westbound lanes of Highway 20 and Buford Dam Road (see Figure 2 on the following page). The library and fire impact fee districts, however, are not technically service areas, because fees were not calculated separately for these areas, as required by the *Development Impact Fees Act*. They are more aptly described as benefit districts. While the *Act* does not mention benefit districts, it is a relatively common practice nationally for jurisdictions to restrict funds collected within a service area to only be spent in the defined subarea in which they were collected, in order to provide

a stronger connection between the fee-paying developments and the benefits from the fee expenditures. Consequently, the County's North and South "service areas" for library and fire impact fees are more accurately described as "benefit districts."

A single service area is generally appropriate for the proposed road impact fees, because the arterial road system is designed to move traffic long distances. A single service area also continues to be appropriate for E-911 facilities, which tend to be centralized and serve the entire jurisdiction. Parks, libraries and fire facilities tend to be dispersed geographically, and are more suitable to multiple service areas. However, the County's park facilities tend to serve very large areas and would be appropriate for a single service area. Inter-library loans tend to equalize service between branches, making a single service area reasonable for library impact fees. Finally, fire rescue equipment housed in one station may be moved to another, and respond to incidents in neighboring areas when the equipment stationed there is occupied, created an integrated fire rescue response system that may also be appropriate for a single service area. While single service areas would appear to be reasonable for all of the impact fee facilities, whether the County should continue to divide its jurisdiction into two benefit districts for libraries and fire rescue fees is fundamentally a policy decision.

If the City of Cumming does not collect County's impact fees for county-wide road, park, library and public safety facilities, the County should not use impact fees make improvements for any of these facilities within the City limits, except in cases where it is necessary in order to most efficiently serve adjacent unincorporated areas.

Figure 2. Current Library and Fire Impact Fee Benefit Districts



Level of Service

The Georgia *Development Impact Fee Act* defines level of service (LOS) as "a measure of the relationship between service capacity and service demand for public facilities in terms of demand to capacity ratios, the comfort and convenience of use or service of public facilities, or both." The *Act* requires that the levels of service on which the impact fees are based be adopted in the local government's comprehensive plan. The Georgia Department of Community Affairs, which certifies local governments as in or out of compliance with the *Development Impact Fee Act*, has released guidelines suggesting that LOS measures should be "expressed in quantifiable terms or in a manner sufficient to allow future evaluation of progress in meeting capital improvements goals."[7]

One of the most fundamental principles of impact fees, rooted in case law and norms of equity, is that impact fees should not charge new development for a higher level of service than is provided existing development. This principle is reflected in the *Georgia Development Impact Fee Act*, which requires that "impact fees shall be calculated on the basis of levels of service … that are applicable to existing development as well as the new growth and development." While impact fees can be based on a higher level of service than that existing at the time of the enactment or update of the fees, another funding source must be identified to remedy the existing deficiencies. In addition, impact fees must be reduced to account for any revenue that new development will generate that is used to remedy the existing deficiencies, in order to avoid double-charging. In order to avoid these complications, typical practice with standards-based impact fee methodologies is to base the fees on a LOS that is equal to or less than the existing LOS.

For the park, library and public safety fees, the existing LOS is generally the most appropriate, because there is typically not a significant amount of excess capacity in these kinds of facilities. For road fees, on the other hand, consumption-based methodologies typically use a lower-than-existing LOS, in order to acknowledge that some existing roads are in relatively undeveloped areas and contain some excess capacity.

Service Units

To define a level of service standard, it is necessary to define a common unit of expression for service demand, known as a "service unit." The current park and library fees use population as the service unit, while the public safety fees use calls for fire rescue and population for E-911. In this update, household population will be used as the service unit for the park and library fees. For public safety, the proposed service unit for the update is "functional population," which is a measure of the presence of people at different land use types. For the proposed road impact fees, the service unit is daily vehicle-miles of travel.

[7] Georgia Department of Community Affairs, "How to Address Georgia's Impact Fee Requirements," updated April 2008

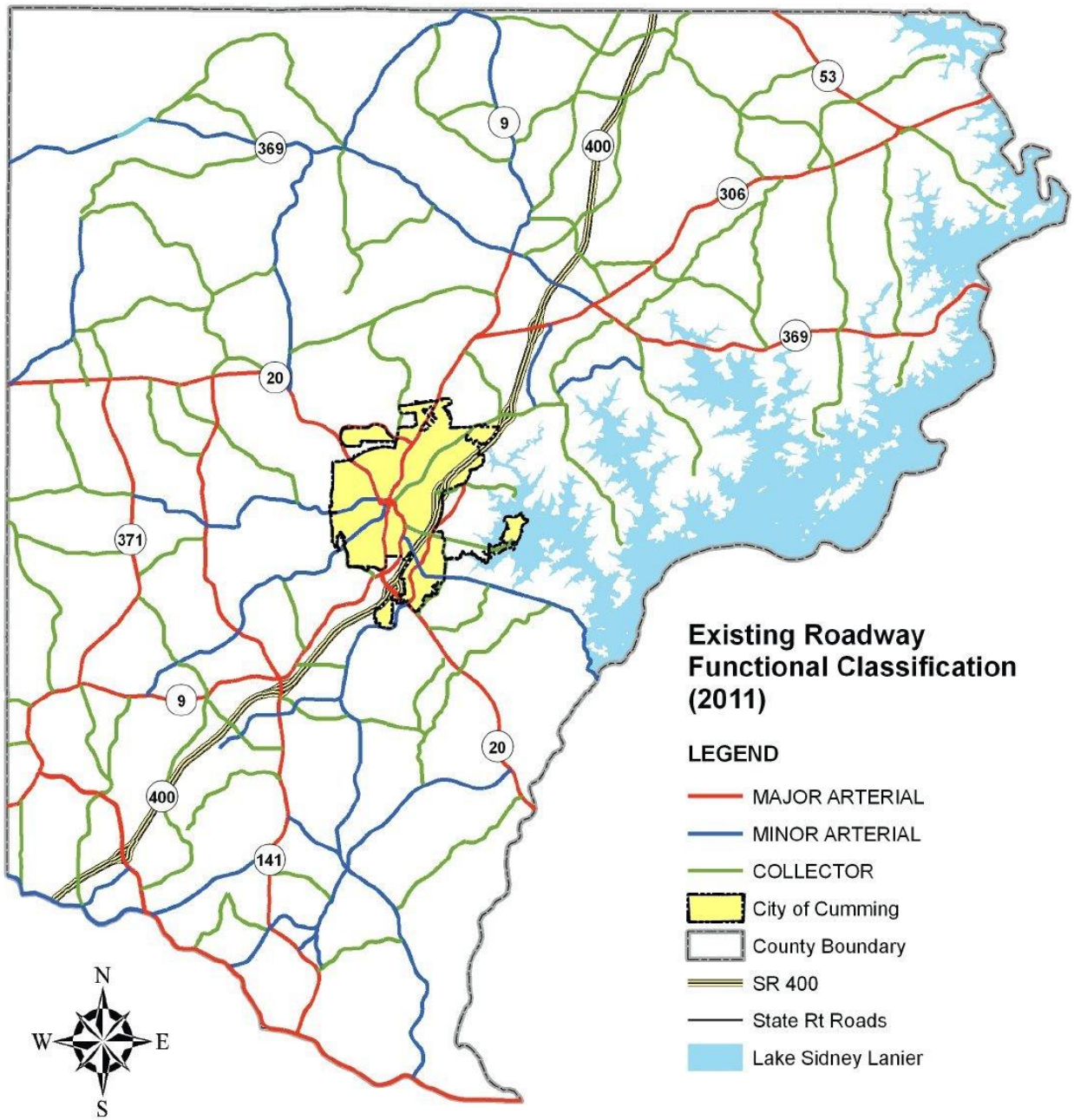
Land Use Categories

The County's current impact fee schedules have a single residential category and three nonresidential categories (retail/commercial, office/business, and industrial). This update proposes to assess residential uses on the basis of dwelling units rather than square feet of living area, and to have different rates per dwelling unit for single-family detached and multi-family developments, and per space for mobile home parks. For public safety fees, the three current nonresidential categories are basically retained, except that office/business is renamed office/institutional ("business" uses would be difficult to distinguish from "commercial" uses). For the proposed road fees, public/institutional uses are broken out separately from offices.

ROADS

This section develops a potential new road impact fee for arterial street improvements. The authority to adopt a road impact fee comes from the *Development Impact Fee Act*, which authorizes impact fees for "roads, streets, and bridges, including rights of way, traffic signals, landscaping, and any local components of state or federal highways." Road impact fees are designed to fund the cost of improvements to the major road system, not to local streets within subdivisions. The existing major roadways in Forsyth County are shown in Figure 3.

Figure 3. Existing Roadway Functional Classification



Source: Forsyth County Comprehensive Plan, Transportation Element, Figure 1.

The most significant roadway in the county is US 19/SR 400, which is the main commuting route to Atlanta and accounts for over a quarter of the total daily vehicle-miles of travel on the county's major road system. Forsyth County has funded improvements to Federal and State roads in the county, issuing a $200 million bond issue for mostly State/Federal highways, including 6-laning a section of US 19/SR 400 and other State roads. The proposed road impact fee is designed to be used to fund capacity improvements to the major roadway system, defined as all arterial roadways within the county, including State and Federal highways.

A road impact fee does not necessarily need to be limited to funding only traditional types of road improvements, such as adding lanes, improving intersections and installing traffic signals. Georgia Code provides a relatively expansive definition of "public road" in Section 32-1-3(24): "a highway, road, street, avenue, toll road, tollway, drive, detour, or other way open to the public and intended or used for its enjoyment and for the passage of vehicles in any county or municipality of Georgia, including but not limited to the following: public rights, structures, sidewalks, facilities, and appurtenances incidental to the construction, maintenance, and enjoyment of such rights of way:…" The subsequent list includes wayside parks, rest areas and scenic and access easements.

In addition to traditional types of roadway capacity improvements, the proposed road fee could be used to fund the installation of new bike lanes, sidewalks, trails, bus pull-out lanes and bus shelters located within arterial street rights-of-way. These types of improvements expand the capacity of the major road system by providing alternative modes of travel and by keeping bicyclists, pedestrians and buses stopping for passengers out of the vehicle travel lanes.

Service Area

The entire county is the proposed service area for road impact fees. Arterial roads provide an integrated system designed to move traffic long distances. The transportation system does not stop at local government boundaries – arterial roads within the City of Cumming are an integral part of the County's major road system. In the event that the City does not participate in the County's road impact fees, road impact fees collected in the unincorporated area would not be used to fund improvements to arterial roadways within the city limits.

Service Units

A service unit is a common unit of demand generated by different land uses. An appropriate service unit basis for road impact fees is vehicle-miles of travel (VMT). Vehicle-miles is a combination of the number of vehicles traveling during a given time period and the distance (in miles) that these vehicles travel.

The two time periods most often used in traffic analysis are the 24-hour weekday (average daily trips or ADT) and the single hour of the weekday with the highest traffic volume (peak hour trips or PHT). This study uses average daily travel demand.

The travel demand generated by specific land use types is a product of three factors: 1) trip generation; 2) percent new trips; and 3) trip length. The result is the vehicle-miles of travel (VMT) placed on the arterial roadway system by a land use.

Trip Generation

Trip generation rates are based on information published in the most recent edition of the Institute of Transportation Engineers' (ITE) *Trip Generation* manual. Trip generation rates represent trip ends, or driveway crossings at the site of a land use. Thus, a single one-way trip from home to work counts as one trip end for the residence and one trip end for the work place, for a total of two trip ends. To avoid over counting, all trip rates have been divided by two. This allocates the burden of travel equally between the origin and destination of the trip and eliminates double-charging for any particular trip.

New Trip Factor

Trip rates also need to be adjusted by a "new trip factor" to exclude pass-by and diverted-linked trips. This adjustment is intended to reduce the possibility of over-counting by only including primary trips generated by the development. Pass-by trips are those trips that are already on a particular route for a different purpose and simply stop at a particular development on that route. For example, a stop at a convenience store on the way home from the office is a pass-by trip for the convenience store. A pass-by trip does not create an additional burden on the street system and therefore should not be counted in the assessment of impact fees. A diverted-linked trip is similar to a pass-by trip, but a diversion is made from the regular route to make an interim stop. The reduction for pass-by and diverted-linked trips for retail/commercial uses is drawn from published ITE data for shopping centers.

Average Trip Length

In the context of a road impact fee based on a consumption-based methodology, it is important to determine the average length of a trip on the arterial road system. The point of departure in developing local trip lengths is to utilize national data. The U.S. Department of Transportation's *National Household Travel Survey* identifies average trip lengths for specific land uses and trip purposes. These trip lengths are unlikely to be representative of travel on the County's arterial road system, given that they include travel on collector roads, local streets and arterial roads outside the county. Nevertheless, the relative lengths of trips for different land uses derived from the national data should be reasonably representative of trips in Forsyth County as well. An adjustment factor is derived by dividing the VMT that is actually observed on the arterial road system by the VMT that would be expected using national average trip lengths and trip generation rates.

The first step is to estimate the total VMT expected to be generated by existing development in Forsyth County based on national travel demand characteristics. This can be accomplished by taking existing county-wide land uses and multiplying existing development in each land use category by the appropriate national trip generation rates, new trip factors and trip lengths. Total daily VMT that would be expected on the County's arterial road system based on existing development is calculated by multiplying existing development units for each land use category by national data on average daily trip generation rates, new trip factors, and average trip lengths, and then summing for all land uses. As shown in Table 9, existing county-wide land uses, using national trip characteristics, would be expected to generate approximately 4.7 million daily vehicle-miles of travel.

Table 9. Expected Vehicle-Miles of Travel

Land Use	ITE Code	Unit	Existing Units	Trip Rate	% New Trips	Avg. Trip Length	Expected VMT
Single-Family Detached	210	Dwelling	64,287	4.76	100%	9.16	2,802,458
Multi-Family	220	Dwelling	6,468	3.33	100%	8.30	178,805
Mobile Home	240	Dwelling	3,709	2.50	100%	5.24	48,567
Retail/Commercial	820	1,000 sf	10,494	21.35	42%	6.27	590,130
Office	710	1,000 sf	9,685	5.52	92%	9.28	456,471
Industrial/Warehouse	150	1,000 sf	22,091	1.78	92%	9.28	335,745
Public/Institutional	620	1,000 sf	8,611	3.80	92%	8.47	254,960
Total							4,667,136

Source: Existing dwelling units from Table 51, Appendix A; existing nonresidential square footage (in thousands) from Table 54, Appendix A; trip rates and new trip factors from Table 12; average trip length in miles from U.S. Department of Transportation, *National Household Travel Survey*, 2001 (retail/commercial based on shopping, office and industrial/warehousing based on average, public/institutional based on school/church); expected VMT is product of existing units, trip rate, new trips and trip length.

The next step in developing the trip length adjustment factor is to estimate current VMT on the arterial roadway system. The Georgia Department of Transportation maintains a database of existing traffic counts for major roads, and the data were compiled by Duncan Associates as part of the inventory of major roads presented in Appendix C. Recent traffic counts were available for the majority of major road segments. Volumes on road segments without recent traffic counts were estimated using 2010 volumes from the 2011 Forsyth County *Transportation Plan*.

As shown in Table 10, current travel on Forsyth County's arterial roadway system is less than the amount of travel that would be expected based on national travel demand factors. This is reasonable in light of the fact that travel on the arterial roadway system excludes travel on collector roads, local streets and any roads outside Forsyth County.

