

DATE: April 18, 2024

TO: Mayor A.R. Roberts III, City of Ball Ground
ATTN TO: Chris Luly, Director of Planning and Zoning, City of Ball Ground
FROM: Mike Alexander, COO, Atlanta Regional Commission

The Atlanta Regional Commission (ARC) has received the following proposal and is initiating a regional review to seek comments from potentially impacted jurisdictions and agencies. The ARC requests your comments related to the proposal not addressed by the Commission's regional plans and policies.

Name of Proposal: 2024 City of Ball Ground Capital Improvement Element

Description: A regional review of the draft 2024 City of Ball Ground Capital Improvement Element.

Submitting Local Government: City of Ball Ground

Action Under Consideration: Approval

Date Opened: April 18, 2024

THE FOLLOWING LOCAL GOVERNMENTS AND AGENCIES ARE RECEIVING NOTICE OF THIS REVIEW:

ATLANTA REGIONAL COMMISSION
GEORGIA DEPARTMENT OF TRANSPORTATION
GEORGIA ENVIRONMENTAL FINANCE AUTHORITY
DAWSON COUNTY

GEORGIA DEPARTMENT OF NATURAL RESOURCE
GEORGIA REGIONAL TRANSPORTATION AUTHORITY
CHEROKEE COUNTY
PICKENS COUNTY

GEORGIA DEPARTMENT OF COMMUNITY AFFAIRS
GEORGIA SOIL AND WATER CONSERVATION COMMISSION
CITY OF CANTON
FORSYTH COUNTY

Review information is attached.

Please submit comments to dshockey@atlantaregional.org For questions, please contact ARC Plan Review Manager Donald Shockey at dshockey@atlantaregional.org or 470-378-1531. If no comments are received by **Thursday May 9, 2024**, ARC will assume your agency has no input on the subject plan. The ARC review website is located at <https://atlantaregional.org/community-development/comprehensive-planning/plan-reviews/>



**City of Ball Ground, Georgia
Transmittal Resolution
Capital Improvements Element**

WHEREAS, the City of Ball Ground has prepared a draft Capital Improvements Element, which, when adopted, will be incorporated into and update the *City of Ball Ground Comprehensive Plan*; and

WHEREAS, the draft Capital Improvements Element was prepared in accordance with the "Development Impact Fee Compliance Requirements" and the "Minimum Standards and Procedures for Local Comprehensive Planning" adopted by the Board of Community Affairs pursuant to the Georgia Planning Act of 1989; and,

WHEREAS, a duly advertised Public Hearing was held by the City Council on Tuesday, January 2, 2024, at 6:00 P.M. regarding the potential creation of an impact fee program, the process to be followed in its preparation, and to elicit community input on needs and goals, pursuant to the Georgia Development Impact Fee Act. Said public hearing was held in accordance with Section (3)(a) of Chapter 110-12-2-.04 of the State's Development Impact Fee Compliance Requirements; and,

WHEREAS, a duly advertised Public Hearing was held by the City Council on April 4, 2024, at 6:30 P.M. at City Hall in accordance with Section (10)(a)1 of Chapter 110-12-2-.04 of the Development Impact Fee Compliance Requirements;

THEREFORE BE IT RESOLVED, that the City Council of the City of Ball Ground, Georgia, does hereby submit the draft Capital Improvements Element to the Atlanta Regional Commission for Regional and State review, as per the requirements of the Development Impact Fee Compliance Requirements.

Adopted this 4th day of April, 2024.

A.R. Roberts, Mayor

ATTEST:

Karen L. Jordan, City Clerk

Impact Fee Program

Ball Ground Georgia

Including the following:
Parks and Recreation
Road Improvements

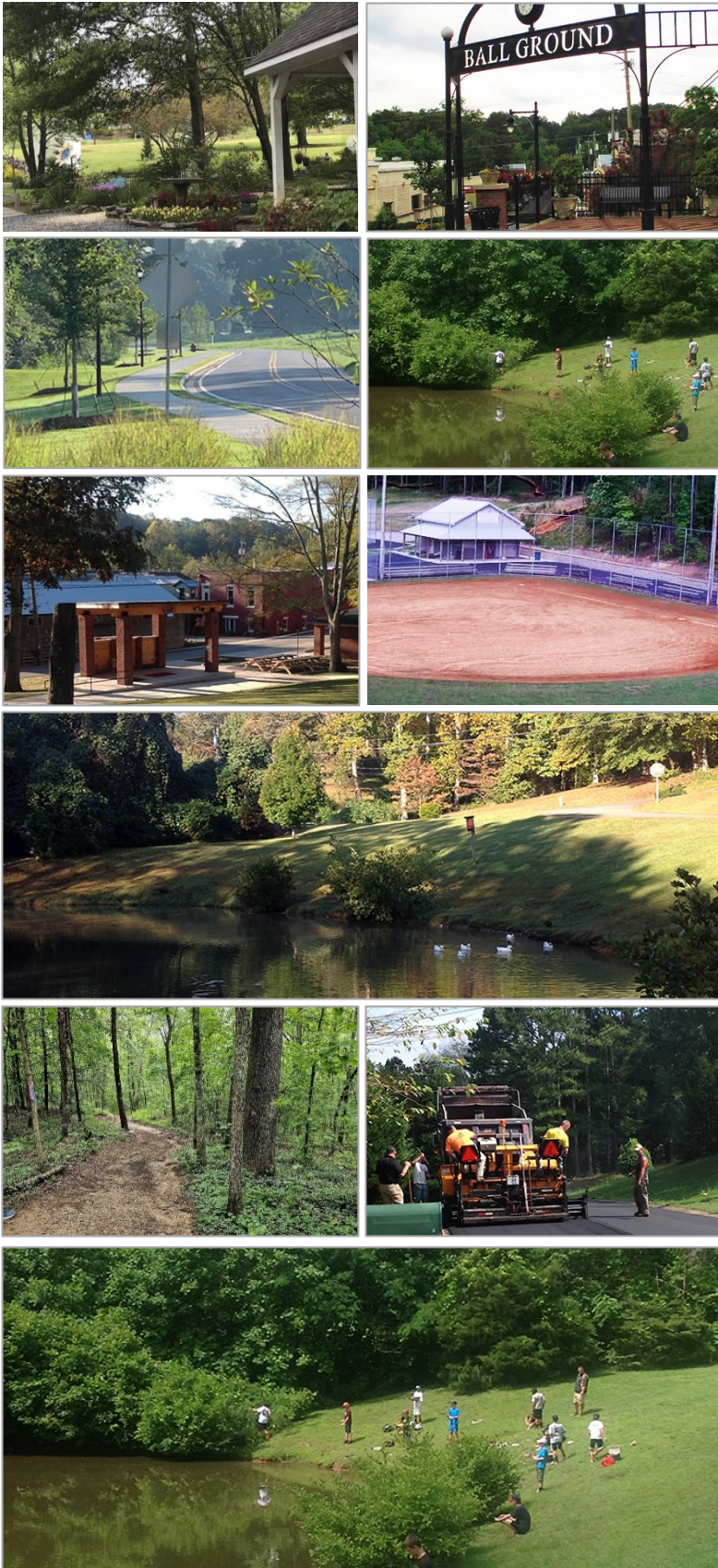
Capital Improvements Element

DRAFT 4/9/24

ROSS+associates

urban planning & plan implementation

in association with
Hatley Plans LLC



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Introduction

■ Forecasts

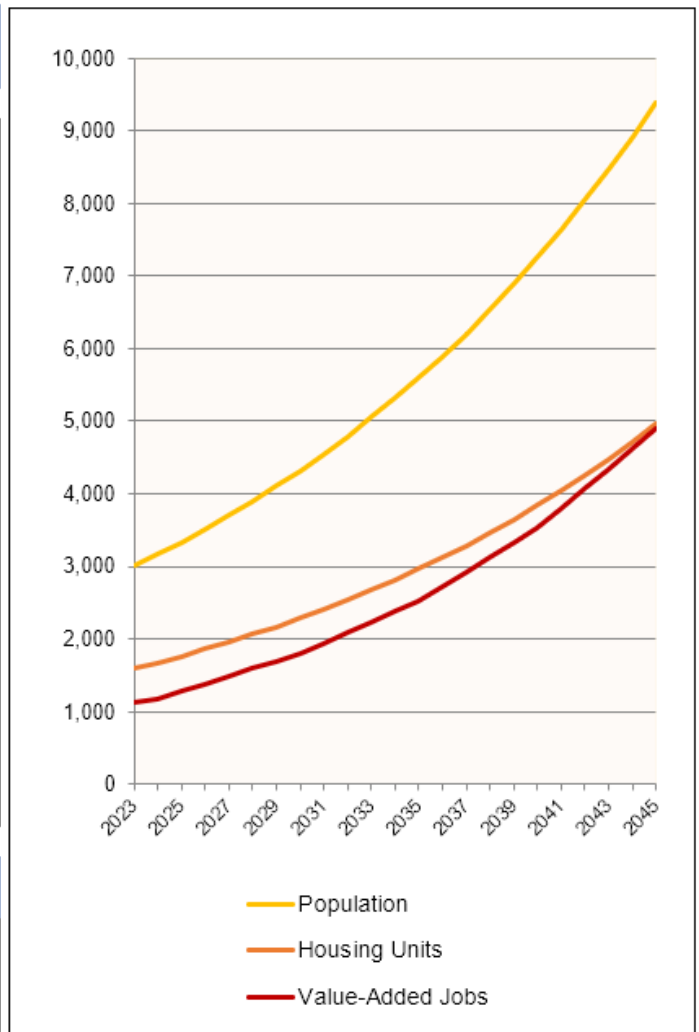
In order to accurately calculate the demand for future services in Ball Ground, new growth and development must be quantified in future projections. These projections include forecasts for population, households, housing units, employment, and traffic over the next 22 years to 2045. The projections provide the baseline conditions from which the most recent (2023) Level of Service calculations are produced. Also, projections are combined to produce what is known as the 'day-night population'. This is a method that combines resident population and employees to produce an accurate picture of the total number of people that rely on certain 24-hour services, both as residents and employees.

This table below presents a summary of the forecasts that have been identified as the most likely for Ball Ground, based on an analysis of past trends. The specific methodologies and breakdowns are detailed in the attached Appendix A.

Forecasts of Future City Growth

Year	Population	Housing Units	Value-Added Jobs
2023	3,005	1,589	1,117
2024	3,165	1,674	1,171
2025	3,333	1,763	1,278
2026	3,510	1,857	1,382
2027	3,697	1,955	1,486
2028	3,894	2,059	1,589
2029	4,101	2,169	1,693
2030	4,319	2,284	1,797
2031	4,548	2,406	1,941
2032	4,790	2,533	2,086
2033	5,045	2,669	2,230
2034	5,314	2,810	2,375
2035	5,596	2,960	2,519
2036	5,894	3,117	2,719
2037	6,207	3,283	2,918
2038	6,538	3,457	3,118
2039	6,885	3,641	3,317
2040	7,252	3,836	3,517
2041	7,637	4,039	3,793
2042	8,043	4,254	4,069
2043	8,471	4,480	4,346
2044	8,922	4,718	4,622
2045	9,397	4,970	4,898

	Population	Housing Units	Value-Added Jobs
2023	3,005	1,589	1,117
2045	9,397	4,970	4,898
Increase	6,392	3,380	3,781
Percent	68.0%	68.0%	77.2%



■ Looking Ahead

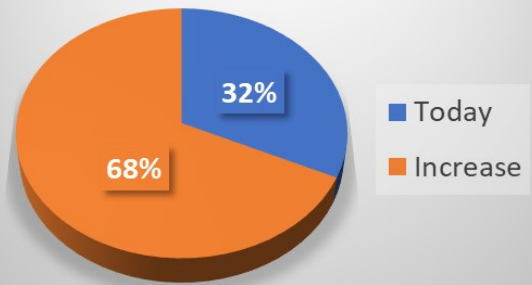
Forecasts indicate continued growth ahead for Ball Ground as people continue to move into the city, propelled by favorable living conditions, a great school system, and exceptional access to jobs and services. Over the next 22 years to 2045, it is expected that almost 6,400 people (68% of the total) will be living in Ball Ground then that are not here today.

