City of McDonough
State of Georgia

Resolution No. 18-12-10 (B)

A RESOLUTION AUTHORIZING THE TRANSMITTAL OF A DRAFT CAPITAL IMPROVEMENTS ELEMENT AMENDMENT TO THE ATLANTA REGIONAL COMMISSION FOR REGIONAL AND STATE REVIEW

WHEREAS, the City of McDonough previously adopted a Capital Improvements Element IN 2003; and

WHEREAS, the City of McDonough has drafted a Capital Improvements Element amendment, which incorporates an impact fee financial report for FY 2018 along with an updated Community Work Program; and

WHEREAS, the draft Capital Improvements Element amendment was prepared in accordance with the "Development Impact Fee Compliance Requirements" and the "Minimum Planning Standards and Procedures for Local Comprehensive Planning" adopted by the Board of Community Affairs pursuant to the Georgia Planning Act of 1989, and a duly advertised Public Hearing was held on December 10, 2018, at 6:00 p.m. in the City of McDonough City Hall, 136 Keys Ferry Street, McDonough, Georgia;

BE IT HEREBY RESOLVED that the Mayor and Council does authorize the transmittal of the draft Capital Improvements Element amendment to the Atlanta Regional Commission for Regional and State review, as per the requirements of the Development Impact Fee Compliance Requirements adopted pursuant to the Georgia Planning Act of 1989.

ADOPTED this 10th day of December, 2018

Billy Copeland, Mayor

Attest:

Janis Price, City Clerk

Capital Improvements Element

City of McDonough Impact Fee Program

Including the following public facility categories:

Fire Protection

Law Enforcement

Parks and Recreation

Draft: December 10, 2018

ROSS+associates

urban planning & plan implementation

in association with **HatleyPlans LLC**

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Introduction

Purpose

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 parks & recreation 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 named categories of "public safety" (i.e., fire protection and law enforcement) and "parks, open space, and recreation areas and related facilities". 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.

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 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.

■ 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, McDonough is updating its impact fees for parks and public safety facilities (fire protection and law enforcement). The sections in this Methodology Report provide population and employment forecasts and detailed information regarding the inventory of current facilities, the level of service, 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 Enforcment	Parks and Recreation
Eligible Facilities	Fire stations and fire apparatus (vehicles)	Occupied facility space, support vehicles, emergency power systems	Park acres, recreation components and trails
Service Area	Citywide	Citywide	Citywide
Level of Service Standard Based on ...	Square footage and number of vehicles per day/night population	Square footage, number of vehicles and emergency power systems per day/night population	Number of acres, components and trails per dwelling unit
Historic Funding Source(s)	Impact Fees and General Fund	Impact Fees and General Fund	Impact Fees and General Fund

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 system.

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.

■ Editorial Conventions

This report observes the following conventions:

The capitalized word 'City' applies to the government of McDonough, 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 McDonough, 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

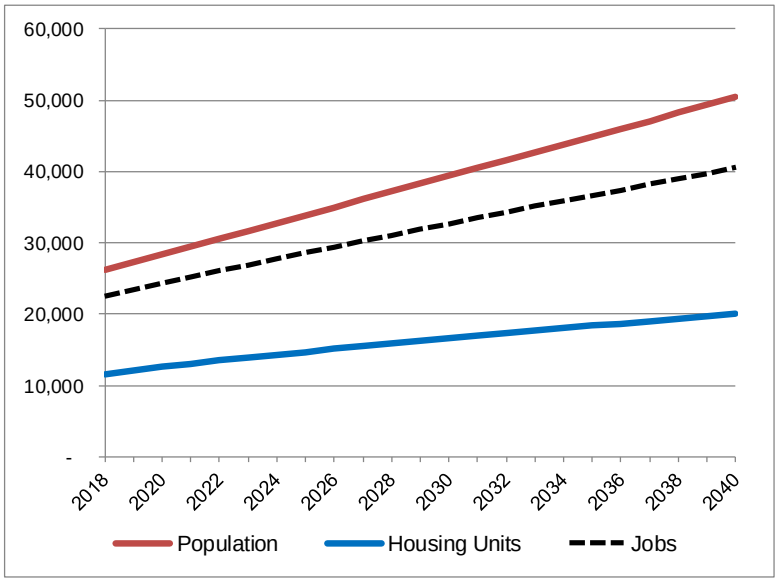
Future Growth

Continuing past trends, McDonough is expected to grow at a steady pace with regard to population and housing. Over the coming twenty plus years, the city is expected to almost double its number of residents, increasing by more than 92% over 2018. Housing to meet the demands of these new families and individuals are forecast to add almost 8,500 units.

Employment in McDonough is also expected to grow notably, attracting over 18,000 new 'value added' jobs by 2040 (an 80% increase).

Forecasts of Future Growth

Year	Population	Housing Units	Jobs
2018	26,168	11,623	22,545
2019	27,269	12,098	23,426
2020	28,371	12,565	24,305
2021	29,473	13,022	25,180
2022	30,575	13,462	26,042
2023	31,677	13,887	26,895
2024	32,778	14,302	27,741
2025	33,880	14,707	28,582
2026	34,982	15,104	29,418
2027	36,084	15,496	30,251
2028	37,186	15,880	31,078
2029	38,287	16,254	31,894
2030	39,389	16,620	32,703
2031	40,491	16,978	33,504
2032	41,593	17,331	34,298
2033	42,695	17,675	35,084
2034	43,796	18,015	35,863
2035	44,898	18,348	36,636
2036	46,000	18,682	37,411
2037	47,102	19,023	38,193
2038	48,204	19,369	38,982
2039	49,305	19,718	39,775
2040	50,407	20,075	40,574



	Population	Housing Units	Jobs
2018	26,168	11,623	22,545
2040	50,407	20,075	40,574
Increase	24,239	8,452	18,030
Percent	92.6%	72.7%	80.0%

The Appendix to this report details the forecasting methodologies used for the city. The following is a summary of those forecasts.

■ Population and Housing Unit Forecasts

Table 1 presents the forecasts for population for each year from 2018 to 2040 and provides the forecasts for housing units over the same period.

Table 1: Population, Housing Unit and Employment Forecasts

Year	McDonough Population	McDonough Households	Housing Units	McDonough Jobs*
2018	26,168	10,552	11,623	22,545
2019	27,269	11,013	12,098	23,426
2020	28,371	11,468	12,565	24,305
2021	29,473	11,917	13,022	25,180
2022	30,575	12,352	13,462	26,042
2023	31,677	12,776	13,887	26,895
2024	32,778	13,192	14,302	27,741
2025	33,880	13,601	14,707	28,582
2026	34,982	14,005	15,104	29,418
2027	36,084	14,406	15,496	30,251
2028	37,186	14,801	15,880	31,078
2029	38,287	15,189	16,254	31,894
2030	39,389	15,571	16,620	32,703
2031	40,491	15,948	16,978	33,504
2032	41,593	16,321	17,331	34,298
2033	42,695	16,688	17,675	35,084
2034	43,796	17,052	18,015	35,863
2035	44,898	17,412	18,348	36,636
2036	46,000	17,774	18,682	37,411
2037	47,102	18,144	19,023	38,193
2038	48,204	18,521	19,369	38,982
2039	49,305	18,903	19,718	39,775
2040	50,407	19,293	20,075	40,574
Increase: 2018-2040	**24,239**	**8,741**	**8,452**	**18,030**

* "Value-Added" jobs exclude Transitory and non-site specific jobs such as farm, forestry and (see Appendix).

The figures shown on Table 1 are, in essence, mid-year estimates reflecting Census Bureau practice. In other words, the increase in population between 2018 and 2040 would actually be from July 1, 2018 to July 1, 2040.

For a more detailed description of the methodologies used in preparing the population, household and housing unit forecasts (as well as the employment forecasts), see the Appendix to this report.

■ Employment Forecasts

Table 1 also shows the forecasts for employment growth in McDonough, from 2018 to 2040. The employment figures for McDonough are based on the city's proportional share of total county employment in 2010. This forecast method is used in that it is expected that McDonough will continue to be the major center of employment in the county into the future.

In Table 1 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. 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.

■ Service Area Projections

In Table 2 the service area forecasts are presented for a single citywide service area measured in two ways: citywide housing units and citywide day-night population.

Table 2: Service Area Forecasts

Year	Housing Units (Parks)	Day-Night Population (Fire, Police)
2018	11,623	48,713
2019	12,098	50,695
2020	12,565	52,676
2021	13,022	54,653
2022	13,462	56,617
2023	13,887	58,572
2024	14,302	60,519
2025	14,707	62,462
2026	15,104	64,400
2027	15,496	66,335
2028	15,880	68,264
2029	16,254	70,181
2030	16,620	72,092
2031	16,978	73,995
2032	17,331	75,891
2033	17,675	77,779
2034	18,015	79,659
2035	18,348	81,534
2036	18,682	83,411
2037	19,023	85,295
2038	19,369	87,186
2039	19,718	89,080
2040	20,075	90,981
Increase: 2018-2040	**8,452**	**42,269**

Day-Night population is the combination of residents and "value added" employment.

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

Fire Protection

Introduction

Fire protection is provided by the City of McDonough Fire Department throughout the entire city. The capital value of fire protection is based upon fire stations, administrative office space, and fire apparatus. Currently, fire protection is provided by facilities with a combined square footage of 19,288 utilizing a total of 16 vehicles. Administrative functions occupy space within the City's fire stations. Table 3 shows the Department's current inventory of 'system improvements' (buildings and vehicles having a useful life of 10 years or more).

Table 3: Inventory of Fire Protection System Facilities

Description	Square Feet	# Vehicles
Buildings		
Fire Station 51/HQ	9,384	
Fire Station 52	7,786	
Public Safety Storage Building*	2,118	
Total Existing Floor Area	**19,288**	
Fire Apparatus*		
Pumper Truck		3
Ladder Truck		2
Brush Truck		2
Total Fire Apparatus		**7**
Support Vehicles*		
Administrative/Command Vehicles		7
Light Utility/Rescue Vehicles		2
Total Fire Apparatus		**9**

* Storage building (on Lawrenceville St.) is used by the Fire and Police Departments. The square footage represents the portion used by the Fire Department.

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

Service Area

The Fire Department operates as a coordinated system, with each station backing up the other stations in the system. The backing up of another station is not a rare event; it is the essence of good fire protection planning. All stations do not serve the same types of land uses, nor do they all have the same apparatus. It is the strategic placement of personnel and equipment that is the backbone of good fire protection. Any new station would relieve some of the demand on the other stations. Since the stations would continue to operate as 'backups' to the other stations, everyone in the city would benefit by the construction of the new station since it would reduce the 'backup' times the station nearest to them would be less available. For these reasons the entire city is considered a single service area for the provision of fire protection because all residents and employees within this area have equal access to the benefits of the program.

Level of Service

The level of service for fire protection in McDonough is measured in terms of number of Fire Department vehicles and the number of square feet of fire station/administrative/storage space per day-night population in the service area. Day-night population is used as a measure in that fire protection is a 24-hour service provided continuously to both residences and businesses in the service area.

Table 4: Level of Service Calculations: Current and Future

Facility	Service Population	Level of Service
Existing Square Feet	**2018 Day/Night Population**	**Square Feet per 2018 Day/Night Population**
19,288	48,713	0.395956
Existing Fire Apparatus	**2018 Day/Night Population**	**Apparatus per 2018 Day/Night Population**
7	48,713	0.000144
Existing Support Vehicles	**2018 Day/Night Population**	**Vehicles per 2018 Day/Night Population**
9	48,713	0.000185

Table 4 presents the calculation of the Level of Service (LOS) for the current inventory of facilities and vehicles and establishes the basis for future system improvements as proposed to serve the city over the next 22 years and to maintain the City's excellent ISO rating.

Forecasts for Service Area

Future Demand

The applicable Level of Service standards from Table 4 are multiplied by the forecasted day/night population increases to produce the expected future demand in Table 5. The 'day/night population increase' figures are taken from Table 2. Following the format of Table 4, Table 5 calculates the demand for future facilities to serve new growth and development for both the 'current' LOS and for the system as proposed for the future.

Table 5: Future Demand Calculation

Level of Service	Future Population	New Growth Demand
Square Feet per 2018 Day/Night Population	**Day/Night Population Increase (2018-40)**	**Net New Square Feet Demanded**
0.3960	42,269	16,736
Apparatus per 2018 Day/Night Population	**Day/Night Population Increase (2018-40)**	**Net New Fire Apparatus Demanded***
0.000144	42,269	6.07
Vehicles per 2018 Day/Night Population	**Day/Night Population Increase (2018-40)**	**Net New Support Vehicles Demanded***
0.000185	42,269	7.81

* 6 fire apparatus and 7 support vehicles will be added to the inventory. All vehicles will be 100% impact fee eligible.

A total of 16,736 square feet of new space is proposed to provide full service in the city in the future, while maintaining and possibly improving the city's ISO rating for all its residents and businesses now and in the future.

Note that, because only 'whole' vehicles can be purchased, only 6 new fire apparatus and 7 support vehicles would need to be added to the inventory (slightly less than are 'technically' demanded by new growth—whether to meet the current LOS calculations or to meet the demands for the future system). Thus, since these 13 total 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 facility floor area and number of fire vehicles needed to provide the proposed fire system of the future, and the extent to which these costs are impact fee-eligible.

