



Flemington



Capital Improvements Element

City of Flemington Impact Fee Program

Including the following public
facility categories:

- Fire Protection
- Law Enforcement
- Road Improvements

As Adopted 11-13-2018

ROSS+associates

urban planning & plan implementation

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Introduction

The purpose of a Capital Improvements Element (CIE) is to establish where and when certain new capital facilities will be provided within a jurisdiction and the extent to which they may be financed through an impact fee program. This Capital Improvements Element addresses fire protection, law enforcement and road improvements.

As required by the Georgia Development Impact Fee Act (“State Act” or “DIFA”), and defined by the Department of Community Affairs in its *Development Impact Fee Compliance Requirements*, the CIE must include the following for each capital facility category for which an impact fee may be charged:

- a **projection of needs** for the planning period – 2018 to 2040;
- the designation of **service areas**—the geographic area in which a defined set of public facilities provide service to development within the area;
- the designation of **levels of service (LOS)**—the service level that is being and/or will be provided;
- a **schedule of improvements** listing impact fee related projects and costs for the planning period;
- a description of **funding sources** for the planning period;

■ Impact Fees Authorized

Impact fees are authorized in Georgia pursuant to O.C.G.A. §36-71-1 et seq., the *Georgia Development Impact Fee Act (DIFA)*, and are administered by the Georgia Department of Community Affairs under Chapter 110-12-2, *Development Impact Fee Compliance Requirements*, of the Georgia Administrative Code. Under DIFA, the City can collect money from new development based on that development’s proportionate share—the ‘fair share’—of the cost to provide the facilities needed specifically to serve new development. This includes the categories of public safety and parks. Revenue for such facilities can be produced from new development in two ways: through future taxes paid by the homes and businesses that growth creates, and through an impact fee assessed as new development occurs.

■ Categories for Assessment of Impact Fees

To assist in paying for the high costs of expanding public facilities and services to meet the needs of projected growth and to ensure that new development pays a reasonable share of the costs of public facilities, Flemington is considering impact fees for public safety facilities (fire protection and law enforcement) and road improvements. The chapters in this Methodology Report provide population and employment forecasts and detailed information regarding

the inventory of current facilities, the applicable Level of Service standards, and detailed calculations of the impact cost for the specific public facilities.

The following table shows the facility categories that are eligible for impact fee funding under Georgia law and that are considered in this report. The service area for each public facility category—that is, the geographical area served by the facility category—is also given, along with what the Level of Service standard, to be established for each facility category, is based.

Overview of Impact Fee Program - Facilities

	Fire Protection	Law Enforcement	Road Improvements
Eligible Facilities	Fire stations and fire apparatus (vehicles)	Occupied Facility space	Road projects that increase capacity
Service Area	Citywide	Citywide	Citywide
Level of Service Standard Based on ...	Square footage and number of vehicles per day-night population	Square footage of facilities per day-night population	Percent of future traffic generated by new growth
Historic Funding Source(s)	General Fund	General Fund	State and County Funding, SPLOST

Terms used in the Overview Table:

Eligible Facilities under the State Act are limited to capital items having a life expectancy of at least ten years, such as land, buildings and certain vehicles. Impact fees cannot be used for the maintenance, supplies, personnel salaries, or other operational costs, or for short-term capital items such as computers, furniture or most automobiles. None of these costs are included in the impact fee program.

Service Areas are the geographic areas that the facilities serve, and the areas within which the impact fee can be collected. Monies collected in a service area for a particular category may only be spent for that purpose, and only for projects that serve that service area.

Level of Service Standards are critical to determining new development’s fair share of the costs. The same standards must be applied to existing development as well as new to assure that each is paying only for the facilities that serve it. New development cannot be required to pay for facilities at a higher standard than that available to existing residents and businesses, nor to subsidize existing facility deficiencies.

■ Focus of This Report

This report focuses on the public facilities that will be needed to meet the service demands of future growth and development while maintaining the City’s adopted Levels of Service enjoyed by residents and businesses in the city today and in the future. The key is that the capital improvement, whether it’s land, buildings or long-lived vehicles, must create new capacity within the system to keep pace with the number of future residents and businesses as the city grows. Maintenance and personnel are not eligible for impact fee funding, nor would replacement of deteriorated floor space or full replacement of a run-down vehicle because, although the replacement is maintaining the Level of Service, no new capacity is created to serve the needs of new growth.

In this report capital costs have been examined for several public facility categories: fire protection, law enforcement, and road improvements.

■ Editorial Conventions

This report observes the following conventions:

The capitalized word ‘City’ applies to the government of Flemington, the City Council or any of its departments or officials, as appropriate to the context. An example is “the City has adopted an impact fee ordinance”.

The lower-case word ‘city’ refers to the geographical area of Flemington, as in “the population of the city has grown”.

The same conventions are applied to the words ‘County’ and ‘county’, ‘State’ and ‘state’.

Single quote marks (‘ and ’) are used to highlight a word or phrase that has a particular meaning or refers to a heading in a table.

Double quote marks (“ and ”) are used to set off a word or phrase that is a direct quote taken from another source, such as a passage or requirement copied directly from a law or report.

Numbers shown on tables are often rounded from the actual calculation of the figures for clarity, but the actual calculated number of decimal points is retained within the table for accuracy and further calculations.

Forecasts

In order to accurately calculate the demand for future services for Flemington, new growth and development must be quantified in future projections. These projections include forecasts for population, housing units and employment to the year 2040. These projections provide the base-line conditions from which the current (2018) Level of Service calculations are produced. Also, projections are combined to produce what is known as the ‘day-night population’. This is a method that combines resident population and employees in the city to produce an accurate picture of the total number of persons that rely on certain 24-hour services, such as fire protection. The projections used for each public facility category are specified in each public facility chapter.

Accurate projections of population and employment are important in that:

- Population data and forecasts are used to establish current and future demand for services standards where the Level of Service (LOS) is per capita based.
- Household data and forecasts are used to forecast future growth in the number of housing units.
- Housing unit data and forecasts relate to service demands that are household based, such as the residential portion of current and future traffic generated on the city’s streets and roads, and are used in combination with nonresidential traffic to calculate impact costs for road improvement projects. The number of households—defined as *occupied* housing units—is always smaller than the supply of available housing units. Over time, however, each housing unit is expected to become occupied by a household, even though the unit may become vacant during future re-sales or turnovers.
- Employment forecasts are refined to reflect ‘value added’ employment figures. This reflects an exclusion of jobs considered to be transitory or non-site specific in nature, and thus not subject to the issuance of building permits and impact fee collections.
- ‘Value added’ employment data is combined with population data to produce ‘day-night population’ figures. These figures represent the total number of persons receiving services, both in their homes and in their businesses, particularly from 24-hour operations such as fire protection and law enforcement.

■ Population Forecasts

Two sets of population forecasts are made—one for the cities of Flemington and Hinesville combined (since they are served jointly by the Hinesville Fire Department) and one for Flemington alone because law enforcement services are provided by the city independently.

Flemington Population

The following table shows the annual estimates of population for the county and each of its cities, as published by the US Bureau of the Census, since 2000. The Census Bureau prepares

population estimates for each year between the 10-year (decennial) censuses, and when a new 10-year census is taken, the bureau revises all of the preceding annual estimates to match the latest count. Annual estimates are published in the subsequent year, so the latest Census estimates are for 2017.