Population Outlook

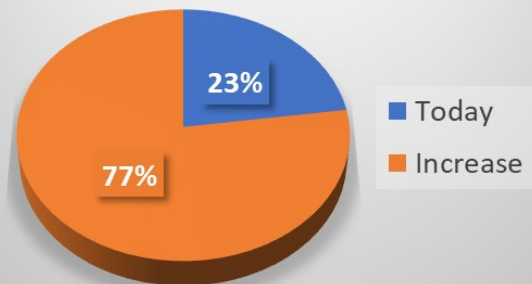
The future increase in population is not unprecedented. Looking back, since 2000 the city's population grew from 897 to 2,853 in 2022—adding 1,956 residents to the city (a 218% increase over 2000). Importantly, the city experienced a slight 'slump' in population similar to what other cities and counties experienced that was brought on by the collapse of the housing market and the onset of the Great Recession that occurred in 2008. The city's population growth rebounded decidedly in 2014 and has continued to grow, adding another 1,152 residents by 2022.

Over the coming 22 years, from 2023 to 2045, the pace of the city's population growth is projected to continue the overall vitality of the 2000-2022 growth by adding another 6,392 people, who will then represent 68% of the 2045 total population.

Population Growth - 2045



Employment Growth - 2045



Increased Job Opportunities

Ball Ground has long been an ever-growing center for business and employment, serving the region as well as the city's residents. Today, there are .703 people working in 'value-added' jobs¹ in the city for each housing unit. By 2045 this is expected to grow to .986 jobs for each housing unit—almost a 1-to-1 ratio. From a population perspective, currently there are 0.372 such jobs in the city per resident, which is projected to increase to almost .5 jobs per resident (.499). This is not to say that more residents will be working in the city (though that may well happen), but that the city's economic impact on the city and its region will grow.

As to the value-added jobs themselves, a net of 3,781 new jobs will be added to today's 1,777, more than a 77% increase. Of these, about 50% of the increase is projected to be in four employment categories: health care and social assistance (526 new jobs), accommodations and food services (471 new jobs), administrative jobs (464 new jobs), and retail trade (420 new jobs). Adding in professional and technical services (361 new jobs) and other private services (306 new jobs), the total among these 6 categories will account for two-thirds of all new value-added jobs added to the city's economic employment base.

¹ 'Value-added jobs' are those working in businesses that would be subject to impact fees and thus exclude the types of jobs that would not be associated with an impact fee (such as farm workers, itinerant construction workers and governmental employees).

With all this projected population and employment growth by 2045, Ball Ground will be called upon to increase the capacity of its facilities and infrastructure. This expansion will be necessary to maintain the attractive quality of life and business environment enjoyed today by residents and businesses alike. For more information on anticipated growth, detailed growth forecast methodologies are presented in Appendix A, *Future Growth Forecasts*.

■ Impact Fees Authorized

Impact fees are a form of revenue allowed by the State, and strictly defined and regulated through State law. Impact fees are authorized in Georgia under Code Section 37-71, the *Georgia Development Impact Fee Act* (DIFA), and are administered by the Georgia Department of Community Affairs (DCA) under Chapter 110-12-2, *Development Impact Fee Compliance Requirements*.

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 it needs. Ultimately, and importantly, the services provided in the public facility categories for which impact fees are being charged must be the same for both the existing community and future growth.

The provisions of the DIFA are extensive, in order to assure that new development pays no more than its fair share of the costs and that impact fees are not used to solve existing service deficiencies.

■ Eligible Facilities

The following Overview Table shows the public facility categories that are eligible for impact fee funding (in whole or in part) under Georgia law and that are considered in this report.

Overview of Impact Fee Program - Facilities

	Parks & Recreation	Road Improvements
Eligible Facilities	Recreation lands, buildings and components such as ballfields, and playgrounds	Road projects serving Ball Ground residents and businesses
Service Area	Citywide	Citywide
Level of Service Standard Based on ...	Current investment in park land and recreation facilities per housing unit	Current Road Project costs serving current day-night population

The following terms are used in the Overview Table:

Eligible Facilities under the State Act are limited to capital items having a normal life expectancy of at least 10 years, such as land, buildings and new or widened roads. Impact fees cannot be used for maintenance, supplies, personnel salaries, or other operational costs, or

for short-term capital items such as desktop computers and furniture. 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 fees for those facilities would apply. Monies collected in a service area for a particular public facility category (such as parks & recreation) may only be spent for eligible facilities in that same public facility category.

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 needed to 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.

■ Exemption Policy

Certain office, retail trade, and industrial development projects may provide extraordinary benefit in support of the economic advancement of the city's citizens over and above the access to jobs, goods, and services that such uses offer in general. To encourage such development projects, the City Council may grant a reduction in the impact fee for such a development project upon the determination and relative to the extent that the business or project represents extraordinary economic development and employment growth of public benefit to Ball Ground.

In addition, the City Council recognizes that impact fees, in some circumstances, may negatively affect the affordability of housing, particularly "workforce" housing.

If it wishes to encourage development projects of public benefit to Ball Ground, the City Council must first adopt exemption criteria to guide the granting of a reduction in the impact fee for:

A business development project that represents extraordinary economic development and employment growth, and/or

A residence or housing project that will increase the supply of housing that would be affordable to disadvantaged individuals or families.

In the absence of adopted applicable exemption criteria for either extraordinary economic development and employment growth or for affordable housing, no applicable exemption shall be approved.

It is recognized by the City Council that the Georgia Development Impact Fee Act (under O.C.G.A. 36-74-4(h)(3)) requires that any amount of money granted as an exemption must be reimbursed by the city into the city's impact fee accounts from revenue sources other than impact fees.

■ Process

The forecasts and the identified capital improvement projects from this report comprise the Capital Improvements Element which, in turn, will be reviewed by the Atlanta Regional Commission and DCA for compliance with the state's requirements. Once approved, the City Council would adopt the CIE as an amendment to its Comprehensive Plan and would be authorized to collect the impact fees.

■ Editorial Conventions

This report observes the following conventions:

- The capitalized word 'City' applies to the government of Ball Ground 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 Ball Ground, 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 as used in this report 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.

Importantly ...

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

Parks and Recreation

■ Introduction

The Ball Ground Parks, Recreation, and Leisure Services Department provides city-wide recreational programming and services to all residents. Equal access and convenience are ensured by providing programs and services in various locations in the city, including active and passive recreational opportunities.

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 picnics, 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 focused on future residential growth.

■ Service Area

Parks and recreational facilities are made available to the city's population living throughout the city. The City's parks are often used on the basis of the programs or facilities available, as opposed to proximity of the facility to particular geographic locations. For instance, residents and families may be attracted to a variety of parks based on the facilities available without regard to the locations of the residents themselves. Some programs and recreation facilities are located only at certain facilities, to which any city resident can come. As a general rule, parks facilities are located to be easily accessible to its residents throughout the city, and future facilities will continue to be located around the city so that recreational opportunities will continue to be available on an equal basis to all residents of the city.

For these reasons, the entire city is considered a single service area for parks and recreational facilities.

■ Current Parks and Recreation Facilities

Today, the City has acquired, installed and constructed an admirable assortment and range of park lands and recreation facilities and structures.

Table 1: Existing City Parks

Name	Type	Acreage	Address
Calvin Farmer Park	Passive	16.00	235 Old Dawsonville Road
Community Center and Athletic Facilities	Active	5.00	250 Civic Drive
Botanical Garden	Passive	1.00	215 Valley Street
Lions Field	Active	2.00	375 Gilmer Ferry Road
Roberts Lake Park	Passive	50.00	Roberts Lake Road
City Park	Passive	1.00	177 Old Dawsonville Road
Pocket Park	Passive	0.11	286 Gilmer Ferry Road
City Gym	Active	3.00	102 Mchan Drive
Valley Street Linear Park	Passive	6.00	Valley Street
Total Park Acreage		84.11	

While Table 1 provides an inventory of the city's current parks, their type, acreage and location, Table 2 is an inventory of the city's existing recreation facilities.

Table 2: Current Recreation Facilities

Recreation Facility	Quantity
Indoor Basketball Courts	1
Outdoor Basketball Courts	1
Baseball/Softball Fields	3
MultiPurpose Field	1
Tennis Courts	1
Pickleball Courts	2
Senior Center	1
Community Center	1
Gazebo	1
Picnic Pavilion	4
Veterans Monument	1
Swing Set	1
Multi-feature Playground	1
Fishing Pond	1
Outdoor Concession Stand	2
Indoor Concession	1
Covered Stage	1
Large Outdoor Ampitheater	1
Small Outdoor Ampitheater	1
Storage Sheds	4
Outdoor Restrooms	4
Outdoor Bleachers	Approx 10
Picnic Tables	Approx 25
Paved Walking Path (linear feet)	Approx 7000
Unpaved Walking Path (linear feet)	Approx 3500
Paved Parking Area (square feet)	Approx 75,000
Unpaved Parking Area (square feet)	Approx 20,000

Because of the city's current size and projected future growth (adding more than twice the number of housing units than currently exist), it is unlikely that the City will restrict itself to adding only additional facilities of the same types that already exist. A perusal of Table 3 in the next section shows how the City has added new and different recreational facilities that did not previously exist over the years, from T-Ball to pickleball courts, going back to 1961.

■ Level of Service

Over the years, the City has invested in its parks and recreational facilities since at least 1961 and continuing up to and including this year.

Table 3, beginning on the following page, lists those capital expenses by year, item and the cost at the time of expenditure. In 'original' dollars spent, the total is almost \$5 million. Recognizing that

inflation has increased the value of each of those expenditures, the cumulative net value of the past expenses totals well over \$7.6 million in today's dollars.

Table 3: Current Investment in Parks and Recreation Facilities

Year	Original Cost	Capital Expense	NPV- 2023
1961	\$ 10,000.00	Land for City Park	\$ 168,695.18
1977	\$ 4,500.00	Land for City Park Expansion	\$ 36,613.69
1977	\$ 37,480.00	Community Building	\$ 304,951.37
1992	\$ 52,000.00	Land to Expand Calvin Farmer Park (6 acres)	\$ 213,577.10
2010	\$ 42,083.00	Field 2 Concession Stand	\$ 76,103.11
2010	\$ 1,150,000.00	Downtown Streetscapes (Sidewalks, Lighting, Benches, Landscape)	\$ 2,079,665.85
2012	\$ 99,240.00	City Gym Purchase	\$ 163,831.92
2012	\$ 32,880.00	Purchase Park Property at 105 A. W. Roberts Drive	\$ 54,280.47
2012	\$ 9,003.00	Botanical Garden Pavilion	\$ 14,862.74
2012	\$ 738,300.00	2012 Parks Project (Restrooms, Tennis, T-Ball, Stage, Multi Purpose Field)	\$ 1,218,834.20
2012	\$ 33,116.00	Parking Lot for City Gym	\$ 54,670.07
2013	\$ 28,643.00	New Roof on City Gym	\$ 45,179.17
2013	\$ 1,250.00	Gravel Parking Lot for Tennis Court	\$ 1,971.65
2013	\$ 30,939.00	Purchase Park Property 420 Gilmer Ferry Rd	\$ 48,800.70
2014	\$ 9,100.00	Pedestrian Food Bridge Calvin Farmer Park	\$ 13,714.16
2015	\$ 90,975.00	Purchase 2.16 Acres Expand Calvin Farmer Park	\$ 130,995.96
2015	\$ 3,725.00	Tree Removal City Park	\$ 5,363.67
2015	\$ 1,850.00	Grading for Botanical Garden Expansion	\$ 2,663.84
2015	\$ 1,825.00	Install Power to Park Building - Calvin Farmer Park	\$ 2,627.84
2016	\$ 44,945.00	Gateway Sign and Park	\$ 61,833.70
2016	\$ 4,301.00	Convert Gym Lighting to LED	\$ 5,917.16
2017	\$ 2,500.00	Grading and Dressing of Field 2 Infield	\$ 3,286.18
2017	\$ 5,160.00	Mulch for Calvin Farmer Park Playground	\$ 6,782.68
2017	\$ 2,008.00	AED's for Parks	\$ 2,639.46
2018	\$ 4,109.00	New BB Goals	\$ 5,160.55
2018	\$ 7,406.00	Air Conditioning for Restrooms at City Gym	\$ 9,301.30
2018	\$ 3,885.00	Air Conditioning for Field 2 Concessions	\$ 4,879.23
2019	\$ 9,600.00	Resurface Tennis Courts	\$ 11,519.65
2019	\$ 1,150.00	Appraisal for Purchase of Roberts Lake Park	\$ 1,379.96
2019	\$ 410,600.00	Acquisition of Roberts Lake Park Property	\$ 492,704.87
2019	\$ 826,018.00	Valley Street Streetscapes - Linear Park - Sidewalks, Lighting, Landscaping	\$ 991,191.17
2019	\$ 8,769.00	Botanical Gardens Shed	\$ 10,522.48
2020	\$ 13,525.00	Top Rails for Dam	\$ 15,506.48
2020	\$ 7,300.00	Grading Bank above Field 2 - Safety Concerns	\$ 8,369.49
2020	\$ 1,850.00	Phase 1 Environmental Study Roberts Lake Park	\$ 2,121.03
2020	\$ 4,150.00	Laser Grading Lions Field	\$ 4,758.00
2020	\$ 68,881.00	Roberts Lake Trail Construction	\$ 78,972.41
2020	\$ 2,000.00	Food Bridge Roberts Lake Trail	\$ 2,293.01
2020	\$ 8,000.00	Stream Restorations Botanical Gardens	\$ 9,172.04
2020	\$ 5,000.00	Trail Head Storage Building	\$ 5,732.52
2020	\$ 17,125.00	Downtown Music and Sound System	\$ 19,633.90
2020	\$ 84,250.00	Walking Loop Calvin Farmer Park	\$ 96,593.04