Table 10. Ratio of Actual to Expected Vehicle-Miles of Travel

Actual Daily Vehicle-Miles of Travel (VMT)	3,290,705
÷ Expected Daily Vehicle-Miles of Travel (VMT)	4,667,136
Ratio of Actual to Expected VMT	0.705

Source: Actual arterial street VMT from Table 57 in Appendix C; expected VMT from Table 9.

National average trip lengths are derived from the U.S. Department of Transportation's 2009 *National Household Travel Survey* for a variety of land uses and trip purposes, including single-family detached and multi-family units, shopping, family/personal and average trips. These national averages for travel on all roads have been adjusted by the local adjustment factor to estimate average trip lengths in the major roadway system in Forsyth County, as shown in Table 11 below.

Table 11. Average Trip Length by Trip Purpose

Land Use Type	National Trip Length (miles)	Local Adjustment Factor	Local Trip Length (miles)
Single-Family Detached	9.16	0.705	6.46
Multi-Family	8.30	0.705	5.85
Mobile Home	5.24	0.705	3.69
Retail/Commercial	6.27	0.705	4.42
Office	9.28	0.705	6.54
Industrial/Warehouse	9.28	0.705	6.54
Public/Institutional	8.47	0.705	5.97

Source: National trip lengths from U.S. Department of Transportation, *National Household Travel Survey*, 2009; local adjustment factor from Table 10.

The result of combining trip generation rates, new trip factors and localized average trip lengths is a travel demand schedule that establishes the daily VMT during the average weekday on Forsyth County's arterial roadway system generated by various land use types per unit of development. The recommended travel demand schedule is presented in Table 12.

Table 12. Travel Demand Schedule

Land Use Type	Unit	Trip Rate	% New Trips	Trip Length	VMT/ Unit
Single-Family Detached	Dwelling	4.76	100%	6.46	30.75
Multi-Family	Dwelling	3.33	100%	5.85	19.48
Mobile Home/RV Park	Space	2.50	100%	3.69	9.23
Retail/Commercial	1,000 sq. ft.	21.35	42%	4.42	39.63
Office	1,000 sq. ft.	5.52	92%	6.54	33.21
Industrial/Warehouse	1,000 sq. ft.	1.78	92%	6.54	10.71
Public/Institutional	1,000 sq. ft.	3.80	92%	5.97	20.87

Source: Trip rates are one-half of average daily trip ends on a weekday from Institute of Transportation engineers (ITE), *Trip Generation*, 9th ed., 2012 (retail-commercial based on shopping center, , public/institutional based on nursing home, industrial/warehouse based on warehousing); new trip percentages from ITE, *Trip Generation Handbook*, 2004 for shopping centers (others assumed); average trip lengths from Table 11.

Level of Service

The current arterial roadway level of service (LOS) is expressed in terms of the system-wide ratio of vehicle-miles of travel to vehicle-miles of capacity (VMT/VMC). An inventory of the arterial road system for each proposed service area is provided in Table 57, Appendix C. For each road section, the inventory includes the section length, number of through-lanes, current volume and existing capacity. As shown in Table 13, the current LOS is a 1.61 VMC/VMT ratio. However, to acknowledge the presence of some excess capacity in the arterial road system, a VMC/VMT ratio of 1.00 will be used in the road impact fee calculations.

Table 13. Road Level of Service

Daily Vehicle-Miles of Capacity (VMC)	5,291,358
÷ Daily Vehicle-Miles of Travel (VMT)	3,290,705
Existing VMC/VMT Ratio	1.61
Assumed VMC/VMT Ratio	1.00

Source: Arterial VMC and VMT from Table 57.

Cost per Service Unit

As described in greater detail in the methodology section, the potential new road impact fees are based on a "consumption-based" methodology. This methodology assumes that the capacity of the arterial street system will need to be expanded in order to replace the capacity that is consumed by new development. In the consumption-based approach, the average cost to add capacity is based on a representative set of historical or planned improvements. Because the capacity added must be expressed in terms of vehicle-miles (vehicle-miles of capacity or VMC), the list of projects is limited to those that add new vehicle lanes. While it is difficult to quantify the VMC added by other types of improvements, such as intersection improvements, signalization, etc., those types of improvements are eligible to be funded with the impact fees. The costs per lane-mile derived from the cost estimates in the County's 2011 *Transportation Plan* are summarized in Table 14. The cost estimates include engineering/design, right-of-way and construction. The average cost is about $3.25 million per lane-mile.

Table 14. Road Cost per Lane-Mile

				Lanes		New	Estimated	Cost/
Road	From	To	Mi.	Ex.	Plan	Ln-Mi	Cost	Lane-Mile
SR 20	Samples Rd	James Burgess Rd	2.87	2	4	5.74	$31,307,000	$5,454,181
SR 20	SR 371	SR 400	8.40	2	4	16.80	$74,360,000	$4,426,190
McGinnis Ferry Road	Sargent Rd	Union Hill Rd	7.80	2	4	15.60	$32,722,000	$2,097,564
SR 306	SR 400	SR 369	1.13	2	4	2.26	$7,316,000	$3,237,168
SR 369	SR 306	Hall County Line	7.90	2	4	15.80	$33,340,000	$2,110,127
SR 369	SR 9	SR 306	1.79	2	4	3.58	$13,200,000	$3,687,151
Bethelview Road	SR 9	Castleberry Rd	1.00	2	4	2.00	$8,690,000	$4,345,000
Bethelview Road	Caastleberry Rd	SR 20	5.00	2	4	10.00	$39,440,000	$3,944,000
Union Hill/Mullinax Rd	McFarland Pkwy	SR 9	2.35	2	4	4.70	$7,160,000	$1,523,404
Union Hill Road	SR 400	McFarland Pkwy	1.67	2	4	3.34	$12,500,000	$3,742,515
Brookwood Road	MMcGinnis Ferry Rd	SR 141	1.09	2	4	2.18	$5,662,000	$2,597,248
Old Atlanta Road	Nichols Rd	James Burgess Rd	0.70	2	4	1.40	$2,400,000	$1,714,286
Old Atlanta Road	Sharon Rd	Nichols Rd	1.60	2	4	3.20	$6,250,000	$1,953,125
Old Atlanta Road	James Burgess Rd	McGinnis Ferry Rd	3.10	2	4	6.20	$30,100,000	$4,854,839
Sharon Road	SR 141	Old Atlanta Rd	1.21	2	4	2.42	$6,040,000	$2,495,868
SR 371	SR 9	Kelly Mill Rd	3.82	2	4	7.64	$20,541,000	$2,688,613
Ronald Reagan Blvd	Shiloh Rd	Majors Rd	2.00	0	4	8.00	$20,433,000	$2,554,125
Castleberry Road	City Limits	Piney Grove	1.35	2	4	2.70	$13,450,000	$4,981,481
Castleberry Road	Piney Grove	Bethelview Rd	1.52	2	4	3.04	$14,178,000	$4,663,816
Ronald Reagan Blvd	McFarland Pkwy	Shiloh Rd	1.30	0	4	5.20	$13,281,000	$2,554,038
McFarland Parkway	McGinnis Ferry Rd	SR 400	1.00	4	6	2.00	$3,676,000	$1,838,000
Pilgrim Mill Road	City Limit	Freedom Pkwy	1.00	2	4	2.00	$13,236,000	$6,618,000
Total						125.80	$409,282,000	$3,253,434

Source: *Forsyth County Transportation Plan*, 2011.

While the cost per lane-mile is useful for comparison purposes, the consumption-based methodology requires the cost per vehicle-mile of capacity, or VMC. As shown in Table 15 for the same set of planned improvements, the average cost is $363 per VMC.

Table 15. Road Cost per Vehicle-Mile of Capacity

Road	From	To	Mi.	Capacity Ex.	Capacity Plan	New VMC	Estimated Cost	Cost/ VMC
SR 20	Samples Rd	James Burgess Rd	2.87	16,600	35,000	52,808	$31,307,000	$593
SR 20	SR 371	SR 400	8.40	16,600	35,000	154,560	$74,360,000	$481
McGinnis Ferry Road	Sargent Rd	Union Hill Rd	7.80	16,600	35,000	143,520	$32,722,000	$228
SR 306	SR 400	SR 369	1.13	16,600	35,000	20,792	$7,316,000	$352
SR 369	SR 306	Hall County Line	7.90	16,600	35,000	145,360	$33,340,000	$229
SR 369	SR 9	SR 306	1.79	14,900	32,500	31,504	$13,200,000	$419
Bethelview Road	SR 9	Castleberry Rd	1.00	16,600	35,000	18,400	$8,690,000	$472
Bethelview Road	Caastleberry Rd	SR 20	5.00	16,600	35,000	92,000	$39,440,000	$429
Union Hill/Mullinax Rd	McFarland Pkwy	SR 9	2.35	14,600	31,700	40,185	$7,160,000	$178
Union Hill Road	SR 400	McFarland Pkwy	1.67	14,600	31,700	28,557	$12,500,000	$438
Brookwood Road	MMcGinnis Ferry Rd	SR 141	1.09	14,900	32,500	19,184	$5,662,000	$295
Old Atlanta Road	Nichols Rd	James Burgess Rd	0.70	14,900	32,500	12,320	$2,400,000	$195
Old Atlanta Road	Sharon Rd	Nichols Rd	1.60	14,900	32,500	28,160	$6,250,000	$222
Old Atlanta Road	James Burgess Rd	McGinnis Ferry Rd	3.10	14,900	32,500	54,560	$30,100,000	$552
Sharon Road	SR 141	Old Atlanta Rd	1.21	14,900	32,500	21,296	$6,040,000	$284
SR 371	SR 9	Kelly Mill Rd	3.82	16,600	35,000	70,288	$20,541,000	$292
Ronald Reagan Blvd	Shiloh Rd	Majors Rd	2.00	0	32,500	65,000	$20,433,000	$314
Castleberry Road	City Limits	Piney Grove	1.35	14,900	32,500	23,760	$13,450,000	$566
Castleberry Road	Piney Grove	Bethelview Rd	1.52	16,600	35,000	27,968	$14,178,000	$507
Ronald Reagan Blvd	McFarland Pkwy	Shiloh Rd	1.30	0	32,500	42,250	$13,281,000	$314
McFarland Parkway	McGinnis Ferry Rd	SR 400	1.00	35,000	52,500	17,500	$3,676,000	$210
Pilgrim Mill Road	City Limit	Freedom Pkwy	1.00	14,600	31,700	17,100	$13,236,000	$774
Total						1,127,072	$409,282,000	$363

Source: *Forsyth County Transportation Plan*, 2011.

Net Cost per Service Unit

The net cost per service unit is based on the cost per service unit less credits to account for revenue generated by new development that will be used to pay for capacity-related capital improvements. As described in the Legal Framework, revenue credits are clearly required for revenue generated by new development and used to remedy existing deficiencies, or to retire outstanding debt on existing facilities that are providing the current level of service for existing development. The need to provide credits for future revenue that will be used to make capacity-related improvements is less clear, because the County could use the funds to enhance the level of service for both existing and new development, rather than for covering part of the cost to maintain the existing level of service for new development. Nevertheless, in this study credit is provided for future revenues planned to be used for capacity-expanding improvements.

Debt Credit

Road impact fees should give credit for future tax revenues that will be used to pay outstanding debt incurred to expand the capacity of the transportation system to provide the level of service on which the fees are based. The County does not have any outstanding debt for past road improvements. However, voters authorized the County on November 4, 2014 to issue $200 million in bonds to

finance future transportation projects. Credit is not necessarily warranted for new development's future contribution toward retiring this debt, because the improvements have not been constructed and are required to expand capacity to accommodate growth. In fact, road impact fees could be used to help retire at least some of the debt. However, to be conservative a credit will be provided.

A simple method that ensures that new development is not required to pay for existing facilities, through funds used for debt retirement, as well as new facilities through impact fees, is to calculate the credit by dividing the outstanding debt by existing VMT on the City's major road network. This puts new development on the same footing as existing development in terms of the share of capital costs funded through debt. As shown in Table 16, the transportation debt credit is $61 per VMT.

Table 16. Road Debt Credit

Forsyth County Tranpsortation Bond	$200,000,000
÷ Existing Vehicle-Miles of Travel (VMT)	3,290,705
Transportation Debt Credit per VMT	$61

Source: Bond amount from *Forsyth County Transportation Bond* map and summary; arterial road VMT from Table 13.

State/Federal Funding Credit

A credit for State and Federal funding recognizes planned Georgia Department of Transportation (GDOT) expenditures on arterial roads in Forsyth County. As shown in Table 17, the credit is based on the annual planned funding for roads and the existing VMT. Assuming that major transportation improvements in the County continues to receive a similar amount of outside funding over the long term, new development will generate the present value equivalent of approximately $135 in capacity funding per VMT over the next 25 years.

Table 17. Road State/Federal Funding Credit

Planned Improvement	Funding Source	5-Year Total
SR 9 Widening, Fulton Co-McFarland Rd	STP	$7,418,973
SR 9 Widening, McFarland Rd-SR 371	STP	$4,830,577
SR 9 Widening, SR 371-SR 141	STP	$2,863,181
SR 9 Widening, SR 141-SR 20	STP/Fed Earmark	$33,531,551
Bethelview Widening, Castleberry-SR 20	STP	$30,005,352
SR 20 Widening, SR 369-SR 371	NHPP	$59,796,711
Total State/Federal Funding, FY 2014-2019		$138,446,345
÷ Years		5
Average Annual State/Federal Funding		$27,689,269
÷ Existing Vehicle-Miles of Travel (VMT)		3,290,705
Annual State/Federal Funding per VMT		$8.41
x Present Value Factor (25 Years)		16.03
State/Federal Funding Credit per VMT		$135

Source: Planned Federal/State capacity funding from Atlanta Regional Commission, *FY 2014-2019 Transportation Improvement Program*, as of March 6, 2015; existing arterial road VMT from Table 57; present value factor based on 25 years at a 3.76% discount rate, which was the average interest rate on state and local bonds in May 2015 from the Federal Reserve at http://www.federalreserve.gov/ releases/h15/data/monthly.

SPLOST Funding Credit

Forsyth County collects a Special Purpose Local Option Sales Tax (SPLOST), which has been authorized by voters seven times. The current 6-year authorization expires on July 1, 2019. The credit is based on average annual SPLOST funding for capacity-expanding projects for the last three authorizations (2003-2019). Assuming that this level of SPLOST funding is continued over the long term, new development will generate the present value equivalent of approximately $69 in capacity funding per VMT over the next 25 years, as shown in Table 18.

Table 18. Road SPLOST Credit

Transportation Capacity Funding, SPLOST V	$86,862,276
Transportation Capacity Funding, SPLOST VI	$70,493,402
Transportation Capacity Funding, SPLOST VII	$70,413,562
Total Transportation Capacity SPLOST Funding, 2003-2019	$227,769,240
÷ Number of Years	16
Average Annual Transportation Capacity SPLOST Funding	$14,235,578
÷ Existing Vehicle-Miles of Travel (VMT)	3,290,705
Annual SPLOST Funding per VMT	$4.33
x Present Value Factor (25 Years)	16.03
SPLOST Funding Credit per VMT	$69

Source: Road capacity funding from Table 58 through Table 60 in Appendix D; existing arterial road VMT from Table 57; present value factor from Table 17.

Net Cost Summary

As shown in Table 19, reducing the transportation cost per service unit by the debt, State/Federal funding and SPLOST funding credits leaves a net cost of $98 per VMT.

Table 19. Road Net Cost per Service Unit

Transportation Cost per VMT	$363
– Debt Credit per VMT	-$61
– State/Federal Funding Credit per VMT	-$135
– SPLOST Credit per VMT	-$69
Net Transportation Cost per VMT	$98

Source: Cost per VMT from Table 15; debt credit from Table 16; outside funding credit from Table 17.