Table 6: Future System Improvement Costs

Year	Facility	Square Feet	2018 Cost*	Type	Number	2018 Cost**
2019	Storage Building Expansion	948	$ 22,000	Brush	1	$ 200,000
		-	-	Command	2	$ 192,000
		-	-	Rescue ATV	1	$ 19,200
2020	Station 53	11,375	$ 3,619,318	Ladder	1	$ 850,000
		-	-	Pumper	1	$ 350,000
		-	-	Brush	1	$ 200,000
2021		-	-		-	
2022		-	-		-	-
2023		-	-	Administrative	1	$ 32,700
2024		-	-		-	-
2025		-	-		-	-
2026		-	-		-	-
2027		-	-		-	-
2028		-	-		-	-
2029		-	-		-	-
2030	Future Station	4,413	$ 1,404,136	Pumper	1	$ 350,000
		-	-	Ladder	1	$ 850,000
		-	-	Command	1	$ 96,000
2031		-	-		-	-
2032		-	-		-	-
2033		-	-		-	-
2034		-	-	Administrative	1	$ 32,700
2035		-	-		-	-
2036		-	-		-	-
2037		-	-		-	-
2038		-	-		-	-
2039		-	-		-	-
2040		-	-	Administrative	1	$ 32,700
Totals		**16,736**	**$ 5,045,455**		**13**	**$ 3,205,300**

* Facility cost estimates based on information provided by the City of McDonough Fire Department.
** Vehicle costs are estimated using current prevailing rates for similar vehicles equipped to City specifications.

The facility and fire vehicle system improvements on Table 6 are based on the City's desire to increase fire protection services in a balanced way to appropriately serve all residents and businesses in the city in 2040. The proposed system improvements 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).

Proposed square footage is to be located in two new stations and expansion of an equipment storage facility. Fire apparatus proposed for acquisition include pumper, ladder, and brush trucks. Fire support vehicles include Rescue ATVs and command and administrative vehicles.

Costs for Station 53 and Storage Building Expansion are proportional; space will be occupied by both the Fire and Police Departments. The cost estimates for these facilities on Table 6 represent the 'Fire Protection share' of the total project costs, which is based on the percentage of square footage allocated for Fire Protection services.

The Fire Department will occupy approximately 65% of the new 17,500 sf fire station, and approximately 30% of the 3,160 sf storage building will be utilized by the department for fire vehicles and equipment. The remaining space will be used as a small police precinct and to house police vehicles, respectively.

Estimated improvement costs (in 2018 dollars) for facility space and vehicles are based on costs provided by the Fire Department. The total cost figures from Table 6 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 vehicles are 100% eligible under the adopted LOS. In addition, all of 16,736 square feet allocated for fire station and equipment storage space is 100% impact fee eligible. These calculations are shown on Table 7.

Table 7: Impact Fee Cost Calculations

Year	Costs in 2018 Dollars			Net Present Value*	Costs in 2018 Dollars			Net Present Value*
	Building Costs	% Impact Fee Eligible	Total Impact Fee Eligible		Vehicle Costs	% Impact Fee Eligible	Total Impact Fee Eligible	
2019	$ 22,000	100.0%	$ 22,000	$ 22,302.65	$ 200,000	100.0%	$ 200,000.00	$ 202,625.59
	-		-		$ 192,000	100.0%	$ 192,000	$ 194,520.57
	-		-		$ 19,200	100.0%	$ 19,200	$ 19,452.06
2020	$ 3,619,319	100.0%	$ 3,619,319	$ 3,719,584.54	$ 850,000	100.0%	$ 850,000	$ 872,464.04
					$ 350,000	100.0%	$ 350,000	$ 359,249.90
					$ 200,000	100.0%	$ 200,000	$ 205,285.66
2021	-		-		-	-	-	-
2022	-		-		-	-	-	-
2023	-		-		$ 32,700	100.0%	$ 32,700	$ 33,564.21
2024	-		-		-	-	-	-
2025	-		-		-	-	-	-
2026	-		-		-	-	-	-
2027	-		-		-	-	-	-
2028	-		-		-	-	-	-
2029	-		-		-	-	-	-
2030	$ 1,404,137	100.0%	$ 1,404,137	$ 1,654,302.44	$ 350,000	100.0%	$ 350,000	$ 409,298.09
					$ 850,000	100.0%	$ 850,000	$ 872,464.04
					$ 96,000	100.0%	$ 96,000	$ 98,537.12
2031	-		-		-	-	-	-
2032	-		-		-	-	-	-
2033	-		-		-	-	-	-
2034	-		-		$ 32,700	100.0%	$ 32,700	$ 40,288.09
2035	-		-		-	-	-	-
2036	-		-		-	-	-	-
2037	-		-		-	-	-	-
2038	-		-		-	-	-	-
2039	-		-		-	-	-	-
2040	-		-	-	$ 32,700	100.0%	$ 32,700	$ 43,567.48
Totals	**$ 5,045,456**		**$ 5,045,456**	**$ 5,396,189.63**	**$ 3,205,300**		**$ 3,205,300**	**$ 3,351,316.85**

* Net Present Value (NPV) = 2018 cost estimate for buildings inflated to target year using the ENR Building Cost Index (BCI), and the Consumer Price Index (CPI) for vehicles, all reduced to NPV using the Discount Rate.

The Net Present Value of the cost estimates for new fire stations are calculated by increasing the current (2018) estimated construction costs 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 Consumer Price Index (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 and Credits Chapter of this report.)

Law Enforcement

Introduction

The McDonough Police Department provides primary law enforcement throughout the city. Through a variety of active law enforcement, community outreach and educational programs, the Police Department serves the entire population and all businesses within the city.

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

The level of service for Law Enforcement services in McDonough is measured in terms of the number of square feet of occupied facility space, the number of emergency power systems that allow law enforcement services to operate at full capacity in the event of a storm or other power disruption, and the number of major vehicles per day-night population in the service area.

Table 8: Law Enforcement System Inventory

Description	Quantity
Buildings	
Law Enforcement Complex	27,000
Public Safety Storage Building*	4,942
Total Existing Floor Area	**31,942**
Emergency Power Systems	**2**
*Vehicles***	
Mobile Command Unit	1
ATV	2
Administrative/Criminal Investigation	9
Total Vehicles	**12**

* Storage building (on Lawrenceville St.) is used by the Fire and Police Departments. The square footage represents the portion used by the Police Department.

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

Table 8 presents a current inventory of facility space, emergency power systems, and vehicles. Day-night population is used as a measure in that Police Department provides its law enforcement services to both residences and businesses in the service area on a 24-hour basis.

Table 9 presents the calculation of the current Level of Service (LOS) standards for law enforcement system improvements in the city. The inventory of each category is divided by the current day-night population to obtain the LOS per person enjoyed throughout the city.

Table 9: Current Level of Service Calculation

Facility	Service Population	Level of Service
Existing Square Feet	**2018 Day/Night Population**	**Square Feet per 2018 Day/Night Population**
31,942	48,713	0.655725
Existing Emergency Power Systems	**2018 Day/Night Population**	**Emergency Power Systems per 2018 Day/Night Population**
2	48,713	0.000041
Existing Vehicles	**2018 Day/Night Population**	**Vehicles per 2018 Day/Night Population**
12	48,713	0.000246

The same principal discussed in the Fire Protection chapter applies on Table 10 to Law Enforcement vehicles: because only 'whole' vehicles can be purchased, only 10 new vehicles would need to be added to the inventory (slightly less than the 10.41 that is mathematically demanded by new growth). Thus, since 10 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.

Forecasts for Service Area

For the purposes of impact fee calculations, the City has determined that a level of service, based on the current LOS, would be appropriate to serve the future service area population.

In Table 10 the facility space, power system, and vehicle LOS standards from Table 9 are next multiplied by the forecasted citywide day-night population increase to produce the expected demand that future growth and development will place on the city.

Table 10: Future Demand Calculation

Level of Service	Future Population	New Growth Demand
Square Feet per 2018 Day/Night Population	**Day/Night Population Increase (2018-40)**	**Net New Square Feet for New Growth**
0.655725	42,269	27,717
Emergency Power Systems per 2018 Day/Night Population	**Day/Night Population Increase (2018-40)**	**Net New Systems for New Growth***
0.000041	42,269	1.74
Vehicles per 2018 Day/Night Population	**Day/Night Population Increase (2018-40)**	**Net New Vehicles for New Growth****
0.000246	42,269	10.41

* 1 emergency power system will be added; it is 100% impact fee eligible.
** 10 major vehicles will be added, all of which are 100% eligible for impact fee funding.

Table 11 provides current cost estimates (in 2018 dollars) of new system improvements that are proposed to address future needs. Estimated improvement costs are based on the following:

- For new facility space: Cost estimates are provided by the City of McDonough, with the exception that prevailing construction costs averaging $313.53 and $330.07 per square foot are used for the expansion of Police and Municipal Court space, respectively, in the Law Enforcement Complex.
- For major vehicles: The cost represents the weighted average of costs for vehicles in the City's fleet, using current prevailing rates for similar vehicles equipped to City specifications. The resulting figure of $35,000 was used in order to preserve flexibility in the determination of which specific vehicle to acquire in the future.
- For emergency power systems: The cost is based on prevailing rates for similar systems that have previously been installed by the City.

Table 11: Future System Improvement Costs

Year	Facility	Buildings		Major Vehicles		Emergency Power Systems	
		Square Feet	2018 Cost*	Number	2018 Cost**	Number	2018 Cost***
2019	Storage Building Expansion	2,730	$ 51,200			1	$ 100,000
	Simpson Street Precinct	3,200	$ 575,000	1	$ 35,000		
2020	Station 53	6,125	$ 1,948,864				
2021				1	$ 35,000		
2022							
2023				1	$ 35,000		
2024							
2025	Law Enforcement Complex Expansion, Phase I	7,700	$ 2,414,181				
2026				1	$ 35,000		
2027							
2028				1	$ 35,000		
2029							
2030							
2031				1	$ 35,000		
2032							
2033	Law Enforcement Complex Expansion, Phase II	7,962	$ 2,628,017	1	$ 35,000		
2034							
2035							
2036				1	$ 35,000		
2037							
2038				1	$ 35,000		
2039							
2040				1	$ 35,000		
	Totals	**27,717**	**$ 7,617,262**	**10**	**$ 350,000**	**1**	**$ 100,000**

* Facility cost estimates based on information provided by the City of McDonough, with the exception that Law Enforcement Expansion projects are based on comparable facilities' per square foot costs for site work, construction, design and furnishings. Phase I (expansion of Police Department space) is $313.53 per square foot and Phase II (expansion of Municipal Court space) is $330.07 per square foot. (Source: Green Building Square Foot Costbook, 2018 editions, BNi Publications, Inc.)

** Vehicle costs represent the average cost of vehicles in the city's fleet, using prevailing rates for similar vehicles equipped to City specifications.

*** Cost estimates based on prevailing rates for similar systems that have been installed by the City.

Costs for Station 53 and Storage Building Expansion represent the proportion of total project costs that is the 'Law Enforcement share'. This is based on the percentage of square footage that will be allocated for Law Enforcement services. The Police Department will utilize approximately 35% of the new 17,500 sf fire station for a new police precinct that will be housed in the station, and it will utilize approximately 70% of the 3,160 sf storage building for police vehicles. Remaining space in each building will be occupied by the Fire Department.

The total cost figures from Table 11 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 vehicles are 100% eligible under the adopted LOS. In addition, all of 27,717 square feet allocated for equipment storage space and facility space (Law Enforcement Complex and a portion of the fire station) is 100% impact fee eligible. The emergency power system is also 100% impact fee eligible. These calculations are shown on Table 12.