Table continued on next page ...

Capital Improvements Element	Parks and Recreation
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Table 3 continued

Year	Original Cost	Capital Expense	NPV- 2023
2021	\$ 3,276.00	Install ADA Commodes - City Gym	\$ 3,588.62
2021	\$ 16,026.00	Electrical Vehicle Charging Station City Park	\$ 17,555.33
2021	\$ 25,975.00	Electrical Upgrades at City Gym	\$ 28,453.75
2021	\$ 3,581.00	Park Benches	\$ 3,922.73
2021	\$ 10,260.00	Walkways in Botanical Gardens	\$ 11,239.09
2021	\$ 3,480.00	Playground Mulch - Calvin Farmer Park	\$ 3,812.09
2021	\$ 11,150.00	Parks Building Roberts Lake Park	\$ 12,214.03
2021	\$ 6,000.00	Bridge Installation Roberts Lake Trail	\$ 6,572.57
2021	\$ 8,500.00	Stairs to top of Ruins - Roberts Lake Park	\$ 9,311.14
2021	\$ 174,310.00	Purchase 3.15 Acres - Expand Calvin Farmer Park	\$ 190,944.11
2021	\$ 491,389.00	Purchase 8.88 Acres Expand Calvin Farmer Park	\$ 538,281.42
2021	\$ 10,800.00	Pickle Ball Court Setup	\$ 11,830.63
2021	\$ 103,000.00	Calvin Farmer Park Parking Lot	\$ 112,829.12
2022	\$ 3,365.00	Security System City Gym	\$ 3,521.90
2022	\$ 5,600.00	Rehab of Pavilion # 1 - Calvin Farmer Park	\$ 5,861.11
2022	\$ 1,700.00	Handrails Roberts Lake	\$ 1,779.27
2022	\$ 2,300.00	Handrails Roberts Dam	\$ 2,407.24
2022	\$ 29,112.00	Veterans Memorial	\$ 30,469.41
2022	\$ 7,300.00	Remodel Calvin Farmer Park Restrooms	\$ 7,640.38
2023	\$ 5,470.00	Hot Water for Lions Field Concessions/Restrooms	\$ 5,470.00
2023	\$ 3,500.00	Gazebo Valley St Linear Park	\$ 3,500.00
2023	\$ 1,900.00	New Roof Lions Field 3rd Base Dugout	\$ 1,900.00
2023	\$ 3,650.00	Remodel Field 2 Restrooms	\$ 3,650.00
2023	\$ 4,150.00	Roberts Lake Park Deadfall Removal - Rendering Safe for Trail	\$ 4,150.00
2023	\$ 6,000.00	Long Swamp Creek Recreation Area Grant Match	\$ 6,000.00
2023	\$ 2,500.00	Roberts Lake Clean Up - Brush Removal	\$ 2,500.00
2023	\$ 6,175.00	T Ball Field Makeover	\$ 6,175.00
2023	\$ 786.00	Wifi to Botanical Gardens	\$ 786.00
2023	\$ 63,420.00	Rehab of Calvin Farmer Park Playground - Equipment - Rubber Mulch - Fencing	\$ 63,420.00
2023	\$ 20,666.00	Grading and Sod - Calvin Farmer Park	\$ 20,666.00
2023	\$ 2,700.00	New Handicap Commodes Lions Field	\$ 2,700.00
2023	\$ 3,563.00	Electrical Power to Botanical Gardens	\$ 3,563.00
Total	\$ 4,961,045.00	Total Capital Investment in Current Dollars	\$ 7,614,386.93
	\$ 1,298,743.00	Land Total	\$ 1,876,273.45
	\$ 443,684.00	Buildings and Parking	\$ 870,816.73
	\$ 3,218,618.00	Recreation Facilities	\$ 4,867,296.76

The following table summarizes the city's investment in its parks and facilities in today's dollars. The original cost figures are taken from the left-hand column of Table 3 while the Net Present Value (NPV) figures were shown at the bottom of the right-hand column of that table. The NPV for park land is calculated using the Consumer Price Index, while the NPV for the recreation facilities reflects the Construction Cost Index and the cost of the buildings is based on the Building Cost Index.²

Table 4: Capital Expense - Land and Facilities

Capital Expense	Original Cost	2023 NPV*
Park Land Acquisitionss	\$ 1,298,743.00	\$ 1,876,273.45
Recreation Facilities	\$ 3,218,618.00	\$ 4,867,296.76
Recreation Buildings & Parking	\$ 443,684.00	\$ 870,816.73
Total Current Investment	\$ 4,961,045.00	\$ 7,614,386.93

*Net Present Value based on Consumer Price Index, ENR Construction Cost Index or ENR Building Cost Index, as applicable.

■ Maximum Investment Calculation – Parks and Recreation

The maximum investment that could be recovered through impact fees in Ball Ground for the Parks & Recreation facility category, based on the calculations carried out in this chapter, is shown on Table 5. Note that Parks and Recreation impact fees are collected only from residential development as housing units are issued building permits.

The '2023 NPV' for each category is transferred to Table 5, below, from Table 4, above. That number is divided by the total existing housing units (in 2023) to determine a 'per housing unit' amount. The 'per 2023 housing unit' cost is multiplied times the number of new housing units that are expected in the coming 22 years to determine the amount of investment that will be required to serve future growth and development at the same level of service enjoyed by the city's residents today. These amounts are in current (2023) dollars.

In other words, the amount of investment by the City in creating the existing service levels and quality of services was adequate to meet current needs and therefore establishes the basis upon which the needs of future growth and development is to be met proportionately at those same levels.

To calculate the future (2034) Net Present Value (NPV) of the impact fee eligible cost estimate for the construction of the recreation components, the NPVs are calculated by increasing the current (2023) estimated costs using Engineering News Record's 10-year average building cost inflation (BCI) rate for recreation buildings, the CPI for additional park lands, and the 10-year average

² See Appendix C for how the average rate for each of the indexes was calculated.

construction cost index (CCI) rate for all recreation components. All project costs are then reduced to current NPV dollars using the Net Discount Rate.

All of the recreation components needed to serve future growth, of course, will not occur in the same year. However, since the actual pace and timing of construction for any improvements proposed to meet future demand have not been programmed, an 'average' year of 2034 is used for Net Present Value calculations—some improvements will occur earlier for less money, and some later at greater cost. All will average out.

The following are added to the net impact fee to produce the total maximum impact fee:

- An administrative fee (not to exceed 3%); and,
- A share of the cost of preparing the Capital Improvements Element (CIE) at 2%.

In the coming years, specific parks and recreation projects will be identified and listed in the City's 5-Year Community Work Program, which is required to be updated every year in the City's Annual Update Reports to DCA. The point is that the same level of investment creating the city's current facilities establishes the 'level of service' to assure that the same level will be used to create facilities to meet the needs of future growth and development.

Table 5: Calculation of Maximum Impact Fee

	2023 NPV	Total 2023 Housing Units	Per 2023 Housing Unit	2023 Cost to Support New Growth*	2034 NPV**
Park Land Acquisitions	\$ 1,876,273.45	1,589	\$ 1,180.53	\$ 3,990,665.32	\$ 4,233,928.93
Recreation Facilities	\$ 4,867,296.76	1,589	\$ 3,062.45	\$ 10,352,303.60	\$ 10,648,128.74
Recreation Buildings & Parking	\$ 870,816.73	1,589	\$ 547.91	\$ 1,852,149.07	\$ 1,965,521.88
Total Cost				\$ 16,195,117.98	\$ 16,847,579.55
divided by: Increase in Housing Units 2023-45				3,380	3,380
= Net Impact Fee Cost per Housing Unit				\$ 4,790.89	\$ 4,983.90
plus 3% Administration Fee				\$ 143.73	\$ 149.52
plus 2% CIE Preparation Fee				\$ 95.82	\$ 99.68
= Total Maximum Impact Fee per Housing Unit				\$ 5,030.43	\$ 5,233.10

* Investment per each 2023 housing unit times increase in housing units from 2023 to 2045 (3,380) in current 2023 dollars.

** NPV based on the CPI for land acquisitions, the CCI for facility construction and the BCI for building and parking construction.

Road Improvements

■ Introduction

This impact fee category focuses on road improvement projects that are planned and undertaken throughout the city, each of which will create increased capacity to address anticipated traffic.

■ Service Area

The service area for road projects is the entire city since all residents and employees have equal access to the city's public road network.

■ Planned Road Projects

The following road improvement projects create increased capacity in order to handle future increases created by new growth and development in the city. These projects are planned and in some cases are already underway.

Roberts Lake Road Realignment

Roberts Lake Road currently serves 4 residential units. The southern end of the roadway that intersects with SR 372 is single lane. It remains single lane until just north of the last house.



Roundabout SR Business 5 @ Howell Bridge Road & Ball Ground Highway

This project serves the dual purpose of increasing vehicle trips through the intersection and improving the safety of traversing traffic.