Table 1: Annual Census Population Estimates - Liberty County and its Cities

Name	Population Estimate (as of July 1)									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Liberty County Total	61,811	61,388	62,505	60,403	63,254	64,718	63,047	63,708	62,635	67,061
Allenhurst	764	758	752	700	732	701	714	711	698	725
Flemington	510	535	560	548	603	605	647	674	693	750
Gumbranch	252	254	255	241	256	248	257	260	259	272
Hinesville	30,335	30,733	31,081	29,500	31,503	30,875	31,985	32,485	32,509	34,519
Midway	1,143	1,219	1,354	1,426	1,579	1,766	1,764	1,882	1,934	2,191
Riceboro	815	817	817	766	809	780	804	807	800	838
Walthourville	4,044	4,063	4,072	3,826	4,053	3,917	4,046	4,074	4,050	4,249
Balance of County	23,948	23,009	23,614	23,396	23,719	25,826	22,830	22,815	21,692	23,517

Name	Population Estimate (as of July 1)							
	2010*	2011	2012	2013	2014	2015	2016	2017
Liberty County Total	62,660	65,089	64,333	62,282	64,016	61,524	61,390	61,386
Allenhurst	756	787	788	767	778	743	739	738
Flemington	733	763	764	745	758	725	721	723
Gumbranch	260	272	271	263	268	255	254	254
Hinesville	33,046	34,383	34,586	33,904	34,482	33,056	33,159	33,140
Midway	2,087	2,141	2,146	2,092	2,127	2,035	2,031	2,033
Riceboro	788	818	820	798	809	773	770	770
Walthourville	3,981	4,145	4,152	4,046	4,108	3,922	3,909	3,912
Balance of County	21,009	21,780	20,806	19,667	20,686	20,015	19,807	19,816

* Revised by Census Bureau in 2017

Note: All data as of July 1 of each year. 2000 and 2010 differ from Decennial Census counts, which were as of April 1.

Sources: For 2010 to 2017: Census Annual Estimates Program, US Bureau of the Census. For 2000 to 2009: Intercensal Estimates 2000-2010, US Bureau of the Census.

Over the past 17 years, the population of Flemington has hardly budged, increasing from 510 in 2000 to 723 last year, an overall increase of 213. Though a very small number, it represents an increase of almost 30%. Of all of the cities in the county, only Midway showed a greater 2000-2017 growth increase (44%). Except for Hinesville, all other cities in the county either lost population or showed an imperceptible gain.

Things in Flemington, however, are about to change dramatically. Two major mixed-use developments have recently been granted zoning approval by the city, and one is currently under development. This pending increase in housing units and population is seen as only the beginning of a major increase as other new developments are attracted to the city's 'zero' property

tax rate; proximity to Ft. Stewart, county schools and the cultural center; and easy access via busy US 84 to major shopping facilities to the west in Hinesville, to I-95 and the coast to the south, and the easy drive to Richmond Hill and Savannah via SR 196. Of particular relevance, employment at Fort Stewart is expected to increase by as many as 4,000 if the anticipated new brigade is realized.

The two mixed-use PUDs that have been approved by the city establish benchmarks that will guide additional development projects in the future, particularly with regard to acceptable housing densities. Including office and commercial areas, the two PUDs contain 296 acres, of which 236 acres could potentially contain up to 602 new single-family and multi-family housing units. Benchmark gross densities approved for the PUDs are 1.71 to 1.8 units of single-family houses per acre, and 5.98 multi-family units per acre.

Considering future, additional development, about 582 acres have been identified as being particularly attractive for zoning and development approval in the coming 22 years. Some properties may be PUD mixed-use projects, others will most likely develop strictly as single-family subdivisions. Together, these properties are expected to generate an additional 1,093 housing units in the coming 22 years, which, in addition to the 602 units already approved, would result in a total of 1,695 new units by 2040.

Applying the countywide average family size to these new units (as reported by the Census Bureau for 2017 at 2.45 persons per household), results in a future population increase of 4,153. Together with the current population, it is forecast that Flemington will be home to 4,876 people by 2040.

Hinesville Population

Because Hinesville provides emergency fire protection services to Flemington, the population of Hinesville must also be forecast to 2040. Unlike Flemington, however, there is more data available for Hinesville to use a statistical approach to the forecast instead of estimating future development capacity.

The forecasts are based on two projection approaches applied to the city's annual population estimates from Table 1. As noted, other than Flemington and Midway, Hinesville was the only other city in the county that showed a notable population increase over the past 17 years. Although the number of new residents increased by 2,805 between 2000 and 2017, the increase itself was only 8.5% of the city's 2017 estimated population of 33,140.

The results of the two projections are shown on Table 2. In both cases, the 'raw' projection results are shown in the 'projected' column. To the extent that the projected figure differs from the 2017 Census estimate, the projected figures are adjusted to coincide with the 2017 figure.

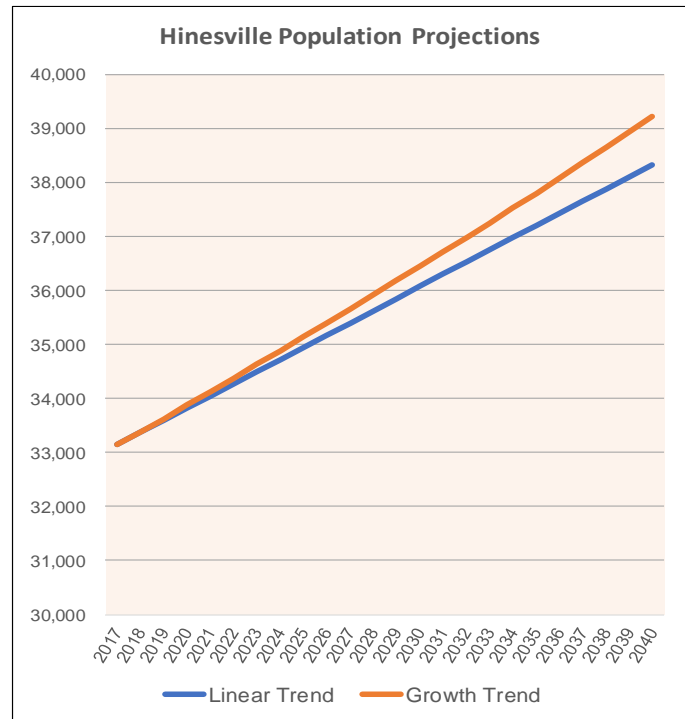
The first projection is called the Linear Trend. This algorithm examines each of the population estimates from 2000 to 2017 and applies a straight line that best fits the historical data, projected forward to 2040. The other method—the Growth Trend approach—assumes that there

is some amount of curve to the projection line, which is then assumed to continue and thus is extended into the future at the same change in the rate of growth.

In fact, the Growth Trend did identify an increasing rate of change as the city has grown over the years, and this approach is used for the calculations in this study.

Table 2: Hinesville Population Forecasts

Year	Linear Trend		Growth Trend	
	Projected	Adjusted	Projected	Adjusted
2017	34,514	33,140	34,563	33,140
2018	34,749	33,366	34,817	33,383
2019	34,984	33,591	35,073	33,628
2020	35,219	33,817	35,330	33,875
2021	35,454	34,043	35,589	34,124
2022	35,690	34,269	35,851	34,375
2023	35,925	34,494	36,114	34,627
2024	36,160	34,720	36,379	34,881
2025	36,395	34,946	36,646	35,137
2026	36,630	35,172	36,915	35,395
2027	36,865	35,397	37,186	35,655
2028	37,100	35,623	37,459	35,917
2029	37,335	35,849	37,735	36,181
2030	37,570	36,075	38,012	36,446
2031	37,806	36,300	38,291	36,714
2032	38,041	36,526	38,572	36,984
2033	38,276	36,752	38,855	37,255
2034	38,511	36,978	39,140	37,529
2035	38,746	37,203	39,428	37,804
2036	38,981	37,429	39,717	38,082
2037	39,216	37,655	40,009	38,362
2038	39,451	37,881	40,303	38,643
2039	39,686	38,106	40,599	38,927
2040	39,922	38,332	40,897	39,213
Increase 2018-2040		5,192		6,073



Taken together, by 2040 the cities of Flemington and Hinesville are forecast to grow by a total of 10,949 people, with 55.5% of them moving into Hinesville and 45.5% coming to Flemington. Total populations at that time would be 39,213 in Hinesville and 4,876 in Flemington.

■ Housing Unit Forecasts

Housing unit forecasts are needed only for Flemington and are used only as part of the methodology to estimate existing and future traffic that is expected to be generated on the city’s streets and roads.

As discussed above in the Flemington Population section, it is anticipated that 1,695 new housing units will be added to the city by 2040. According to the Census Bureau, there were 286 housing units in existence in 2010. More recently, the Census Bureau’s American Community Survey (ACS) estimated the number of housing units in the city in 2016 at 297 (276 of which were occupied). Since little has changed in the city since 2016, the ACS estimate is

accepted as the current (2018) number of units. Together, then, a total of 1,992 housing units are forecast for the city in 2040.