Potential Fee Schedule

The maximum road impact fees that can be adopted by the County based on this study are derived by multiplying the travel demand factor for each land use by the net cost per service unit. The potential road impact fee schedule is shown in Table 20.

Table 20. Potential Road Impact Fees

Land Use Type	Unit	VMT/ Unit	Net Cost/ VMT	Net Cost/ Unit
Single-Family Detached*	Dwelling	30.75	$98	$3,014
Multi-Family	Dwelling	19.48	$98	$1,909
Mobile Home/RV Park	Space	9.23	$98	$905
Retail/Commercial	1,000 sq. ft.	39.63	$98	$3,884
Office	1,000 sq. ft.	33.21	$98	$3,255
Industrial/Warehouse	1,000 sq. ft.	10.71	$98	$1,050
Public/Institutional	1,000 sq. ft.	20.87	$98	$2,045

* includes mobile home located outside a mobile home park

Source: VMT per unit from Table 12; net cost per VMT from Table 19.

PARKS AND RECREATION

Forsyth County charges a parks and recreation impact fee on new residential development. The park impact fees have not been updated since they were adopted in 2004. The current fees cover the cost of active parks, excluding greenways and open space preserves. This report calculates the updated impact fees that could be charged for new residential development based on the current park level of service provided by existing active County parks and recreation facilities.

Service Area

The current park fees are based on a county-wide service area. A county-wide service area is reasonable, because all of the County's active parks serve large areas. No change is recommended to the current county-wide park impact fee service area.

Whether or not the City of Cumming participates in the updated park fee, the nexus would remain strong for a number of reasons. First, City residents may benefit from County park facilities, but the City also provides some of its own recreational facilities, which likely lessen City residents' use of County facilities and may also be used by some unincorporated area residents. In addition, residential development in the City is virtually de minimus, with the City accounting for only 6.0% of county-wide population growth from 2000-2010, according to the U.S. Census Bureau. Finally, basing the fees on the existing county-wide level of service essentially charges new development for a lower level of service than if unincorporated residents only were used as the base.

Methodology

The 2003 park impact fee study used a standards-based methodology (see description in the Methodology section of the Introduction and Overview chapter). The fees were based on the existing level of service (LOS) at the time, which was 2.638 acres of active County parkland per 1,000 county-wide residents. This update continues to use the existing county-wide LOS in calculating the fee.

Service Units

This update uses residents as the service unit for the park impact fees. The need for, usage of and benefit from public parks and recreational facilities are primarily attributable to residential development.

The park service unit is household population, rather than total population. Household population excludes residents of group quarters, such as nursing homes, orphanages, dormitories and detention facilities. Group quarter residents generally make limited use of public parks and recreation facilities. In the 2010 Census, group quarter residents in Forsyth County accounted for only 0.37% percent of total county residents.

The multipliers used in calculating the fees by housing type are "persons per unit," rather than "average household size." Persons per unit is the ratio of household population to the total number of dwelling units, while average household size is the ratio of household population to the number of occupied units. Persons per unit is a more accurate indicator of park demand, because it take into account that not all units are occupied at any point in time. At the time of the 2010 Census, for example, 7.2% of housing units in Forsyth County were vacant. Persons per unit by housing type are presented in Appendix A.

Total population estimates include persons residing in group quarters, such as nursing homes, college dormitories, mental institutions and prisons. The portion of population relevant for residential impact fees is household population – residents living in dwelling units, including single-family homes, apartments, townhouses, condominiums and mobile homes. Current household population can be estimated by multiplying the existing number of dwelling units by the average persons per unit for each housing time. As shown in Table 21, the current household population of Forsyth County is estimated to be 215,024. This estimate is somewhat higher than the 2015 total population projection of 204,966 provided in the County's *Comprehensive Plan*.[8]

Table 21. Estimated County-Wide Household Population, 2015

Housing Type	Dwelling Units	Persons/ Unit	Household Population
Single-Family Detached	64,287	2.96	190,290
Multi-Family	6,468	1.88	12,160
Mobile Home	3,709	3.39	12,574
Estimated Household Population			215,024

Source: 2015 dwelling units from Table 51 in Appendix A; persons per unit from Table 52.

Cost per Service Unit

The cost per service unit is based on the existing level of service (LOS). The parks LOS can be expressed in terms of acres or replacement value of existing active County parks.

The replacement value of existing park land is estimated based on market values determined by the Forsyth County Board of Tax Assessors. Acres and assessed market values for active County park land are summarized in Table 22.

[8] *Forsyth County Comprehensive Plan*, Population Table 5.

Table 22. Existing Active County Park Land

Park Facility	Acres	Land Value
Bennett Park	31.80	$524,380
Central Park	121.31	$18,196,500
Chestatee Park	3.93	$105,560
Coal Mountain Park	31.00	$1,085,000
Daves Creek Park	16.89	$337,800
Ducktown Park	6.46	$372,100
Fowler Park	277.43	$9,571,340
Matt Community Park	60.00	$2,700,000
Midway Park	39.86	$2,391,600
Old Atlanta Park (Buice Rec Ctr)	32.92	$100,000
Sawnee Mountain Park	44.30	$1,913,760
Sharon Springs Park	58.35	$3,501,000
South Forsyth Soccer Complex	31.00	$9,966,690
Total, Active County Parks	755.25	$50,765,730

Source: Forsyth County Parks and Recreation Department, March 2015 (market values from Forsyth County Board of Tax Assessors).

As shown in Table 23, the existing level of service is 3.512 acres per 1,000 residents. Providing that same level of service to new residential development has an estimated cost of $496 per person.

Table 23. Park Cost per Service Unit

County Active Park Acres	755.25
÷ Current Household Population (000s)	215.024
Acres per 1,000 Population	3.512
Replacement Value of Existing Active Park Land	$50,765,730
Insured Value of Park Improvements*	$55,927,525
Total Replacement Value of Existing Parks	$106,693,255
÷ County Active Park Acres	755.25
Park Cost per Acre	$141,269
Park Cost per Acre	$141,269
x Acres per Person	0.003512
Park Cost per Person	$496

* excluding equipment and vehicles

Source: Existing park acres and land value from Table 22; insured value of park improvements (excluding equipment and vehicles) from Table 61; current population is estimated county-wide 2015 household population from Table 21.

Net Cost per Service Unit

The net cost per service unit is based on the cost per service unit less credits to account for revenue generated by new development that will be used to pay for capacity-related capital improvements. As described in the Legal Framework, revenue credits are clearly required for revenue generated by new development and used to remedy existing deficiencies, or to retire outstanding debt on existing facilities that are providing the current level of service for existing development. The need to provide credits for future revenue that will be used to make capacity-related improvements is less

clear, because the County could use the funds to enhance the level of service for both existing and new development, rather than for covering part of the cost to maintain the existing level of service for new development. Nevertheless, in this study credit will be provided for future revenues planned to be used for capacity-expanding improvements.

Debt Credit

The updated park impact fees should give credit for future tax revenues that will be used to pay outstanding debt incurred to expand the capacity of the County's active park system and provide the level of service on which the fees are based. The County issued $100 million in bonds in 2008 and 2013 to fund park projects, as summarized in Table 24. Some debt has been retired, leaving a current outstanding principal balance of $92.86 million as of December 31, 2014. Of the original $100 million borrowed, approximately $17.81 million has not yet been spent or encumbered. This unexpended amount is not reflected in the existing level of service, and credit is not provided for this amount. Credit only needs to be provided for outstanding debt that has been expended on active County park projects, which is approximately $34.27 million.

Table 24. Outstanding Park Debt

Park Project	Original Projects	Expended/ Encumbered	Remaining Balance
Fowler Park	$18,000,000	$15,973,240	$0
Northwest Community Park (land only)	$4,000,000	$2,496,011	$0
South Recreation Center	$2,600,000	$2,787,093	$0
Corps of Eng. Lake Parks (incl. Charleston)	$1,100,000	$1,119,211	$0
Joint Venture with Bd of Education	$7,900,000	$0	$0
North Community Park	$4,000,000	$3,998,849	$0
Central Park Rec Center Addition	$2,000,000	$1,979,135	$0
Bennett Park Improvements	$230,000	$227,574	$0
Artificial Turf-Sharon Springs & Bennett	$1,400,000	$1,306,510	$0
Sawnee Mountain Park		$42,844	$7,156
Sharon Springs Park Improvements	$300,000	$303,761	-$1
Central Park Improvements	$300,000	$713,048	$462,194
Midway Park Improvements	$300,000	$251,318	$0
Coal Mountain Park Improvements	$200,000	$145,371	$0
Lanierland Phase I		$335,188	$3,709,313
Matt Community (Wallace Tatum)		$134,075	$3,918,425
Old Atlanta Park		$1,452,129	$0
Buice Rec Center		$857,529	$0
Park Improvements - Other		$106,131	$905,813
Contingency	$600,000	$36,767	$0
Additional Contingency	$250,000	$0	$0
Subtotal, Active County Parks	n/a	$34,265,784	$9,002,899
Big Creek Greenway	$8,000,000	$4,841,330	$3,883,670
Chattahoochee Point (McClure)			$200,000
Cumming Aquatic Center	$10,000,000	$10,000,000	$0
Etowah Blueway (Eagles Beak)	$1,000,000	$78,046	$921,954
Greenspace Acquisition	$36,000,000	$32,973,887	$3,026,113
Sawnee Mountain Preserve	$1,800,000	$22,552	$777,448
Windermere Park Improvements	$20,000	$6,317	$0
Subtotal, Other Projects	n/a	$47,922,133	$8,809,184
Total	$100,000,000	$82,187,917	$17,812,083

Source: Forsyth County Finance Department, March 20, 2015.

A straight-forward method that ensures that new development is not required to pay for existing facilities, through funds used for debt retirement, as well as new facilities through impact fees, is to calculate the credit by dividing the outstanding debt by existing service units. This puts new development on the same footing as existing development in terms of the share of capital costs funded through debt. As shown in Table 25, the park debt credit is $148 per person.

Table 25. Park Debt Credit

Outstanding Park Debt, 12/31//2014	$92,860,000
÷ Original Park Debt	$100,000,000
Percent of Original Debt Outstanding	92.86%
x Original Expended Active Park Debt	$34,265,784
Outstanding Active Park Debt	$31,819,207
÷ Current County-Wide Household Population	215,024
Park Debt Credit per Person	$148

Source: Debt information from Forsyth County Finance Department, March 20 2015; current population from Table 21.

Grant Funding Credit

A credit is provided for State and Federal grant funding. As shown in Table 26, the credit is based on the County's receipt of $92,700 in grants for improvements to active parks over the last five years. Assuming that the County continues to receive a similar amount of outside grant funding over the long term, new development will generate the present value equivalent of $1 in grant funding per person over the next 25 years.

Table 26. Park Grant Funding Credit

Sawnee Mountain Foundation Grant, 2013	$40,000
Charleston Park, Recreation Trails Grant, 2014	$52,700
Total Active Park Grant Funding, Last 5 Years	$92,700
÷ Number of Years	5
Average Annual Active Park Grant Funding	$18,540
÷ Current Population	215,024
Annual Park Grant Funding per Person	$0.09
x Present Value Factor (25 Years)	16.03
Park Grant Funding Credit per Person	$1

Source: Grant funding from Forsyth County Parks and Recreation Department, June 17, 2015; existing population from Table 21; present value factor based on 25 years at a 3.76% discount rate, which was the average interest rate on state and local bonds in May 2015 from the Federal Reserve at http://www.federalreserve.gov/releases/h15/data/monthly.

SPLOST Funding Credit

Forsyth County collects a Special Purpose Local Option Sales Tax (SPLOST), which has been authorized by voters seven times. The current 6-year authorization expires on July 1, 2019. The credit is based on average annual SPLOST funding for capacity-expanding projects for the last three authorizations (2003-2019). Assuming that this level of SPLOST funding is continued over the long term, new development will generate the present value equivalent of approximately $69 in active park improvement funding per person over the next 25 years, as shown in Table 27.

Table 27. Park SPLOST Credit

Active Park Funding, SPLOST V	$10,737,264
Active Park Funding, SPLOST VI	$6,578,113
Active Park Funding, SPLOST VII	$856,613
Total Active Park SPLOST Funding, 2003-2019	$18,171,990
÷ Number of Years	16
Average Annual Active Park SPLOST Funding	$1,135,749
÷ Current County-Wide Household Population	215,024
Annual Park SPLOST Funding per Person	$5.28
x Present Value Factor (25 Years)	16.03
Park SPLOST Funding Credit per Person	$85

Source: Active park funding from Table 58 through Table 60 in Appendix D; current population from Table 21; present value factor from Table 26.

Net Cost Summary

As shown in Table 28, reducing the park cost per service unit by the debt, grant and SPLOST funding credits leaves a net cost of $262 per person.

Table 28. Park Net Cost per Service Unit

Park Cost per Person	$496
– Park Debt Credit per Person	-$148
– Park Grant Credit per Person	-$1
– Park SPLOST Credit per Person	-$85
Net Park Cost per Person	$262

Source: Cost per person from Table 23; debt credit from Table 25; grant credit from Table 26; SPLOST credit from Table 27.

Updated Fee Schedule

The maximum park impact fees that can be adopted by the County based on this study are derived by multiplying the persons per unit associated with each housing type by the park net cost per person. The updated park impact fee schedule is shown in Table 29.

Table 29. Updated Park Impact Fees

Housing Type	Unit	Persons/ Unit	Net Cost/ Person	Net Cost/ Unit
Single-Family Detached*	Dwelling	2.96	$262	$776
Multi-Family	Dwelling	1.88	$262	$493
Mobile Home/RV Park	Space	3.39	$262	$888

* includes mobile home located outside a mobile home park

Source: Persons per unit from Table 52, Appendix A; net cost per person from Table 28.

The updated fees are not directly comparable to current fees, because the current fees are based on the size of the unit only, whereas the updated fees are per dwelling unit by housing type. However, the fees can be compared for the average size unit of each housing type. The updated fees are higher than current fees for the average size unit for all three housing type, with the fee for single-family detached units increasing less than the fees for other housing types, as shown in Table 30.

The major increase for multi-family units and mobile homes reflects the more precise calculation in this update to account for the higher population density (more persons per square foot) of those housing types compared to single-family detached units.

Table 30. Comparative Park Impact Fees

Housing Type	Unit	Current Fee*	Updated Fee	Percent Change
Single-Family Detached	Dwelling	$726	$776	7%
Multi-Family	Dwelling	$371	$493	33%
Mobile Home/RV Park	Space	$431	$888	106%

* typical based on average size units in southern U.S. from 2011 American Housing Survey: 2,118 sq. ft. for single-family detached, 1,081 sq. ft. for multi-family and 1,256 sq. ft. for mobile home

Source: Current fee is current fee per 1,000 square feet from Table 4 times the average unit size noted above; updated fee from Table 29.

LIBRARIES

Forsyth County provides a public library system that serves all residents of the county. The County has assessed a library impact fee on new residential development since 2004. The library fees have not been updated since they were adopted over ten years ago. This report calculates the updated impact fees that could be charged for new residential development based on the current library level of service.

Service Area

The current library fees are based on a county-wide service area. A county-wide service area is reasonable, because inter-library loans tend to equalize service between branches. No change is recommended to the current county-wide library impact fee service area.

While a uniform county-wide fee is calculated based on the existing county-wide level of service, the county is divided into North and South library benefit districts. The account for each benefit district receives only revenues paid by new development located in the benefit district, and the funds are restricted to be spent only on improvements located in the benefit district. Given the integrated nature of the library system, a single county-wide benefit district is recommended.