Table 12: Project Costs to Meet Future Demand

Year	Costs in 2018 Dollars			Net Present Value*	Costs in 2018 Dollars			Net Present Value*	Costs in 2018 Dollars			Net Present Value*
	Building Costs	% Impact Fee Eligible	Total Impact Fee Eligible		Vehicle Costs	% Impact Fee Eligible	Total Impact Fee Eligible		Emergency Power System Costs	% Impact Fee Eligible	Total Impact Fee Eligible	
2019	$ 51,200	100%	$ 51,200	$ 51,904.35	-		-	-	$ 100,000	100%	$ 100,000	$101,312.80
	$ 575,000	100%	$ 575,000	$ 582,910.17	$ 35,000	100%	$ 35,000	$ 35,459.48	-		-	-
2020	$1,948,864	100%	$ 1,948,864	$ 2,002,852.76	-		-	-	-		-	-
2021	-		-	-	$ 35,000	100%	$ 35,000	$ 36,396.61	-		-	-
2022	-		-	-	-		-	-	-		-	-
2023	-		-	-	$ 35,000	100%	$ 35,000	$ 37,358.51	-		-	-
2024	-		-	-	-		-	-	-		-	-
2025	$2,414,181	100%	$ 2,414,181	$ 2,656,479	-		-	-	-		-	-
2026	-		-	-	$ 35,000	100%	$ 35,000	$ 38,849.24	-		-	-
2027	-		-	-	-		-	-	-		-	-
2028	-		-	-	$ 35,000	100%	$ 35,000	$ 39,875.96	-		-	-
2029	-		-	-	-		-	-	-		-	-
2030	-		-	-	-		-	-	-		-	-
2031	-		-	-	$ 35,000	100%	$ 35,000	$ 41,467.13	-		-	-
2032	-		-	-	-		-	-	-		-	-
2033	$2,628,017	100%	$ 2,628,017	$ 3,225,782	$ 35,000	100%	$ 35,000	$ 42,563.04	-		-	-
2034	-		-	-	-		-	-	-		-	-
2035	-		-	-	-		-	-	-		-	-
2036	-		-	-	$ 35,000	100%	$ 35,000	$ 44,261.44	-		-	-
2037	-		-	-	-		-	-	-		-	-
2038	-		-	-	$ 35,000	100%	$ 35,000	$ 45,431.20	-		-	-
2039	-		-	-	-		-	-	-		-	-
2040	-		-	-	$ 35,000	100%	$ 35,000	$ 46,631.86	-		-	-
Totals	**$7,617,262**		**$ 7,617,262**	**$ 8,519,927.88**	**$ 350,000**		**$ 350,000**	**$408,294.47**	**$ 100,000**		**$ 100,000**	**$101,312.80**

* Net Present Value (NPR) = 2018 cost estimate for buildings inflated to target year using the ENR Building Cost Index (BCI), and the Consumer Price Index (CPI) for vehicles and emergency power systems, all reduced to NPV using the Discount Rate.

Parks and Recreation Services

Introduction

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

Service Area

The parks and recreation facilities maintained by the City are operated as a citywide system. Facilities are provided equally to all residents, and collectively cover a wide range of recreational opportunities, from leisure and picnicking, to organized sports events on baseball fields and tennis courts, to walking or biking on trails. Thus, the entire city is considered a single service area for parks and recreation services provided by the City.

Level of Service

The determination of Level of Service (LOS) standards begins with an inventory of existing City facilities.

Table 13: Current Inventory of Parks and Recreation Components

Park Facility	Acreage
Alexander Park (East & West)	130
Avalon Park	40
Big Springs Park	3
HOPE Park	4
Rufus L. Stewart Park	3
Richard Craig Park	26
Total Park Acres	**206**

Recreation Component	Current Inventory
Baseball/Softball Field	12
Batting Cage	6
Football Field	3
Multi-Purpose Field*	2
Tennis Court	16
Pickleball Court	0
Basketball Court (Full Court)	4
Basketball Court (Half Court)	1
Playground	9
Pavilion	7
Restroom Building	3
Concessions Stand	1
Restroom/Concessions/Storage Building	4
Storage Building	1
Band Shell/Amphitheater	1
Splash Pad	1
Disc Golf Course	0
Walking Trail (miles)	1.73
Bench	20
Parking Spaces	1,995

* Includes Dog Park

Table 13 shows the current inventory of parks and recreation components controlled by the City. The inventory includes 186 acres of parkland and a variety of recreation components used in both passive and active recreation areas.

Table 14 provides the current Level of Service in recreation land and facilities per population, converts this to the Level of Service per the number of housing units occupied by that population, and then expresses the Level of Service per housing unit (since impact fees are assessed per housing unit when building permits are issued, not population).

The current Level of Service standards are expressed in terms of the number of people each recreation component serves. To determine the LOS, the number of people served by each component is calculated using the current inventory for the component divided into the current population. Two exceptions are pickleball courts and disc golf courses, which the City intends to add to its inventory of recreation facilities in the future. In these instances, the current LOS is based on the total number of pickleball courts and disc golf courses anticipated to serve local needs through 2040, which equates to 1 pickleball court per 8,400 residents and 1 disc golf course per 25,200 residents. A third exception is band shells/amphitheaters. The City has determined that 3 of these components in total (1 currently exists) will serve local needs through 2040, which equates to 1 band shell/amphitheater per 16,800 residents.

These LOS 'per population' standards are then re-calculated as the number of housing units served by each component based on the city's number of people living in an average household (the average household size). Since impact fees are assessed at the time a building permit is issued (and the impact fee will be applied only to residential uses), the LOS then must be converted to a 'per housing unit' basis.

Table 14: Current Level of Service Calculations

Component Type	Current Level of Service*			Level of Service per "X" Housing Units**			Level of Service per Each Housing Unit***	
Park Acres	1 per	127	Population =	1 per	56.42	Housing Units =	0.017724	for each Housing Unit
Baseball/Softball Field	1 per	2,181	Population =	1 per	968.58	Housing Units =	0.001032	for each Housing Unit
Batting Cage	1 per	4,361	Population =	1 per	1,937.17	Housing Units =	0.000516	for each Housing Unit
Football Field	1 per	8,723	Population =	1 per	3,874.33	Housing Units =	0.000258	for each Housing Unit
Multi-Purpose Field	1 per	13,084	Population =	1 per	5,811.50	Housing Units =	0.000172	for each Housing Unit
Tennis Court	1 per	1,636	Population =	1 per	726.44	Housing Units =	0.001377	for each Housing Unit
Pickleball Court	1 per	8,400	Population =	1 per	3,345.37	Housing Units =	0.000299	for each Housing Unit
Basketball Court (Full Court)	1 per	6,542	Population =	1 per	2,905.75	Housing Units =	0.000344	for each Housing Unit
Basketball Court (Half Court)	1 per	26,168	Population =	1 per	11,623.00	Housing Units =	0.000086	for each Housing Unit
Playground	1 per	2,908	Population =	1 per	1,291.44	Housing Units =	0.000774	for each Housing Unit
Pavilion	1 per	3,738	Population =	1 per	1,660.43	Housing Units =	0.000602	for each Housing Unit
Restroom Building	1 per	8,723	Population =	1 per	3,874.33	Housing Units =	0.000258	for each Housing Unit
Concessions Stand	1 per	26,168	Population =	1 per	11,623.00	Housing Units =	0.000086	for each Housing Unit
Restroom/Concessions/Storage	1 per	6,542	Population =	1 per	2,905.75	Housing Units =	0.000344	for each Housing Unit
Storage Building	1 per	26,168	Population =	1 per	11,623.00	Housing Units =	0.000086	for each Housing Unit
Band Shell/Amphitheater	1 per	16,800	Population =	1 per	6,690.74	Housing Units =	0.000149	for each Housing Unit
Splash Pad	1 per	26,168	Population =	1 per	11,623.00	Housing Units =	0.000086	for each Housing Unit
Disc Golf Course	1 per	25,200	Population =	1 per	10,036.11	Housing Units =	0.000100	for each Housing Unit
Walking Trail (miles)	1 per	15,126	Population =	1 per	6,718.50	Housing Units =	0.000149	for each Housing Unit
Bench	1 per	1,308	Population =	1 per	581.15	Housing Units =	0.001721	for each Housing Unit
Parking Space	1 per	13	Population =	1 per	5.83	Housing Units =	0.171641	for each Housing Unit

* LOS is based on the current inventory divided by the current population, with the exception that the level of service for pickleball courts, disc golf courses, and band shell/amphitheaters is based on the number of each that are anticipated to serve local needs through 2040.
** Converted using average population per housing unit in 2018, with the exception that average population per housing unit in 2040 is used for pickleball court, disc golf course, and band shell/amphitheater calculations.
*** "1" divided by the number of housing units for each component under 'Level of Service per "X" Housing Units' column.

Table 14 shows how the current level of service for each recreation component is converted to a 'per housing unit' basis. To do this, the current LOS shown in the middle columns of 1 per a 'certain number of' housing units for each component is converted to the LOS per housing unit by dividing the number into '1', which produces the number of components serving each housing unit'.

By way of example, the current LOS for playgrounds is 1 playground per 2,908 people. That number—2,908—is divided by the 2018 average household size to convert 'people' into 'housing units'. The result is the converted standard of 1 court per 1,291 housing units. By dividing the component (1) by the number of housing units it serves results in the portion of a playground that serves 1 housing unit (0.000774).

■ Forecasts for Service Area

Future Demand

Table 15 applies the Level of Service calculations from Table 14 to determine the facilities needed to meet the demand created by the existing residents of the city as well as the future demand for park lands and recreation components that will be generated by new growth and development.

Table 15: Existing and Future Demand

Component Type	LOS Per Housing Unit	Existing Demand (2018)*	New Growth Demand (2018-2040)**
Park Acres	0.017724	206.00	149.80
Baseball/Softball Field	0.001032	12.00	8.73
Batting Cage	0.000516	6.00	4.36
Football Field	0.000258	3.00	2.18
Multi-Purpose Field	0.000172	2.00	1.45
Tennis Court	0.001377	16.00	11.63
Pickleball Court	0.000299	3.47	2.53
Basketball Court (Full Court)	0.000344	4.00	2.91
Basketball Court (Half Court)	0.000086	1.00	0.73
Playground	0.000774	9.00	6.54
Pavilion	0.000602	7.00	5.09
Restroom Building	0.000258	3.00	2.18
Concessions Stand	0.000086	1.00	0.73
Restroom/Concessions/Storage	0.000344	4.00	2.91
Storage Building	0.000086	1.00	0.73
Band Shell/Amphitheater	0.000149	1.74	1.26
Splash Pad	0.000086	1.00	0.73
Disc Golf Course	0.000100	1.16	0.84
Walking Trail (miles)	0.000149	1.73	1.26
Bench	0.001721	20.00	14.54
Parking Space	0.171641	1,995.00	1,450.71

* 2018 Housing Units = 11,623
** New Units (2018-2040) = 8,452

The current number of housing units (11,623) is multiplied by the level of service (LOS) standard to determine existing demand. Since existing demand is used in the calculation of current LOS standards, existing demand figures on Table 15 are the same as the 'current inventory' figures on Table 13 (with the exceptions of 'pickleball court' and 'disc golf course', since none currently exist; and, with the exception of 'band

shell/amphitheater', since existing demand is based on needs for both current and future population).

The increase in housing units between 2018 and 2040 (8,452) is multiplied by the same LOS to produce the future demand created by future growth.

Impact Fee Eligibility

New recreation components are eligible for impact fee funding only to the extent that the improvements are needed to specifically serve new growth and development, and only at the level of service applicable citywide. Table 16 shows the number of new recreation components that are needed to satisfy both current and future needs of the city's residents, and the extent to which fulfillment of those needs will serve future growth demand.

The table begins with the current inventory of recreation components, and the 'existing' demand for those components to meet the needs of the current (2018) population based on the current level of service standards (shown on Table 15). The 'excess or (shortfall)' column compares the existing demand to the current inventory for each recreation component. As noted above, 'existing demand' is the same as the 'current inventory' in all but three cases (pickleball courts, disc golf courses, and band shells/amphitheaters).

Table 16: Future Park Facility Impact Fee Eligibility

Component Type	Current Inventory	Existing Demand	Excess or (Shortfall)	New Growth Demand	Net Total Needed	Total Needed*	% Impact Fee Eligible
Park Acres	206	206.00	0	149.80	149.80	149.80	100.00%
Baseball/Softball Field	12	12.00	0	8.73	8.73	9	96.96%
Batting Cage	6	6.00	0	4.36	4.36	4	100.00%
Football Field	3	3.00	0	2.18	2.18	2	100.00%
Multi-Purpose Field	2	2.00	0	1.45	1.45	1	100.00%
Tennis Court	16	16.00	0	11.63	11.63	12	96.96%
Pickleball Court	0	3.47	(3.47)	2.53	6.00	6	42.11%
Basketball Court (Full Court)	4	4.00	0	2.91	2.91	3	96.96%
Basketball Court (Half Court)	1	1.00	0	0.73	0.73	1	72.72%
Playground	9	9.00	0	6.54	6.54	7	93.49%
Pavilion	7	7.00	0	5.09	5.09	5	100.00%
Restroom Building	3	3.00	0	2.18	2.18	2	100.00%
Concessions Stand	1	1.00	0	0.73	0.73	1	72.72%
Restroom/Concessions/Storage	4	4.00	0	2.91	2.91	3	96.96%
Storage Building	1	1.00	0	0.73	0.73	1	72.72%
Band Shell/Amphitheater	1	1.74	(0.74)	1.26	2.00	2	63.15%
Splash Pad	1	1.00	0	0.73	0.73	1	72.72%
Disc Golf Course	0	1.16	(1.16)	0.84	2.00	2	42.10%
Walking Trail (miles)	1.73	1.73	0	1.26	1.26	1.26	100.00%
Bench	20	20.00	0	14.54	14.54	15	96.96%
Parking Space	1,995	1,995.00	0	1,450.71	1,450.71	1,451	99.98%

* For recreation components that can only be built in whole numbers: 'Total Needed' rounded to nearest whole number. For park acres and walking trails, actual number shown.

If an 'excess' were to exist, that would mean that more components (or portions of components) exist than are needed to meet the demands of the current population, and those 'excesses' would create capacity to meet the recreational needs of future growth. This is not the case in McDonough.