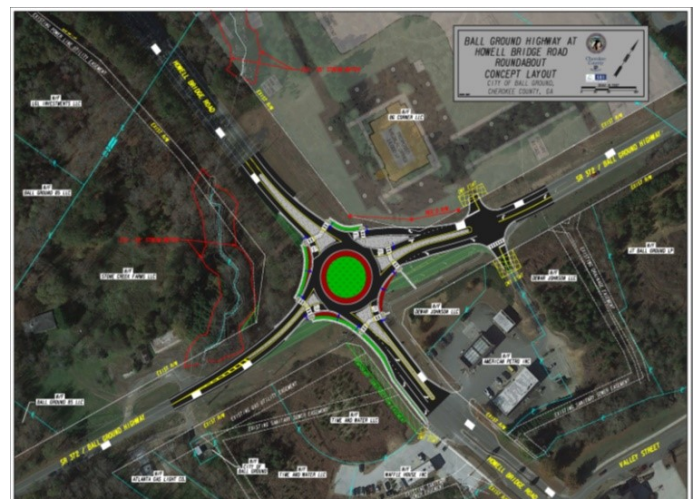
Ball Ground By-Pass

The City is required to participate financially in this State DOT project. Vehicle trips into, out of

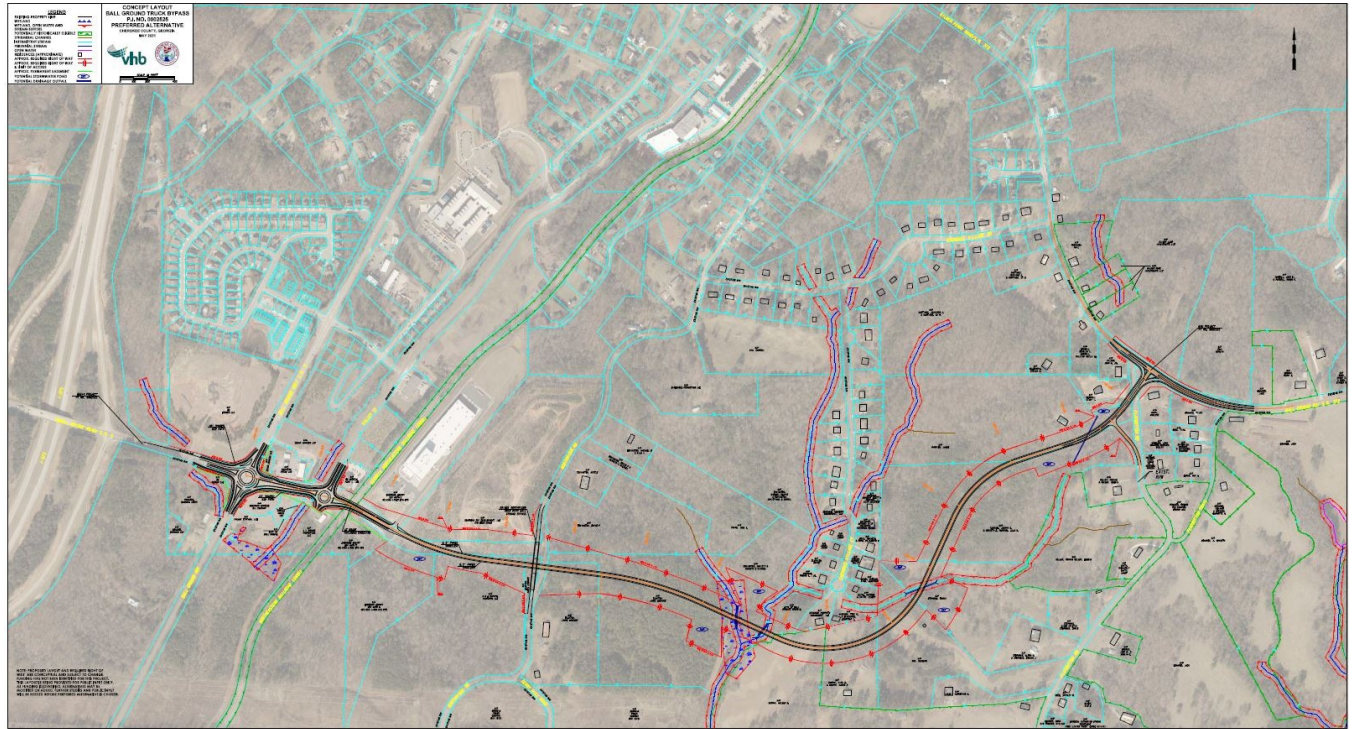
Given encroachments on right of way from one house and two garages the road cannot be widened.

North of the shown area in the photo is 1,000 plus acres of undeveloped land. There are 40 planned homes so far but an extensive number of 'potential homes' is anticipated given the undeveloped land mass and the fact the land is actively being marketed for development.

The intent is to acquire right of way to construct a new connection with SR 372 and shift the roadway east to allow for dual directional traffic.

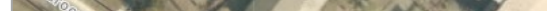


and through Ball Ground in the future will be greatly increased, along with much greater convenience and further by separation of truck traffic from the city's interior streets. Future residents, employees and businesses within Ball Ground will be better served, which will also increase the ability to serve future growth and development.



Civic/Groover Realignment

As development continues, the new extension of Groover St to the east past the basketball and tennis courts to support new development (Creekside, The Ridge, Roberts Pass, The Overlook), this intersection will no longer function safely in its current configuration.



The City is engaged in evaluating the intersection to improve the safety and future trip capacity. A roundabout appears to be the initial favorite but, given land constraints, could be a 2-way, 3-way or all way stop with a relocation of the existing Civic Drive extension towards the community building to reduce activity at this control point. Here again this project will provide relief and greater capacity to both current and projected future traffic.



Lowery Street Extension

As development continues it will be necessary to establish another north south connection within the city to allow multiple avenues. This planned connection will widen the existing Lowry Street, and then extend it south to connect with the future SR 372 Spur/Ball Ground Bypass. The benefit of increased mobility, safety and especially capacity for existing and future traffic will be clearly achieved.



Valley Street Traffic Improvements

As traffic increases on Valley Street generated by new development, the need for traffic calming will be necessary. Additionally, the main entrance to the Ball Ground STEM Academy off Valley Street will present increased conflicts since the school is currently at 43% capacity. As the community grows the school enrollment will increase from today's 512 students towards its maximum capacity of 1200 students. It is therefore necessary to redesign the entrance to the school and possibly create a small roundabout or substantial center turn lane to avoid conflicts with the increase in traffic created by development along the roadway.

Northridge Road Widening

As the community grows, the Northridge Road area will be significantly impacted, establishing a need for widening and possible vertical realignment to accommodate the increased traffic demand generated by new growth and development.

This project will likely need to be broken into 4 segments, beginning with the northern intersection with Gilmer Ferry Road (SR 372) and ending at the southern city limit.



Lantern Walk Dr at Sr Business 5 & Coy M. Holcomb

Increased traffic counts on SR Business 5 will continue to present challenges at this intersection. While installation of the roundabout one intersection south will solve the traffic issues there, the increased efficiency of that intersection will have an even larger negative impact on this intersection as the evening spacing between northbound vehicles will be significantly reduced. The construction of a roundabout is the contemplated solution.

Road Improvement Project Costs

Currently Planned Projects

The following Table 6 provides the estimated cost to the city of the currently planned road improvements described above, some of which are already underway. Additional funding may be required for some of those projects – in particular the by-pass, which is a state DOT project with notable city participation.

Table 6: Current Road Improvement Projects in City

Road Improvement Project	Estimated City Cost
Roberts Lake Road Realignment	\$ 950,555
Roundabout SR Business 5 at Howell Bridge Rd & Ball Ground Hwy	\$ 2,500,000
Ball Ground By-Pass	\$ 2,000,000
Civic/Groover Realignment	\$ 500,000
Lowery Street Extension	\$ 2,300,000
Valley Street Traffic Improvements	\$ 325,000
Northridge Road Widening	\$ 1,500,000
Lantern Walk Dr at SR Business 5 & Coy M. Holcomb	\$ 1,800,000
Total City Share of Road Improvement Projects	\$ 11,875,555

The cost of road projects that would be the responsibility of new growth and development in the city is based on the vehicle trips that new growth will generate in the future as a proportion of all trips generated by city residents and businesses.³

The following Table 7 shows the costs of the currently planned road projects described above that would ultimately be the funding responsibility of new growth and development. In terms of the timing of the availability of such funds, interim financing resources of the city may be required, in which case the impact fees collected from new growth and development in the future could be allocated to reimburse such interim financing.

³ Appendix B provides a full description of the methodology used in calculating vehicle trips (particularly primary trips) that new growth and development will add to the city's current traffic in the coming years.

Table 7: Future Growth's Share of Current Road Projects

Road Improvement Project	New Growth Share
Roberts Lake Road Realignment	\$ 699,980
Roundabout SR Business 5 at Howell Bridge Rd & Ball Ground Hwy	\$ 1,840,977
Ball Ground By-Pass	\$ 1,472,782
Civic/Groover Realignment	\$ 368,195
Lowery Street Extension	\$ 1,693,699
Valley Street Traffic Improvements	\$ 239,327
Northridge Road Widening	\$ 1,104,586
Lantern Walk Dr at SR Business 5 & Coy M. Holcomb	\$ 1,325,504
Total New Growth's Share of Current Road Improvement Projects	\$ 8,745,050

Future Growth's Share of Total Future Trips	73.6391%
Total Future Trips Generated by Future Growth	69,230
New Growth's Cost per Future Trip	\$ 126.3182

The lower part of Table 7 shows the number of future trips projected to be generated by new growth on an average weekday by 2045, which will account for almost 74% of all primary trips on the city's streets and roads. This percentage is multiplied times the 'current' road improvement project costs listed on Table 6 to show future growth's share of those costs.

This share of the road improvement costs comes to well over \$8.7 million. By dividing that share by the number of weekday primary trips that are projected to be generated by new growth and development, that cost per primary trip comes to almost \$126.32.

Future Road Improvement Projects

Stepping back to Table 6, the total estimated cost of the City's current road projects came to almost \$11.9 million.

Table 8: Future Growth's Share of Future Road Projects

Factor	Cost
Estimated City Cost of Road Improvement Projects	\$ 11,875,555
Divided by Current Day-Night Pop	4,122
<i>Equals the Current Level of Service ...</i>	
Current Cost per Current Day-Night Person	\$ 2,881.1896
2045 Day-Night Population INCREASE	10,173
<i>Times the Current Level of Service ...</i>	
Future Growth's Share of Future Road Projects	\$ 29,309,632.09

Note: All calculations in current 2023 dollars.

Dividing that figure by the city's current day-night population (i.e., residents and employees) produces a cost per person of a little over \$2,881. In dollar terms, this establishes the city's current level of service.⁴ By multiplying that level of service times the projected day-night population increase by 2045 indicates that, in order to serve the future residents and employees at the same level of service, the city would be called upon to finance future road improvements to the extent of

more than \$29.3 million.

⁴ Because the currently planned and on-going road projects are considered appropriate and adequate to serve the city's existing day-night population, this level of service is appropriate to apply to new growth and development in order to maintain this level of service for all of the city's residents and employees now and in the future.

Short Term Work Program

Community Work Plan

Project Description	2025	2026	2027	2028	2029	Responsible Party	Estimated Total Cost	Funding Sources
Parks and Recreation								
Tear Down Community Building	X					Parks, Recreation, and Leisure Services	\$5,000	General Fund
Exercise Equipment Along Trails/paths	X	X				Parks, Recreation, and Leisure Services	\$30,000	38.2183% Impact Fees, SPLOST
Pathway Lighting Multi Purpose					X	Parks, Recreation, and Leisure Services	\$60,000	38.2183% Impact Fees, SPLOST
Additional Parking	X					Parks, Recreation, and Leisure Services	\$150,000	38.2183% Impact Fees, SPLOST
Secondary Playground - Higher Age Gp			X			Parks, Recreation, and Leisure Services	\$140,000	38.2183% Impact Fees, SPLOST
Restrooms at Pickleball Cours	X	X				Parks, Recreation, and Leisure Services	\$60,000	38.2183% Impact Fees, SPLOST
Seating / Benches / Tables	X					Parks, Recreation, and Leisure Services	\$30,000	38.2183% Impact Fees, SPLOST
Shade Structures / Shade Trees		X				Parks, Recreation, and Leisure Services	\$100,000	38.2183% Impact Fees, SPLOST
Splash Pad			X			Parks, Recreation, and Leisure Services	\$750,000	38.2183% Impact Fees, SPLOST
Remove Old Stage (Near Community Bldg)	X					Parks, Recreation, and Leisure Services	\$5,000	38.2183% Impact Fees, SPLOST
Trails, Pathways, Sidewalks	X	X	X	X	X	Parks, Recreation, and Leisure Services	\$500,000	38.2183% Impact Fees, SPLOST
Landscaping	X	X	X	X	X	Parks, Recreation, and Leisure Services	\$150,000	38.2183% Impact Fees, SPLOST
Water Fountains / Filling Stations	X	X				Parks, Recreation, and Leisure Services	\$15,000	38.2183% Impact Fees, SPLOST
Realignment of Parking Lot Entrance	X					Parks, Recreation, and Leisure Services	\$150,000	38.2183% Impact Fees, SPLOST