Whether or not the City of Cumming participates in the updated library fee, the nexus would remain strong for a number of reasons. First, residential development in the City is virtually de minimus, with the City accounting for only 6.0% of county-wide population growth from 2000-2010, according to the U.S. Census Bureau. Second, basing the fees on the existing county-wide level of service essentially charges new development for a lower level of service than if unincorporated residents only were used as the base.

Methodology

The 2003 library impact fee study used a standards-based methodology (see description in the Methodology section of the Introduction and Overview chapter). The fees were based on the existing level of service (LOS) at the time, which was 0.388 square feet of library floor area per resident. This update continues to use the existing county-wide LOS in calculating the fee.

Service Units

Population is the service unit for the library impact fees. The need for, usage of and benefit from public library facilities are primarily attributable to residential development.

The library service unit is household population, rather than total population. Household population excludes residents of group quarters, such as nursing homes, orphanages, dormitories and detention facilities. Group quarter residents generally make limited use of public library facilities. In the 2010 Census, group quarter residents in Forsyth County accounted for only 0.37% percent of total county residents.

The multipliers used in calculating the fees by housing type are "persons per unit," rather than "average household size." Persons per unit is the ratio of household population to the total number of dwelling units, while average household size is the ratio of household population to the number of occupied units. Persons per unit is a more accurate indicator of library demand, because it take into account that not all units are occupied at any point in time. At the time of the 2010 Census, for example, 7.2% of housing units in Forsyth County were vacant.

Current county-wide household population is estimated based on the number of existing dwelling units by housing type and the persons per unit multipliers, both of which are estimated in Appendix A. The result is an estimated county-wide household population of 215,024 in 2015, as shown in Table 21 in the Parks chapter.

Cost per Service Unit

The cost per service unit is based on the existing level of service (LOS). The library LOS can be expressed in terms of building square feet or replacement value of existing County libraries per person. Acres of land and building square footage for existing County libraries are summarized in Table 31.

Table 31. Summary of Existing Library Facilities

Facility	Address	Opened	Land (ac.)	Building (sq. ft.)
Cumming Library	585 Dahlonega Road	1992	4.32	26,999
Administrative Offices	585 Dahlonega Road	2007	1.67	14,493
Sharon Forks Library	2820 Old Atlanta Road	2000	4.54	20,500
Hampton Park Library	5345 Settingdown Road	2010	4.08	22,858
Post Road Library	5010 Post Road	2013	3.76	29,202
Total			18.37	114,052

Source: Forsyth County Finance Department, March 13, 2015.

The current cost to construct library buildings is based on recent Forsyth County library construction in 2010 and 2013. As summarized in Table 32, these new libraries cost an average of $201 per square foot

Table 32. Library Construction Cost per Square Foot

		Construction Cost Components				Square	Cost/
Library Facility	Year	Design	Constr.	FFE	Total	Feet	Sq. Ft.
Hampton Park Library	2010	$410,123	$3,437,159	$773,405	$4,620,687	22,858	$202
Post Road Library	2013	$462,466	$4,559,433	$800,000	$5,821,899	29,202	$199
Total					$10,442,586	52,060	$201

Source: Forsyth County Finance Department, March 13, 2015.

The County has not purchased any land for library facilities since 1997. The replacement value of existing library land will be estimated based on the average market value per acre for existing parks, which is $67,217 per acre, as summarized in Table 33.

Table 33. Library Land Cost per Acre

Appraised Market Value of Active County Park Land	$50,765,730
÷ Acres of Active County Park Land	755.25
Estimated Average Cost per Acre for Libraries	$67,217

Source: Park land value and acres from Table 22 in Parks chapter.

Excluding circulation materials, which may not meet the definition of capital improvements in the Georgia Development Impact Fee Act, which must have a minimum 10-year useful life, the replacement value of existing library facilities is estimated to be about $24.2 million, as shown in Table 34.

Table 34. Existing Library Facility Replacement Cost

Cost Component	Units	Existing Units	Unit Cost	Replacement Cost
Buildings	Sq. Feet	114,052	$201	$22,924,452
Land	Acres	18.37	$67,217	$1,234,776
Total				$24,159,228

Source: Existing units from Table 31; unit costs from Table 32 and Table 33.

As shown in Table 35, the existing level of service is0.53 0.53 square feet per person, with a cost of $112 per person.

Table 35. Library Cost per Service Unit

	Total
Existing Library Building Square Feet	114,052
÷ Current County-Wide Household Population	215,024
Library Building Square Feet per Person	0.530
Replacement Value of Existing Library Buildings and Land	$24,159,228
÷ Existing Building Square Feet	114,052
Library Cost per Building Square Foot	$212
Library Cost per Building Square Foot	$212
x Library Building Square Feet per Person	0.530
Library Cost per Person	$112

Source: Existing library square feet and replacement value from Table 34; current population is estimated county-wide 2015 household population from Table 21.

Net Cost per Service Unit

The net cost per service unit is based on the cost per service unit less credits to account for revenue generated by new development that will be used to pay for capacity-related capital improvements. As described in the Legal Framework, revenue credits are clearly required for revenue generated by new development and used to remedy existing deficiencies, or to retire outstanding debt on existing facilities that are providing the current level of service for existing development. The need to

provide credits for future revenue that will be used to make capacity-related improvements is less clear, because the County could use the funds to enhance the level of service for both existing and new development, rather than for covering part of the cost to maintain the existing level of service for new development. Nevertheless, in this study credit is provided for future revenues planned to be used for capacity-expanding improvements.

Because the fees are based on the existing level of service, there are no deficiencies. The County has no outstanding debt on library facilities. State funding for libraries is used for materials and equipment purchases, which are costs that are not included in the impact fee calculations.

The only credit that is warranted for libraries is SPLOST funding. Forsyth County collects a Special Purpose Local Option Sales Tax (SPLOST), which has been authorized by voters seven times. The current 6-year authorization expires on July 1, 2019. The credit is based on average annual SPLOST funding for capacity-expanding projects for the last three authorizations (2003-2019). Assuming that this level of SPLOST funding is continued over the long term, new development will generate the present value equivalent of approximately $62 in library improvement funding per person over the next 25 years, as shown in Table 36.

Table 36. Library SPLOST Credit

Project	Amount
Hampton Branch Library & Cumming Addition - SPLOST V	$4,173,947
Post Road Library & NW Library Site - SPLOST VI	$6,416,593
Sharon Fork Library Expansion/Renovation - SPLOST VII	$2,800,000
Total SPLOST Library Funding, July 1, 2003 - July 1, 2019	$13,390,540
÷ Years	16
Average Annual SPLOT Funding	$836,909
÷ Current County-Wide Household Population	215,024
Annual SPLOST Funding per Capita	$3.89
x Present Value Factor (25 Years)	16.03
SPLOST Funding Credit per Capita	$62

Source: SPLOST funding from Table 58 through Table 60 in Appendix D; current population from Table 21; present value factor based on 25 years at a 3.76% discount rate, which was the average interest rate on state and local bonds in May 2015 from the Federal Reserve at http://www.federalreserve.gov/releases/h15/data/monthly.

As shown in Table 37, reducing the library cost per service unit by the SPLOST funding credit leaves a net cost of $50 per person.

Table 37. Library Net Cost per Service Unit

Library Cost per Person	$112
– Library SPLOST Credit per Person	-$62
Net Library Cost per Person	$50

Source: Cost per person from Table 35; SPLOST credit from Table 36.

Updated Fee Schedule

The maximum library impact fees that can be adopted by the County based on this study are derived by multiplying the persons per unit associated with each housing type by the library net cost per person. The updated library impact fee schedule is shown in Table 38.

Table 38. Updated Library Impact Fees

Housing Type	Unit	Persons/ Unit	Net Cost/ Person	Net Cost/ Unit
Single-Family Detached*	Dwelling	2.96	$50	$148
Multi-Family	Dwelling	1.88	$50	$94
Mobile Home/RV Park	Space	3.39	$50	$170

* includes mobile home located outside a mobile home library

Source: Persons per unit from Table 52, Appendix A; net cost per person from Table 37.

The updated fees are not directly comparable to current fees, because the current fees are based on the size of the unit only, whereas the updated fees are per dwelling unit by housing type. However, the fees can be compared for the average size unit of each housing type. The updated fees are higher than current fees for the average size unit for all three housing type, with the fee for single-family detached units increasing less than the fees for other housing types, as shown in Table 30. The larger percentage increases in fees for multi-family and mobile home units reflects the more precise calculation in this update to account for the higher population density (more people per square foot) of those housing types compared to single-family detached units.

Table 39. Comparative Library Impact Fees

Housing Type	Unit	Current Fee*	Updated Fee	Percent Change
Single-Family Detached	Dwelling	$123	$148	20%
Multi-Family	Dwelling	$63	$94	49%
Mobile Home/RV Park	Space	$73	$170	133%

* based on average size units in southern U.S. from 2011 American Housing Survey: 2,118 sq. ft. for single-family detached, 1,081 sq. ft. for multi-family and 1,256 sq. ft. for mobile home

Source: Current fee by housing type is current fee per 1,000 square feet ($58) from Table 4 times the average unit size noted above; updated fee from Table 38.

PUBLIC SAFETY

Forsyth County provides fire rescue and E-911 services to all development in the county. The County currently charges a public safety impact fee to cover the costs of expanding those facilities to accommodate new development. This chapter updates the County's public safety impact fees.

Currently, the County allocates the public safety impact fee revenues into three accounts: fire rescue – north district, fire rescue – south district, and E-911 – county-wide. The consultant recommends moving to a unitary County-wide public safety fee that is not disaggregated into fire rescue and E-991 communications components. While the E-911 communication system is used by other emergency responders, such as law enforcement, and thus serves more than fire rescue, it is an integral part of fire rescue services, and like fire rescue is provided county-wide.

Service Area

Forsyth County provides fire rescue and E-911 facilities to serve the entire county. The 2003 study on which the current fees are based used a county-wide service area for the fee calculations. Separate fees were calculated for fire rescue and E-911 facilities as components of the public safety impact fee. A county-wide service area is reasonable for these facilities. E-911 facilities and equipment are centralized. While fire stations are dispersed around the county, apparatus located in one station will respond to calls some distance from the station if the equipment from a closer station is out on another call. Consequently, fire rescue facilities and equipment provide an integrated county-wide response system.

While a uniform county-wide fire rescue fee is calculated based on the existing county-wide level of service, the county is divided into North and South fire rescue benefit districts. The accounts for each benefit district account receive only revenues paid by new development located in the benefit district, and the funds are restricted to be spent only on improvements located in the benefit district. Given the integrated nature of the fire rescue system, a single county-wide benefit district is recommended.

Whether or not the City of Cumming participates in the updated public safety fee, the nexus would remain strong. The County cannot compel the City to participate, even though development in the City benefits from County public safety facilities. If the City does not participate, the County should, to the extent feasible, use the public safety fees to fund fire rescue facilities that do not provide primary service to development in the City.

Methodology

The 2003 public safety impact fee study used a standards-based methodology (see description in the Methodology section of the Introduction and Overview chapter). The fees were based on the existing level of service (LOS) at the time. This update continues to use the existing county-wide LOS in calculating the fee.

Service Units

The demand for public safety services is quantified for different land use types using the "functional population" approach. This is a generally-accepted methodology, based on the observation that demand for public safety tends to be proportional to the presence of people. The functional population concept is analogous to the concept of "full-time equivalent" employees. It represents the number of "full-time equivalent" people present at the site of a land use. The functional population multipliers for the various land use types and a detailed discussion of the methodology used in developing the multipliers are presented in Appendix B.

Based on the amount of existing development and functional population multipliers by land use, Forsyth County is currently estimated to have 190,521 public safety service units (functional population), as summarized in Table 40. Current functional population is lower than current estimated household population (215,024 – see Table 21 in the Parks chapter), reflecting the large number of Forsyth County residents who commute to work outside the county.

Table 40. Public Safety Service Units, 2015

Land Use Type	Unit	Existing Units	Func. Pop./ Unit	Functional Population
Single-Family Detached	Dwelling	64,287	1.983	127,481
Multi-Family	Dwelling	6,468	1.260	8,150
Mobile Home/RV	Dwelling	3,709	2.271	8,423
Retail/Commercial	1,000 sq. ft.	10,494	2.070	21,723
Office/Insitutional	1,000 sq. ft.	18,295	0.884	16,173
Industrial/Warehouse	1,000 sq. ft.	22,091	0.388	8,571
Total Functional Population, County-Wide				190,521

Source: Existing units from Table 51 and Table 53 in Appendix A; functional population per unit from Table 55 and Table 56 in Appendix B; functional population is product of existing units and functional population per unit.

Cost per Service Unit

The cost per service unit is based on the existing level of service (LOS). The public safety (fire and E-911) LOS can be expressed in terms of fire station square footage or the replacement value of existing public safety facilities per service unit (functional population).

The capital costs associated with public safety facilities that are eligible for impact fee funding are buildings (fire stations), land, and equipment and vehicles with a useful life of ten years or more. Most equipment is excluded from this cost analysis, because it is not known what portion of existing equipment costs are for eligible improvements. An exception to this is the inclusion of E-911 electronic equipment costs, which is the major capital cost associated with E-911 service. Despite the exclusion of most equipment costs from the public safety fee calculations, acquisition of additional fire or E-911 equipment or vehicles that have a ten-year useful life would be eligible for purchase with public safety impact fees, to the extent that they expand the capacity of the system to accommodate growth and are not replacing existing vehicles or equipment.

Recent fire station construction in Forsyth County has averaged $208 per square foot, as summarized in Table 41.

Table 41. Public Safety Building Cost per Square Foot

Facility	Year Built	Building Cost	Building Sq. Feet	Cost/ Sq. Ft.
Fire Station 1	2007	$2,821,722	12,377	$228
Fire Station 2	2008	$2,755,538	12,377	$223
Fire Station 3	2012	$1,583,999	7,333	$216
Fire Station 4	2011	$1,246,000	7,333	$170
Fire Station 5	2005	$867,271	4,278	$203
Fire Station 7	2011	$1,328,000	7,333	$181
Total		$10,602,530	51,031	$208

Source: Forsyth County, March 12, 2015.

The replacement costs of existing public safety facilities are summarized in Table 42. Building replacement costs are based on the average cost per square foot to construct recent fire stations. Land costs are based on assessed market values from the Tax Assessor. Vehicle costs are based on the original purchase prices of existing fire rescue vehicles and apparatus, which are shown in Appendix F. E-911 communication equipment costs are based on insured values. The total cost of existing public safety facilities, land and major equipment is about $65 million.