■ Employment Forecasts

Like population, existing and future employment are used in establishing the ‘day-night’ population for emergency fire and law enforcement services. Due to differences in data availability, however, different approaches are used in forecasting employment in the two cities that comprise the fire service area that encompasses Flemington. In both cases, however, county-wide employment forecasts are used as the basis for each city.

Table 3: Countywide Employment - 2010-2040

Year	Total Jobs	Non-Contributing*	Value-Added Jobs
2010	40,866	26,937	13,929
2011	42,566	27,710	14,856
2012	41,725	26,884	14,841
2013	41,361	26,448	14,913
2014	40,146	24,716	15,430
2015	39,906	24,263	15,643
2016	40,264	24,332	15,932
2017	40,625	24,395	16,230
2018	40,989	24,456	16,533
2019	41,355	24,516	16,839
2020	41,731	24,577	17,154
2021	42,108	24,634	17,474
2022	42,488	24,689	17,799
2023	42,872	24,742	18,130
2024	43,257	24,794	18,463
2025	43,651	24,842	18,809
2026	44,040	24,889	19,151
2027	44,438	24,932	19,506
2028	44,832	24,974	19,858
2029	45,226	25,013	20,213
2030	45,628	25,052	20,576
2031	46,025	25,086	20,939
2032	46,425	25,120	21,305
2033	46,828	25,153	21,675
2034	47,224	25,182	22,042
2035	47,625	25,210	22,415
2036	48,027	25,236	22,791
2037	48,427	25,260	23,167
2038	48,831	25,285	23,546
2039	49,240	25,309	23,931
2040	49,642	25,330	24,312

* Employees not subject to impact fees, including transitory and non-site specific jobs such as farm, forestry and construction workers, and federal and public employees.

Source: Woods & Poole Economics, 2017 Georgia State Profile.

Countywide Employment

The only reasonably reliable data on employment is at the county level and prepared by Woods & Poole Economics (W&P). Their data—both historical and projected forward—is based on data from the US Dept. of Commerce and its own national economic model, disaggregated to the county level throughout the country. The data is accepted by the GA Dept. of Community Affairs without question.

Table 3 shows the W&P employment data for the county projected to 2040 from 2010. It is important to note that W&P counts jobs, not employed people. As a result, people holding more than one job are counted by the Census Bureau as ‘one employed person’, while W&P captures all of the jobs, both part-time and full-time, and includes sole proprietors.

The total employment figures are refined to produce what is referred to as ‘value-added’ jobs. The ‘value-added’ jobs category is a refinement that excludes any employment that is considered to be transitory in nature, such as agricultural and

construction employment, and excludes employers that are not subject to impact fees, such as local government and the military. This is done to better measure the services being provided by the City, which in this report will be measured and, ultimately, assessed based on structures. Transitory employment does not require a structure to be built to house the employment, and so does not come under the assessment of impact fees.

Flemington Employment

Employment figures *per se* are not directly available for Flemington from any source. Instead, occupational tax statements (i.e., ‘business license’ data) are used in estimating how many people work in the city.

Table 4: Baseline Employment - Flemington

Year	Business Licenses by Employment Range				
	1 to 5	6 to 15	16 to 30	31 to 50	51 or more
2016	29	5	8	3	2
2017	28	7	5	3	2
2018	26	5	7	3	3
Mid-Point	3.0	10.5	23.0	40.5	75.0

Estimated Employees by Range						Total
2016	87	53	184	122	150	596
2017	84	74	115	122	150	545
2018	78	53	161	122	225	639
Three-Year Average =						593
% of Total Value-Added County Jobs - 2018 =						3.59%

Business license applications do not indicate the actual number of employees of the business. Instead, ranges of the number of employees are indicated. These ranges are shown on Table 4, along with the number of business licenses issued in each range category in the last three years. For estimating purposes, the mid-point of each range was multiplied by the number of licenses issued to estimate how many employees were represented by the licenses; for the ‘51 or more’ category, the average of 75 employees per business is used.

Since no trend is evident, the total employment figures for each year were then averaged to represent an ‘average year’. This figure divided by the total ‘value-added’ employment in the county results in an estimate that 3.59% of all such employees work in Flemington.

Hinesville Employment

Better historical employment data is available for Hinesville, which supports a different approach.

The following Table 5 compares employment figures from the Census Bureau to the W&P total jobs figures for 2010. That was the first and only year that the Census Bureau published its employment figures at the city level (and then only for the largest cities).

Table 5: Baseline Employment -- Hinesville

Total Jobs in County -- 2010	
Woods & Poole*	40,866
Census Bureau**	43,789
Multiplier:	0.93
Hinesville	
Census Bureau***	11,465
x Multiplier = Estimated Jobs	10,700
Hinesville % of County	26.18%

* Total Jobs -- all occupations

** Based on commuting patterns of employed persons.(including Fort Stewart)

*** Total employees working in Hinesville.

Countywide, the 2010 W&P employment figure is slightly over 0.93 times the number reported by the Census Bureau. This multiplier is applied to the Hinesville Census number of commuters (11,465) to arrive at an allocation of the W&P countywide figure for total employment (10,700). As a result, it is estimated that 26.18% of the jobs in the county are located within the City of Hinesville.

Service Area Projections

The following Table 6 presents the employment forecasts for Hinesville and Flemington, and combines them for a total employment forecast for the Hinesville Fire Department’s service area.

For each city, the percentage of countywide employment calculated in the preceding sections is multiplied times the countywide number of ‘value-added’ jobs to calculate the number of such jobs that are forecast for each city, annually to 2040. These forecasts are than totaled for the Fire Department’s service area coverage.

Table 6: Value-Added Employment - 2018-2040

Year	Countywide Value-Added Jobs	Hinesville Value-Added Jobs*	Flemington Value-Added Jobs**	Total Fire Service Area Jobs
2018	16,533	4,329	593	4,922
2019	16,839	4,409	604	5,013
2020	17,154	4,491	615	5,106
2021	17,474	4,575	627	5,202
2022	17,799	4,660	638	5,298
2023	18,130	4,747	650	5,397
2024	18,463	4,834	662	5,496
2025	18,809	4,925	675	5,600
2026	19,151	5,014	687	5,701
2027	19,506	5,107	700	5,807
2028	19,858	5,199	712	5,911
2029	20,213	5,292	725	6,017
2030	20,576	5,387	738	6,125
2031	20,939	5,482	751	6,233
2032	21,305	5,578	764	6,342
2033	21,675	5,675	777	6,452
2034	22,042	5,771	791	6,562
2035	22,415	5,869	804	6,673
2036	22,791	5,967	817	6,784
2037	23,167	6,066	831	6,897
2038	23,546	6,165	845	7,010
2039	23,931	6,266	858	7,124
2040	24,312	6,366	872	7,238
2018-2040 Increase	7,779	2,037	279	2,316

* Hinesville Percentage at: 26.18%

** Flemington Percentage at: 3.59%

Population and employment forecasts are totaled for the ‘day-night’ population figures that are used for both the combined Fire Protection service area for Hinesville and Flemington, and shown separately for the City of Flemington for use in the Law Enforcement service area.

The day-night population calculation is a combination of the population projections and future employment information. The use of day-night population in impact cost and impact fee calculations is based upon the clear rational nexus between persons and services demanded.

The day-night population is used to determine Level of Service standards for facilities that serve both the resident population and business employment. The fire department, for instance, protects one’s house from fire whether or not they are at home, and protects stores and offices whether or not they are open for business. Thus, this ‘day-night’ population is a measure of the total services demanded of a 24-hour service provider facility and a fair way to allocate the costs of such a facility among all of the beneficiaries.

The figures on Table 7 are the figures that will be used in subsequent public facility category chapters to calculate impact costs and fees.