Conversely, a 'shortfall' indicates that there are not enough components (or portions of components) to meet the recreational needs of the current population based on the current LOS (e.g., the pickleball courts, disc golf courses, and band shells/amphitheaters).

The column on Table 16 labeled 'new growth demand', shows the total demand for recreation components specifically to meet future growth needs (from Table 15), and the 'net total needed' shows all existing and future needs combined. The current 'shortfall' (the pickleball courts, disc golf courses, and band shells/amphitheaters) adds to new growth's needs with facilities to bring the current population up to the current level of service required to be available to all—both current and future residents.

For all components except for trail miles and park acreage, the 'total needed' column is rounded to whole numbers. This is simply because the City cannot build a portion of a facility, it must build entire facilities. As a result, the '% impact fee eligible' column may reflect a percentage less than 100%.

For example, new growth mathematically demands 11.63 new tennis courts. The City cannot build a portion of a court; it must build an entire tennis court for it to be usable. Thus 12 courts need to be added, and the portion of the 12 new tennis courts that is impact fee eligible (11.63) results in the percentage that is impact fee eligible (96.96%); the remainder is excess capacity available to serve new growth beyond the current planning horizon. As such, the excess capacity could be recouped through impact fees at that time but cannot be charged to new growth between now and 2040.

Conversely, in some cases the 'net total needed' figure is rounded down to the nearest whole number. For example, new growth demand for football fields is only 2.18 fields. To round that number up to '3' would result in two fields being 100% impact fee eligible and the other only 18% eligible. In these cases, it makes more sense from a public expenditures standpoint to fund only two football fields with impact fees (at 100% eligible) now and to delay the construction of a third field until a future date when new impact fee calculations (a revised CIE with a horizon extended beyond 2040) would more fully justify the third field.

Future Costs

Table 17 is a listing of the future capital project costs to provide additional recreation components in order to attain or address the current level of service standards, using the approach as described above. The figures in the 'components proposed' column are drawn from the 'total needed' column in Table 16.

Recreation component costs are based on cost estimates provided by the McDonough Public Works Department, where available, or on historic and comparable averages in other Metro-area communities where local estimates are not available.

The 'total cost (2018)' figures on the table are converted to 'new growth share (2018)' dollars based on the percentage that each improvement is impact fee eligible (from Table 16). Note that this affects several recreation components to the extent that partial components identified in the 'net total needed' column of Table 16 had to be rounded to whole components, creating an 'overage' portion of those component types.

Table 17: Costs of Future Parks and Recreation Components

Component Type	Total Proposed	Net Cost Per Unit*	Gross Cost Per Unit**	Total Cost (2018)	% Impact Fee Eligible	New Growth Share (2018)	Net Present Value***
Park Acres	149.80	$ 80,000	$ 97,600	$ 14,620,453	100.00%	$ 14,620,453	17,097,495.74
Baseball/Softball Field	9	$ 294,100	$ 358,802	$ 3,229,218	96.96%	$ 3,130,970	4,216,123.71
Batting Cage	4	$ 3,200	$ 3,904	$ 15,616	100.00%	$ 15,616	21,028.31
Football Field	2	$ 269,300	$ 328,546	$ 657,092	100.00%	$ 657,092	884,831.71
Multi-Purpose Field	1	$ 176,500	$ 215,330	$ 215,330	100.00%	$ 215,330	289,960.63
Tennis Court	12	$ 88,300	$ 107,726	$ 1,292,712	96.96%	$ 1,253,373	1,687,775.87
Pickleball Court	6	$ 40,000	$ 48,800	$ 292,800	42.11%	$ 123,292	166,023.53
Basketball Court (Full Court)	3	$ 58,900	$ 71,858	$ 215,574	96.96%	$ 209,014	281,456.23
Basketball Court (Half Court)	1	$ 29,450	$ 35,929	$ 35,929	72.72%	$ 26,127	35,182.03
Playground	7	$ 131,700	$ 160,674	$ 1,124,718	93.49%	$ 1,051,552	1,416,006.87
Pavilion	5	$ 59,000	$ 71,980	$ 359,900	100.00%	$ 359,900	484,636.75
Restroom Building	2	$ 52,000	$ 63,440	$ 126,880	100.00%	$ 126,880	149,485.34
Concessions Stand	1	$ 65,000	$ 79,300	$ 79,300	72.72%	$ 57,665	67,939.11
Restroom/Concessions/Storage	3	$ 140,000	$ 170,800	$ 512,400	96.96%	$ 496,809	585,321.58
Storage Building	1	$ 150,000	$ 183,000	$ 183,000	72.72%	$ 133,074	156,782.57
Band Shell/Amphitheater	2	$ 325,000	$ 396,500	$ 793,165	63.15%	$ 500,874	674,470.87
Splash Pad	1	$ 268,300	$ 327,326	$ 327,326	72.72%	$ 238,025	320,520.83
Disc Golf Course	2	$ 45,000	$ 54,900	$ 109,815	42.10%	$ 46,235	62,258.85
Walking Trail (miles)	1.26	$ 186,300	$ 227,286	$ 285,930	100.00%	$ 285,930	385,029.58
Bench	15	$ 1,200	$ 1,464	$ 21,960	96.96%	$ 21,292	28,671.26
Parking Space	1,451	$ 1,900	$ 2,318	$ 3,363,418	99.98%	$ 3,362,753	4,528,240.50
			Totals	**$ 27,862,536**		**$ 26,932,255**	**$ 33,539,241.86**

* Cost estimates are based on known or comparable facility costs.
** Includes contingency at 15% and architectural/engineering services at 7%.
*** Construction dates vary. NPV based on CPI or BCI as appropriate, in an average construction year of 2030.

The Net Present Value of the 'new growth share (2018)' cost figure on Table 31 for each component is calculated as follows:

Since the annual 'pace' of component construction over the 2018-2040 period is not known, an 'average' year of 2030 is used for Net Present Value calculations—some improvements will occur earlier for less, and some later at greater cost. All will average out.

To calculate the Net Present Value of the impact fee eligible cost estimate for the construction of the recreation components, the NPVs are calculated by increasing the current (2018) estimated construction costs using Engineering News Record's (ENR) 10-year average building cost inflation (BCI) rate for buildings (such as recreation centers) and the 10-year average CPI rate for all other projects. All project costs are then reduced to current NPV dollars using the Net Discount Rate.

Community Work Program

The following impact fee funded projects are contained in this Capital Improvements Element and amend the Community Work Program contained in the McDonough portion of the Henry County Joint Comprehensive Plan.

Category	Action/Item	2019	2020	2021	2022	2023	Responsible Party	Cost Estimate	Funding Source
Fire Protection	Storage Building Expansion (Fire Dept. portion)	✓					Fire Department	$22,000	100% Impact Fees
Fire Protection	Brush Truck	✓					Fire Department	$200,000	100% Impact Fees
Fire Protection	Rescue ATV	✓					Fire Department	$19,200	100% Impact Fees
Fire Protection	2 Command Vehicles	✓					Fire Department	$192,000	100% Impact Fees
Fire Protection	Station 53 (Fire Dept. portion)		✓				Fire Department	$3,619,318	100% Impact Fees
Fire Protection	Ladder Truck		✓				Fire Department	$850,000	100% Impact Fees
Fire Protection	Pumper Truck		✓				Fire Department	$350,000	100% Impact Fees
Fire Protection	Brush Truck		✓				Fire Department	$200,000	100% Impact Fees

Category	Action/Item	2019	2020	2021	2022	2023	Responsible Party	Cost Estimate	Funding Source
Fire Protection	Administrative Vehicle					✓	Fire Department	$32,700	100% Impact Fees
Law Enforcement	Storage Building Expansion (Police Dept. portion)	✓					Police Department	$51,200	100% Impact Fees
Law Enforcement	Simpson St. Precinct	✓					Police Department	$575,000	100% Impact Fees
Law Enforcement	Police Vehicle	✓					Police Department	$35,000	100% Impact Fees
Law Enforcement	Purchase 1 Emergency Power System	✓					Police Department	$100,000	100% Impact Fees
Law Enforcement	Station 53 (Police Dept. portion)		✓				Police Department	$1,948,864	100% Impact Fees
Law Enforcement	Police Vehicle			✓			Police Department	$35,000	100% Impact Fees
Law Enforcement	Police Vehicle					✓	Police Department	$35,000	100% Impact Fees
Parks & Recreation	2 Pickleball Courts, Jonesboro Road Park	✓					Public Works Department	$97,600	39.64% Impact Fees; SPLOST
Parks & Recreation	2 Pickleball Courts, Jonesboro Road Park		✓				Public Works Department	$97,600	39.64% Impact Fees; SPLOST
Parks & Recreation	Playground, Avalon Park	✓					Public Works Department	$160,674	93.49% Impact Fees; SPLOST

Category	Action/Item	2019	2020	2021	2022	2023	Responsible Party	Cost Estimate	Funding Source
Parks & Recreation	Playground, Jonesboro Rd. Park		✓				Public Works Department	$160,674	93.49% Impact Fees; SPLOST
Parks & Recreation	Pavilion, Avalon Park	✓					Public Works Department	$71,980	100% Impact Fees
Parks & Recreation	Pavilion, Alexander Park West	✓					Public Works Department	$71,980	100% Impact Fees
Parks & Recreation	Pavilion, Jonesboro Road Park		✓				Public Works Department	$71,980	100% Impact Fees
Parks & Recreation	Restroom Building, Avalon Park	✓					Public Works Department	$63,440	100% Impact Fees
Parks & Recreation	Restroom Building, Jonesboro Road Park			✓			Public Works Department	$63,440	100% Impact Fees
Parks & Recreation	Restroom/Concessions Building, Avalon Park	✓					Public Works Department	$170,800	96.96% Impact Fees; SPLOST
Parks & Recreation	Band Shell / Amphitheater, Avalon Park	✓					Public Works Department	$396,500	72.72% Impact Fees; SPLOST
Parks & Recreation	Band Shell / Amphitheater, Alexander Park West		✓				Public Works Department	$396,500	72.72% Impact Fees; SPLOST
Parks & Recreation	Splash Pad, Avalon Park	✓					Public Works Department	$327,326	72.72% Impact Fees; SPLOST
Parks & Recreation	Disc Golf Course, Alexander Park West	✓					Public Works Department	$54,900	42,10% Impact Fees; SPLOST

Category	Action/Item	2019	2020	2021	2022	2023	Responsible Party	Cost Estimate	Funding Source
Parks & Recreation	Walking Trail, Avalon Park	✓					Public Works Department	$142,965	100% Impact Fees
Parks & Recreation	Walking Trail, Jonesboro Road Park		✓				Public Works Department	$142,965	100% Impact Fees
Parks & Recreation	6 Benches, Avalon Park	✓					Public Works Department	$8,784	96.96% Impact Fees; SPLOST
Parks & Recreation	5 Benches, Jonesboro Road Park		✓				Public Works Department	$7,320	96.96% Impact Fees; SPLOST
Parks & Recreation	275 Parking Spaces (total), Avalon West and Alexander Park West	✓					Public Works Department	$637,450	99.98% Impact Fees; SPLOST
Parks & Recreation	150 Parking Spaces, Jonesboro Road Park		✓				Public Works Department	$347,700	99.98% Impact Fees; SPLOST

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'.

Appendix

Technical Analysis—Population Forecasts

The purpose of this analysis is to select the most appropriate population forecasts for the City, which will be used in establishing Level of Service calculations for the impact fee program update. The population forecasts will subsequently influence the housing unit and employment forecasts used in this Update.

To accomplish this, a variety of statistical projection approaches were prepared for comparison and consideration. Historic city and county data from the US Bureau of the Census were used extensively as benchmarks from the past, as well as countywide forecasts adopted by the Georgia Office of Planning and Budget (OPB) and Woods & Poole Economists, Inc.

The various approaches presented in the Methodology below are:

- 2000–2016 Census population data projected to 2040 on a 'straight line' basis for each city in Henry County using a 'linear trend' regression.
- 2000–2016 Census population data projected to 2040 on a 'curved line' basis for each city in Henry County using a 'growth trend' regression.
- 2000–2007 Census population data projected to 2040 for each city and the county as a whole, assuming that future growth will align with the historic rates experienced before the Great Recession.

In the process:

- Linear and growth trend projections were made for the county and compared to forecasts by the State OPB and Woods & Poole;
- Each city's future 'share' of the county population was calculated and considered; and
- Historical data on the total number of new housing units that were authorized by building permits in the three cities that reported independently (McDonough, Hampton and Locust Grove) and in the unincorporated area and Stockbridge (together), was considered.

Conclusion

McDonough's population growth, giving respect to being the county seat for Henry County, proceeded at a relatively steady pace during the decade of the 2000s and into the 2010s, showed a slight drop starting in 2007 (the beginning of the collapse of the housing market nationwide and the Great Recession), held its own (compared to many other communities) through the recession, and levelled off in 2010 through 2013. Beginning in 2014 the city's population steadily 'up-ticked' through 2016, which was also reflected in the issuance of an increasing number of building permits for housing units each year starting in 2013, in conjunction with

the "Economic Re-Starts" of residential communities adversely impacted by the Great Recession.