Table 42. Existing Public Safety Facility Cost

Facility	Building Sq. Feet	Acres	Building Cost	Land Value	Total Cost
Public Safety Bldg/F.S. 12	80,497	9.22	$16,743,376	$922,000	$17,665,376
Motor Maintenance Bldg	4,800	n/a	$59,970	n/a	$59,970
Fire Station 1	12,377	2.71	$2,821,722	$365,850	$3,187,572
Fire Station 2	12,377	n/a	$2,755,538	n/a	$2,755,538
Fire Station 3	7,333	3.00	$1,583,999	$114,000	$1,697,999
Fire Station 4	7,333	3.32	$1,246,000	$149,400	$1,395,400
Fire Station 5	4,278	0.97	$867,271	$40,000	$907,271
Fire Station 6	n/a	2.92	n/a	$730,100	$730,100
Fire Station 7	7,333	2.41	$1,328,000	$60,250	$1,388,250
Fire Station 8 - current	1,920	0.24	$399,360	$25,000	$424,360
Fire Station 8 - future expansion	n/a	2.85	n/a	$50,000	$50,000
Fire Station 9	400	1.00	$83,200	$25,000	$108,200
Fire Station 10	3,162	1.61	$657,696	$57,450	$715,146
Fire Station 11 - future F.S. site	n/a	3.00	n/a	$375,000	$375,000
Fire Station 14	6,000	1.00	$475,670	$120,000	$595,670
Fire Station 15	4,080	1.00	$263,880	$100,000	$363,880
Total, Building and Land	151,890	35.25	$29,285,682	$3,134,050	$32,419,732
Vehicle and Apparatus Cost					$22,973,500
E-911 Communication Equipment					$10,099,138
Total Public Safety Replacement Cost					$65,492,370

Source: Building square feet, acres and land values (based on market values in Forsyth County Tax Assessor data) from Forsyth County, March 13, 2015; building costs are product of square feet and average cost per square foot from Table 41.

As shown in Table 43, the existing public safety level of service is 0.797 square feet per functional population. Providing that same level of service to new development has an estimated cost of $344 per functional population.

Table 43. Public Safety Cost per Service Unit

Public Safety Building Square Feet	151,890
÷ County-Wide Functional Population	190,521
Square Feet per Functional Population	0.797
Total Replacement Value of Existing Facilities	$65,492,370
÷ Public Safety Building Square Feet	151,890
Public Safety Cost per Square Foot	$431
Square Feet per Functional Population	0.797
x Cost per Square Foot	$431
Public Safety Cost per Functional Population	$344

Source: Building square feet and replacement value from Table 42; county-wide functional population from Table 40

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Net Cost per Service Unit

The net cost per service unit is based on the cost per service unit less credits to account for revenue generated by new development that will be used to pay for capacity-related capital improvements. As described in the Legal Framework, revenue credits are clearly required for revenue generated by new development and used to remedy existing deficiencies, or to retire outstanding debt on existing facilities that are providing the current level of service for existing development. The updated fee calculations are based on the actual existing level of service, so there are no existing deficiencies. In addition, the County does not have any outstanding debt on existing public safety facilities.

The need to provide credits for future revenue that will be used to make capacity-related improvements is less clear, because the County could use the funds to enhance the level of service for both existing and new development, rather than for covering part of the cost to maintain the existing level of service for new development. Nevertheless, in this study credit will be provided for grant funding and SPLOST funding anticipated to generated by new development in the future for capacity-expanding public safety improvements.

Grant Funding Credit

A credit is provided for grant funding. As shown in Table 44, the credit is based on the County's receipt of grants for improvements to public safety facilities over the last five years. Assuming that the County continues to receive a similar amount of outside grant funding over the long term, new development will generate the present value equivalent of $1 in grant funding per functional population over the next 25 years.

Table 44. Public Safety Grant Funding Credit

Year	Grant	Purpose	Amount
2010	CSI/Fireman's Fund Insurance	Swift Water Rescue Boat	$20,000
2011	Firehouse Subs	Fire Extinguisher Training Tool	$11,000
2012	Firehouse Subs	Thermal Imaging Camera	$19,812
2014	GA Firefighters Burn Foundation	Strobe Light Kits	$3,000
Total Public Safety Grant Funding, Last Five Years			$53,812
÷ Number of Years			5
Average Annual Public Safety Grant Funding			$10,762
÷ Current Functional Population			190,521
Annual Public Safety Grant Funding per Functional Population			$0.06
x Present Value Factor (25 Years)			16.03
Public Safety Grant Funding Credit per Functional Population			$1

Source: Grant funding from Forsyth County, June 17, 2015; existing population from Table 21; present value factor based on 25 years at a 3.76% discount rate, which was the average interest rate on state and local bonds in May 2015 from the Federal Reserve at http://www.federalreserve.gov/releases/h15/data/ monthly.

SPLOST Funding Credit

Forsyth County collects a Special Purpose Local Option Sales Tax (SPLOST), which has been authorized by voters seven times. The current 6-year authorization expires on July 1, 2019. The credit is based on average annual SPLOST funding for capacity-expanding projects for the last three authorizations (2003-2019). Assuming that this level of SPLOST funding is continued over the long term, new development will generate the present value equivalent of approximately $86 in SPLOST public safety improvement funding per functional population over the next 25 years, as shown in Table 45.

Table 45. Public Safety SPLOST Credit

Public Safety Funding, SPLOST V	$16,285,581
Total Public Safety SPLOST Funding, 2003-2019	$16,285,581
÷ Number of Years	16
Average Annual Public Safety SPLOST Funding	$1,017,849
÷ Current Functional Population	190,521
Annual Public Safety Funding per Functional Population	$5.34
x Present Value Factor (25 Years)	16.03
Public Safety SPLOST Funding Credit per Func. Pop.	$86

Source: SPLOST funding from Table 58 through Table 60 in Appendix D; current functional population from Table 40; present value factor from Table 44.

Net Cost Summary

As shown in Table 46, reducing the public safety cost per service unit by the grant and SPLOST funding credits leaves a net cost of $257 per functional population.

Table 46. Public Safety Net Cost per Service Unit

Public Safety Cost per Functional Population	$344
– Grant Credit per Functional Population	-$1
– SPLOST Credit per Functional Population	-$86
Net Public Safety Cost per Functional Populatoin	$257

Source: Cost per functional population from Table 43; grant credit from Table 44; SPLOST credit from Table 45.

Updated Fee Schedule

The maximum fees that can be adopted by the County based on this study are derived by multiplying the functional population per unit associated with each land use by the public safety net cost per functional population. The updated fee schedule is shown in Table 47.

Table 47. Updated Public Safety Impact Fees

Land Use Type	Unit	Func. Pop. per Unit	Net Cost/ Func. Pop.	Net Cost/ Unit
Single-Family Detached*	Dwelling	1.983	$257	$510
Multi-Family	Dwelling	1.260	$257	$324
Mobile Home/RV Park	Space	2.271	$257	$584
Retail/Commercial	1,000 sq. ft.	2.070	$257	$532
Office/Institutional	1,000 sq. ft.	0.884	$257	$227
Industrial/Warehouse	1,000 sq. ft.	0.388	$257	$100

* includes mobile home located outside a mobile home park

Source: Functional population per unit from Table 40; net cost per functional population from Table 46.

The updated residential fees are not directly comparable to current fees, because the current fees are based on the size of the unit only, whereas the updated fees are per dwelling unit by housing type. However, the residential fees can be compared for the average size unit of each housing type. As shown in Table 48, the updated fees are more than double the current fees for all but industrial/warehouse uses.

Table 48. Comparative Public Safety Impact Fees

Land Use Type	Unit	Current Fee*	Updated Fee	Percent Change
Single-Family Detached	Dwelling	$241	$510	112%
Multi-Family	Dwelling	$123	$324	163%
Mobile Home/RV Park	Space	$143	$584	308%
Retail/Commercial	1,000 sq. ft.	$216	$532	146%
Office/Institutional	1,000 sq. ft.	$86	$227	164%
Industrial/Warehouse	1,000 sq. ft.	$52	$100	92%

* residential fees based on average size units in southern U.S. from 2011 American Housing Survey: 2,118 sq. ft. for single-family detached, 1,081 sq. ft. for multi-family and 1,256 sq. ft. for mobile home

Source: Current fees from Table 4 (current residential fees are current fee per 1,000 square feet times the average unit size noted above); updated fee from Table 47.

APPENDIX A: LAND USE DATA

Population and Employment Growth

The population of Forsyth County has grown rapidly over the last four decades. According to U.S. Census enumeration, the population has been consistently increasing at a compounded rate of 5% or more per year, as shown in Table 49.

Table 49. Population Growth, 1970-2010

	1970	1980	1990	2000	2010
Unincorporated Area	14,897	25,864	41,255	94,187	170,081
City of Cumming	2,031	2,094	2,828	4,220	5,430
County Total	16,928	27,958	44,083	98,407	175,511
Annual Percent Increase	n/a	5.1%	4.7%	8.4%	6.0%

Source: U.S. Census Bureau.

The County's *Comprehensive Plan* projects continued rapid population growth through 2030, although at a somewhat slower pace than the past four decades (see Table 50). Employment is also projected to continue at a steady pace through 2040. These projections were prepared prior to the 2010 Census, and somewhat over-estimated 2010 population. Even so, it appears that the 2015 projection was too low, as the County has issued building permits for over 10,000 new dwelling units in the last five years. Consequently, the projections for 2020 and beyond would appear to still provide reasonable approximations of future growth.

Table 50. Population and Employment Projections, 2010-2040

	2010	2015	2020	2025	2030	2040
Population	183,006	204,966	250,059	305,070	370,479	n/a
Annual Percent Increase	n/a	2.3%	4.1%	4.1%	4.0%	n/a
Employment	64,390	71,470	79,400	88,280	98,240	121,880
Annual Percent Increase	n/a	2.1%	2.1%	2.1%	2.2%	2.2%

Source: Forsyth County Comprehensive Plan, Population Table 5 and Economic Development Table 20.

Population and Residential Units

Estimates of the existing number of single-family detached, multi-family and mobile home dwelling units were derived in the following manner. The starting point is the total number of housing units enumerated in unincorporated Forsyth County and the City of Cumming in the 2010 U.S. Census. The decennial census does not differentiate by housing type. However, the Census Bureau does collect data on housing type in its annual American Community Survey (ACS). The ACS survey data consist of 1% samples taken annually, and are available in consolidated five-year files that approximate a 5% sample as of the mid-year of the sample. The 2008-2012 sample data most closely approximate the date of the 2010 U.S. Census (i.e., April 2010). The weighted 5-year sample data slightly over-estimate the 100% count of total housing units from the 2010 census, and are adjusted downward slightly to estimate the number of housing units by housing type in 2010.

Finally, the number of dwelling units by housing type permitted by Forsyth County and the City of Cumming over the last five years (2010-2014) are added to the 2010 estimates to arrive at 2015 estimates of the number of housing units by housing type, both in the unincorporated area and the City of Cumming. The calculations and results of the current housing unit estimates are presented in Table 51.

Table 51. Total Housing Units by Housing Type, 2015

Housing Type	Unincorp.	Cumming	County-Wide
Single-Family Detached	53,833	1,129	54,962
Multi-Family	4,698	1,004	5,702
Mobile Home	3,593	55	3,648
Total Units, 2008-2012 Sample Data	62,124	2,188	64,312
Total Units, 2010 Census 100% Count	62,015	2,037	64,052
Adjustment Factor	0.998	0.931	n/a
Single-Family Detached	53,738	1,051	54,789
Multi-Family	4,690	935	5,625
Mobile Home	3,587	51	3,638
Total 2010 Housing Unit Estimates	62,015	2,037	64,052
Single-Family Detached	9,443	55	9,498
Multi-Family	843	0	843
Mobile Home	71	0	71
Total Building Permits 2010-2014	10,357	55	10,412
Single-Family Detached	63,181	1,106	64,287
Multi-Family	5,533	935	6,468
Mobile Home	3,658	51	3,709
Total 2015 Housing Unit Estimates	72,372	2,092	74,464

Source: 2008-2012 estimates of housing units by housing type and jurisdiction are from published data from U.S. Census Bureau, *American Community Survey* on the American FactFinder site, which are weighted values based on 5% sample collected from 2008-2012; total units from 2010 Census are published data from SF-1 100% counts; the adjustment factor is the ratio of total units from the 2010 Census to the total units from the sample data; 2010 housing unit estimates are sample data multiplied by the adjustment factor; building permits for unincorporated area from Forsyth County Department of Planning and Community Development, March 4, 2015; building permits for Cumming from U.S. Census Bureau; 2015 estimates are sum of 2010 estimates and 2010-2014 building permits.

An important input into the impact fee calculations is the number of persons associated with the housing units of different types. The most current available data source on persons per unit by housing type in Forsyth County is the U.S. Census Bureau's American Community Survey sample estimates for 2009-2013. While single-family detached units are combined with single-family attached units in the published figures on the Census Bureau's American FactFinder website, single-family attached units are defined as multi-family for the purpose of this analysis. The combination of single-family detached and attached units is relatively inconsequential for the average household size, because attached units account for only 5.4% of the combined single-family units. As shown in Table 52, average persons per unit in Forsyth County is 2.96 for single-family detached units, 1.88 for multi-family and 3.39 for a mobile home.

Table 52. Average Persons per Unit by Housing Type

Housing Type	Household Population	Housing Units	Persons per Unit	
			Sample	Estimate
Single-Family Detached*	166,545	59,406	2.80	2.96
Multi-Family	4,671	2,618	1.78	1.88
Mobile Home	11,059	3,441	3.21	3.39
Total	182,275	65,465	2.78	2.94

* data includes single-family attached

Source: U.S. Census Bureau, 2009-2013 American Community Survey weighted 5% sample data from American FactFinder website; estimated average household size for all units based on 2010 Census SF-1 (100% count) data; estimated average household sizes by housing types are adjusted by the ratio of the 2010 average household size for all units to the sample average household size for all units.

Employment and Nonresidential Building Area

For nonresidential development, we are interested primarily in the amount of existing building square footage. The Forsyth County Property Appraiser provided the following information on existing commercial and industrial building square footage (see Table 53). The City of Cumming has a much larger share of commercial square footage than its share of population.

Table 53. Commercial and Industrial Building Floor Area, 2015

Land Use Type	Unincorp.	Cumming	Total	City%
Commercial Building Floor Area (sq. ft.)	14,791,380	5,386,973	20,178,353	26.7%
Industrial Building Floor Area (sq. ft.)	20,663,981	1,427,348	22,091,329	6.5%
Total	35,455,361	6,814,321	42,269,682	16.1%

Source: Forsyth County Property Appraiser, March 4, 2015.

The square footage data from the Property Appraiser excludes public/institutional and government buildings, and provides a grosser breakdown by land use type than required for this study. Consequently, employment data were used to estimate existing square footage for more detailed land use types. The results are shown in Table 54.

Table 54. Nonresidential Building Floor Area, 2015

Land Use Type	Employees	Square Feet	Employees/ 1000 sq. ft.
Retail/Commercial	18,507	10,493,742	1.76
Office	17,080	9,684,611	1.76
Subtotal, Commercial/Office	35,587	20,178,353	1.76
Industrial	7,499	11,928,491	0.63
Warehouse	6,389	10,162,838	0.63
Subtotal, Industrial/Warehouse	13,888	22,091,329	0.63
Public/Institutional (excl. gov't)	7,906	4,482,818	1.76
Federal, State, County and City Government	7,280	4,127,867	1.76
Subtotal, Public/Institutional	15,186	8,610,685	1.76
Total*	64,661	50,880,367	1.27

* employee total excludes construction, extraction and agriculture

Source: Employees in Forsyth County other than government from U.S. Census Bureau, *County Business Patterns,* 2013; government employees is 2010 estimate from *Forsyth County Comprehensive Plan, Land Use*, Table 2; square footage subtotals for commercial/office and industrial/warehouse from Table 53; square feet estimates for retail/commercial, office, industrial and warehouse are proportional to subtotal employment; public/institutional and government square feet assume same ratio of sq. feet to employment as commercial/office subtotal (1.76 sq. ft. per employee).

APPENDIX B: FUNCTIONAL POPULATION

The two most common methodologies used in calculating public safety service units and impact fees are the "calls-for-service" approach and the "functional population" approach. This study utilizes the "functional population" approach to calculate and assess the public safety fees. This approach is a generally-accepted methodology that is based on the observation that demand for public safety facilities tends to be proportional to the presence of people.