Table 7: Day-Night Population by Service Area

Year	Hinesville-Flemington Fire Service Area			City of Flemington		
	Residents	Value-Added Jobs	Day-Night Population	Residents	Value-Added Jobs	Day-Night Population
2018	34,106	4,922	39,028	723	593	1,316
2019	34,532	5,013	39,545	904	604	1,508
2020	34,960	5,106	40,066	1,085	615	1,700
2021	35,390	5,202	40,592	1,266	627	1,893
2022	35,822	5,298	41,120	1,447	638	2,085
2023	36,255	5,397	41,652	1,628	650	2,278
2024	36,690	5,496	42,186	1,809	662	2,471
2025	37,127	5,600	42,727	1,990	675	2,665
2026	37,566	5,701	43,267	2,171	687	2,858
2027	38,007	5,807	43,814	2,352	700	3,052
2028	38,450	5,911	44,361	2,533	712	3,245
2029	38,895	6,017	44,912	2,714	725	3,439
2030	39,341	6,125	45,466	2,895	738	3,633
2031	39,790	6,233	46,023	3,076	751	3,827
2032	40,241	6,342	46,583	3,257	764	4,021
2033	40,693	6,452	47,145	3,438	777	4,215
2034	41,148	6,562	47,710	3,619	791	4,410
2035	41,604	6,673	48,277	3,800	804	4,604
2036	42,063	6,784	48,847	3,981	817	4,798
2037	42,524	6,897	49,421	4,162	831	4,993
2038	42,986	7,010	49,996	4,343	845	5,188
2039	43,451	7,124	50,575	4,524	858	5,382
2040	44,089	7,238	51,327	4,876	872	5,748
2018-2040 Increase	9,983	2,316	12,299	4,153	279	4,432

■ Trip Generation

In order to calculate new growth and development’s fair share of the cost of road improvements, it is necessary to establish how much of the future traffic on Flemington’s roads will be generated by new growth, over and above the traffic generated by the city’s residents and businesses today. This Section describes the methodology through which this determination is made.

Summary

A Level of Service must be established for road improvements in order to assure that, ultimately, existing development and new growth are served equally. This section also presents

the process through which new growth and development’s ‘fair share’ of road improvement costs is calculated, and tables summarizing the technical portions of this section are included.

Approach


This Methodology proceeds along the following lines:

- Total traffic currently generated by Flemington residents and businesses on the road system within the city is calculated from trip generation data for 2018.
- Future Flemington-generated traffic from new growth in the city is calculated from housing unit and employment forecasts to 2040.
- The portion of total 2040 traffic that is generated by new housing units and employment in the city establishes the percentage of Flemington’s cost of the future road improvements that can be included in an impact fee.

Summary Table

The table below shows how the portion of 2040 traffic generated by new growth is calculated. The existing traffic is calculated for the average daily trip ends on a normal week day. This is subtracted from the traffic that is projected to be experienced in 2040, leaving the amount generated by new growth and development. As shown on Table 8, traffic generated by city residents and businesses is projected to more than double by 2040, such that 2040 traffic will consist of almost 57% of the trips generated by new growth.


Table 8: Average Daily Trip Ends Generated by New Growth

	2018	2040	Increase	% New Growth Trip Ends
Residential Trips	2,723	17,691	14,968	 56.6%
Nonresidential Trips	13,710	20,167	6,457	
Total	16,433	37,858	21,425	

The next table, below, calculates the Primary Trip Ends generated by existing and future traffic by deleting pass-by and diverted trips (which are discussed below).

New primary trips add vehicles to the road network. Pass-by and diverted trips involve the same vehicles stopping off between their original beginnings and their final destinations, and therefore do not add new vehicles to the road network—the vehicles were already there on their way to their destinations. The use of primary trip ends are therefore considered more relevant when assigning cost responsibility to particular land uses with regard to impact fees.

Table 9: Primary Daily Trip Ends Generated by New Growth

	% Primary Trip Ends*	Primary Trip Ends			% New Growth Primary Trip Ends
		2018	2040	Increase	
Residential Trips	79.0%	2,151	13,974	11,823	 61.7%
Commercial	50.9%	6,529	9,607	3,078	
Industrial+Utility	92.0%	808	1,183	375	
Total		9,488	24,765	15,277	

* Derived from 'Trip Generation Handbook' chapter, *Trip Generation*, 9th Edition, Institute of Transportation Engineers.

Overall, new residents and businesses located within Flemington will generate almost 62% of all Flemington-based primary trips on the city’s roads. Thus, new growth’s ‘fair share’ of the cost to the City to provide road improvements to serve current and future traffic cannot exceed 61.7%.

Pass-by and Diverted Trips

The impact of new growth and development on Flemington’s road network is the increased number of vehicles added to the system, expressed by transportation engineers as ‘trips’. Every ‘trip’ has two ends—a beginning at its origin and an end at its destination (known as ‘trip ends’). There are three types of trips, defined as:

A Primary Trip (and its trip ends) – a vehicle travelling from its original beginning to its intended final destination. Driving from one’s home directly to one’s place of work is an example of a primary trip.

A Pass-by Trip – a vehicle travelling along its usual route from its origin to its final destination that stops off at an intermediate location for any reason. A trip from home to work that stops along the way for gas, dropping off a child at daycare, picking up coffee or dinner, or for any other reason, represents a ‘pass-by’ trip at the intermediate location.

A Diverted Trip (previously called a diverted ‘link’ trip) – a vehicle that diverts from its normal primary trip route between its origin to its final destination, and takes a different route to stop off at an intermediate location for any reason. While a pass-by trip remains on its normal route, a diverted trip changes its route to other streets to arrive at the intermediate stop.

These different types of trips result in different types of ‘trip ends’. On a home-to-daycare-to-work trip, for instance, there are two primary trip ends (home and work) and two pass-by or diverted trip ends: arriving at the daycare center and leaving from there to drive to work.

The net impact on the road network, however, is created by the one vehicle and its two primary trip ends, as far as financial responsibility is concerned.

Impact fee calculations take note of these pass-by and diverted trip ends as not adding to the overall traffic on the road network, and deletes them from the total trip ends reported in ITE’s *Trip Generation* manual.

While Table 9 above uses overall average percentages of primary trip ends derived from ITE for broad land use categories, the actual percentage for each land use listed on the impact fee schedule for roads is applied to the total trip ends to determine the primary trip ends attributed to that particular land use.

The following sections break down trip generation by general land use category, which were summarized in the tables above.

Residential Trip Generation

Average trip generation rates published by the Institute of Transportation Engineers (ITE) differentiate between ‘single-family detached housing’ and ‘apartments’. The closest correlations with the US Census definitions are ‘single-family units’ and ‘multi-family units’, which are shown on the following table.

The 2018 breakdown of housing units by type on Table 10 are taken from the most recent Census data, discussed above under the Housing Unit section of this chapter.

Table 10: Residential Units by Type: 2018 and 2040

	2018	Increase 2018-2040	Total in 2040
Single-Family Units	286	1,288	1,574
Multi-Family Units	0	407	407
Total Residential	286	1,695	1,981


The numbers for 2040 are derived from the housing unit forecast described in that section, combining the number of potential multi-family units already approved in one of the city’s mixed-use PUDs with development anticipated on another, similarly located property.

Subtracting the anticipated increase in multi-family units from the 2040 total yields the number of projected single-family houses.

Table 11, below, calculates the amount of traffic that is generated by the city’s housing stock today, and the amount that will be generated in 2040. The calculations are made on the basis of ‘average daily traffic’ on a normal weekday, using average trip generation rates derived through multiple traffic studies (350 for single-family and 86 for apartments) published by ITE. The rates are expressed for ‘trip ends’—that is, traffic both leaving and coming to a housing unit.

Comparing traffic in 2018 to 2040, the future increase in trip ends can be calculated, which will represent 84.6% of all residential trip ends generated in the city.

Table 11: Residential Trip Generation - 2018-2040

	ADT* Trip Ends	2018 Units	2018 ADT Trip Ends	2040 Units	2040 ADT Trip Ends	Increase 2018-2040	% New Growth Trip Ends
Single-Family Units	9.52	286	2,723	1,574	14,984	12,261	 84.6%
Multi-Family Units	6.65	0	0	407	2,707	2,707	
Total Residential		286	2,723	1,981	17,691	14,968	

* Average Daily Traffic on a weekday; Institute of Transportation Engineers *Trip Generation*, 9th Edition.