In fact, building permitting for housing units maintained a high level during the pre-recession years of 2002 to 2007, but fell dramatically during the Great Recession (as was the case in all jurisdictions in Henry County). Population growth during these pre-recession years was steady enough to be described best as a straight line on a graph. Future population growth in the coming 22 years to 2040 is expected to resume and continue within the city, possibly generating additional annexations, such that the city's percentage share of the total county will continue to grow from less than 11% today to almost 12.4% by 2040. As projected, McDonough's 2040 population will ultimately double the current population, increasing from more than 25 thousand to over 50 thousand people. This trend has already begun, considering the city's rebound in building permit activity starting in 2013.

Population Forecasts

The table and graph below summarize the results of the three forecasting approaches described above and detailed in the following description of the Methodology.

The growth rate figures below the graph are particularly revealing.

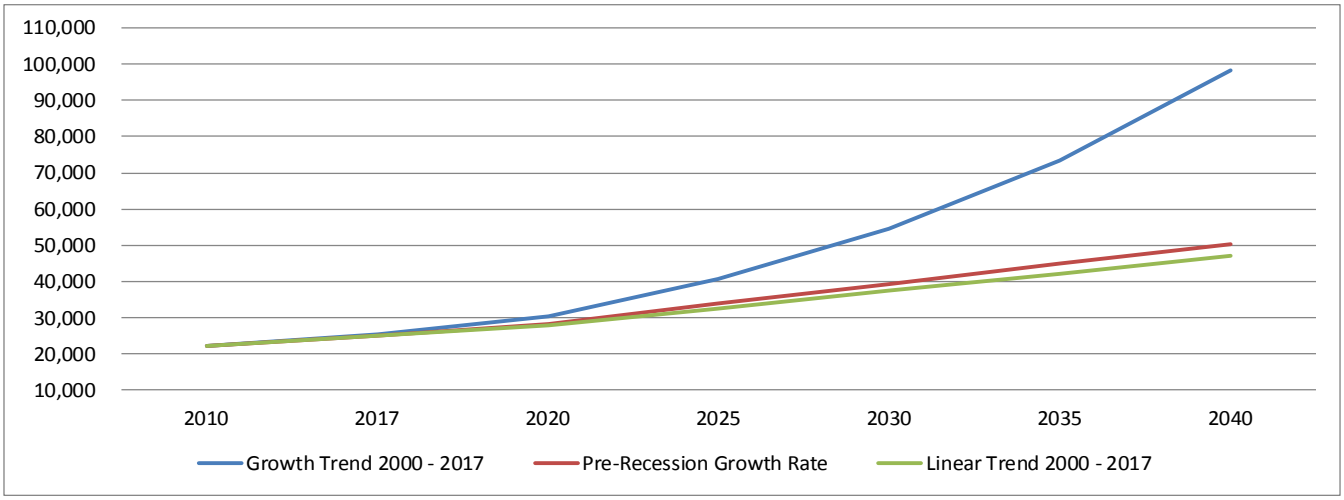
As noted above, population growth prior to 2007 approximated a straight line on a graph. The **Linear Trend** forecast essentially continues this straight line progression, though adjusted to the 2016 Census population estimate. Overall, the projection proceeds at an average annual rate of 3.85%, which is well above the 2.31% averaged over the good and bad years of the 2007-2017 period. On the other hand, if growth proceeds at this rate over the next 22 years, by 2040 the city still will have increased its population by more than 22,000 (88.6%) to almost 47,000 people.

During the halcyon years of 2000-2007, the city grew at the exuberant rate of 7.8% per year. The **Growth Trend** forecast extends the pre-recession growth rate with an even more exuberant average of almost 12.5% per year, resuming after the recessionary slump. At that rate, the forecast indicates that the city's population will almost triple to more than 98,000 over the coming 22 years (compared to a 64% increase experienced between 2000 and 2017, including the slump, at an overall average annual increase of 3.98%).

The **Pre-Recession Growth** approach is intended to 'resume' the normal growth of the 2000–2007 period. While the 2000-2007 average annual increase comes out at 7.8%, the data projected to 2040 averages 4.4% per year. This is a function of the relatively straight line growth during that previous period, and the projection being based on average annual increases in population numbers rather than annual percentage increases.

Summary: McDonough Population Forecasts

	2010	2017	2020	2025	2030	2035	2040	Change 2017-2040
Linear Trend 2000 - 2017	22,167	24,923	27,803	32,602	37,401	42,199	46,998	22,075
Growth Trend 2000 - 2017	22,167	25,416	30,323	40,694	54,613	73,293	98,362	72,946
Pre-Recession Growth Rate	22,167	25,066	28,371	33,880	39,389	44,898	50,407	25,341



	2000-2007	2007-2017	Linear Trend	Growth Trend	Pre-Recession Growth
Percent Increase	54.53%	23.15%	88.57%	287.01%	101.10%
Average Annual Increase	7.79%	2.31%	3.85%	12.48%	4.40%

Recommendation

Henry County has experienced high levels of development activity associated with housing for many years per its location within the Metropolitan Atlanta Region and, despite the Great Recession, is expected to resume with an accelerated rate of activity again in the very near future. Although McDonough authorized building permits in ever increasing numbers from 2013 through 2016, the combination of the unincorporated area and Stockbridge outstripped it through the issuance of many more permits. McDonough has been strategic in its recovery efforts whereby its activity is well ahead of Hampton and Locust Grove.

For McDonough, the ability of the city to accommodate future market demand for new housing relies to a large extent on the availability of land for new development, coupled possibly with some limited redevelopment of older deteriorating areas, in the decades ahead. As McDonough resumes its role as a desirable location for housing and capitalizes on new businesses related to its central location, additional annexations providing more land availability may occur that will assure the city's future growth potential.

We believe that an approach recognizing that growth will resume with a steady, incremental growth rate in alignment with the city's Growth Management Plan following the recessionary

slump is the most realistic. That approach is best reflected in the Pre-Recession Growth forecast for the reasons described above.

Methodology

Historic Population Growth

On Table P-1 the latest population estimates are shown for each year between 2000 and 2016, for each city in Henry County and the county as a whole, prepared by the Census Bureau as part of their Annual Estimates program. These particular figures are from the Intercensal Estimates for 2000-2009 (the Bureau revises its annual estimates for the preceding decade after a Decennial Census to correct individual errors) and from the Census Bureau's Annual Estimates Program for each year between 2010 and 2016. (When the 2016 annual estimates were published, the 2010 estimate was slightly revised.)

It is important to note that Census Bureau estimates are made as of July 1 of each year, so they are slightly off from the Decennial Census figures for 2000 and 2010. Each Decennial Census is taken as of April 1. For instance, the population figure for '2007' on Table P-1 would be as of July 1, 2007, covering the previous 12 months from June 30, 2006.[1]

Also shown on Table P-11 is each city's percentage of the total Henry County population each year. These percentages will be compared later to percentage share trends into the future to 2040.

Projecting Historic Trends into the Future

In order to get a 'handle' on population projections for Henry County and its cities, the population figures from the Census Bureau (Table P-1) are projected to the year 2040 using two types of regression analysis (often called 'trend analysis' and referred to by mathematicians as using the 'least squares' method):

- The 'linear trend' regression assumes a straight line relationship between the data for each year, and projects that line forward.
- The 'growth trend' regression assumes there may be some curve to the data, whether an acceleration or deceleration over time, that will continue into the future.

Both of these are mathematical exercises, but valuable for comparison and analysis purposes.

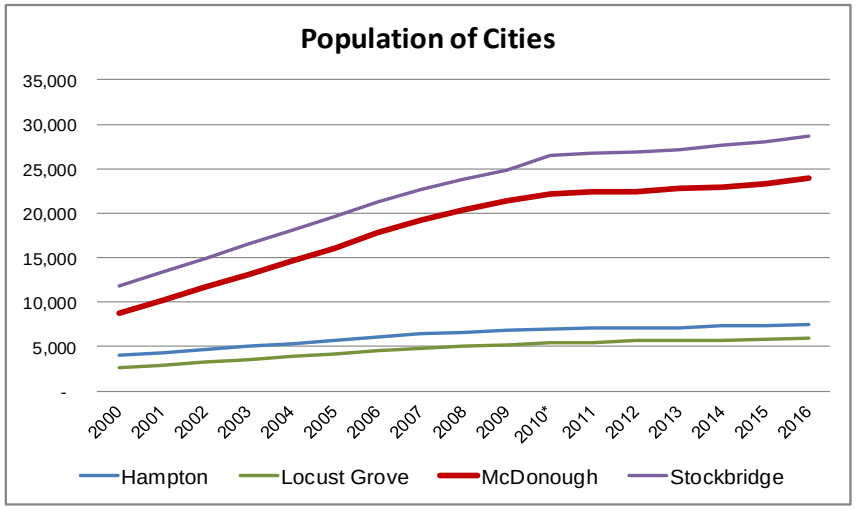
[1] Since the effects of the Great Recession were first observed in late 2007, we therefore refer to the 'pre-recession' years as ending in 2007 and the slump beginning in 2008.

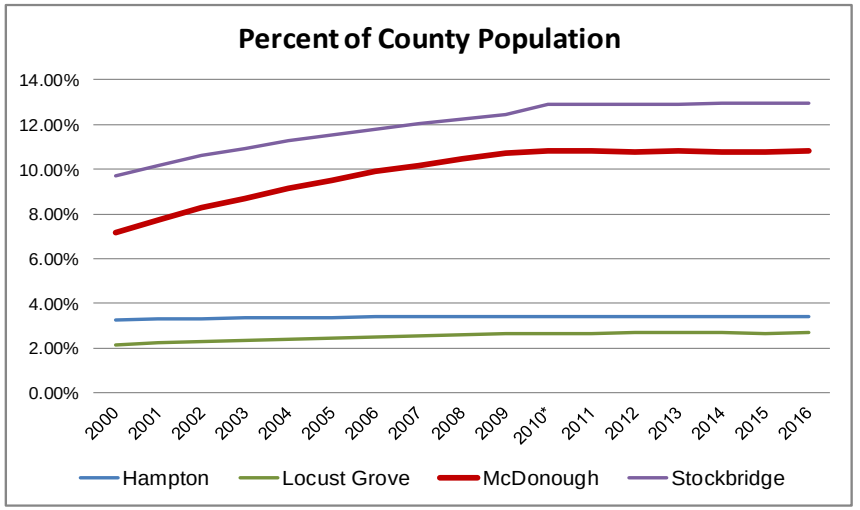
Table P-1: Census Population Data

	← Intercensal Population Estimates →										Annual Estimates Program						
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*	2011	2012	2013	2014	2015	2016
Hampton	3,970	4,306	4,656	5,028	5,357	5,710	6,095	6,407	6,632	6,824	7,010	7,059	7,085	7,123	7,311	7,371	7,532
Locust Grove	2,596	2,903	3,218	3,552	3,855	4,177	4,519	4,813	5,036	5,237	5,442	5,466	5,643	5,669	5,700	5,771	5,940
McDonough	**8,710**	**10,117**	**11,682**	**13,136**	**14,638**	**16,072**	**17,841**	**19,154**	**20,371**	**21,348**	**22,167**	**22,433**	**22,469**	**22,730**	**22,960**	**23,355**	**23,964**
Stockbridge	11,839	13,329	14,907	16,507	18,012	19,574	21,272	22,706	23,823	24,817	26,515	26,761	26,920	27,193	27,601	28,075	28,677
Henry County	121774	131000	140747	150928	159971	169607	180304	188736	194658	199622	205,142	207,039	208,275	210,371	213,439	217,004	221,768

Percent of County Population

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*	2011	2012	2013	2014	2015	2016
Hampton	3.26%	3.29%	3.31%	3.33%	3.35%	3.37%	3.38%	3.39%	3.41%	3.42%	3.42%	3.41%	3.40%	3.39%	3.43%	3.40%	3.40%
Locust Grove	2.13%	2.22%	2.29%	2.35%	2.41%	2.46%	2.51%	2.55%	2.59%	2.62%	2.65%	2.64%	2.71%	2.69%	2.67%	2.66%	2.68%
McDonough	**7.15%**	**7.72%**	**8.30%**	**8.70%**	**9.15%**	**9.48%**	**9.89%**	**10.15%**	**10.47%**	**10.69%**	**10.81%**	**10.84%**	**10.79%**	**10.80%**	**10.76%**	**10.76%**	**10.81%**
Stockbridge	9.72%	10.17%	10.59%	10.94%	11.26%	11.54%	11.80%	12.03%	12.24%	12.43%	12.93%	12.93%	12.93%	12.93%	12.93%	12.94%	12.93%
Henry County	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%





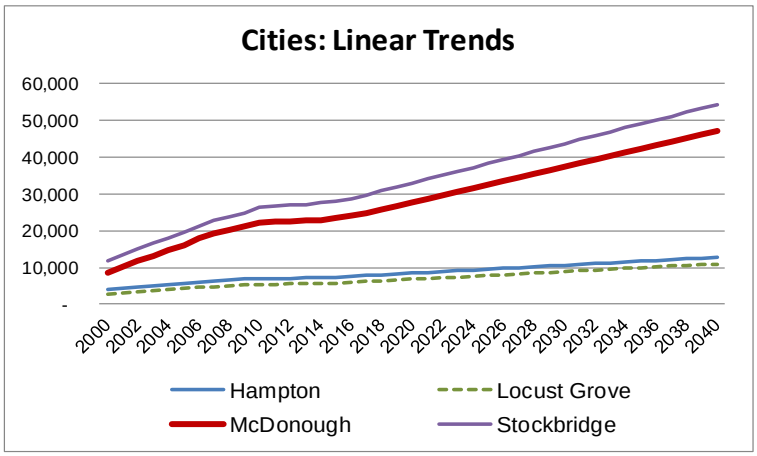
* Revised by Census Bureau in 2016.