Functional population represents "full-time equivalent" persons. It basically allocates the number of people in a community between different residential and nonresidential land use types based on where they spend their time. However, functional population excludes the portion of time that residents spend outside the county (e.g., residents who work out of the county), and includes non-residents who spend time in the county working, shopping or in other activities.

Residential Functional Population

For residential land uses, the impact of a dwelling unit on the need for capital facilities is generally proportional to the number of persons residing in the dwelling unit. This can be measured for different housing types in terms of either average household size (average number of persons per occupied dwelling unit) or persons per unit (average number of persons per dwelling unit, including vacant as well as occupied units). In this analysis, persons per unit is used to develop the functional population multipliers. The average number of persons per unit associated with each housing category is calculated in Appendix A.

Determining residential functional population multipliers is considerably simpler than the nonresidential component. It is estimated that people spend two-thirds of their time at home and the rest of each 24-hour day away from their place of residence. The functional populations per unit multipliers for residential units are shown in Table 55.

Table 55. Residential Functional Population per Unit

Housing Type	Unit	Persons per Unit	x Occupancy Factor	Functional Population per Unit
Single-Family Detached	Dwelling	2.96	0.67	1.983
Multi-Family	Dwelling	1.88	0.67	1.26
Mobile Home	Dwelling	3.39	0.67	2.271

Source: Persons per unit from Table 52; occupancy factor assumed as described in text; EDUs per unit is ratio of functional population per unit to functional population of a single-family unit.

Nonresidential Functional Population

The functional population methodology for nonresidential land uses is based on data on vehicle trip, average vehicle occupancy, and employment density. Functional population is derived by dividing the total number of hours spent by employees and visitors during a week by 168 hours (24 hours/day times 7 days/week). Employees are estimated to spend eight hours per day at their place

of employment on a typical weekday, and visitors are estimated to spend 1.0 hour per visit. The formula used to derive the nonresidential functional population estimates is summarized in Figure 4.

Figure 4. Nonresidential Functional Population Formula

Functional population/unit = (employee hours/1000 sf + visitor hours/1000 sf) ÷ 24 hours/day

Functional population/employee = functional population/unit ÷ employee/unit

Where:

Employee hours = employees x 8 hours/day

Visitor hours/1000 sf = visitors/1000 sf x 1 hour/visit

Visitors/1000 sf = weekday ADT/1000 sf x avg. vehicle occupancy – employees/1000 sf

Weekday ADT/1000 sf = one way average daily trips (total trip ends ÷ 2)

Using this formula, nonresidential functional population estimates per 1,000 square feet of gross floor area are calculated in Table 56.

Table 56. Nonresidential Functional Population per Unit

Land Use Type	Unit	Trip Rate	Persons/ Trip	Employ./ Unit	Visitors/ Unit	Functional Pop./Unit
Retail/Commercial	1,000 sq. ft.	21.35	1.75	1.76	35.60	2.070
Office/Institutional	1,000 sq. ft.	5.52	1.61	1.76	7.13	0.884
Industrial/Warehouse	1,000 sq. ft.	1.78	1.15	0.63	1.95	0.388

Source: Trip rates based on one-half of average daily trip rate from ITE, *Trip Generation*, 9th ed., 2012 (retail/commercial based on shopping center, office/institutional based on general office, industrial/warehouse based on warehousing); persons/trip is average vehicle occupancy from Federal Highway Administration, *Nationwide Household Travel Survey*, 2009; employees/unit from Table 53; visitors/unit is trips times persons/trip minus employees/unit; functional population/unit calculated based on formula from Figure 4.

APPENDIX C: MAJOR STREET INVENTORY

Table 57. Major Street Inventory

Road	From/To	Class	Miles	Lns	ADT	VMT	Cap.	VMC
Aaron Sosebee Rd	SR 20-Bethelview Rd	Collector	2.00	2	*3,040*	6,080	14,600	29,200
AC Smith Rd	SR 9-Hopewell Rd	Collector	2.08	2	*2,740*	5,699	14,600	30,368
Antioch Rd	Pilgrim Mill Rd-SR 9	Collector	1.44	2	*4,100*	5,904	14,600	21,024
Bagley Dr	SR 141-Mathis Airport Rd	Minor Art	0.43	2	*3,000*	1,290	14,900	6,407
Bagley Rd	SR 141-Mathis Airport Pkwy	Collector	1.27	2	*4,100*	5,207	14,600	18,542
Bald Ridge Marina Rd	SR 400 SB ramp-Peachtree	Collector	1.30	2	1,310	1,703	14,600	18,980
Bannister Rd	SR 369-SR 9	Minor Art	3.40	2	5,006	17,020	14,900	50,660
Bentley Rd	Campground Rd-SR 371	Collector	2.13	2	2,570	5,474	14,600	31,098
Bethany Rd	McGinnis Ferry Rd-Fulton Co	Minor Art	0.50	2	3,830	1,915	14,900	7,450
Bethel Rd	0.4 Miles S of SR 369-End	Collector	2.62	2	*4,500*	11,790	14,600	38,252
Bethelview Rd	SR 9-Kelly Mill Rd	Major Art	3.30	2	15,400	50,820	16,600	54,780
Bethelview Rd	Kelly Mill Rd-SR 20	Major Art	2.80	2	10,840	30,352	16,600	46,480
Bettis-Tribble Gap Rd	SR 306-Spot Rd	Collector	2.68	2	*2,900*	7,772	14,600	39,128
Blue Ridge Overlook	Jot Em Down Rd-Dawson Co	Collector	0.60	2	*3,500*	2,100	14,600	8,760
Brannon Rd	SR 141-Old Atlanta Rd	Collector	1.36	2	*3,500*	4,760	14,600	19,856
Brookwood Rd	McGinnis Ferry Rd-SR 141	Minor Art	1.07	2	9,660	10,336	14,900	15,943
Buford Dam Rd	SR 9-Gwinnett Co	Minor Art	4.80	2	8,070	38,736	14,900	71,520
Burruss Mill Rd	SR 369-Parks Rd	Collector	1.38	2	290	400	14,600	20,148
Burruss Rd	SR 9-Hopewell Rd	Collector	1.50	2	*2,000*	3,000	14,600	21,900
Campground Rd	Cherokee Co-SR 9	Collector	3.55	2	*5,500*	19,525	14,600	51,830
Caney Rd	Brookwood-Christopher Robin	Collector	1.06	2	*3,700*	3,922	14,600	15,476
Castleberry Rd	SR 9-W Main Street	Minor Art	6.18	2	6,570	40,603	14,900	92,082
Chamblee Gap Rd	SR 20-Kelly Mill Rd	Collector	3.33	2	*2,700*	8,991	14,600	48,618
Chattahoochee Rd	Holtzclaw Rd-Shady Grove Rd	Minor Art	1.90	2	3,130	5,947	14,900	28,310
Christopher Robin Rd	Mc Ginnis Ferry Rd-Caney Rd	Collector	1.29	2	*3,300*	4,257	14,600	18,834
Cross Rds Rd	SR 400-Jot Em Down Rd	Collector	1.27	2	2,670	3,391	14,600	18,542
Crystal Cove Trail	SR 53-Lake Lanier	Collector	1.89	2	*3,300*	6,237	14,600	27,594
Daves Creek Dr	Old Atlanta Rd-Trammel Rd	Collector	1.27	2	*3,500*	4,445	14,600	18,542
Daves Creek Rd	Daves Creek Dr-Haw Creek Cir	Collector	1.50	2	*4,100*	6,150	14,600	21,900
Doc Sams Rd	SR 20-Heardsville Rd	Collector	0.82	2	*3,300*	2,706	14,600	11,972
Dr Bramblett Rd	SR 20-SR 369	Minor Art	4.68	2	*9,800*	45,864	14,900	69,732
Drew Campgrd Rd	Cherokee Co-SR 371	Collector	2.29	2	*5,000*	11,450	14,600	33,434
Elmo Rd	Mt Tabor Rd-SR 369	Collector	1.92	2	*3,300*	6,336	14,600	28,032
Fowler Rd	Mullinax Rd-SR 9	Collector	1.60	2	*4,200*	6,720	14,600	23,360
Francis Rd	Fulton Co-SR 9	Collector	0.42	2	*3,500*	1,470	14,600	6,132
Freedom Pkwy	SR 306-Pilgrim Mill Rd	Minor Art	1.61	4	*8,200*	13,202	32,500	52,325
Friendship Cir	SR 20-Hurt Bridge Rd	Collector	0.41	2	*5,300*	2,173	14,600	5,986
Hamby Rd	Fulton Co-SR 9	Collector	0.45	2	*4,500*	2,025	14,600	6,570
Heardsville Rd	SR 20-Heardsville Cir	Minor Art	4.42	2	2,280	10,078	14,900	65,858
Hendrix Rd	John Burruss Rd-SR 369	Collector	1.85	2	*3,000*	5,550	14,600	27,010
Holtzclaw Rd	Pilgrim Mill Rd-SR 369	Collector	2.17	2	*8,000*	17,360	14,600	31,682
Hopewell Rd	SR 9-Dawson Co	Collector	4.01	2	2,660	10,667	14,600	58,546
Hubbard Town Rd	Hopewell Rd-SR 400	Collector	0.82	2	*3,840*	3,149	14,600	11,972
Hurt Bridge Rd	Friendship Cir-Heardsville Rd	Collector	4.77	2	*3,780*	18,031	14,600	69,642
Hutchinson Rd	Castleberry Rd-SR 9	Collector	0.95	2	*5,780*	5,491	14,600	13,870
Hyde Rd	Drew Rd-SR 20	Collector	2.00	2	*3,300*	6,600	14,600	29,200

Notes: "ADT" is average daily trips; "VMT" is vehicle-miles of capacity; "Cap." is daily capacity; "VMC" is vehicle-miles of capacity

Table 57 Continued

Road	From/To	Class	Miles	Lns	ADT	VMT	Cap.	VMC
James Burgess Rd	Old Atlanta Rd-SR 20	Collector	3.21	2	7,420	23,818	14,600	46,866
John Burruss Rd	Karr Rd-SR 369	Collector	2.84	2	*5,406*	15,353	14,600	41,464
Jot-Em-Down Rd	Hopewell Rd-SR 400	Collector	1.05	2	*6,960*	7,308	14,600	15,330
Jot-Em-Down Rd	SR 400-SR 306	Collector	4.73	2	*6,960*	32,921	14,600	69,058
Jot-Em-Down Rd	SR 306-SR 369	Collector	3.10	2	*6,960*	21,576	14,600	45,260
Kelly Mill Rd	SR 371-SR 20	Minor Art	5.13	2	5,500	28,215	14,900	76,437
Laurel Springs Pkwy	SR 141-Old Atlanta Rd	Collector	1.73	2	5,655	9,783	14,600	25,258
Little Mill Rd	SR 369-SR 306	Collector	3.46	2	*4,200*	14,532	14,600	50,516
Majors Rd	Post Rd-SR 9	Collector	2.33	2	8,600	20,038	14,600	34,018
Majors Rd	Shiloh Rd-SR 141	Collector	1.75	2	8,600	15,050	14,600	25,550
Market Place Pkwy	SR 20-Bald Ridge Marina Rd	Major Art	4.50	2	*19,890*	89,505	16,600	74,700
Martin Rd	SR 9-SR 306	Collector	2.33	2	*4,200*	9,786	14,600	34,018
Mary Alice Park Rd	SR 400-Lake Lanier	Collector	1.87	2	2,050	3,834	14,600	27,302
Mathis Airport Pkwy	SR 141-Old Atlanta Rd	Minor Art	2.20	4	14,450	31,790	32,500	71,500
Mathis Airport Rd	Laurel Spgs Pkwy-SR 20	Minor Art	0.75	2	5,040	3,773	14,900	11,155
Mayfield Dr	SR 306-Jot Em Down Rd	Collector	1.40	2	*4,200*	5,880	14,600	20,440
McFarland Pkwy	SR 9-McGinnis Ferry Rd	Major Art	3.60	4	22,720	81,792	35,000	126,000
McGinnis Ferry Rd	Fulton Co. Line-Union Hill Rd	Minor Art	1.12	2	7,280	8,154	14,900	16,688
McGinnis Ferry Rd	Union Hill Rd-McFarland Pkwy	Minor Art	1.35	2	7,280	9,828	14,900	20,115
McGinnis Ferry Rd	McFarland Pkwy-Sargent Rd	Major Art	3.18	2	15,580	49,544	16,600	52,788
McGinnis Ferry Rd	Sargent Rd-Gwinnett Co	Major Art	5.02	4	20,720	104,014	35,000	175,700
Mt. Tabor Rd	SR 369-Elmo Rd	Collector	3.50	2	390	1,365	14,600	51,100
Mullinax Rd	SR 9-Union Hill Rd	Collector	2.05	2	*11,200*	22,960	14,600	29,930
Nuckolls Rd	SR 20-Buford Dam Rd	Collector	1.66	2	*5,844*	9,701	14,600	24,236
Oak Grove Cir	SR 9-Riley Rd	Collector	1.50	2	*4,020*	6,030	14,600	21,900
Old Alpharetta Rd	McGinnis Ferry Rd-SR 141	Minor Art	2.50	2	8,040	20,100	14,900	37,250
Old Atlanta Rd	McGinnis Ferry Rd-Sharon Rd	Minor Art	4.83	2	14,400	69,552	14,900	71,967
Old Atlanta Rd	Sharon Rd-Ronald Reagan Bvd	Minor Art	3.11	2	7,440	23,138	14,900	46,339
Old Keith Bridge Rd	SR 306-Lake Lanier	Collector	2.58	2	*3,000*	7,740	14,600	37,668
Parks Rd	SR 306-Little Mill Rd	Collector	2.20	2	*3,520*	7,744	14,600	32,120
Pea Ridge Rd	Jot Em Down Rd-SR 53	Collector	1.80	2	*6,010*	10,818	14,600	26,280
Pendley Rd	SR 9-Old Atlanta Rd	Collector	0.93	2	*3,477*	3,218	14,600	13,513
Pilgrim Mill Rd	Main Street-SR 400	Collector	2.67	2	5,560	14,845	14,600	38,982
Pilgrim Mill Rd	SR 400-Holtzclaw Rd	Collector	1.00	2	15,710	15,710	14,600	14,600
Pilgrim Mill Rd	Holtzclaw Rd-Lake Lanier	Collector	2.98	2	5,930	17,671	14,600	43,508
Piney Grove Rd	Castleberry Rd-SR 9	Collector	1.35	2	*4,500*	6,075	14,600	19,710
Pittman Rd	Post Rd-Bethelview Rd	Collector	1.45	2	2,320	3,364	14,600	21,170
Pleasant Grove Rd	Hurt Bridge Rd-Dr. Bramblett	Collector	1.25	2	*4,520*	5,650	14,600	18,250
Riley Rd	Oak Grove Cir-Bannister Rd	Collector	2.00	2	*3,020*	6,040	14,600	29,200
Ronald Reagan Blvd	Majors Rd-SR 20	Minor Art	4.55	4	12,290	55,920	32,500	147,875
Samples Rd	SR 20-Buford Dam Rd	Collector	2.25	2	*3,300*	7,425	14,600	32,850
Sanders Rd	SR 20-Mary Alice Park Rd	Collector	1.60	2	5,050	8,080	14,600	23,360
Settingdown Rd	SR 369-SR 400	Collector	1.50	2	*4,370*	6,555	14,600	21,900
Settingdown Rd	SR 400-Cross Rds Rd	Collector	2.40	2	*4,370*	10,488	14,600	35,040
Shadburn Rd	Martin Rd-SR 306	Collector	1.13	2	*3,520*	3,978	14,600	16,498
Shady Grove Rd	SR 369-Chattahoochee Rd	Collector	0.58	2	3,080	1,786	14,600	8,468
Shady Grove Rd	Chattahoochee Rd-Lanier Dr	Collector	2.41	2	3,080	7,423	14,600	35,186
Sharon Rd	From SR 141-Old Atlanta Rd	Minor Art	1.16	2	15,090	17,504	14,900	17,284
Shiloh Rd	McFarland Rd-SR 9	Collector	4.50	2	2,510	11,295	14,600	65,700
Spot Rd	Dr. Bramblett Rd-SR 9	Collector	3.97	2	*6,020*	23,899	14,600	57,962