Nonresidential Trip Generation

Calculating traffic generated by businesses located in Flemington is more problematical than residential trips because there is no breakdown of types of businesses in the city that is readily available. In addition, while employment forecasts have been made in terms of the number of jobs, there is no data available for floor areas, much less by detailed type of use.

The alternate is to view nonresidential traffic generation on a broad ‘average’ basis. For this, there is data available from ITE for a number of individual uses relating to the total number of trips generated per employee. These trips, of course, include not only trips taken by the employees (to/from work, lunch, etc.) but also customers and others that are attracted to the use, make delivery calls or otherwise serve it in some way.

Table 12 on the following page shows the ‘trips per employee’ for those uses for which impact fees are commonly collected and for which the data is available.

The table shows average rates by category (truck terminals are included with ‘industrial’ and drive-in banks are included with ‘retail’ uses). The last column shows the average rate for all ‘commercial’ uses listed, as opposed to the ‘industrial’ uses shown in the column on its left.

Table 12: ITE Trips-per-Employee Data

ITE Category	ITE Code	Land Use	ADT	Average	Average
			Trip Ends per Employee	by Category	All Commercial
<i>Port and Terminal</i>	30	Intermodal Truck Terminal	6.99	10.21	25.31
<i>Industrial</i>	110	General Light Industrial	3.02		
	120	General Heavy Industrial	0.82		
	140	Manufacturing	2.13		
	150	Warehousing	3.89		
	151	Mini-Warehouse	32.47		
	152	High-Cube Warehouse	22.13		
<i>Lodging</i>	310	Hotel or Conference Motel	14.34	13.58	
	320	Motel	12.81		
<i>Recreational</i>	430	Golf Course	20.52	34.79	
	443	Movie Theater	53.12		
	460	Arena	10.00		
	480	Amusement Park	8.33		
	490	Tennis Courts	66.67		
	491	Racquet/Tennis Club	45.71		
	492	Health/Fitness Center	46.71		
<i>Institutional</i>	495	Recreational Community Center	27.25	29.58	
	520	Private Elementary School	15.71		
	530	Private High School	19.74		
	560	Church/Place of Worship	26.24		
	565	Day Care Center	28.13		
<i>Medical</i>	566	Cemetery	58.09	5.26	
	610	Hospital	4.50		
	620	Nursing Home	3.26		
<i>Office</i>	630	Clinic	8.01	4.18	
	710	General Office Building	3.32		
	714	Corporate Headquarters Building	2.33		
	715	Single-Tenant Office Building	3.70		
	720	Medical-Dental Office Building	8.91		
	760	Research and Development Center	2.77		
<i>Retail</i>	770	Business Park	4.04	32.86	
	812	Building Materials & Lumber Store	32.12		
	814	Variety Store	66.70		
	815	Free-Standing Discount Store	28.84		
	816	Hardware/Paint Store	53.21		
	817	Nursery (Garden Center)	21.83		
	818	Nursery (Wholesale)	23.40		
	826	Specialty Retail Center	22.36		
	841	Automobile Sales	21.14		
	850	Supermarket	87.82		
	854	Discount Supermarket	40.36		
	860	Wholesale Market	8.21		
	861	Discount Club	32.21		
<i>Services</i>	875	Department Store	11.56		
	890	Furniture Store	12.19		
	912	Drive-in Bank	30.94		

Source: *Trip Generation*, 9th Edition, Institute of Transportation Engineers, where survey results given for key land uses.

The number of people that currently work in Flemington was calculated in a previous section of this chapter. The next table, below, provides a breakdown between commercial and industrial and utility employment in the city and calculates trip ends generated by each.

Tax base valuations give us some clue as to the breakdown (the latest published by the Georgia Department of Revenue being for calendar year 2017). When the City’s ‘industrial’ and ‘utility’ tax valuations are combined, the figures suggest that almost 86% of all uses are ‘commercial’ in nature, while about 14% are ‘industrial’ and ‘utility’ uses. These percentages, applied to total employment in Flemington, give us an estimate of the number of employees in 2018 in each category.


Using the number of employees in each land use category, the total number of trips using the average daily traffic rates for commercial and industrial from the previous table produce the number of trip ends generated by the businesses in the city. As noted above, these trips include the employees, customers and others that normally access the sites.

Table 13: Nonresidential Trip Generation - 2018

	2017 Tax Base	Percent of Total	2018 Employees	Average ADT	Total Nonres Trip Ends
Commercial	\$ 13,794,548	85.6%	507	25.31	12,832
Industrial+Utility	\$ 2,328,967	14.4%	86	10.21	878
Total Nonresidential	\$ 16,123,515		593		13,710

Lastly, the following Table 14 calculates the total number of trip ends that will be generated by new nonresidential growth in future traffic on Flemington’s roads.

Table 14: Nonresidential Trip Generation - 2018-2040

	2018 Employees	2018 Trip Ends	2040 Employees	2040 Trip Ends	2018-2040 Increase	% New Growth Trip Ends
Commercial	507	12,832	746	18,881	6,049	 32.0%
Industrial+Utility	86	878	126	1,286	408	
Total Nonresidential	593	13,710	872	20,167	6,457	

This table shows the number of trip ends generated by Flemington businesses based on 2018 employment. The trip ends by use are distributed using the same percentages calculated on the previous table. The same calculations are made for the year 2040 based on projected

employment in the city, and the difference between 2018 and 2040 represents trip ends generated by future growth and development. This totals 32% of all nonresidential 2040 trip ends. The results of the residential and nonresidential trip generation analyses are combined on Table 8 at the beginning of this Section for an overall calculation of new growth's share of future traffic generated by Flemington residents and businesses. From these figures, pass-by and diverted trip ends are deleted on Table 9 to determine primary trip ends, which more closely relates to vehicles on the road and thus contribute to traffic congestion.

Terminology

This Trip Generation Section uses the term 'average daily traffic' (ADT) for a weekday, which is defined by ITE as:

the "average weekday vehicle trip ends", which are "the average 24-hour total of all vehicle trips counted from a study site from Monday through Friday."

Additionally, ITE defines a "trip or trip end" as:

"a single or one-direction vehicle movement with either the origin or the destination (exiting or entering) inside a study site. For trip generation purposes, the total trip ends for a land use over a given period of time are the total of all trips entering plus all trips exiting a site during a designated time period".

Lastly, ITE defines "average trip rate" as:

"the weighted average of the number of vehicle trips or trip ends per unit of independent variable (for example, trip ends per occupied dwelling unit or employee) using a site's driveway(s). The weighted average rate is calculated by dividing the sum of all independent variable units where paired data is available. The weighted average rate is used rather than the average of the individual rates because of the variance within each data set or generating unit. Data sets with a large variance will over-influence the average rate if they are not weighted".

Fire Protection

■ Introduction

Fire protection is provided throughout the entire City of Flemington by the Hinesville Fire Department under a contractual service agreement between the two cities. Under the agreement, Flemington’s share of the Hinesville Fire Department’s costs is based on Flemington’s percent of the total tax base of both cities, times the cost of fire department operations. Hinesville capital costs are not included in the agreement or the cost-sharing calculations.

■ Service Area

The Hinesville Fire Department operates as a coordinated system, with each of its two stations backing up the other station. The backing up of one station by another station is not a rare event; it is the essence of good fire protection planning. It is the strategic placement of personnel and equipment that is the backbone of good fire protection. Any new station would relieve some of the demand on the other stations while also increasing service throughout the Fire Protection Service Area.

For these reasons the entire area within the cities of Hinesville and Flemington is considered a single service area for the provision of fire protection because all residents and employees within the fire service area have equal access to the benefits of the services.

■ Level of Service

Table 15: Fire Protection System Improvements

	Description	Number
Existing System Improvements		
<i>Fire Stations</i>		
Station - HQ	103 Liberty Street	1
Station		1
<i>Total Existing Stations</i>		2
<i>Fire Apparatus*</i>		
HazMat Unit		1
Fire Truck	Engine	3
Fire Truck	Ladder	1
Fire Truck	Tanker	1
Fire Truck	Service	1
Fire Truck	Rescue	3
<i>Total Existing Vehicles</i>		10

* Vehicles having a service life of 10 years or more.