Short Term Work Program, continued

Project Description	2025	2026	2027	2028	2029	Responsible Party	Estimated Total Cost	Funding Sources
Parks and Recreation continued								
Disc Golf					X	Parks, Recreation, and Leisure Services	\$20,000	38.2183% Impact Fees, SPLOST
Pavillions			X	X		Parks, Recreation and Leisure Services	\$175,000	38.2183% Impact Fees, SPLOST
Pavillions Small		X			X	Parks, Recreation and Leisure Services	\$75,000	38.2183% Impact Fees, SPLOST
Pickleball	X	X	X			Parks, Recreation and Leisure Services	\$200,000	38.2183% Impact Fees, SPLOST
Tennis Courts		X				Parks, Recreation and Leisure Services	\$75,000	38.2183% Impact Fees, SPLOST
Senior Center Expansion/Community		X	X			Parks, Recreation and Leisure Services	\$500,000	38.2183% Impact Fees, SPLOST
Public Art	X	X		X	X	Parks, Recreation and Leisure Services	\$150,000	38.2183% Impact Fees, SPLOST
Sports Fields Upgrades				X	X	Parks, Recreation and Leisure Services	\$250,000	38.2183% Impact Fees, SPLOST
Upgrades to existing Ampitheater				X		Parks, Recreation, and Leisure Services	\$500,000	38.2183% Impact Fees, SPLOST
Road Improvements								
Roberts Lake Road Realignment			X	X	X	Public Works	\$950,555	General Fund, SPLOST
Roundabout SR Business 5 at Howell Bridge Road & Ball Ground Highway	X	X				Public Works	\$2,500,000	General Fund, SPLOST
Ball Ground By-Pass			X	X	X	Public Works	\$2,000,000	General Fund, SPLOST
Civic/Groover Realignment	X	X				Public Works	\$500,000	General Fund, SPLOST
Lowery Street Extension					X	Public Works	\$2,300,000	General Fund, SPLOST
Valley Street Traffic Improvements		X				Public Works	\$325,000	General Fund, SPLOST
Northridge Road Widening					X	Public Works	\$1,500,000	General Fund, SPLOST
Lantern Walk Dr at SR Business 5 & Coy M. Holcomb			X			Public Works	\$1,800,000	General Fund, SPLOST

Glossary

The following terms are used in this and other impact fee reports. Where possible, the definitions are taken directly from the Development Impact Fee Act.

■ Definitions

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.

DCA: The Georgia Department of Community Affairs.

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 city 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, city, 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 city 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 A: Future Growth Forecasts

In order to accurately calculate the demand for future services for Ball Ground (and thus the public facilities needed to provide those services), new growth and development must be quantified in future projections. These projections include forecasts for population, households, housing units, and employment to the year 2045. These projections provide the base-line conditions from which the current (2022)⁵ or future (2045) Level of Service calculations are produced.

■ Types of Projections

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

- Population data and forecasts are used to establish current and future demand for services where the Level of Service (LOS) standards are per capita based.
- Household data and forecasts are used to forecast future growth in the number of housing units.
- Housing unit data and forecasts relate to certain service demands that are household based, such as parks. The number of households—defined as *occupied* housing units—is always smaller than the total number of housing units, which include vacant units. Over time, however, each housing unit is expected to become occupied by a household, even though the unit may become vacant during future re-sales or turnovers.
- Employment forecasts are refined to reflect ‘value-added’ employment figures. This reflects an exclusion of jobs considered to be transitory or non-site specific in nature, and thus not requiring building permits to operate (i.e., are not assessed impact fees), as well as governmental uses that are not subject to impact fees.
- ‘Value-added’ employment data is combined with population data to produce what is known as the ‘day-night population.’ These figures represent the total number of people receiving services, both in their homes and in their businesses, to produce an accurate picture of the total number of persons that rely on certain 24-hour services, such as fire and Police Protection.

■ Historic Population Growth

The US Census Bureau estimates the population in Ball Ground for each year between decennial censuses (2000, 2010 and 2020). After a decennial census, the Bureau revises the preceding annual estimates based on the actual Census count. Unlike the decennial censuses, which are ‘as of’ April 1, the annual estimates are ‘as of’ July 1 of each year (including 2000, 2010 and 2020).

In 2022, the Census Bureau published its annual estimate for 2021 and, simultaneously, revised its estimate for 2020. As a result, estimates for all of the years since 2010 have been recalculated accordingly.

The annual estimates are shown in Table A-1 for Ball Ground and, for context, the other cities in Newton County and the county itself.

⁵ All data in this Appendix are technically as of July 1 of each year shown, consistent with data reported by the Census Bureau.

Table A-1: Annual Census Estimated Population by Jurisdiction

Geography	Population Estimate (as of July 1)										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Covington	10,763	11,028	11,326	11,686	12,090	12,514	12,917	13,329	13,380	13,221	13,138
Mansfield	314	325	338	350	365	380	395	410	414	413	399
Newborn	528	547	569	591	617	643	668	693	701	701	696
Oxford	1,900	1,899	1,912	1,983	2,028	2,098	2,155	2,222	2,212	2,137	2,126
Porterdale	1,254	1,278	1,305	1,334	1,371	1,407	1,442	1,476	1,471	1,452	1,429
Social Circle (pt.)	43	43	43	43	44	44	44	44	44	42	2
Unincorporated Area	47,966	51,703	55,609	59,623	64,088	68,561	73,026	77,525	80,018	81,528	82,338
Newton County Total	62,768	66,823	71,102	75,610	80,603	85,647	90,647	95,699	98,240	99,494	100,128

Geography	Population Estimate (as of July 1)									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

Covington	13,060	13,129	13,216	13,449	13,634	13,695	13,878	13,878	14,071	14,235	14,391
Mansfield	397	396	401	406	410	418	422	428	439	444	453
Newborn	599	602	609	616	626	635	645	655	670	679	697
Oxford	2,072	2,085	2,120	2,182	2,148	2,132	2,169	2,250	2,280	2,275	2,275
Porterdale	1,740	1,743	1,759	1,771	1,786	1,802	1,803	1,801	1,803	1,797	1,828
Social Circle (pt.)	2	2	2	2	3	3	3	4	4	4	5
Unincorporated Area	82,119	82,549	83,489	84,574	85,836	87,360	88,493	90,042	92,118	93,346	95,706
Newton County Total	99,989	100,506	101,596	103,000	104,443	106,045	107,413	109,058	111,385	112,780	115,355

* 2010 estimate revised by Census Bureau in 2020.

Note: All data as of July 1 of each year. 2000, 2010 and 2020 estimates differ from Decennial Census counts, which were as of April 1.

Sources: For 2000 to 2010: Intercensal Estimates, US Bureau of the Census: Annual Estimates Program. For 2011-2019 intercensal estimates adjusted to revised 2020 population estimates published by Census Bureau in 2022.

As the following Table A-2 indicates, Ball Ground posted a percentage increase in population between 2000 and 2021 overall of more than 25%; however, growth from 2000 to 2010 registered a higher growth increase for just those 10 years (18%) than the more recent 2010-2021 period (8.7%). Clearly the Great Recession, which began in mid-2008, had some impact on the housing industry and then the economy in general, affecting the city as well. However, as Table A-1 showed, every year, the city continued to grow, although at a somewhat slower pace in the past decade.

Table A-2: Comparison of Population Growth Rates - 2000-2021

	2000-2010 Increase	Percent	2010-2021 Increase	Percent	2000-2021 Increase	Percent
Covington	2,375	18.08%	1,253	8.71%	3,628	25.21%
Mansfield	85	21.30%	54	11.92%	139	30.68%
Newborn	168	24.14%	1	0.14%	169	24.25%
Oxford	226	10.63%	149	6.55%	375	16.48%
Porterdale	175	12.25%	399	21.83%	574	31.40%
Social Circle (pt.)	n/a	n/a	3	n/a	n/a	n/a
Unincorporated Area	34,372	41.75%	13,368	13.97%	47,740	49.88%
Newton County Total	37,360	37.31%	15,227	13.20%	52,587	45.59%

■ Population Forecasts

Two forecast methods were used to project the city's past population growth forward to 2045, one using a 'linear trend' (straight line) forecast algorithm and the other a 'growth trend' (curved line) forecast algorithm.

Table A-3 on the next page shows the results based on the Census estimates for 2000-2021. Table A-4 on the page after that, shows the results based on the nearer term estimates for 2010-2021. The raw numbers of each projection method are shown, as well as the original annual census figures in the left-hand column.

The forecast algorithms 'fit' the data points to a smooth straight or curved line on both tables, beginning in 2000 and 2010 respectively. 'Fitting' the projections to a specific curve also changes the original Census figures as well.

In the right-hand columns on each table, the raw projection numbers are adjusted to the 2021 census population. The percentages at the bottom of each table show how much the year 2021 projected populations needed to be adjusted to the actual 2021 Census figure. These percentages are applied to the original projected figures in every year to 2045.

The graphs beside each table show the original Census figures and the results of the linear and growth trend projections, as adjusted to the 2021 Census. The growth trend projection based on the 2000-2021 Census figures on Table A-3 is selected for further calculations because it most clearly reflects the longer-term growth history of the city since 2000 along with prospects for the future.

Table A-3: Covington Forecast based on 2000-2021 Growth

	Census Estimate	Linear Trend Raw	Growth Trend Raw	Linear Trend Adjusted	Growth Trend Adjusted
2000	10,763	11,466	11,480	10,763	10,763
2001	11,028	11,612	11,613	11,028	11,028
2002	11,326	11,758	11,748	11,326	11,326
2003	11,686	11,904	11,885	11,686	11,686
2004	12,090	12,051	12,023	12,090	12,090
2005	12,514	12,197	12,163	12,514	12,514
2006	12,917	12,343	12,304	12,917	12,917
2007	13,329	12,489	12,447	13,329	13,329
2008	13,380	12,636	12,592	13,380	13,380
2009	13,221	12,782	12,738	13,221	13,221
2010	13,138	12,928	12,886	13,138	13,138
2011	13,060	13,074	13,036	13,060	13,060
2012	13,129	13,221	13,187	13,129	13,129
2013	13,216	13,367	13,340	13,216	13,216
2014	13,449	13,513	13,496	13,449	13,449
2015	13,634	13,659	13,652	13,634	13,634
2016	13,695	13,806	13,811	13,695	13,695
2017	13,878	13,952	13,972	13,878	13,878
2018	13,878	14,098	14,134	13,878	13,878
2019	14,071	14,244	14,298	14,071	14,071
2020	14,235	14,391	14,464	14,235	14,235
2021	14,391	14,537	14,632	14,391	14,391
2022		14,683	14,803	14,536	14,558
2023		14,829	14,975	14,681	14,727
2024		14,976	15,149	14,825	14,899
2025		15,122	15,325	14,970	15,072
2026		15,268	15,503	15,115	15,247
2027		15,415	15,683	15,260	15,424
2028		15,561	15,865	15,405	15,603
2029		15,707	16,050	15,549	15,785
2030		15,853	16,236	15,694	15,968
2031		16,000	16,425	15,839	16,154
2032		16,146	16,616	15,984	16,341
2033		16,292	16,809	16,128	16,531
2034		16,438	17,004	16,273	16,724
2035		16,585	17,202	16,418	16,918
2036		16,731	17,402	16,563	17,115
2037		16,877	17,604	16,708	17,313
2038		17,023	17,809	16,852	17,515
2039		17,170	18,015	16,997	17,718
2040		17,316	18,225	17,142	17,924
2041		17,462	18,437	17,287	18,132
2042		17,608	18,651	17,432	18,343
2043		17,755	18,868	17,576	18,556
2044		17,901	19,087	17,721	18,772
2045		18,047	19,309	17,866	18,990