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

Sources: For 2010 to 2016: Census Estimates Program, 2011-2016, US Bureau of the Census. For 2000 to 2009: Intercensal Estimates 2000-2010, US Bureau of the Census.

Table P-2: City Projections, Linear Trend

	Hampton	Locust Grove	McDonough	Stockbridge
2000	3,970	2,596	**8,710**	11,839
2001	4,306	2,903	**10,117**	13,329
2002	4,656	3,218	**11,682**	14,907
2003	5,028	3,552	**13,136**	16,507
2004	5,357	3,855	**14,638**	18,012
2005	5,710	4,177	**16,072**	19,574
2006	6,095	4,519	**17,841**	21,272
2007	6,407	4,813	**19,154**	22,706
2008	6,632	5,036	**20,371**	23,823
2009	6,824	5,237	**21,348**	24,817
2010	7,010	5,442	**22,167**	26,515
2011	7,059	5,466	**22,433**	26,761
2012	7,085	5,643	**22,469**	26,920
2013	7,123	5,669	**22,730**	27,193
2014	7,311	5,700	**22,960**	27,601
2015	7,371	5,771	**23,355**	28,075
2016	7,532	5,940	**23,964**	28,677
2017	7,751	6,150	**24,923**	29,749
2018	7,971	6,360	**25,883**	30,821
2019	8,190	6,569	**26,843**	31,893
2020	8,410	6,779	**27,803**	32,964
2021	8,629	6,989	**28,763**	34,036
2022	8,849	7,199	**29,722**	35,108
2023	9,068	7,408	**30,682**	36,180
2024	9,288	7,618	**31,642**	37,252
2025	9,507	7,828	**32,602**	38,324
2026	9,727	8,038	**33,561**	39,395
2027	9,946	8,248	**34,521**	40,467
2028	10,166	8,457	**35,481**	41,539
2029	10,385	8,667	**36,441**	42,611
2030	10,605	8,877	**37,401**	43,683
2031	10,824	9,087	**38,360**	44,755
2032	11,044	9,297	**39,320**	45,826
2033	11,263	9,506	**40,280**	46,898
2034	11,483	9,716	**41,240**	47,970
2035	11,702	9,926	**42,199**	49,042
2036	11,922	10,136	**43,159**	50,114
2037	12,141	10,346	**44,119**	51,186
2038	12,361	10,555	**45,079**	52,258
2039	12,580	10,765	**46,038**	53,329
2040	12,800	10,975	**46,998**	54,401



Alternate Projections

Tables P2 and P-3 present alternate projections for the cities that are located within Henry County, and Table P-4 for the county as a whole, based on the Census population data for 2000 to 2016.

Table P-2 shows the results of the linear trend regression approach for each of the cities, while Table P-3 (on the next page) shows the projections from the growth trend regression approach.

For McDonough, the projections result in 2040 populations that differ by over 52% (51,364 people). This is relatively comparable to Stockbridge, where the difference is almost 47%, and notably greater than Locust Grove (43%) and Hampton (31%).

As illustrated by the graphs illustrating the two projections, the growth trend regression results in a notably larger population for McDonough in 2040 over the linear trend regression, due to the overstated 'curve' forced to fit the historic data.

Table P-3: City Projections, Growth Trend

	Hampton	Locust Grove	McDonough	Stockbridge
2000	3,970	2,596	**8,710**	11,839
2001	4,306	2,903	**10,117**	13,329
2002	4,656	3,218	**11,682**	14,907
2003	5,028	3,552	**13,136**	16,507
2004	5,357	3,855	**14,638**	18,012
2005	5,710	4,177	**16,072**	19,574
2006	6,095	4,519	**17,841**	21,272
2007	6,407	4,813	**19,154**	22,706
2008	6,632	5,036	**20,371**	23,823
2009	6,824	5,237	**21,348**	24,817
2010	7,010	5,442	**22,167**	26,515
2011	7,059	5,466	**22,433**	26,761
2012	7,085	5,643	**22,469**	26,920
2013	7,123	5,669	**22,730**	27,193
2014	7,311	5,700	**22,960**	27,601
2015	7,371	5,771	**23,355**	28,075
2016	7,532	5,940	**23,964**	28,677
2017	7,822	6,238	**25,416**	30,233
2018	8,124	6,551	**26,957**	31,874
2019	8,437	6,880	**28,590**	33,603
2020	8,762	7,226	**30,323**	35,427
2021	9,100	7,589	**32,161**	37,349
2022	9,451	7,970	**34,110**	39,375
2023	9,815	8,370	**36,177**	41,512
2024	10,194	8,790	**38,369**	43,765
2025	10,586	9,231	**40,694**	46,139
2026	10,995	9,695	**43,161**	48,643
2027	11,418	10,181	**45,776**	51,282
2028	11,859	10,693	**48,550**	54,065
2029	12,316	11,229	**51,493**	56,999
2030	12,790	11,793	**54,613**	60,092
2031	13,283	12,385	**57,923**	63,352
2032	13,796	13,007	**61,433**	66,790
2033	14,327	13,660	**65,157**	70,414
2034	14,880	14,346	**69,105**	74,235
2035	15,453	15,066	**73,293**	78,263
2036	16,049	15,823	**77,735**	82,510
2037	16,668	16,617	**82,446**	86,987
2038	17,310	17,451	**87,442**	91,707
2039	17,977	18,327	**92,742**	96,684
2040	18,670	19,248	**98,362**	101,930

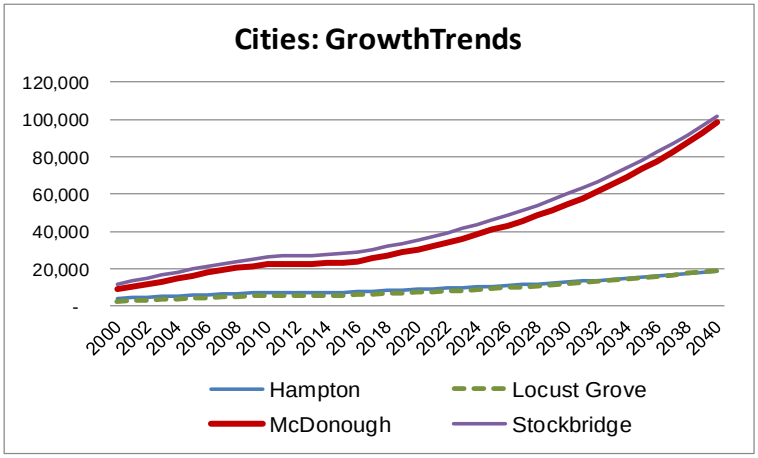


Table P-4: Henry County Projections

	Census: Linear	Census: Growth	Pre-Recession Linear	Georgia OPB	Woods & Poole
2000	121,774	121,774	121,774		
2001	131,000	131,000	131,000		
2002	140,747	140,747	140,747		
2003	150,928	150,928	150,928		
2004	159,971	159,971	159,971		
2005	169,607	169,607	169,607		
2006	180,304	180,304	180,304		
2007	188,736	188,736	188,736		
2008	194,658	194,658	194,658		
2009	199,622	199,622	199,622		
2010	205,142	205,142	205,142		205,142
2011	207,039	207,039	207,039		207,007
2012	208,275	208,275	208,275		208,391
2013	210,371	210,371	210,371	211,128	210,687
2014	213,439	213,439	213,439	215,391	213,738
2015	217,004	217,004	217,004	219,654	217,739
2016	221,768	221,768	221,768	223,916	224,264
2017	227,613	229,766	229,523	228,179	231,138
2018	233,459	238,053	237,278	232,442	238,206
2019	239,304	246,638	245,033	237,005	245,476
2020	245,150	255,533	252,788	241,568	252,947
2021	250,995	264,749	260,544	246,130	260,626
2022	256,841	274,297	268,299	250,693	268,516
2023	262,686	284,189	276,054	255,256	276,619
2024	268,531	294,438	283,809	260,081	284,943
2025	274,377	305,057	291,564	264,906	293,483
2026	280,222	316,059	299,319	269,779	302,241
2027	286,068	327,458	307,074	274,652	311,220
2028	291,913	339,268	314,829	279,524	320,416
2029	297,759	351,503	322,584	284,397	329,840
2030	303,604	364,180	330,339	289,270	339,493
2031	309,449	377,314	338,095	294,253	349,331
2032	315,295	390,922	345,850	299,237	359,354
2033	321,140	405,021	353,605	304,220	369,573
2034	326,986	419,628	361,360	309,203	379,986
2035	332,831	434,761	369,115	314,187	390,597
2036	338,677	450,441	376,870	319,309	401,411
2037	344,522	466,686	384,625	324,431	412,433
2038	350,368	483,517	392,380	329,554	423,666
2039	356,213	500,955	400,135	334,676	435,116
2040	362,058	519,022	407,890	339,799	446,786

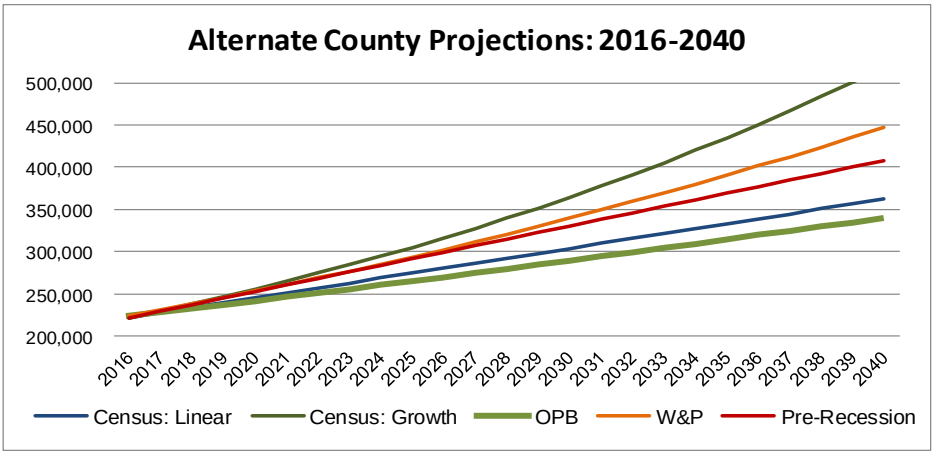


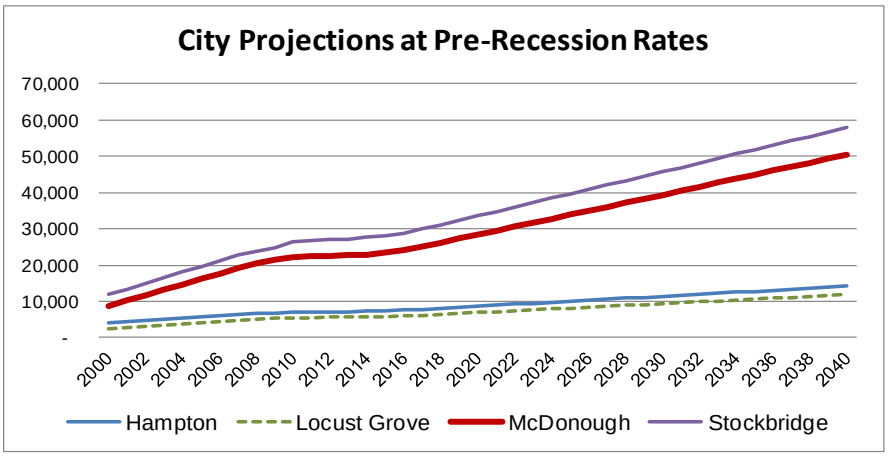
Table P-4 presents the results of the linear trend and growth trend approaches to 2040 for the county as a whole. The results diverge by more than 43% over the projection period.

For comparison purposes, forecasts prepared for Henry County by Woods & Poole (which are generally recognized by DCA as authoritative) and by the State Office of Planning and Budget are also shown on Table P-4, along with a 'pre-recession' growth forecast for the county (discussed below).

Overall, the countywide linear trend projection and the OPB forecast result in roughly similar but low population figures in 2040, while the growth trend projection exceeds all others by a fairly wide margin. The Woods & Poole figure appears somewhat enthusiastic compared to the others, but is closest to the 'pre-recession' projection, which is considered the more realistic.