The Level of Service for fire protection in the future is based on the capital improvements that currently exist.

Table 15 shows the Hinesville Fire Department’s current inventory of ‘system improvements’ (fire stations and fire apparatus having a useful life of 10 years or more).

Currently, fire protection is provided by two fire stations equipped with a total of 10 Fire Department

vehicles. None of the stations or equipment is located within Flemington. One of the stations is located in downtown Hinesville at 103 Liberty Street, and the other one is far to the west at 640 Airport Road.

The Level of Service for fire protection throughout the Hinesville/Flemington Fire Protection Service Area is measured in terms of the number of fire apparatus and fire stations per day-night population. Day-night population is used as a measure in that fire protection is a 24-hour service provided continuously to both residences and businesses throughout the fire service area, as discussed in the Forecasts chapter of this report.

Table 16: Level of Service Calculations

Facility	Service Population	Level of Service
Existing Stations	2018 Day-Night Population	Stations per 2018 Day-Night Pop
2	39,028	0.000051
Existing Vehicles	2018 Day-Night Population	Vehicles per 2018 Day-Night Pop
10	39,028	0.000256

Table 16 presents the calculation of the Level of Service (LOS) for the Hinesville Fire Department’s current inventory of stations and vehicles based on the 2018 population and employment figures for the Fire Protection Service Area (Hinesville and Flemington), taken from Table 7.

■ Forecasts for the Service Area

Future Demand

The Level of Service standards from Table 16 are multiplied by the forecasted day-night population increases to produce the expected future demand in Table 17. The ‘day-night population increase’ figures are taken from Table 7.

Following the format of Table 16, Table 17 calculates the demand for future facilities to serve new growth and development projecting forward the ‘current’ LOS into the future.

Table 17: Future Demand Calculation

Level of Service	Future Population	New Growth Demand
Stations per 2018 Day-Night Pop	Day-Night Population Increase (2018-40)	Net New Stations Demanded
0.000051	12,299	1.00
Vehicles per 2018 Day-Night Pop	Day-Night Population Increase (2018-40)	Net New Vehicles Demanded*
0.000256	12,299	3.1513

* Only 3 vehicles would be added to the inventory, all of which will be 100% eligible for impact fee funding.

One additional fire station is justified and proposed to provide full service in the Fire Protection Service Area in the future, as well as several more fire trucks. This would not only serve new growth but also be instrumental in maintaining and possibly improving the ISO rating for all the residents and businesses of the two cities, now and in the future.

Note that, because only ‘whole’ vehicles can be purchased, only 3 new vehicles would need to be added to the inventory (slightly fewer than are ‘technically’ demanded by new growth). Thus, since only 3 new vehicles need to be acquired to cover expansion of the fleet to meet the needs of future growth and development, all of the vehicles would be 100% impact fee eligible.

Future Costs

This section examines both the total cost of the increased number of fire stations and fire apparatus needed to provide the proposed fire protection system of the future, and the extent to which these costs are impact fee-eligible.

The facility and fire apparatus system improvements on Table 18, below, are based on the desire to increase fire protection services in a balanced way to continue to appropriately serve all residents and businesses in the Fire Protection Service Area in 2040. The proposed system improvements are listed on Table 18, and are ‘scheduled’ for construction or acquisition in the appropriate years (in order to enable Net Present Value calculations based on the 2018 cost estimates shown).

It is assumed that two fire trucks will be acquired in conjunction with construction of the new fire station (anticipated to occur in 2029) and a third engine will be needed in 2034 as growth in the Fire Protection Service Area continues to add residents and businesses.

Table 18: Future System Improvement Costs

Year	Fire Stations			Vehicles		
	Facility	Number	2018 Cost*	Type	Number	2018 Cost**
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020						
2020						
2020						
2021						
2022						
2023						
2024						
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
2028	-	-	-	-	-	-
2029	New Station	1	\$ 1,401,200	-	-	-
2029	-	-	-	Engine	1	\$ 350,000
2029	-	-	-	Engine	1	\$ 350,000
2030	-	-	-	-	-	-
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	-	-	-	-	-	-
2034	-	-	-	Engine	1	\$ 350,000
2035	-	-	-	-	-	-
2036	-	-	-	-	-	-
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-

* Facility cost is based on a 3,400 square foot 2-double bay building at \$412.11 per sf for site work, construction, design and furnishings, rounded. (Source: Average per square foot cost of 3 similar stations from *Green Building Square Foot Costbook*, 2017 and 2018 editions, BNI Publications, Inc.).

** Vehicle cost is estimated using current prevailing rates for similar vehicles.

Estimated improvement costs (in 2018 dollars) are based on the following:

- For new facility space: Recent construction costs averaging \$412.11 per square foot in other communities are used, which is all inclusive of a complete facility from site work to furnishings.
- For fire apparatus: Estimates are based on prevailing costs of similar vehicles.

The total cost figures from Table 18 are then converted to ‘impact fee eligible’ costs (in 2018 dollars) based on the percentage that each improvement is impact fee eligible. As noted above, all of the fire trucks are 100% eligible under the adopted LOS, as well as the new fire station. These calculations are shown on Table 19.

Table 19: Impact Fee Cost Calculations

Year	Costs in 2018 Dollars					Net Present Value**
	Fire Station Costs	% Impact Fee Eligible*	Vehicle Costs	% Impact Fee Eligible	Total Impact Fee Eligible	
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	-	-	-	-	-	-
2020	-	-	-	-	-	-
2020	-	-	-	-	-	-
2021	-	-	-	-	-	-
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
2028	-	-	-	-	-	-
2029	\$ 1,401,200.00	100.0%	-	-	\$ 1,401,200.00	\$ 1,628,440.03
2029	-	-	\$ 350,000.00	100.0%	\$ 350,000.00	\$ 408,059.39
2029	-	-	\$ 350,000.00	100.0%	\$ 350,000.00	\$ 408,059.39
2030	-	-	-	-	-	-
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	-	-	-	-	-	-
2034	-	-	\$ 350,000.00	100.0%	\$ 350,000.00	\$ 438,976.20
2035	-	-	-	-	-	-
2036	-	-	-	-	-	-
2037	-	-	-	-	-	-
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-
	\$ 1,401,200.00		\$ 1,050,000.00		\$ 2,451,200.00	\$ 2,883,535.01

* Eligibility percentage reflects the application of funding from alternate, non-impact fee sources.

** Net Present Value = 2018 cost estimate for fire stations inflated to target year using the ENR Building Cost Index (BCI), and the Consumer Price Index (CPI) for vehicles. Expenditures after 2018 reduced to 2018 NPV using the

The Net Present Value of the cost estimate for the new fire station is calculated by increasing the current (2018) estimated construction cost using the Engineering News Record’s 10-year average Building Cost Inflation (BCI) rate, and then discounting this future amount back using the Net Discount Rate. For non-construction improvements (fire vehicles), the currently estimated costs are inflated to their target years using the 10-year average CPI and then reduced using the Net Discount Rate to produce the Net Present Value. (The approaches to calculating NPV are explained in detail in the Cost Adjustments chapter of this report.)

Fire protection impact fees collected by Flemington will be held in escrow and applied toward construction of the third fire station and three engines to meet the future demand shown on Table 17

Law Enforcement

■ Introduction

Flemington provides for law enforcement throughout the city through the employment of a patrol officer that is provided through a contract with the Liberty County Sheriff’s Department. The City provides the officer with a vehicle and a uniform with a Flemington patch.

■ Service Area

The city is considered a single service area for the provision of primary law enforcement services because all residents and employees in the city have equal access to the benefits of the program.

■ Level of Service

Table 20 presents two calculations of the Level of Service (LOS), one based on the current number of officers employed by the City (1) and a second LOS based on the number of patrol officers employed by the City of Hinesville for comparison. Day-night population is used as a measure in that law enforcement services are provided to both residences and businesses in the service area.