Adjustment to 2021	14,537	14,632	98.996%	98.350%
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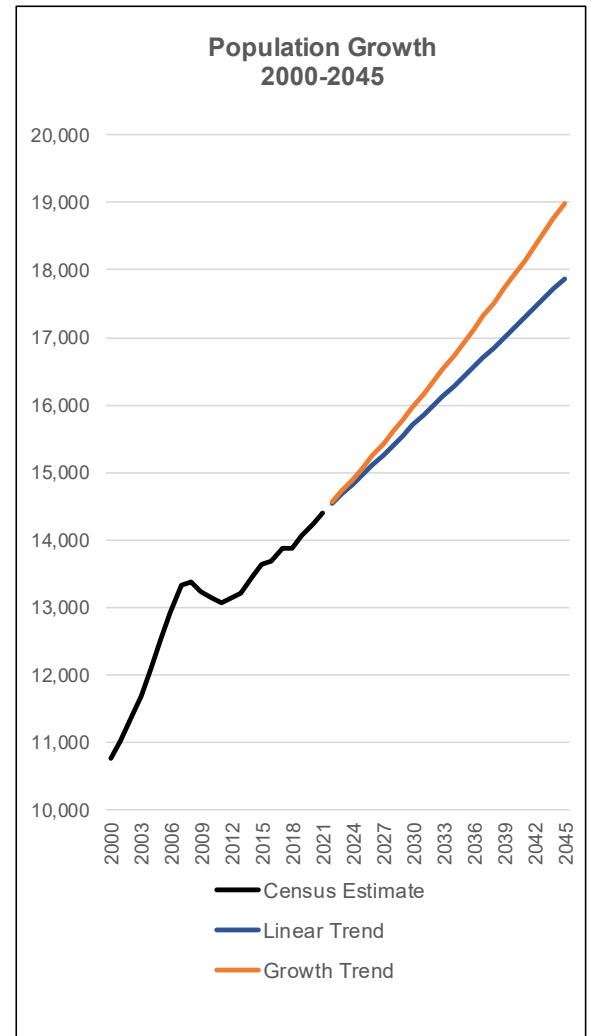
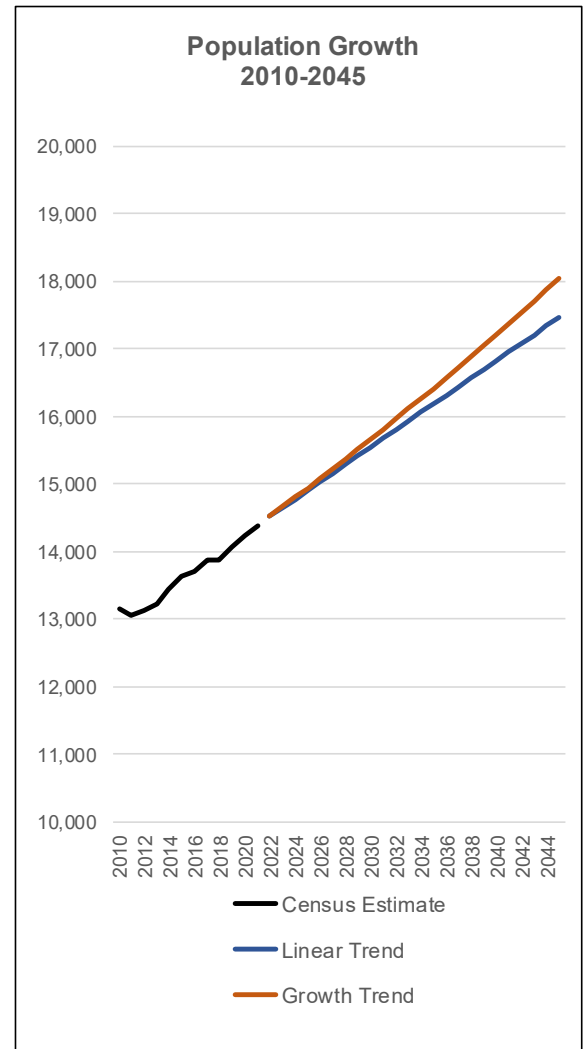


Table A-4: Covington Forecast based on 2010-2021 Growth

	Census Estimate	Linear Trend Raw	Growth Trend Raw	Linear Trend Adjusted	Growth Trend Adjusted
2010	13,138	13,067	13,076	13,138	13,138
2011	13,060	13,196	13,200	13,199	13,199
2012	13,129	13,325	13,324	13,268	13,268
2013	13,216	13,454	13,450	13,356	13,356
2014	13,449	13,583	13,577	13,592	13,592
2015	13,634	13,712	13,705	13,779	13,779
2016	13,695	13,841	13,835	13,840	13,840
2017	13,878	13,969	13,966	14,025	14,025
2018	13,878	14,098	14,097	14,025	14,025
2019	14,071	14,227	14,231	14,220	14,220
2020	14,235	14,356	14,365	14,235	14,235
2021	14,391	14,485	14,501	14,391	14,391
2022		14,614	14,638	14,519	14,527
2023		14,743	14,776	14,647	14,664
2024		14,872	14,915	14,775	14,803
2025		15,001	15,056	14,903	14,942
2026		15,130	15,199	15,031	15,084
2027		15,259	15,342	15,159	15,226
2028		15,388	15,487	15,288	15,370
2029		15,516	15,633	15,416	15,515
2030		15,645	15,781	15,544	15,662
2031		15,774	15,930	15,672	15,809
2032		15,903	16,080	15,800	15,959
2033		16,032	16,232	15,928	16,110
2034		16,161	16,386	16,056	16,262
2035		16,290	16,540	16,184	16,415
2036		16,419	16,697	16,312	16,570
2037		16,548	16,854	16,440	16,727
2038		16,677	17,014	16,568	16,885
2039		16,806	17,174	16,696	17,044
2040		16,935	17,336	16,825	17,205
2041		17,064	17,500	16,953	17,368
2042		17,192	17,665	17,081	17,532
2043		17,321	17,832	17,209	17,697
2044		17,450	18,001	17,337	17,864
2045		17,579	18,171	17,465	18,033
Adjustment to 2021		14,485	14,501	99.350%	99.243%



■ Housing Unit Forecasts

For impact fee purposes, the housing unit is used as the basis for assessing impact fees rather than the number of residents that may occupy the housing unit. Projecting new growth and development in terms of housing units is important because residential impact fees are assessed when building permits are issued for new units. Since the number of people residing in a particular housing unit will most likely vary in the years ahead as lifestyles change, families grow, children grow up, occupants age, or the unit becomes occupied by a different household as the previous occupants move out, using population as the basis will vary widely as the years go by. This would result in a constant reassessment of the impact fees due because the demand for services would vary as the number of residents in the unit varies. Instead, using an average fee per housing unit based on average household sizes results in 'averaging' the demand for services which would otherwise vary as the population in the unit changes over the coming years ahead.

The future increase in the number of housing units in the city is based on the previous population forecasts. 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.

Household Projections

First, future population numbers for the Growth Trend projection from Table A-3 are converted into the future number of households expected in future years. The results are shown on Table A-5, on the next page.

The left-hand 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. Given the tightly knit sociometric model that W&P uses, the relationship between population and households relative to average ratios between them is considered viable as guides to such ratios.

The assumption, therefore, is that the average population-per-household sizes in Ball Ground will 'track' proportionally the trend projected by Woods & Poole countywide. Based on the 2020 Census, the average population-per-household size in Ball Ground was 2.7534 people, compared to the countywide figure of 2.8724. The Ball Ground 2020 figure is 95.8582% of the countywide figure; this percentage is applied to the countywide averages through 2045 to arrive at future average population-per-household sizes for Ball Ground. These average household sizes are then divided into the Ball Ground projected population every year to arrive at the household forecasts.

New Housing Units

A 'household' represents an occupied housing unit. Additional 'vacant' housing units therefore need to be added to the number of households in order to estimate the total number of housing units in the city going forward to 2045.

This is accomplished by increasing the number of households in the city using the occupancy rate reported in the 2020 Census. Again, this occupancy rate is assumed to continue each year into the future.

To arrive at the total housing unit estimate for each year, including vacant units, the number of households (i.e., occupied housing units) is divided by the applicable occupancy rate.

Table A-5: Housing Unit Forecasts: 2022-2045

Newton County (Woods & Poole)				Covington				
Population	House-holds	Average HH Size*		Population	Average HH Size	House-holds	Occupancy Rate	Total Units
2020	112,780	39,264	2.8724	2020	14,235	2,7534	85.51108%	6,046
2021	115,355	40,272	2.8644	2021	14,391	2,7458	85.51108%	6,129
2022	117,437	41,209	2.8498	2022	14,558	2,7318	85.51108%	6,232
2023	119,523	42,123	2.8375	2023	14,727	2,7200	85.51108%	6,331
2024	121,631	43,017	2.8275	2024	14,899	2,7104	85.51108%	6,428
2025	123,760	43,894	2.8195	2025	15,072	2,7027	85.51108%	6,522
2026	125,905	44,759	2.8130	2026	15,247	2,6964	85.51108%	6,613
2027	128,065	45,613	2.8076	2027	15,424	2,6914	85.51108%	6,702
2028	130,239	46,459	2.8033	2028	15,603	2,6872	85.51108%	6,790
2029	132,427	47,291	2.8003	2029	15,785	2,6843	85.51108%	6,876
2030	134,631	48,111	2.7983	2030	15,968	2,6824	85.51108%	6,962
2031	136,850	48,924	2.7972	2031	16,154	2,6813	85.51108%	7,046
2032	139,079	49,727	2.7969	2032	16,341	2,6810	85.51108%	7,128
2033	141,321	50,523	2.7972	2033	16,531	2,6813	85.51108%	7,210
2034	143,572	51,314	2.7979	2034	16,724	2,6820	85.51108%	7,293
2035	145,830	52,101	2.7990	2035	16,918	2,6831	85.51108%	7,373
2036	148,092	52,886	2.8002	2036	17,115	2,6842	85.51108%	7,456
2037	150,357	53,671	2.8015	2037	17,313	2,6854	85.51108%	7,539
2038	152,631	54,453	2.8030	2038	17,515	2,6869	85.51108%	7,624
2039	154,914	55,234	2.8047	2039	17,718	2,6885	85.51108%	7,707
2040	157,211	56,019	2.8064	2040	17,924	2,6902	85.51108%	7,792
2041	159,525	56,816	2.8077	2041	18,132	2,6915	85.51108%	7,879
2042	161,859	57,634	2.8084	2042	18,343	2,6921	85.51108%	7,969
2043	164,215	58,470	2.8085	2043	18,556	2,6922	85.51108%	8,061
2044	166,596	59,322	2.8083	2044	18,772	2,6920	85.51108%	8,154
2045	169,006	60,183	2.8082	2045	18,990	2,6919	85.51108%	8,249
2022-2045 Change				4,432	1,725		2,017	

* Gross - Total households ÷ total population.

Multiplier: 95.8582%

Source: Woods & Poole Economics, Inc., 2022
Georgia Data Book, Newton County.

Sources: 2020 City data - 2020 Census, US Bureau of the Census.
2020-2045 City Population - 2000-2020 Growth Trend Adjusted forecast.

■ Employment Forecasts

The following Table A-6 shows the forecasts for employment growth citywide in Ball Ground, from 2020 to 2050.

For these forecasts, we use the data produced by the Atlanta Regional Commission. ARC's employment forecasts appear to be considerably more realistic, compared to their population and household projections for the city. The city is located, in whole or in part, within five 2010 Census Tracts,⁶ three of which comprise the city's primary nonresidential areas where commercial, office and entertainment centers are located.

Various individual employment categories are grouped together in Table A-6 to better understand broad types of employment in the city and to facilitate identification of those types of businesses that would come under an impact fee program.

- The first grouping is referred to as 'non-building' related jobs, which primarily occur out-of-doors. Such jobs include any employment that is considered to be transitory in location by nature, such as those working on construction sites, or are strictly land-based such as farming and other agricultural workers. Since impact fees are based on building permits, these types of employment generally do not involve construction of primary buildings for the use itself and thus place little more than minor demands for public services.
- The second category—'government'—sets any city, county, state, and federal administrative jobs apart since impact fees are not charged for such buildings that are actually owned by those governments (and which are otherwise exempt from local taxation).
- The last category—'value-added' employment—is comprised of those types of jobs that represent growth in businesses and other nonresidential uses (such as nonprofits and institutions) that would increase demand for City services and would be subject to impact fees. Even though some of the types of uses may occupy buildings that are exempt from property taxes (such as churches and other places of religious worship), they are not exempt from governmental fees (such as water and sewer service and/or building permit fees).