Table P-5: Pre-Recession Growth Resumes

	Hampton	Locust Grove	McDonough	Stockbridge	Henry County
2000	**3,962**	**2,588**	**8,652**	**11,798**	**121,774**
2001	**4,313**	**2,907**	**10,157**	**13,361**	**131,000**
2002	**4,664**	**3,226**	**11,662**	**14,924**	**140,747**
2003	**5,016**	**3,545**	**13,166**	**16,487**	**150,928**
2004	**5,367**	**3,864**	**14,671**	**18,050**	**159,971**
2005	**5,718**	**4,182**	**16,176**	**19,613**	**169,607**
2006	**6,069**	**4,501**	**17,681**	**21,176**	**180,304**
2007	**6,420**	**4,820**	**19,185**	**22,739**	**188,736**
2008	6,632	5,036	20,371	23,823	194,658
2009	6,824	5,237	21,348	24,817	199,622
2010	7,010	5,442	22,167	26,515	205,142
2011	7,059	5,466	22,433	26,761	207,039
2012	7,085	5,643	22,469	26,920	208,275
2013	7,123	5,669	22,730	27,193	210,371
2014	7,311	5,700	22,960	27,601	213,439
2015	7,371	5,771	23,355	28,075	217,004
2016	7,532	5,940	23,964	28,677	221,768
2017	7,808	6,186	25,066	29,895	229,523
2018	8,084	6,433	26,168	31,113	237,278
2019	8,360	6,679	27,269	32,330	245,033
2020	8,636	6,925	28,371	33,548	252,788
2021	8,912	7,171	29,473	34,766	260,544
2022	9,188	7,418	30,575	35,984	268,299
2023	9,464	7,664	31,677	37,202	276,054
2024	9,740	7,910	32,778	38,419	283,809
2025	10,017	8,157	33,880	39,637	291,564
2026	10,293	8,403	34,982	40,855	299,319
2027	10,569	8,649	36,084	42,073	307,074
2028	10,845	8,895	37,186	43,291	314,829
2029	11,121	9,142	38,287	44,508	322,584
2030	11,397	9,388	39,389	45,726	330,339
2031	11,673	9,634	40,491	46,944	338,095
2032	11,949	9,880	41,593	48,162	345,850
2033	12,225	10,127	42,695	49,380	353,605
2034	12,501	10,373	43,796	50,597	361,360
2035	12,777	10,619	44,898	51,815	369,115
2036	13,053	10,866	46,000	53,033	376,870
2037	13,329	11,112	47,102	54,251	384,625
2038	13,605	11,358	48,204	55,468	392,380
2039	13,881	11,604	49,305	56,686	400,135
2040	14,157	11,851	50,407	57,904	407,890



Pre-Recession Growth Rates

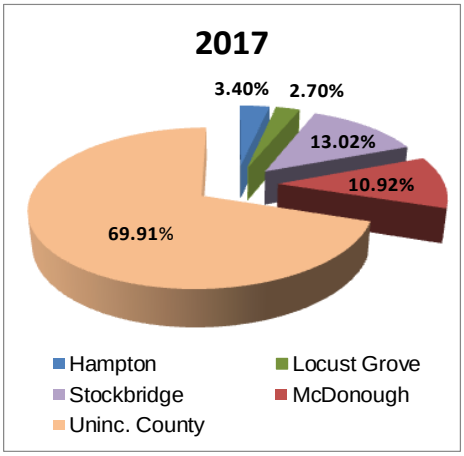
The previous two city projections were based on the full complement of historic data from 2000 to 2016. This span of time includes the 'normal' growth between 2000 and 2007, followed by the recessionary slump from 2008 to 2012 and the flicker of a recovery starting in 2013.

The projections on Table P-5 are made on the assumption that, now that recovery seems to be a reality, the 2000-2007 'normal' growth will eventually return.

Basing the projections for the county and all of its cities on that period is a two-step procedure: First, projections to 2040 are made using the growth trend regression model against the 'normal' years, with the first projection year being 2008. The second step, therefore, is to adjust the projections to the 'actual' 2016 figures, reducing the initial data stream for each city and the county across the board.

Table P-6: Pre-Recession Growth - Percent of County

	Henry County	Hampton	Locust Grove	McDonough	Stockbridge
2000	121,774	3.25%	2.13%	**7.11%**	9.69%
2001	131,000	3.29%	2.22%	**7.75%**	10.20%
2002	140,747	3.31%	2.29%	**8.29%**	10.60%
2003	150,928	3.32%	2.35%	**8.72%**	10.92%
2004	159,971	3.35%	2.42%	**9.17%**	11.28%
2005	169,607	3.37%	2.47%	**9.54%**	11.56%
2006	180,304	3.37%	2.50%	**9.81%**	11.74%
2007	188,736	3.40%	2.55%	**10.17%**	12.05%
2008	194,658	3.41%	2.59%	**10.47%**	12.24%
2009	199,622	3.42%	2.62%	**10.69%**	12.43%
2010	205,142	3.42%	2.65%	**10.81%**	12.93%
2011	207,039	3.41%	2.64%	**10.84%**	12.93%
2012	208,275	3.40%	2.71%	**10.79%**	12.93%
2013	210,371	3.39%	2.69%	**10.80%**	12.93%
2014	213,439	3.43%	2.67%	**10.76%**	12.93%
2015	217,004	3.40%	2.66%	**10.76%**	12.94%
2016	221,768	3.40%	2.68%	**10.81%**	12.93%
2017	229,523	3.40%	2.70%	**10.92%**	13.02%
2018	237,278	3.41%	2.71%	**11.03%**	13.11%
2019	245,033	3.41%	2.73%	**11.13%**	13.19%
2020	252,788	3.42%	2.74%	**11.22%**	13.27%
2021	260,544	3.42%	2.75%	**11.31%**	13.34%
2022	268,299	3.42%	2.76%	**11.40%**	13.41%
2023	276,054	3.43%	2.78%	**11.47%**	13.48%
2024	283,809	3.43%	2.79%	**11.55%**	13.54%
2025	291,564	3.44%	2.80%	**11.62%**	13.59%
2026	299,319	3.44%	2.81%	**11.69%**	13.65%
2027	307,074	3.44%	2.82%	**11.75%**	13.70%
2028	314,829	3.44%	2.83%	**11.81%**	13.75%
2029	322,584	3.45%	2.83%	**11.87%**	13.80%
2030	330,339	3.45%	2.84%	**11.92%**	13.84%
2031	338,095	3.45%	2.85%	**11.98%**	13.88%
2032	345,850	3.45%	2.86%	**12.03%**	13.93%
2033	353,605	3.46%	2.86%	**12.07%**	13.96%
2034	361,360	3.46%	2.87%	**12.12%**	14.00%
2035	369,115	3.46%	2.88%	**12.16%**	14.04%
2036	376,870	3.46%	2.88%	**12.21%**	14.07%
2037	384,625	3.47%	2.89%	**12.25%**	14.10%
2038	392,380	3.47%	2.89%	**12.29%**	14.14%
2039	400,135	3.47%	2.90%	**12.32%**	14.17%
2040	407,890	3.47%	2.91%	**12.36%**	14.20%



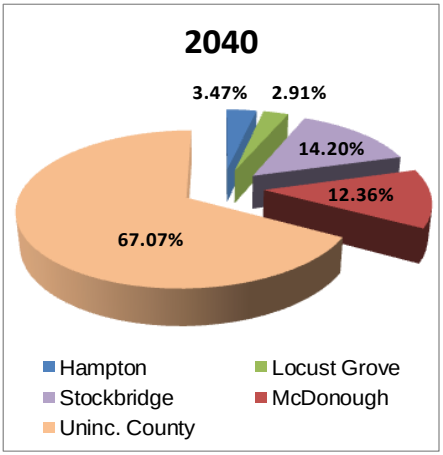


Table P-6 converts the 'pre-recession' projections from 2017 to 2040 for the cities into percentage shares of the county total which, when compared to the percentage shares of the 2000-2016 period show a continuing trend from the past into the future.

In all cases, each city shows some 'gain' in its percentage of the county-wide total population between now and 2040. In the cases of McDonough and Stockbridge, the future gains over 22 years are less than between 2000 and 2016. For Stockbridge, the percentage share of the county between 2000-2016 increased by 3.24%, compared to a gain between 2017 and 2040 of 1.17%.

McDonough's increases are more robust, showing a 2000-2016 gain of 3.70%, and a growth in percentage share between 2017 and 2040 of 1.44%.

As an aside to the population projections, Table P-7 shows the total number of housing units authorized by building permits in the three cities that report their permitting independently, and in the unincorporated area and Stockbridge together. (Stockbridge does not report its permitting independently and Locust Grove began reporting in 2013.)

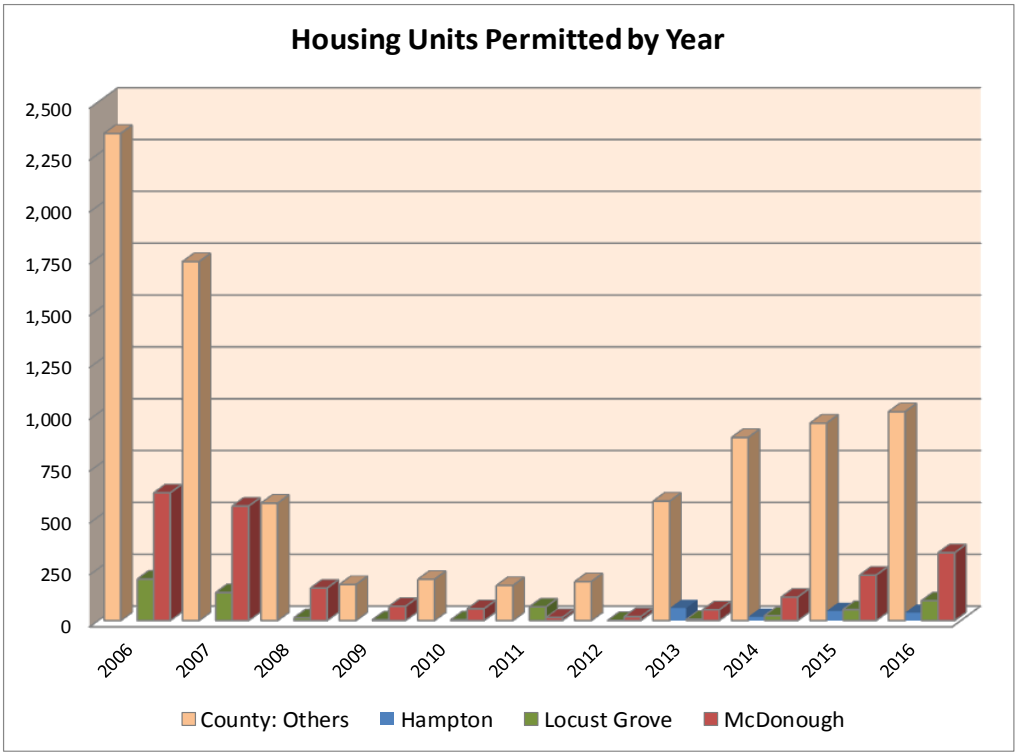
Nothing better reflects the devastating effects of the recession on all of these jurisdictions as permitting began to plummet for most starting in calendar year 2008 and continued with dramatic reductions in 2009. Some turn-around can be seen in the unincorporated area and Stockbridge, as well as McDonough, beginning in 2013, with ever-growing increases in McDonough from 2014 on.

The growth rate in McDonough has outpaced all other Henry County jurisdictions in the years since the recession.

Table P-7: Housing Units Permitted 2001 through 2017

	County: Others	Hampton	Locust Grove	McDonough
2006	2,349		200	616
2007	1,731		135	552
2008	566		14	157
2009	174		4	69
2010	199		4	57
2011	169		66	15
2012	188		1	19
2013	576	60	6	52
2014	883	18	24	113
2015	952	46	53	219
2016	1,007	38	96	327

Note: 'County: Others' includes the unincorporated area, Stockbridge, and Hampton up to 2013.



In 2014 and 2015, the number of new housing units in McDonough issued permits roughly doubled over each previous year. In 2016, the number increased by 49% over 2015, (compared to a 6% increase for the County and Stockbridge) and this rate of increase continued in 2017 with another 51% increase over 2016, reaching 493 new units. The 2017 total approaches within 90% of the last pre-recession year total (2007).

Technical Analysis—Housing and Employment Forecasts

Following on the selection of the population forecast we will use for the impact fee calculations (the 'Pre-Recession Growth' forecast), estimates have been made of the future number of housing units and employment in the city to 2040. Note that Parks & Recreation Level of Service (LOS) standards will be based on the number of housing units in the city, while Fire Protection and Law Enforcement will combine population and employment into a 'day-night' population to reflect their 24-hour service demand.

■ Housing Units

The table on the next page shows how the housing projections were figured. The approach is to calculate the number of households (which equates to the number of occupied housing units) and then to expand that to the total number of housing units by adding in vacant units.

The first section of the table shows the Woods & Poole forecasts for population and households for the entire county. These figures are used only to allow a calculation of the average number of people per household countywide, and to reveal how W&P projects those averages to change in the future.

Our assumption is that the average population-per-household sizes in McDonough will 'track' proportionally the sociometric trend projected by Woods & Poole countywide. In 2010, according to the Census Bureau, the average population-per-household size in McDonough was 2.75 people, compared to the countywide figure of 2.90. The McDonough 2010 figure is almost 94.87% of the countywide figure; this percentage is applied to the countywide averages projected by Woods & Poole through 2040 to arrive at future average population-per-household sizes for McDonough. These average household sizes are then divided into the McDonough projected population every year to arrive at the household forecasts.