Table 20: Current Level of Service Calculations

Facility	Service Population	Level of Service
Existing Flemington Patrol Officers	2018 Day-Night Population	Flemington Officers per 2018 Day-Night Population
1	1,316	0.000760
Existing Hinesville Patrol Officers*	2018 Day-Night Population	Hinesville Officers per 2018 Day-Night Population
68	39,028	0.001742

* Patrol Division only. Excludes all other Police Department employees.

The first LOS calculation on Table 20 is based on the current officer and the current day-night population in the city. The second LOS reflects the number of patrol officers in Hinesville and Hinesville’s current day-night population. Note that only the officers in Hinesville’s patrol division are considered—no administrators, detectives or other Police Department employees are included.

Flemington does not provide a ‘police headquarters’ or any other space devoted exclusively to law enforcement activities.

■ Forecasts for Service Area

Future Demand

Applying the LOS based on Flemington’s current officer serving the city’s current day-night population, future growth and development would require an additional 3 officers by 2040. However, as the city grows in population, number of businesses and complexity, it may be more appropriate to apply the Hinesville LOS to Flemington’s future increase in day-night population. Under that scenario, an additional 8 officers would be justified, for a total of 9 covering all three shifts.

Table 21: Future Demand Calculation

Level of Service	Future Population	New Growth Demand
Flemington Officers per 2018 Day-Night Population	Day-Night Population Increase (2018-40)	Total New Officers for New Growth
0.000760	4,432	3.00
Hinesville Officers per 2018 Day-Night Population	Day-Night Population Increase (2018-40)	Total New Officers for New Growth
0.001742	4,432	7.72
Existing Flemington Patrol Officers	Future Flemington Patrol Officers	Percent New Officers
1	9	88.89%

Whether the City has 4 or 9 officers under contract, their salaries, vehicles, and uniforms would not be impact fee eligible. Personnel costs and equipment having a life of less than 10 years is disallowed under Georgia’s impact fee law. However, a building or floor area in a building dedicated to law enforcement activities would be eligible.

Future Cost

The future cost to provide the improvement needed to serve new growth to 2040 is shown in Table 22, which also indicates the year in which the system improvement project is anticipated. The project envisions a basic two-room space with a 12 x 20 square foot private office and a 20 x 20 square foot entry, assembly and storage space, for a total of 640 square feet. This space would provide adequate working area for future officers whether 4 or 9 in number working three full-time shifts.

Table 22: Future System Improvement Costs

Year	Facility	Costs in 2018 Dollars				Net Present Value
		Square Feet	Total Cost*	% Impact Fee Eligible	Total Impact Fee Eligible	
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						
2028						
2029	Patrol Headquarters	640	\$263,750.40	88.89%	\$ 234,444.80	\$ 272,465.96
2030						
2031						
2032						
2033						
2034						
2035						
2036						
2037						
2038						
2039						
2040						
		640	\$263,750.40		\$ 234,444.80	\$ 272,465.96

* Based on per square foot cost of new fire station.

The estimated improvement cost (in 2018 dollars) is based on a construction cost averaging \$412.11 per square foot, which is all inclusive of a complete facility from site work to furnishings. This could be a stand-alone building, an extension to City Hall, or a part of a fire station.

The percentage that would be impact fee eligible is based on the 9-member alternate force reflecting the Hinesville LOS—the eight additional officers would then reflect 88.89% of the total 2040 force. This percentage is applied to the cost of the new space on Table 22 to determine the amount that could be collected in an impact fee program. In turn, the amount that is impact fee eligible (in 2018 dollars) is converted to Net Present Value in the last column.

The Net Present Value of the cost estimate for the space is calculated by increasing the current (2018) estimated construction cost using the Engineering News Record's 10-year average building cost inflation (BCI) rate, and then discounting this future amount back to 2018 dollars using the Net Discount Rate. (The approach to calculating NPV is explained in detail in the Cost Adjustments chapter of this report.)

Road Improvements

■ Introduction

Flemington contains a number of local streets and collectors that directly serve abutting properties, subdivisions and other land use projects, and establish a network on to which most future developments will connect. Other than US 84, which traverses the city from its southern city limits to the City of Hinesville on the west, all of the other streets are the responsibility of the City of Flemington.

As discussed below, the City has no road improvements currently scheduled for improvement that would increase traffic capacity and involve Flemington funding, and thus would be impact fee eligible. However, considering the enormous amount of traffic projected to be generated by new growth and development by 2040, the City intends to conduct a study of the traffic impact on its roads to determine what improvements would be needed to accommodate future traffic demands.

This chapter, therefore, establishes Level of Service standards that would guide such a traffic study and plan, and would be applied to identified future improvement projects.

■ Service Area

The service area for road projects is defined as the entire city, in that road projects are recognized as providing primary access to all properties within the city as part of the citywide network of streets and thoroughfares. All new development within the city will be served by this citywide network, either directly or as its traffic percolates through the city, such that improvements to any part of this network to relieve congestion or to otherwise improve capacity will positively affect capacity and reduce congestion throughout the city. Streets constructed within any part of a new development in the city are, of course, ‘project improvements’ and are the total responsibility of the developer.

■ Level of Service Standards

Two types of Level of Service standards are established for road improvements: one for the design of roadways at a designated operational level, and one for the actual accommodation of traffic to be generated by new growth and development. The latter standard allows the cost of improvements to the road system to be equitably allocated between improvements that accrue to existing traffic today and improvements that will accommodate traffic generated by future growth and development.

Operational Design Standards

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

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

The traffic volume that produces different Level of Service grades differs according to road type, size, signalization, topography, condition and access.

The City has set its Level of Service for road improvements at LOS ‘D’, a level to which it will strive ultimately. However, interim road improvement projects that do not result in a LOS of ‘D’ will still provide traffic relief to current and future traffic alike and are thus eligible for impact fee funding.

Accommodating Future Traffic

Regardless of the design of roads in the system, the system must address the future traffic demands that will be created by new growth and development.

All road improvement projects benefit existing and future traffic proportionally to the extent that relief from over-capacity conditions eases traffic problems for everyone. For example, since new growth by 2040 will represent a certain portion of all 2040 traffic, new growth would be responsible for that portion’s cost of all road improvements in the system that create new

capacity. This approach recognizes that some improvements to the road system do not create new capacity—such as resurfacing, road maintenance, bridge replacements with the same number of lanes, etc., while some road projects that do create new capacity may also involve resurfacing of the existing lanes or other non-capacity improvements.

■ Forecasts for Service Area

For the record, there are a number of road improvement projects in and serving Flemington included in the Hinesville Area Metropolitan Transportation Plan, prepared by the Liberty Consolidated Planning Commission for the Hinesville Area MPO, and in the City’s own current Capital Improvements List; these are shown on Table 23.