The ARC data is published for each decadal year—2020, 2030, 2040 and 2050. Intervening years (2022 and 2045) are extrapolated proportionally on a straight line between the given ARC figures.

As can be seen on the table, construction jobs dominate the forecast for the non-building types of employment between 2022 and 2045. The increase in construction jobs will represent almost 43% of all such jobs in 2045. (This supports the selection of the 'growth' population forecast described above.)

Government jobs are expected to increase notably, reflecting the city's status as the county seat.

As to the value-added jobs, over 11,000 new jobs are expected to be added by 2045 and will comprise more than 56% of all value-added jobs in 2045. Of these new jobs, over 70% of the increase is projected to be in four employment categories. Manufacturing is projected to add 2,284 new jobs in 2045, followed by health care and social assistance (2,252 new jobs), retail trade (2,244 new jobs), and wholesale trade (1,051 new jobs). These four categories will have generated over 70% of all new value-added jobs in the city.

⁶ ARC has not yet updated their data to the 2020 Census Tracts.

By 2045, then, of all 19,604 value added jobs in the city, the four employment categories noted above are projected to account for a bit over 11,800 of them, or 60%, of all value added jobs.

Table A-6: Covington Employment Forecasts - 2022 to 2045

	2020	2022	2030	2040	2045	2050	2022-2045 Change	
							Number	Percent of '45
Total Jobs	7,602	9,960	19,384	20,686	21,783	22,868	11,823	54.28%
Farm Employment	12	12	10	11	11	8	-1	-9.09%
Mining	0	0	0	0	0	0	0	
Construction	514	593	908	985	1,036	1,087	443	42.76%
Total Non-Building	526	605	918	996	1,047	1,095	442	42.22%
Public Administration	735	806	1,090	1,128	1,132	1,135	326	28.80%
Total Government	735	806	1,090	1,128	1,132	1,135	326	28.80%
Manufacturing	939	1,553	4,008	3,929	3,837	3,745	2,284	59.53%
Wholesale Trade	209	371	1,020	1,322	1,422	1,522	1,051	73.91%
Utilities	0	5	25	21	20	18	15	75.00%
Retail Trade	758	1,217	3,054	3,312	3,461	3,609	2,244	64.84%
Transportation & Warehousing	203	201	195	254	258	262	57	22.09%
Information	127	177	375	466	523	580	346	66.16%
Finance & Insurance	236	310	604	752	940	1,127	630	67.02%
Real Estate	178	211	344	357	379	401	168	44.33%
Professional & Technical Services	443	434	398	493	559	625	125	22.36%
Management of Companies	144	152	183	199	243	286	91	37.45%
Administrative & Waste Services	306	373	639	739	773	806	400	51.75%
Educational Services	1,577	1,603	1,706	1,610	1,642	1,674	39	2.38%
Health Care & Social Assistance	407	831	2,525	2,832	3,083	3,333	2,252	73.05%
Arts, Entertainment & Recreation	26	70	246	236	257	277	187	72.76%
Accommodation & Food Services	719	880	1,523	1,530	1,659	1,787	779	46.96%
Other Private Services	69	161	531	510	548	586	387	70.62%
Total Value-Added	6,341	8,549	17,376	18,562	19,604	20,638	11,055	56.39%

Source: Atlanta Regional Commission, employment forecasts for 2020, 2030, 2040 and 2050. Intervening years interpolated.

Appendix B: Trip Generation

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

■ Summary

A Level of Service must be established for road improvements to assure that, ultimately, existing development and new growth are served equally. This Appendix also presents the process through which new growth and development's 'fair share' of road improvement costs is calculated, and tables summarizing the technical portions of this methodology are included.

Level of Service

The City has set its Level of Service for road improvements at LOS "D", unless physical and fiscal constraints dictate an undesirable but unavoidable LOS "F".

All road improvement projects benefit existing and future traffic proportionally to the extent that relief from over-capacity conditions eases traffic problems for everyone. For example, since new growth by 2045 will generate a certain portion of all 2045 traffic, new growth would be responsible for that portions' cost of the road improvements.

It is noted that the cost-impact of non-Ball Ground generated traffic on the roads traversing the city (cross commutes) is off-set somewhat by county, state and federal assistance. The net cost of the road projects that accrues to Ball Ground reasonably represents (i.e., is 'roughly proportional' to) the impact on the roads by Ball Ground residents driving to and from their homes, commuters that come into the city to work, and customers and other traffic (like deliveries and distribution) generated by the city's businesses.

The basis for the road impact fee would therefore be Ball Ground's cost for the improvements divided by all traffic generated within the city in 2045 (existing today plus new growth)—i.e., the cost per trip—times the traffic generated by new growth alone. For an individual land use, when a building permit is issued, the cost per trip would be applied to the number of trips that will be generated by the new development, assuring that new growth would only pay its 'fair share' of the road improvements that serve it.

Approach

This methodology proceeds along the following lines:

- Total traffic currently generated by Ball Ground residents and businesses in 2022 on the road system within the city is calculated from trip generation and commuting data. Various data sources are relied upon to determine current conditions, as explained in each appropriate section, below.
- Future Ball Ground-generated traffic from new growth in the city is calculated from housing unit and employment forecasts to 2045.
- The portion of total 2045 traffic that is generated by new housing units and new employment in the city establishes the percentage of Ball Ground's cost of the future road improvements that can be included in an impact fee.

Summary Table

The table below shows how the portion of 2045 traffic generated by new growth is calculated. The figures represent all trips generated by general land use, including pass-by and diverted trips.

Table B-1: Average Daily Trip Ends Generated by New Growth

	2022	2045	Increase	Percent New Growth Trip Ends
Residential Trips	54,123	71,640	17,517	
Commercial	144,996	352,369	207,373	
Industrial+Utility	10,513	29,227	18,714	
Less: Internal Commutes*	-8,528	-11,288	-2,760	
Net Trip Ends	201,104	441,948	240,844	54.496%

* Residents who work in Covington. These trips to and from work are included in the residential trips.

Overall, new residents and businesses located within Ball Ground by 2045 will generate almost 54.5% (more accurately, 54.495968%) of all Ball Ground vehicles on its roads.

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

Table B-2: Primary Daily Trip Ends Generated by New Growth

	Percent Primary Trip Ends*	Primary Trip Ends			Percent New Growth Primary Trip Ends
		2022	2045	Increase	
Residential Trips	100%	54,123	71,640	17,517	
Commercial	51%	73,777	179,294	105,517	
Industrial+Utility	92%	9,672	-10,385	-20,057	
Less: Internal Commutes	100%	-8,528	-11,288	-2,760	
Net New Primary Trip Ends		129,045	229,261	100,217	43.7%

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

■ Pass-by and Diverted Trips

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

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

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

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

New primary trips add vehicles to the road network. Pass-by and diverted trips involve the same vehicles stopping off between their original beginnings and their final destinations, and therefore do not add new vehicles to the road network—the vehicles were already there on their way to their final destinations.

These different types of trips result in different types of 'trip ends'. On a home-to-daycare-to-work trip, for instance, there are two primary trip ends (home and work) and two pass-by or diverted trip ends: arriving at the daycare center and leaving from there to drive to work, for instance. The net impact on the road network, however, is created by the one vehicle and its two primary trip ends.

Impact fee calculations take note of these pass-by and diverted trip ends as not adding to the overall number of vehicles on the road network.

For nonresidential uses, the primary trip ends consist of the employees arriving at work and ending their work day, plus customers and delivery of goods arriving and departing.

While Table B-2 above uses overall average percentages of primary trip ends derived from ITE for broad land use categories, the actual primary trip-end figure for each land use listed on the impact fee schedule for roads is the total primary trip ends attributed to that particular land use, based on data described above as reported in ITE's *Trip Generation* manual.

■ Residential Trip Generation

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

The 2020 breakdown of housing units by type on table B-3 are taken from the most recent *American Community Survey* for Ball Ground (published by the Census Bureau). The 2020 percentage by housing type (single-family and multi-family) is calculated. These 2020 percentages are applied to the

total number of housing units projected in 2022 in Appendix A. It is assumed that these percentages will persist into the future, producing a breakdown of the projected 2,017 new housing units forecast for the 2022-2045 period.

Table B-3: Residential Units by Type: 2022 and 2045

	2020*	Percent**	Total in 2022	Increase 2022-2045	Total in 2045
Single-Family Units	4,025	66.6%	4,149	1,343	5,492
Multi-Family Units	2,021	33.4%	2,083	674	2,757
Total	6,046	100.0%	6,232	2,017	8,249

* Based on Census 2020 American Community Survey data report.

** Percent of 2020 total housing units.

The next table, below, calculates the amount of traffic that is generated by the city's housing stock today, and the amount that will be generated in 2045.⁷

Table B-4: Residential Trip Generation - 2022-2045 New Growth Increase

	ADT* Trip Ends	2022 Units	2022 ADT Trip Ends	2045 Units	2045 ADT Trip Ends	Increase 2022-2045	Percent New Growth Trip Ends
Single-Family Units	9.43	4,149	39,125	5,492	51,790	12,665	
Multi-Family Units	7.20	2,083	14,998	2,757	19,850	4,852	
Total		6,232	54,123	8,249	71,640	17,517	24.451%

* Average Daily Traffic (trip ends) on a weekday; Institute of Transportation Engineers *Trip Generation*, 11th Edition. Total includes trips to/from work.

The calculations are made on the basis of 'average daily traffic' (ADT) on a normal weekday, using average trip generation rates derived through numerous traffic studies across the country and

⁷ For calculation purposes, the same ratio of multi-family units to single-family units in 2020 reported by the Census is applied also to 2022 and 2045, reflecting increases in both types of dwelling units.

published by the Institute of Transportation Engineers (ITE). The rates are expressed for 'trip ends'—that is, traffic both leaving and coming to a housing unit.

Comparing traffic in 2022 to 2045, the future increase in trip ends can be calculated, which will represent slightly almost 24.5% (24.451424%) of all residential trip ends generated in the city.

■ Nonresidential Trip Generation

Calculating traffic generated by businesses located in Ball Ground is more problematical than residential trips because there is no detailed breakdown of types of actual businesses in the city that is readily available. In addition, while employment forecasts have been made in terms of the number of commercial and industrial jobs in Appendix A, there is no data available for floor areas.

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

The Average Daily Traffic (ADT) numbers on the following table, therefore, are calculated by dividing all trips to a use—employees, customers, deliveries to or from, etc.—by the number of employees alone, yielding the 'trip ends per employee' for each land use category. Since there is more data available for the average number of employees per 1,000 square feet of floor area, it enables a determination of the average total trips generated by the land use by the same floor area (and thus the number of trips per square foot of floor area for impact fee calculations).

The table on the following page shows the 'trips per employee' per 1,000 square feet of floor area for those uses for which impact fees are commonly collected and for which the data is available.

Overall, the average trip generation rate of all uses shown on the following Table B-5 is 4.21 trips per employee for 'industrial' types of uses, and 23.95 for all 'commercial and services' uses. The 'industrial' category includes such uses as manufacturing and assembly, storage and transportation of goods; the 'commercial' category includes all sales and service uses such as stores, offices, motels, banks, amusements, and private institutions. Average trip generation rates are shown for each of the seven groupings of commercial and services uses, which are averaged together for the category as a whole.

Although the 'overall' averages are useful for projecting total traffic generation, impact fees for a particular use will reflect the actual average trip generation rate for that particular use.