Housing units were calculated for McDonough beginning with the 2010 housing occupancy rate, and building back to the 2000 occupancy rate by 2035, and continuing to increase by 2040 at the same rate, following our assumption that the city will align with a rate equivalent to its pre-recessionary levels throughout the years ahead. To arrive at the total housing unit estimates each year, including vacant units, the number of households (i.e., occupied housing units) is divided by the applicable occupancy rate.

Table H-1: Housing Unit Forecasts

	Henry County (Woods & Poole)			McDonough				
	Population	Households	Population per Household*	Population**	Population per Household*	Total Households	Occupancy Rate	Total Housing Units
2000	121,774	42,164	2.89	8,710	2.84	3,069	94.90%	3,234
2001	131,000	46,257	2.83					
2002	140,747	49,600	2.84					
2003	150,928	53,533	2.82					
2004	159,971	56,310	2.84					
2005	169,607	59,604	2.85					
2006	180,304	63,079	2.86					
2007	188,736	66,099	2.86					
2008	194,658	67,889	2.87	Multiplier:	94.87%			
2009	199,622	69,198	2.88					
2010	205,142	70,700	2.90	22,167	2.75	8,053	88.86%	9,063
2011	207,007	72,455	2.86	22,433	2.71	8,277	89.10%	9,290
2012	208,391	74,923	2.78	22,469	2.64	8,515	89.34%	9,531
2013	210,687	77,578	2.72	22,730	2.58	8,822	89.58%	9,848
2014	213,738	79,651	2.68	22,960	2.55	9,019	89.82%	10,041
2015	217,739	82,125	2.65	23,355	2.52	9,285	90.06%	10,309
2016	224,264	85,179	2.63	23,964	2.50	9,594	90.31%	10,624
2017	231,138	88,177	2.62	25,066	2.49	10,080	90.55%	11,132
2018	238,206	91,124	2.61	26,168	2.48	10,552	90.79%	11,623
2019	245,476	94,051	2.61	27,269	2.48	11,013	91.03%	12,098
2020	252,947	96,997	2.61	28,371	2.47	11,468	91.27%	12,565
2021	260,626	99,969	2.61	29,473	2.47	11,917	91.51%	13,022
2022	268,516	102,907	2.61	30,575	2.48	12,352	91.76%	13,462
2023	276,619	105,837	2.61	31,677	2.48	12,776	92.00%	13,887
2024	284,943	108,789	2.62	32,778	2.48	13,192	92.24%	14,302
2025	293,483	111,771	2.63	33,880	2.49	13,601	92.48%	14,707
2026	302,241	114,794	2.63	34,982	2.50	14,005	92.72%	15,104
2027	311,220	117,868	2.64	36,084	2.50	14,406	92.96%	15,496
2028	320,416	120,988	2.65	37,186	2.51	14,801	93.21%	15,880
2029	329,840	124,136	2.66	38,287	2.52	15,189	93.45%	16,254
2030	339,493	127,314	2.67	39,389	2.53	15,571	93.69%	16,620
2031	349,331	130,529	2.68	40,491	2.54	15,948	93.93%	16,978
2032	359,354	133,769	2.69	41,593	2.55	16,321	94.17%	17,331
2033	369,573	137,041	2.70	42,695	2.56	16,688	94.41%	17,675
2034	379,986	140,353	2.71	43,796	2.57	17,052	94.66%	18,015
2035	390,597	143,702	2.72	44,898	2.58	17,412	94.90%	18,348
2036	401,411	147,141	2.73	46,000	2.59	17,774	95.14%	18,682
2037	412,433	150,718	2.74	47,102	2.60	18,144	95.38%	19,023
2038	423,666	154,425	2.74	48,204	2.60	18,521	95.62%	19,369
2039	435,116	158,259	2.75	49,305	2.61	18,903	95.86%	19,718
2040	446,786	162,226	2.75	50,407	2.61	19,293	96.11%	20,075

* Gross: Total population (including group quarters) per household (not average household size).

** 2000 and 2010: Census counts as of April 1 each year. 2011-2016: Annual Census Estimates. 2017-2040: projected population.

Employment

For the employment projections, we relied heavily on the countywide forecasts prepared by Woods & Poole. W&P counts jobs, not just employed people, which captures people holding two or more jobs, self-employed sole proprietors and part-time workers. This gives a more complete picture than Census figures (the number of people with jobs).

However, the Woods & Poole forecasts rely on a socioeconomic model that inter-relates population and employment growth at the local, regional and statewide levels. Since the W&P population forecasts for Henry County are notably higher than for the Pre-Recession Forecast prepared by ROSS+associates, the W&P figures have been adjusted proportionally.

Table E-1 on the left shows the adjusted number of jobs forecasted for the county as a whole and breaks out the types of jobs that would not be associated with an impact fee (such as farm workers and itinerant construction workers). This 'net' employment, called the 'value-added jobs', is shown in the last column.

The following Table E-2 on the right compares employment figures from the Census Bureau to the adjusted W&P figures for 2010. That was the first and only year that the Census Bureau published its employment figures at the city level.

Table E-1: Employment Forecasts - Henry County

	Total Jobs	Non-Site Specific*	Value-Added Jobs
2010	78,605	4,713	73,892
2011	80,343	4,582	75,761
2012	81,016	4,566	76,450
2013	83,456	4,741	78,715
2014	86,386	4,810	81,576
2015	89,165	5,011	84,154
2016	91,163	5,106	86,057
2017	94,372	5,253	89,119
2018	97,603	5,383	92,220
2019	100,856	5,507	95,349
2020	104,142	5,626	98,516
2021	107,452	5,739	101,713
2022	110,787	5,852	104,935
2023	114,140	5,958	108,182
2024	117,504	6,057	111,447
2025	120,878	6,145	114,733
2026	124,252	6,224	118,028
2027	127,630	6,297	121,333
2028	130,991	6,360	124,631
2029	134,336	6,419	127,917
2030	137,655	6,470	131,185
2031	140,958	6,518	134,440
2032	144,243	6,562	137,681
2033	147,505	6,601	140,904
2034	150,736	6,638	144,098
2035	153,950	6,670	147,280
2036	157,155	6,702	150,453
2037	160,345	6,730	153,615
2038	163,526	6,758	156,768
2039	166,687	6,785	159,902
2040	169,829	6,811	163,018

* Transitory and non-site specific jobs such as farm, forestry and construction workers.

Source: Woods & Poole Economics, 2017 Georgia State Profile, adjusted to the Pre-Recession Growth Trend projection.

Table E-2: Benchmark Data - 2010

Total Jobs in County

Woods & Poole*	78,605
Census Bureau**	55,492
Multiplier:	1.42

McDonough

Census Bureau**	12,817
× Multiplier = Estimated Jobs	18,155
McDonough % of County	23.10%
Households	8,053
Jobs per Household	2.25

* Value-Added Jobs, as adjusted.

** Based on commuting patterns of employed persons.

Since the Census figures count 'employed persons' and commuting patterns, the real jobs figures would be higher.

Countywide, the adjusted 2010 W&P employment figure is slightly over 1.418 times the number reported by the Census Bureau. This multiplier is applied to the McDonough Census number to arrive at an allocation of the W&P countywide figure for total employment.

The left portion of the table below takes the estimated value-added jobs figure for McDonough in 2010 (17,066) and carries it forward to 2040 as a percentage of total value-added jobs in the county. This 'percentage share' approach assumes that McDonough will continue to maintain its current percentage of countywide employment over the projection period. This approach results in an employment increase between 2017 and 2040 of almost 17,068 jobs, an 83% increase.

Table E-3: Employment Forecasts - McDonough

	Percent of County Jobs		Jobs per Household Ratio			Averaged Number	
	County Jobs*	McDonough Jobs	Number of Households	McDonough Jobs	Percent of County	McDonough Jobs	Percent of County
	At: 23.10%		At: 2.25				
2010	73,892	17,066	8,053	18,155	24.57%	17,611	23.83%
2011	75,761	17,498	8,277	18,660	24.63%	18,079	23.86%
2012	76,450	17,657	8,515	19,197	25.11%	18,427	24.10%
2013	78,715	18,180	8,822	19,889	25.27%	19,035	24.18%
2014	81,576	18,841	9,019	20,333	24.93%	19,587	24.01%
2015	84,154	19,437	9,285	20,932	24.87%	20,185	23.99%
2016	86,057	19,876	9,594	21,629	25.13%	20,753	24.11%
2017	89,119	20,583	10,080	22,725	25.50%	21,654	24.30%
2018	92,220	21,300	10,552	23,789	25.80%	22,545	24.45%
2019	95,349	22,022	11,013	24,828	26.04%	23,425	24.57%
2020	98,516	22,754	11,468	25,854	26.24%	24,304	24.67%
2021	101,713	23,492	11,917	26,866	26.41%	25,179	24.75%
2022	104,935	24,236	12,352	27,847	26.54%	26,042	24.82%
2023	108,182	24,986	12,776	28,803	26.62%	26,895	24.86%
2024	111,447	25,740	13,192	29,741	26.69%	27,741	24.89%
2025	114,733	26,499	13,601	30,663	26.73%	28,581	24.91%
2026	118,028	27,260	14,005	31,573	26.75%	29,417	24.92%
2027	121,333	28,024	14,406	32,477	26.77%	30,251	24.93%
2028	124,631	28,785	14,801	33,368	26.77%	31,077	24.93%
2029	127,917	29,544	15,189	34,243	26.77%	31,894	24.93%
2030	131,185	30,299	15,571	35,104	26.76%	32,702	24.93%
2031	134,440	31,051	15,948	35,954	26.74%	33,503	24.92%
2032	137,681	31,799	16,321	36,795	26.72%	34,297	24.91%
2033	140,904	32,544	16,688	37,622	26.70%	35,083	24.90%
2034	144,098	33,282	17,052	38,443	26.68%	35,863	24.89%
2035	147,280	34,017	17,412	39,254	26.65%	36,636	24.87%
2036	150,453	34,749	17,774	40,070	26.63%	37,410	24.86%
2037	153,615	35,480	18,144	40,905	26.63%	38,193	24.86%
2038	156,768	36,208	18,521	41,754	26.63%	38,981	24.87%
2039	159,902	36,932	18,903	42,616	26.65%	39,774	24.87%
2040	163,018	37,651	19,293	43,495	26.68%	40,573	24.89%

* Value-Added Jobs, from Woods & Poole as adjusted to the Pre-Recession Growth projection by ROSS+assoc.

In the center portion of Table E-3, an approach is used based on the number of jobs in the city relative to the number of households. While many employees commute into the city to work, while many residents commute to jobs elsewhere, the jobs-to-households approach has merit as it relates job growth to city growth (rather than county growth) – i.e., cities with higher residential growth attract more businesses within or near their borders. The result is a somewhat higher 2040 projection (almost doubling over 2017 with 20,077 new jobs), and, of equal note, employment in the city as a percentage of the county increases over the projection period, reflecting the growing economic importance of the city relative to the county.

The two alternate approaches above present certain issues. On the one hand, the 'percentage share' approach does not recognize the city's growing incorporation of and attraction to business development relative to other cities in the county and to the unincorporated area, and therefore seems low. On the other hand, the 'jobs-to-households' approach seems too high, resulting in about 27% of all employment in the county to be located within the city.

The right-hand portion of the above table, therefore, presents the results of averaging the two approaches as a compromise solution between McDonough's sharing in the economic trends of the county while recognizing its relative pre-eminence in 'disproportionately' attracting business development internally and through possible annexation.

Considering the increased employment opportunities that have already occurred in the city since 2010, and the potential to attract more jobs in the future relative both to growth in business activity and the customer base, we recommend that the 'averaged number' approach be adopted for impact fee purposes. This reflects an increase of almost 19,000 value-added jobs over 2017 (a 87%+ increase over 22 years) and basically maintains the percentage of county-wide jobs located within the city in the 24.3-to-24.9% range.

Service Areas

Combining the previously prepared residential population forecasts with the recommended employment forecasts (for day-night population figures) and the housing unit projections, gives us the figures necessary to establish projections for the various types of public facilities by their service demands.

Table S-1: Service Area Forecasts

	Housing Units (Parks)	Day-Night Population (Fire, Police)
2017	11,132	46,721
2018	11,623	48,713
2019	12,098	50,695
2020	12,565	52,676
2021	13,022	54,653
2022	13,462	56,617
2023	13,887	58,572
2024	14,302	60,519
2025	14,707	62,462
2026	15,104	64,400
2027	15,496	66,335
2028	15,880	68,264
2029	16,254	70,181
2030	16,620	72,092
2031	16,978	73,995
2032	17,331	75,891
2033	17,675	77,779
2034	18,015	79,659
2035	18,348	81,534
2036	18,682	83,411
2037	19,023	85,295
2038	19,369	87,186
2039	19,718	89,080
2040	20,075	90,981
Net Increase:	**8,943**	**44,261**

Day-Night population is the combination of residents and 'value added' employment.