Table 23: Current Road Projects and Estimated Costs

Project Description	From	To	Description	Total Cost	Cost to City
Hinesville Area Metropolitan Transportation Plan					
Flemington Curve	Old Sunburry Road	Old Hines Road	Safety, Access Control - 4 lan	\$ 2,920,000	\$ -
Flemington Loop	US 84	Fort Stewart Rd 47	New Construction - 2 lanes	\$ 13,170,000	\$ -
WAAF Access Road	Old Hines/Flem Loop	Midcoast Reg. Airport	New Construction - 2 lanes	\$ 17,290,000	\$ -
Ft Stewart Rd 47	Flemington Loop	SR 144	4 lanes	\$ 19,080,000	\$ -
Oglethorpe Hwy/US 84	Brights Lake Road	John Martin	Safety, Access Control - 4 lan	\$ 1,320,000	\$ -
Oglethorpe Hwy/US 84	John Martin Road	Spires Drive	Safety, Access Control - 4 lan	\$ 1,500,000	\$ -
Oglethorpe Hwy/US 84	Spires Drive	Old Hines Road	Safety, Access Control - 4 lan	\$ 1,920,000	\$ -
Oglethorpe Hwy/US 84	Old Hines Road	General Stewart Way	Safety, Access Control - 4 lan	\$ 510,000	\$ -
Flemington Capital Improvements List					
Wallace Martin Road	SR 38/US 84	Josesph Martin Rd	Overlay 4,425 LF w/12.5 mm asphalt	\$ 191,331	\$ 191,331
Joseph Martin Road	Old Sunburry Rd	Tanglewood Dr	Overlay 2,825 LF w/9.5 mm asphalt	\$ 107,993	\$ 107,993
Patriots Trail	SR 38/US 84	Mary Lou Fraser Rd	Mill & Inlay & Underdrain 3,000 LF of Roadway	\$ 258,940	\$ 258,940
Kallquist Drive	Old Savannah Rd	Dead End	Pave existing road w/1.5" asphalt & ditches	\$ 243,089	\$ 243,089
Old Sunburry Road	SR 38/US 84	FS Boundary	Install 5' wide concrete sidewalk	\$ 582,435	\$ 582,435
Coates Road	Wallace Martin Rd	Elem School	Overlay 800 LF w/9.5 mm asphalt	\$ 31,611	\$ 31,611
Old Hines Road	O.C. Martin Jr Dr	Loop Road	Pave Old Hines Road from intersection of O.C. Martin Jr. Drive to proposed Flemington	\$ 243,089	\$ 243,089
John Mann Road	SR 38/US 84	Dead End	Pave existing road w/1.5" asphalt & ditches	\$ 248,065	\$ 248,065
Old Sunburry Road	SR 38/US 84	FS Boundary	Overlay 6,050 LF w/12.5 mm asphalt	\$ 256,739	\$ 256,739
Joseph Martin Road	Old Sunburry	Rd Tanglewood Dr	Install 5' wide concrete sidewalk	\$ 131,527	\$ 131,527
City Hall Parking Lot	N/A	N/A	Add 12 parking spaces	\$ 42,438	\$ 42,438
Shawn Court	E. Daryl Dr	Dead End	Mill & Inlay 1.5"	\$ 8,629	\$ 8,629
				\$ 60,055,886	\$ 2,345,886

Note: All cost figures rounded to the nearest whole dollar.

None of the projects, however, as needed and beneficial as they will be, involve local funding by Flemington or create additional capacity. As such, they are not eligible for impact fee collections by the City.

It is noted that the cost-impact of non-Flemington generated traffic on the roads traversing the city (cross commutes) is off-set by state and federal assistance to some extent, at least with regard to US 84. Old Sunbury Road, however, which connects US 84 to the southern entrance to Ft. Stewart, is a city street but carries a large number of cross-commutes that needs to be quantified for State assistance compared to local city traffic on the road.

■ Eligible Costs

As discussed in the Forecasts chapter of this report, over the coming 22 years Flemington is expected to increase its number of housing units from almost 300 today to almost 2,000 by 2040 – over 240 of which are currently under construction and a potential 361 more are already zoned. Overall, the day-night population is projected to increase from 1,316 to 4,432, increasing primary trips on the city’s roads from 9,488 to 24,765 on an average weekday (an increase of 15,277 primary trips).

Thus, new residential and nonresidential growth and development will represent 61.67% of the locally generated traffic on Flemington’s road network in 2040. This percentage represents new growth’s portion of system improvements that create the capacity needed to serve it, while the remaining 38.33% represents that portion of those projects that do not create new capacity, such as resurfacing, road maintenance, lane replacements during bridge widenings, and so forth.

Considering the unprecedented growth that the City potentially faces, a Traffic Improvements Study and Plan is proposed that will address all of the road system improvements needed to fully serve new growth and development in 2040. The study will determine the projected traffic on each of the roads and intersections for which the City is responsible, and the type and cost of improvements to meet the City’s adopted LOS. This will establish specific improvements to be undertaken, and the portion that will be needed to handle new growth and development.

Table 24: Eligible Cost Calculations

Project	Total Cost	% Impact Fee Eligible	Net Present Value
City Traffic Improvements Study & Plan	\$ 20,000.00	61.7%	\$ 12,337.52

The cost of the study is eligible for impact fee funding at the same percentage that future traffic represents compared to total local traffic since the study will focus on accommodating all future traffic, both existing now and projected from new growth and development in the future.

■ Five-Year Community Work Program

The following impact fee funded project is excerpted from this Capital Improvements Element and amends the Community Work Program contained in the Flemington portion of the Comprehensive Plan.

Category	Action/Implementation Strategy	2019	2020	2021	2022	2023	Responsible Party	Cost Estimate	Funding Source
Transportation	Prepare City Traffic Improvements Study and Plan.	✓	✓				Liberty Consolidated Planning Commission	\$20,000	61.7% impact fees; 38.3% General Fund

Glossary

The following terms are used in the Impact Fee Methodology Report. Where possible, the definitions are taken directly from the Development Impact Fee Act.

Capital improvement: an improvement with a useful life of ten years or more, by new construction or other action, which increases the service capacity of a public facility.

Capital improvements element: a component of a comprehensive plan adopted pursuant to Chapter 70 of the Development Impact Fee Act which sets out projected needs for system improvements during a planning horizon established in the comprehensive plan, a schedule of capital improvements that will meet the anticipated need for system improvements, and a description of anticipated funding sources for each required improvement.

Development: any construction or expansion of a building, structure, or use, any change in use of a building or structure, or any change in the use of land, any of which creates additional demand and need for public facilities.

Development impact fee: a payment of money imposed upon development as a condition of development approval to pay for a proportionate share of the cost of system improvements needed to serve new growth and development.

Eligible facilities: capital improvements in one of the following categories:

(A) Water supply production, treatment, and distribution facilities;

(B) Waste-water collection, treatment, and disposal facilities;

(C) Roads, streets, and bridges, including rights of way, traffic signals, landscaping, and any local components of state or federal highways;

(D) Storm-water collection, retention, detention, treatment, and disposal facilities, flood control facilities, and bank and shore protection and enhancement improvements;

(E) Parks, open space, and recreation areas and related facilities;

(F) Public safety facilities, including police, fire, emergency medical, and rescue facilities; and

(G) Libraries and related facilities.

Impact Cost: the proportionate share of capital improvements costs to provide service to new growth, less any applicable credits.

Impact Fee: the impact cost plus surcharges for program administration and recoupment of the cost to prepare the Capital Improvements Element.

Level of Service: a measure of the relationship between service capacity and service demand for public facilities in terms of demand to capacity ratios or the comfort and convenience of use or service of public facilities or both.

Project improvements: site improvements and facilities that are planned and designed to provide service for a particular development project and that are necessary for the use and convenience of the occupants or users of the project and are not system improvements. The character of the improvement shall control a determination of whether an improvement is a project improvement or system improvement and the physical location of the improvement on site or off site shall not be considered determinative of whether an improvement is a project improvement or a system improvement. If an improvement or facility provides or will provide more than incidental service or facilities capacity to persons other than users or occupants of a particular project, the improvement or facility is a system improvement and shall not be considered a project improvement. No improvement or facility included in a plan for public facilities approved by the governing body of the municipality or county shall be considered a project improvement.

Proportionate share: means that portion of the cost of system improvements which is reasonably related to the service demands and needs of the project.

Rational Nexus: the clear and fair relationship between fees charged and services provided.

Service area: a geographic area defined by a municipality, county, or intergovernmental agreement 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.

System improvement costs: costs incurred to provide additional public facilities capacity needed to serve new growth and development for planning, design and engineering related thereto, including the cost of constructing or reconstructing system improvements or facility expansions, including but not limited to the construction contract price, surveying and engineering fees, related land acquisition costs (including land purchases, court awards and costs, attorneys' fees, and expert witness fees), and expenses incurred for qualified staff or any qualified engineer, planner, architect, landscape architect, or financial consultant for preparing or updating the capital improvement element, and administrative costs, provided that such administrative costs shall not exceed 3 percent of the total amount of the costs. Projected interest charges and other finance costs may be included if the impact fees are to be used for the payment of principal and interest on bonds, notes, or other financial obligations issued by or on behalf of the municipality or county to finance the capital improvements element but such costs do not include routine and periodic maintenance expenditures, personnel training, and other operating costs.

System improvements: capital improvements that are public facilities and are designed to provide service to the community at large, in contrast to 'project improvements'.