Notes: "ADT" is average daily trips; "VMT" is vehicle-miles of capacity; "Cap." is daily capacity; "VMC" is vehicle-miles of capacity

Table 57 Continued

Road	From/To	Class	Miles	Lns	ADT	VMT	Cap.	VMC
SR 9	Fulton Co.-Greystone Summit	Major Art	8.55	2	14,920	127,566	16,600	141,930
SR 9	Greystone Summit-Main St	Major Art	2.47	2	16,385	40,471	16,600	41,002
SR 9	Main Street-SR 369	Major Art	5.14	2	9,635	49,524	16,600	85,324
SR 9	SR 369-Dawson Co. Line	Minor Art	5.18	2	5,317	27,542	14,900	77,182
SR 20	Cherokee Co-Dr. Bramblett Rd	Major Art	5.14	2	14,415	74,093	16,600	85,324
SR 20	Dr Bramblett Rd-Maple Street	Major Art	3.00	2	22,050	66,150	16,600	49,800
SR 20	SR 9-Samples Rd	Major Art	1.92	4	38,810	74,515	35,000	67,200
SR 20	Samples Rd-Gwinnett Co	Major Art	3.01	2	24,710	74,377	16,600	49,966
SR 53	Dawson Co. Line-SR 306	Major Art	3.16	2	9,690	30,620	16,600	52,456
SR 53	SR 306-Hall Co. Line	Major Art	1.71	2	13,350	22,829	16,600	28,386
SR 141	Fulton County Line-SR 9	Major Art	6.98	4	34,500	240,810	35,000	244,300
SR 306	SR 20-SR 9	Major Art	1.63	2	5,805	9,462	16,600	27,058
SR 306	SR 9-GA 400	Major Art	1.08	2	7,380	7,970	16,600	17,928
SR 306	GA 400-SR 369	Major Art	1.15	2	22,530	25,910	16,600	19,090
SR 306	SR 369-SR 53	Major Art	6.63	2	10,045	66,598	16,600	110,058
SR 369	Cherokee Co-Wallace Tatum Rd	Minor Art	5.01	2	7,320	36,673	14,900	74,649
SR 369	Wallace Tatum Rd-SR 306	Minor Art	6.84	2	12,170	83,243	14,900	101,916
SR 369	SR 306-Hall Co. Line	Major Art	7.75	2	16,935	131,246	16,600	128,650
SR 371	SR 9-Kelly Mill Rd	Major Art	3.83	2	15,120	57,910	16,600	63,578
SR 371	Kelly Mill Rd-SR 20	Major Art	2.19	2	8,390	18,374	16,600	36,354
Stoney Point Rd	Shiloh Rd-SR 141	Collector	2.45	2	3,220	7,889	14,600	35,770
Strickland Rd	Bethany Rd-SR 9	Collector	1.53	2	*3,760*	5,753	14,600	22,338
Trammell Rd	Windermere Pkwy-SR 20	Collector	2.38	2	*4,268*	10,158	14,600	34,748
Tribble Rd	SR 20-Watson Rd	Collector	1.00	2	*3,020*	3,020	14,600	14,600
Union Hill Rd	McGinnis Ferry-N of Windward	Collector	0.30	4	7,280	2,184	14,600	4,380
Union Hill Rd	N of Windward-Mullinax	Collector	2.13	2	4,590	9,777	14,600	31,098
Union Hill Rd	Mullinax Rd-Shiloh Rd	Collector	1.11	2	3,460	3,841	14,600	16,206
US 19/SR 400	Fulton Co-SR 141	Freeway	5.70	8	79,775	454,718	131,300	748,410
US 19/SR 400	SR 141-SR 20	Freeway	2.72	6	61,460	167,171	96,200	261,664
US 19/SR 400	SR 20-SR 306	Freeway	5.52	6	53,100	293,112	96,200	531,024
US 19/SR 400	SR 306-Dawson Co	Freeway	6.17	6	31,053	191,597	96,200	593,554
Vanns Tavern	SR 369-Lake Lanier	Collector	0.98	2	*3,200*	3,136	14,600	14,308
Veterans Memorial Bl	SR 9-Main Street	Major Art	1.35	2	16,000	21,600	16,600	22,410
Waldrip Rd	SR 369-SR 306	Collector	3.57	2	*4,200*	14,994	14,600	52,122
Wallace Tatum Rd	Heardsville Rd-SR 369	Collector	4.15	2	*4,020*	16,683	14,600	60,590
Watson Rd	Heardsville Rd-Hurt Bridge Rd	Collector	2.69	2	*4,200*	11,298	14,600	39,274
Westbrook Rd	SR 306-Jet Em Down Rd	Collector	0.57	2	*3,020*	1,721	14,600	8,322
Westbrook Rd	Jot Em Down Rd-SR 53	Collector	1.12	2	*3,020*	3,382	14,600	16,352
Whitmire Rd	Mount Tabor Rd-SR 369	Collector	1.75	2	*4,200*	7,350	14,600	25,550
Windermere Pkwy	Old Atlanta Rd-SR 20	Minor Art	3.84	4	*9,800*	37,632	32,500	124,800
Subtotal, Collectors						717,460		2,405,869
Subtotal, Arterials						3,290,705		5,291,358
Total						4,008,165		7,697,227

Notes: "ADT" is average daily trips; "VMT" is vehicle-miles of capacity; "Cap." is daily capacity; "VMC" is vehicle-miles of capacity
Source: Segment description, functional classification, length and number of through lanes from *Forsyth County Comprehensive Transportation Plan*, 2011; ADT from 2012 and 2013 traffic counts from Georgia Department of Transportation (numbers shown in italics are 2010 volumes from 2011 *Transportation Plan*; VMT is the product of segment length and ADT; average daily capacity from *Forsyth County Comprehensive Plan*, 2009, Transportation Element, Table 5, p. 9-21; VMC is the product of segment length and capacity.

APPENDIX D: SPLOST FUNDING

Forsyth County collects a Special Purpose Local Option Sales Tax (SPLOST), which has been authorized by voters seven times. The current 6-year authorization expires on July 1, 2019. This appendix analyzes the last three authorizations: SPLOST V (July 1, 2003 – July 1, 2008), SPLOST VI (July 1, 2008 – July 1, 2013), and SPLOST VII (July 1, 2013 – July 1, 2019).

The projects funded by the fifth SPLOST authorization are summarized in Table 58. Because planned project funding exceeded actual revenues, funding by project is estimated based on the percentage of actual County and City revenues to planned County and City project costs.

Table 58. SPLOST V Project Funding Summary

Project	Planned Funding	Actual Revenues	Esimated Funding
Major Road Widening	$74,100,000		$64,949,492
Intersection Improvements, Other	$25,000,000		$21,912,784
Subtotal, Transportation Projects	$99,100,000		$86,862,276
Senior Citizens Center Expansion	$400,000		$350,605
Admin Bldg Addition/Records Storage	$5,500,000		$4,820,812
Hampton Branch Library, Cumming Addition	$4,762,000		$4,173,947
Parks	$12,250,000		$10,737,264
4 Fire Stations, Apparatus, E-911 Radio System	$18,580,000		$16,285,581
County Total	$140,592,000	$123,230,485	$123,230,485
Historial Preservation	$2,300,000		$2,594,529
Parks - Aquatic Facility	$6,000,000		$6,768,336
Greenspace Restoration/Preservation	$3,100,000		$3,496,974
City Road Projects	$8,000,000		$9,024,448
City Total	$19,400,000	$21,884,287	$21,884,287
Grand Total	$159,992,000	$145,114,772	$145,114,772

Source: Planned funding from January 13, 2003 Forsyth County Board of Commissioners resolution; actual revenues from Forsyth County Finance Department, May 6, 2015.

The projects funded by the sixth SPLOST authorization are summarized in Table 59. As with the previous authorization, planned project funding exceeded actual revenues. For park improvements, revised project budgets as of June 30, 2014 were used for estimated funding. For non-park improvements, estimated funding is based on the percentage of actual County non-park revenue to planned County non-park project costs. Only Category A transportation projects are included in this summary, because Category B transportation project costs, totaling an additional $110 million, far exceeded actual revenues.

Table 59. SPLOST VI Project Funding Summary

Project	Planned Funding	Actual Revenues	Esimated Funding
New Roads	$12,000,000		$10,694,321
Major Road Widening	$45,290,000		$40,362,152
Pavement Widening	$6,850,000		$6,104,675
Intersection Improvements	$13,750,000		$12,253,910
Bike/Ped	$1,210,000		$1,078,344
Subtotal, Transportation Capacity Projects	$79,100,000		$70,493,402
Resurfacing	$20,000,000		$17,823,869
Unpaved Road Improvements	$5,500,000		$4,901,564
Traffic Safety Improvements	$4,000,000		$3,564,774
Subtotal, Transportation Non-Capacity Project	$29,500,000		$26,290,207
Bennett Park Improvements			$469,096
Central Park Improvements			$482,733
Design Fees for Parks			$333,208
Ducktown Park Improvements			$65,674
Lake Parks [Core of Eng.] Improvements			$1,100,000
Midway Park Improvements			$1,180,000
Master Plan for Parks			$50,000
South Forsyth Soccer Site Development			$155,000
Sharon Springs Park Improvements			$584,582
Sawnee Mountain Park Site Development			$599,000
Turf Fields			$1,378,374
Available for Park Projects [unallocated]			$180,446
Subtotal, Active County Parks			$6,578,113
Big Creek Greenway			$150,000
Charleston Park improvements			$1,100,000
Harrison Park Development [Caney Creek]			$1,573,733
Pooles Mill Park improvements			$35,654
Sawnee Mountain Preserve - Phase III			$1,700,000
Subtotal, Other Park Projects			$4,559,387
Total, County Parks Projects	$13,500,000		$11,137,500
Community Meeting and Senior Facilities	$6,000,000		$5,347,161
Replacement Fire Stations & Ladder Truck	$17,800,000		$15,863,243
Post Road Library & NW Library Site	$7,200,000		$6,416,593
County Total	$153,100,000	$135,548,106	$135,548,106
City Total (Parking Deck)	$6,075,666	$6,075,666	$6,075,666
Grand Total	$159,175,666	$141,623,772	$141,623,772

Source: Planned funding from January 17, 2008 Forsyth County Board of Commissioners resolution; actual revenues from Forsyth County Finance Department, May 6, 2015; estimated parks project funding from revised budget as of June 30, 2015 from Forsyth County Finance Department; estimated funding for other projects are planned funding times the ratio of non-parks actual revenues to non-parks planned funding.

The projects funded by the current SPLOST authorization are summarized in Table 59. As with the previous two authorizations, planned project funding exceeds projected revenues. Consequently, the estimated funding for all projects is based on the percentage of projected County revenue to planned County project costs.

Table 60. SPLOST VII Project Funding Summary

Project	Planned Funding	Projected Revenues	Esimated Funding
Major Road Widening, Category A	$45,950,000		$43,734,835
Major Road Widening, Category B	$13,930,000		$13,258,461
Intersection Improvements, Category A	$4,600,000		$4,378,243
Intersection Improvements, Category B	$2,500,000		$2,379,480
Bike/Ped, Category A	$4,660,000		$4,435,350
Bike/Ped, Category B	$1,840,000		$1,751,297
Transportation Contingency	$500,000		$475,896
Subtotal, Transportation Capacity Projects	$73,980,000		$70,413,562
Resurfacing, Category A	$11,000,000		$10,469,710
Resurfacing, Category B	$6,300,000		$5,996,289
Unpaved Road Improvements, Category A	$500,000		$475,896
Unpaved Road Improvements, Category B	$250,000		$237,948
Traffic Safety Improvements, Category A	$2,500,000		$2,379,480
Subtotal, Transportation Non-Capacity Projects	$20,550,000		$19,559,323
Sharon Fork Library Expansion/Renovation	$2,800,000		$2,665,017
Fire Engine Scheduled Replacement	$3,900,000		$3,711,988
Animal Shelter	$2,999,975		$2,855,352
Emergency Raw Water Generator	$1,000,000		$951,792
Jail Expansion, Courthouse and Related Parking	$100,000,000		$95,179,185
Administration Building Expansion	$2,500,000		$2,379,480
Develop Greenspace	$1,500,000		$1,427,688
Park Improvements	$500,000		$475,896
Parks Contingency	$400,000		$380,717
County Total	$210,129,975	$200,000,000	$200,000,000

Source: Planned funding and projected revenues from July 18, 2011 Forsyth County Board of Commissioners resolution; actual revenues from Forsyth County Finance Department, May 6, 2015; estimated project funding is planned funding times the ratio of projected revenues to total planned funding.

APPENDIX E: INSURED VALUES

Forsyth County's current insured values on parks, libraries and fire/E-911 buildings and equipment are summarized in Table 61.

Table 61. Forsyth County Insured Values, 2015

Department	Building	Contents	Arts	EDP Equipment	Site Imprmts	Equipment	Vehicles	Total
Parks & Rec	$40,208,567	$2,440,022	$11,550	$196,455	$13,267,386	$593,608	$643,850	$57,361,438
Libraries	$17,021,690	$17,266,807	$12,075	$1,849,050	$871,440	-	$36,904	$37,057,966
Fire	$22,935,605	$2,502,780	$0	$992,308	$1,008,197	$510,650	$12,610,515	$40,560,055
E-911	$2,387,469	$145,425	$0	$10,099,138	$141,603	-	$39,135	$12,812,770
Total	$82,553,331	$22,355,034	$23,625	$13,136,951	$15,288,626	$1,104,258	$13,330,404	$147,792,229

Source: Forsyth County, March 13, 2015.

APPENDIX F: PUBLIC SAFETY VEHICLES

Table 62. Public Safety Vehicle Inventory

Apparatus	Model Year	Purchase Price
Decon 2 Flatbed Ford F-800	1988	$140,000
Light & Air Unit F-700	1989	$350,000
Heavy Rescue 12	1994	$950,000
Reserve Truck Sutphen	1995	$800,000
Can Trailer (St.4)	1996	$1,500
Haz-Mat 2 Sutphen	1996	$1,100,000
Ford Expedition Eggert	1998	$43,000
Ford Expedition Motor Pool	1998	$43,000
Ford E-350 Ambulance	1998	$325,000
Reserve Engine American LaFrance	1999	$800,000
Ford F-250 4x4 Wilson	2000	$52,500
Geographic Information Trailer	2000	$80,000
Dodge Intrepid Elzey	2001	$43,000
Ford F-250 4x4 Smith	2001	$52,500
Ford E-350 Van Motor Pool	2003	$40,000
Anderson Trailer 6'x12' Utility	2004	$15,000
Ford Crown Victoria Chief Bowman	2004	$40,000
Ford F-150 4x4 Milford	2004	$47,000
Ford F-150 4x4 Green	2004	$47,500
Ford F-250 4x4 Crew Cab Station 15	2004	$52,500
Ford E-150 Maint. Van Carnes	2004	$55,000
Engine 5 Pierce Arrow	2004	$800,000
Engine 2 Pierce Arrow	2004	$800,000
Engine 9 Pierce Arrow	2004	$800,000
Reserve Engine Pierce Arrow	2004	$800,000
Engine 15 Pierce Arrow	2004	$800,000
Reserve Engine Pierce Arrow	2004	$800,000
Reserve Engine Pierce Arrow	2004	$800,000
6x10 Utility Trailer	2005	$2,500
Com-Fab Trailer Dual Skis	2005	$3,000
Kubota Rvt 900 Wildland & Rescue	2005	$22,000
Ford Taurus Motor Pool	2005	$40,000
Ford Expedition Coleman	2005	$43,000
Chevrolet Suburban Grimes	2005	$47,000
Ford F-250 4x4 Motor Maint.	2005	$52,500
Ford F-350 4x4 Crew Cab Station 2	2005	$60,000
Ford F-550 4x4 Crew Cab Brush Truck 5	2005	$95,000
Ford F450 Brush Truck 3	2005	$95,000
Tiller 1 Pierce Arrow	2005	$1,300,000
Anderson Trailer 6x16 Kubata Tandem	2006	$7,000
Lark Trailer 6'x 10'	2006	$8,000
Polaris Ranger 2x4	2006	$14,000
Haulmark Trailer Arson	2006	$15,000
Daewoo Fork Lift	2006	$30,000

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Table 62. Continued

Apparatus	Model Year	Purchase Price
Ford Expedition Shivers	2006	$43,000
Ford F-250 4x4	2006	$52,500
Ford F-250 4x4 Crew Cab	2006	$52,500
Ford F-250 4x4 Inspector	2006	$52,500
Ford F-250 4x4	2006	$52,500
Ford F-250 4x4 Jeff Lyons	2006	$52,500
Ford F-250 4x4 Inspector	2006	$52,500
Ford F-250 4x4 Crew Cab	2006	$52,500
Fire Safety House	2006	$55,000
Ford F-550 4x4	2006	$60,000
Decon 2 Hazmat Trailer	2006	$75,000
Workhorse Dive Truck	2006	$80,000
Ford F450 Brush Truck	2006	$95,000
Haulmark Trt Trailer	2006	$350,000
Pierce Contender Tanker 5	2006	$350,000
Pierce Contender Tanker 9	2006	$350,000
Pierce Contender Tanker 7	2006	$350,000
Bil-Jax Electric Boom Lift	2007	$75,000
Engine 14 Pierce Arrow	2007	$800,000
Engine 3 Pierce Arrow	2007	$800,000
Horton Trailer	2008	$10,000
Pace American Enclosed Trailer 5'x8'	2008	$10,000
Chevrolet Tahoe	2008	$43,000
Ford F-250 4x4 Inspector	2008	$52,500
Ford F-350 4x4	2008	$60,000
Ford F-350 4x4 Brush Truck 1	2008	$95,000
Engine 8 Pierce Arrow	2008	$800,000
Engine 4 Pierce Arrow	2008	$800,000
Superior Trailer of GA	2011	$7,000
Gateway Boat Trailer	2011	$10,000
Polaris Ranger Crew 800	2011	$14,000
SJX Jet Boat For River	2011	$30,000
Mini Ambulance Golf Cart	2012	$8,000
Engine 7 Pierce Arrow	2012	$800,000
Tiller 14 Pierce Arrow 100 ft Ladder	2012	$1,300,000
Battalion 1 Ford Expedition	2013	$43,000
Battalion 2 Ford Expedition	2013	$43,000
Operations Chief Ford Expedition	2013	$43,000
Engine 12 Pierce Arrow	2014	$800,000
Engine 1 Pierce Arrow	2014	$800,000
Engine 10 Pierce Arrow	2014	$800,000
Chevrolet Tahoe Chief Head	2015	$43,000
Total		$22,973,500

Source: Forsyth County, March 12, 2015.

APPENDIX G: FIVE-YEAR CAPITAL PLAN

The planned improvements in the County's draft Short Term Work Plan for the next five years (2016-2020) related to existing impact fee facilities and the proposed road impact fees are summarized below.

Table 63. Impact Fee-Related Capital Improvements Plan, 2016-2020

Description	Funding Source	Estimated Total Cost	Growth-Related Share	Growth-Related Cost
PUBLIC SAFETY				
Redundant fiber upgrade	Impact Fees (E-911)	$60,000	100.00%	$60,000
Fire Station 6 - Johns Creek	Impact Fees (Fire)/ SPLOS	$2,900,000	100.00%	$2,900,000
Fire Station 8 - Enlargement/Replacement	Impact Fees (Fire)/ SPLOS	$2,900,000	84.07%	$2,438,030
Fire Station 9 - Enlargement/Replacement	Impact Fees (Fire)/County	$3,460,000	96.80%	$3,349,280
Fire Station 10 - Enlargement/Replacement	Impact Fees (Fire)/County	$3,460,000	63.90%	$2,210,940
Fire Station 11 - Pittman Road	Impact Fees (Fire)/ SPLOS	$2,615,550	100.00%	$2,615,550
Fire Station 13 - Old Federal Road	Impact Fees (Fire)/ SPLOS	$3,460,212	18.78%	$649,828
Fire Station 15 - Enlargement/Replacement	Impact Fees (Fire)/County	$3,460,000	63.90%	$2,210,940
Public Safety Subtotal		$22,315,762		$16,434,568
PUBLIC LIBRARIES				
South District Expansion/Renovation (Sharon Forks)	SPLOST/ Impact Fees	$5,919,646	33.00%	$1,953,483
Library Subtotal		$5,919,646		$1,953,483
PARKS AND RECREATION				
Big Creek Greenway Phase 4	Park Bond	$3,683,000	100.00%	$3,683,000
Turf Fields at Coal Mountain Park	SPLOST	$475,000	0.00%	$0
Turf Fields	SPLOST/ Park Bond	$2,806,000	0.00%	$0
Ducktown Park Improvements	SPLOST	$550,000	0.00%	$0
South Forsyth Soccer Complex Improvements	SPLOST	$32,000	0.00%	$0
Sawnee Mountain Preserve Phase 3	SPLOST/ Park Bond	$2,500,000	100.00%	$2,500,000
Etowah Blueway	SPLOST/ Park Bond	$1,000,000	100.00%	$1,000,000
Matt Community Park	Impact Fees/Park Bond	$12,000,000	100.00%	$12,000,000
Lanierland	Impact Fees/Park Bond	$21,000,000	100.00%	$21,000,000
Lake Park Improvements	SPLOST	$1,100,000	100.00%	$1,100,000
Big Creek Greenway Phase 5	Park Bond	$3,683,000	100.00%	$3,683,000
Chattahoochee Pointe	SPLOST	$200,000	100.00%	$200,000
Sharon Springs Parking Lot	SPLOST	$600,000	0.00%	$0
Threatt Park	Park Bond	$12,000,000	100.00%	$12,000,000
Parks Subtotal		$61,629,000		$57,166,000
TRANSPORTATION & ROADS				
SR 400, McFarland Pwy to Bald Ridge Marina Rd	Bond	$34,700,000	100.00%	$34,700,000
SR 371, SR 9 to Kelly Mill Rd	Bond	$3,000,000	100.00%	$3,000,000
SR 369, SR 9 to SR 306	Bond	$15,600,000	100.00%	$15,600,000
SR 369 Interchange	Bond	$18,000,000	100.00%	$18,000,000
McGinnis Ferry Rd, GA 400 to Union Hill Rd	Bond	$12,089,697	100.00%	$12,089,697
Ronald Reagan Blvd Ext, Majors Rd to McFarland Pwy	Bond	$43,430,000	100.00%	$43,430,000
Ronald Reagan Blvd Ext, McFarland Pwy to Union Hill Rd	Bond	$1,287,500	100.00%	$1,287,500

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Table 63. Continued

Description	Funding Source	Estimated Total Cost	Growth-Related Share	Growth-Related Cost
TRANSPORTATION & ROADS (cont'd)				
Bethelview Rd, Castleberry Rd to SR 20	State/Fed	$4,504,711	100.00%	$4,504,711
Brookwood Rd, SR 141 to McGinnis Ferry Rd	Bond	$6,200,000	100.00%	$6,200,000
Castleberry Rd, City Limits to Bethelview Rd	SPLOST VII	$13,000,000	100.00%	$13,000,000
McFarland Pwy, GA 400 to McGinnis Ferry Rd	SPLOST VII	$200,000	100.00%	$200,000
McGinnis Ferry Rd, Sargent Rd to Union Hill Rd	Bond	$19,250,000	100.00%	$19,250,000
Mullinax Rd, McFarland Pwy to SR 9	SPLOST VII	$13,000,000	0.00%	$0
Pilgrim Mill Rd, City Limits to Freedom Pwy	SPLOST VII	$9,750,000	0.00%	$0
Sharon Rd, SR 141 to Old Atlanta Rd	SPLOST VII	$9,924,252	100.00%	$9,924,252
Union Hill Rd, GA 400 to McFarland Pwy	Bond	$12,760,000	0.00%	$0
Old Atlanta Rd, Sharon Rd to Nichols Rd	SPLOST VI & VII	$6,000,000	100.00%	$6,000,000
Old Atlanta Rd, St. Marlo Cntry Club to McGinnis Ferry	SPLOST VII	$5,000,000	100.00%	$5,000,000
Old Atlanta Rd, St. Marlo Cntry Club Pky-Old Atlanta Club	Bond/SPLOST VII	$13,000,000	100.00%	$13,000,000
Old Atlanta Rd, Old Atlanta Club to James Burgess Rd	Bond	$14,000,000	100.00%	$14,000,000
SR 369 at Mount Tabor Rd	Bond	$650,000	0.00%	$0
SR 369 at Old Federal Rd	Bond	$650,000	0.00%	$0
SR 369 at Pooles Mill Rd	Bond	$600,000	0.00%	$0
SR 369 at Bus Field Entrance	Bond	$200,000	0.00%	$0
SR 369 at Little Mill Rd	Bond	$150,000	0.00%	$0
SR 306 at Little Mill Rd	Bond	$550,000	0.00%	$0
SR 400 at Jot-em-down Rd	Bond	$500,000	0.00%	$0
SR 400 at Martin Rd	Bond	$200,000	0.00%	$0
SR 9 at Campground Rd	Bond	$200,000	0.00%	$0
SR 9 at Smith Ln	Bond	$200,000	0.00%	$0
SR 9 at Martin Rd	Bond	$200,000	0.00%	$0
SR 53 at Dogwood Path	Bond	$300,000	0.00%	$0
Ronald Reagan Blvd at SR 141	Bond	$100,000	100.00%	$100,000
Old Alpharetta Rd at SR 141	Bond	$250,000	100.00%	$250,000
John Burruss Rd at Karr Rd	SPLOST VII	$750,000	0.00%	$0
Bannister Rd at Elmo Rd	SPLOST VII	$500,000	0.00%	$0
Wallace Tatum Rd at Wright Bridge Rd	SPLOST VII	$500,000	0.00%	$0
Wallace Tatum Rd at Burnt Bridge Rd	SPLOST VII	$500,000	0.00%	$0
Holbrook Rd at Burnt Bridge Rd	SPLOST VII	$500,000	0.00%	$0
Settingdown Rd at Martin Rd	SPLOST VII	$750,000	0.00%	$0
SR 20 @ Woodland Hill Drive	SPLOST VII	$500,000	0.00%	$0
SR 9 at Oak Grove Circle (south end)	SPLOST VII	$500,000	0.00%	$0
Cross Rds Rd at Bennett Rd	SPLOST VII	$500,000	0.00%	$0
SR 9 at Dr. Dunn Rd	SPLOST VII	$500,000	0.00%	$0
SR 9 at Piney Grove Rd	SPLOST VII	$500,000	0.00%	$0
Campground Rd at Dickerson Rd	SPLOST VII	$500,000	0.00%	$0
McFarland Rd/Shiloh Rd Sidewalk	SPLOST VI / Grant	$420,000	0.00%	$0
Dr. Bramblett Rd @ Settingdown Crk Bridge Repl	SPLOST VI	$476,443	0.00%	$0
Heardsville Rd, SR 20 to Hurt Bridge Rd - Overlay	SPLOST VI	$1,146,000	0.00%	$0
Church Rd, Hopewell Rd to Bottoms Circle	SPLOST VII	$352,000	0.00%	$0
Settingdown Rd, SR 369 to GA 400 - Overlay	SPLOST VI	$450,000	0.00%	$0
Old Alpharetta Rd @ Caney Rd - Align/Turn Lns/Signal	SPLOST VI	$313,037	0.00%	$0
McGinnis Ferry/McFarland Signal Upgrades	SPLOST VII / Grant	$400,000	0.00%	$0

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Table 63. Continued

Description	Funding Source	Estimated Total Cost	Growth-Related Share	Growth-Related Cost
TRANSPORTATION & ROADS (cont'd)				
Nichols Rd, Old Atlanta Rd to Nichols Drive	SPLOST VII	$1,000,000	0.00%	$0
Nichols Drive, Nichols Rd to James Burgess	SPLOST VII	$500,000	0.00%	$0
Majors Rd, Post Rd to Big Creek Greenway	SPLOST VII	$600,000	0.00%	$0
Caney Rd, Brookwood Rd to Old Alpharetta Rd	SPLOST VII	$2,320,455	0.00%	$0
Old Alpharetta Rd, Caney Rd to SR 141	SPLOST VII	$880,000	100.00%	$880,000
Majors Rd, SR 141 to Ronald Reagan Blvd	SPLOST VII	$280,000	0.00%	$0
Trammel Rd, Windermere S/D to SR 20	Bond	$352,453	0.00%	$0
James Burgess Rd, W side from end to SR 20	Bond	$210,000	0.00%	$0
Sanders Rd, E side from SR 20 to Buford Dam Rd	Bond	$293,552	0.00%	$0
Nuckolls Rd, E side from SR 20 to Buford Dam Rd	Bond	$542,205	0.00%	$0
Echols Rd, N & E side from SR 20 to SR 20	Bond	$501,160	0.00%	$0
Audreys Way, N side Grand Cascades S/D to Jms Burgess	Bond	$255,000	0.00%	$0
Freedom Pkwy, Pilgrm Mill Rd to SR 306	Bond	$431,479	0.00%	$0
Samples Rd, SR 20 to Buford Dam Rd	Bond	$485,000	0.00%	$0
Old Atlanta Rd, N Oak Drive to Melody Mizer Ln	Bond	$1,300,000	0.00%	$0
Melody Mizer Ln, Daves Creek Park to Old Atlanta Rd	Bond	$540,000	0.00%	$0
Program Management Services	Project related funding	$300,000	0.00%	$0
Resurfacing 2014-2019	SPLOST VII	$17,300,000	0.00%	$0
Upgrade Gravel Rds	SPLOST VII	$750,000	0.00%	$0
Undesignated Engineering, ROW, Utilities, Contingency	Bond/SPLOST VII	$2,820,000	0.00%	$0
Undesignated Traffic Safety Improvements	Bond	$4,850,000	0.00%	$0
Undesignated Traffic Safety Improvements	SPLOST VII	$9,500,000	0.00%	$0
Undesignated Traffic Safety Improvements	State	$320,000	0.00%	$0
Transportation Subtotal		$315,834,943		$220,416,160
Grand Total, Impact Fee-Related Facilities		$405,699,351		$295,970,211

Source: Short Term Work Program 2016-2020 draft, Forsyth County Finance Department, July 24, 2015, with modifications per Finance Department on August 7, 2015.