Table B-5: ITE Trips-per-Employee Data

	ITE CODE	Land Use	Trip Ends per Employee		Avg by Category		Avg All Commercial
Industrial (100-199)	110	General Light Industrial	3.10		4.21		
	140	Manufacturing	2.51				
	150	Warehousing	5.05				
	156	High-Cube Hub Warehouse	6.77				
	180	Specialty Trade Contractor	3.63				
Lodging (300-399)	310	Hotel or Conference Motel	14.34		13.58		
	320	Motel	12.81				
Recreational (400-499)	445	Movie Theater	55.12		38.03		
	480	Amusement Park	24.02				
	491	Racquet/Tennis Club	45.71				
	495	Recreational Community Center	27.25				
Institutional (500-599)	560	Church/Place of Worship	20.02		33.05		
	565	Day Care Center	21.38				
	566	Cemetery	57.75				
Medical (600-699)	610	Hospital	3.77		6.99		
	620	Nursing Home	3.31				
	630	Clinic	13.90				
Office (700-799)	710	General Office Building	3.33		4.27		
	714	Corporate Headquarters Building	2.31				
	715	Single-Tenant Office Building	3.85				
	720	Medical-Dental Office Building	8.71				
	760	Research and Development Center	3.37				
	770	Business Park	4.04				
Retail (800-899)	812	Building Materials and Lumber Store	24.77		30.21		23.95
	814	Variety Store	95.59				
	815	Free-Standing Discount Store	24.63				
	816	Hardware/Paint Store	27.69				
	817	Nursery (Garden Center)	21.83				
	818	Nursery (Wholesale)	23.40				
	820	Shopping Center	17.42				
	826	Strip Retail Plaza	25.63				
	840	Automobile Sales (New)	11.20				
	843	Auto Parts Store	33.73				
	848	Tire Store	16.78				
	850	Supermarket	43.86				
	857	Discount Club	32.21				
	861	Sporting Goods Superstore	4.44				
	881	Pharmacy/Drugstore w/drive-through	69.17				
	890	Furniture Store	10.93				
Services (900-999)	912	Drive-in Bank	32.73		25.19		
	932	High-Turnover (Sit-Down) Restaurant	21.26				
	934	Fast-Food Restaurant	44.52				
	941	Quick Lubrication Vehicle Shop	16.00				
	943	Automobile Parts & Service	11.44				

Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers, where survey results given for key land uses.

The next table provides a breakdown between commercial and industrial employment in the city and calculates trip ends generated by each.

The table shows the number of trip ends currently generated by Ball Ground businesses based on 2022 employment (taken from the growth projections in Appendix A) using the average daily traffic rates for commercial and industrial uses from the ITE Trips-per-Employee Data table on the previous page. The same calculations are made for the year 2045 based on projected employment in the city, and the difference between 2022 and 2045 represents trip ends generated by future nonresidential growth and development.

Subtracted from the gross total number of trips are the number of trips generated by city commuters that live and work in the city, since these trips have already been calculated as part of the residential trip generation rates (i.e., city residents driving to/from work at city establishments). Since these trips have already been accounted for in the residential trip generation calculations, they would otherwise be double-counted here.

Overall, nonresidential growth will generate a net total of more than 60.3% (60.308446%) of all non-residential 2045 trip ends.

Table B-6: Nonresidential Trip Generation - 2022-2045 New Growth Increase

	2022 Employees	Avg. ADT	2022 Trip Ends	2045 Employees	2045 Trip Ends	2022-2045 Increase	Percent New Growth Trip Ends
Commercial	6,053	23.95	144,996	14,710	352,369	207,373	
Industrial+Utility	2,496	4.21	10,513	6,939	29,227	18,714	
Total	8,549		155,509	21,649	381,596	226,087	
Less: Internal Commutes* at		15.76%	-8,528		-11,288	-2,760	
Net Nonres Trip Ends			146,981		370,308	223,327	
							60.308%

* Residents who work in Covington based on Census data. These trips are included in residential trip generation rate.

The results of the residential and nonresidential trip generation analyses are combined on the Summary tables at the beginning of this Appendix for an overall calculation of new growth's share of future traffic generated by Ball Ground residents and businesses.

■ Terminology

This Appendix uses the term 'average daily traffic' (ADT) for a weekday, which is defined by ITE as the 'average weekday vehicle trip ends', which are "the average 24-hour total of all vehicle trips counted from a study site from Monday through Friday."

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

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

Appendix C: Cost Adjustments

■ Cost Adjustments

Calculations related to impact fees are made in terms of the 'present value' of past and future amounts of money, including project cost expenditures and future revenue credits.

The Georgia Development Impact Fee Act defines 'present value' as "the current value of past, present, or future payments, contributions or dedications of goods, services, materials, construction, or money." This Appendix describes the methodologies used to make appropriate adjustments to project cost figures, both past and future, to convert these costs into current dollars when such an adjustment is appropriate.

Calculations for present value (PV) differ when considering past expenditures versus future costs. In both cases, however, the concept is the same—the 'actual' expenditure made or to be made is adjusted to the current year (2021) using an inflation rate to bring past expenditures up to current values, and a deflator for future costs representing interest that would be added to funds being saved up until the expenditure is to be made. In essence, the present value is considered in light of the value of money as it changes over time.

Past Expenditures

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

Future Project Costs

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

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

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

In this Appendix, two important adjustments are discussed that are required to convert current cost estimates into future cost figures, and then back into current dollars. First, an appropriate cost inflator is identified. This adjustment factor is important in determining the future cost of a project, based on current cost estimates. The cost inflator may be based on anticipated inflation in construction or building costs, or on anticipated inflation in the value of money (for capital projects that do

not include a construction component). In essence, costs increase over time. By identifying the appropriate inflation rate that is related to the type of project (building construction, project construction or non-construction), current 2021 estimates can be used to predict future costs in the year they are expected to occur.

The second cost adjustment is a deflator—the Net Discount Rate. In essence, the Net Discount Rate is the interest rate that accrues to monies being held in escrow. That is, as impact fees are collected and ‘saved up’ over the years for the future expenditure, they increase at the rate that the account is accruing interest. Having determined the inflated cost of a project at some future date, the cost in today’s dollars can be reduced to the extent that interest will increase the funds on hand. In essence, the calculation determines how much money needs to be added to the account so that, with interest, it will grow to the amount needed for that future expenditure at that time. This is the Net Present Value of that future expenditure.

■ Cost Inflation

Three different cost inflation factors are used in the impact fee calculations, based on the type of project being considered.

For projects that require construction of a building (such as a fire station), a ‘building cost inflation’ is used as the appropriate inflation rate.

For construction projects that do not involve a new building, such as pickleball courts or ball fields, a ‘construction cost inflation’ is used.

For all non-construction types of projects (such as a fire truck or park land), an inflation rate is used that is based on the Consumer Price Index. These different types of inflation factors are discussed below.

Engineering News-Record’s Cost Indexes

The Engineering News-Record (ENR)⁸ publishes both a Building Cost Index (BCI) and a Construction Cost Index (CCI), both of which are widely used in the construction industry. The indexes are based on monthly and annual cost increases of various construction materials and applicable labor rates, and are calibrated regionally.

⁸ Engineering News-Record is a magazine devoted to providing those in the construction business with up-to-date information concerning innovations and policy changes related to their field of work. This includes tracking monthly increases in the relative costs of construction and building projects, as well as features on the business and management aspects of construction.

Building Cost Inflator

Table C-1 presents a calculation of the annual average rate of increase reflected in the construction costs of a building. For this analysis, the 2012-2022 ten-year period is used as a base time period for an estimate of average future construction cost increases due to inflation in labor and materials costs.

Table C-1: Building Cost Inflator - BCI

Year	Amount	BCI*		Effect of Inflation	
		1913=100	2012=1.0	BCI	Avg. Rate =
					2.5825565%
2012	\$ 100,000.00	3,970.93	1.000000	\$ 100,000.00	\$ 100,000.00
2013		4,022.11	1.012888	\$ 101,288.76	\$ 102,582.56
2014		4,076.81	1.026663	\$ 102,666.31	\$ 105,231.81
2015		4,108.05	1.034529	\$ 103,452.93	\$ 107,949.48
2016		4,126.72	1.039232	\$ 103,923.20	\$ 110,737.34
2017		4,278.39	1.077428	\$ 107,742.79	\$ 113,597.19
2018		4,408.94	1.110303	\$ 111,030.32	\$ 116,530.90
2019		4,523.59	1.139176	\$ 113,917.60	\$ 119,540.38
2020		4,615.43	1.162304	\$ 116,230.36	\$ 122,627.58
2021		5,335.09	1.343535	\$ 134,353.48	\$ 125,794.50
2022		6,314.94	1.590292	\$ 159,029.21	\$ 129,043.22
				\$ 1,253,634.96	\$ 1,253,634.96

* Building Cost Index, Atlanta Region.
Source: Engineering News Record, Annual Average Indices.

Table C-1 assumes a building construction project that cost \$100,000 in 2012, and how much the same project would cost in each subsequent year due to inflation using the Building Cost Index published by ENR for the Atlanta area (the nearest area to Ball Ground for which data are available).

Setting the 2012 Building Cost Index (BCI) at '1.0,' the increase in the BCI as a multiple of 2012 is also shown on the table. The equivalent cost of the same project in each subsequent year is calculated by multiplying the BCI multiplier times \$100,000. This is the 'effect of inflation' generated by increases in building costs each year.

When the total for all such projects is summed for the 2012-2022 period, the equivalent average annual rate of increase is calculated as the percentage that would produce the same total. This percentage is used in the text of this report as the applicable inflator for building construction projects that will begin in future years.

Construction Cost Inflator

The inflator for future construction costs for other types of projects is based on ENR's Construction Cost Index.

Table C-2 presents a calculation of the annual average rate of increase reflected in the cost of construction of a capital project other than a building. (These would include such projects as utility lines and road improvements.) For this analysis, the 2012-2022 ten-year period is also used as a base time period for an estimate of average future construction cost increases due to inflation in labor and materials costs. The Construction Cost 10-year average inflation rate is calculated in the same manner as described above for the Building Cost Inflator.

Table C-2: Construction Cost Inflator - CCI

Year	Amount	CCI*		Effect of Inflation	
		1913=100	2012=1.0	CCI	Avg. Rate =
					2.2916719%
2012	\$ 100,000.00	5,892.64	1.000000	\$ 100,000.00	\$ 100,000.00
2013		5,983.23	1.015374	\$ 101,537.38	\$ 102,291.67
2014		6,147.52	1.043254	\$ 104,325.44	\$ 104,635.86
2015		6,245.74	1.059922	\$ 105,992.22	\$ 107,033.77
2016		6,277.14	1.065250	\$ 106,525.03	\$ 109,486.63
2017		6,433.18	1.091732	\$ 109,173.24	\$ 111,995.71
2018		6,592.98	1.118850	\$ 111,885.00	\$ 114,562.28
2019		6,681.50	1.133872	\$ 113,387.16	\$ 117,187.68
2020		6,750.41	1.145567	\$ 114,556.65	\$ 119,873.23
2021		7,414.97	1.258344	\$ 125,834.41	\$ 122,620.33
2022		8,361.71	1.419010	\$ 141,901.02	\$ 125,430.39
				\$ 1,235,117.55	\$ 1,235,117.55

* Construction Cost Index, Atlanta Region.
Source: Engineering News Record, Annual Average Indices.

CPI Inflator

For projects that do not involve construction of any kind, only the future value of money needs to be considered (without regard to inflation in labor or materials costs). For this calculation, the Consumer Price Index (CPI) is used, assuming past experience will continue into the foreseeable future. By 2021 the CPI had risen considerably over the 1982 CPI. The first column under the 'CPI' heading on Table C-3 shows the average annual CPI figures. Using 2021 as the base (2021=1.0), the second column under 'CPI' on the table shows the multipliers that would convert an amount of money spent in each year into current present value dollars.

Table C-3 shows the CPI figures for every year since 1982.

Table C-3: Non-Construction Cost Inflation - CPI

Year	Amount	CPI*		Present Value: CPI	Long Term Inflation =	10-Year Inflation =
		1982-84=100	2021=1.0			
					2.49984150%	
1982	\$ 10,000.00	96.50	2.88029	\$ 28,802.90	\$ 26,194.17	
1983	\$ 10,000.00	99.60	2.79064	\$ 27,906.43	\$ 25,555.32	
1984	\$ 10,000.00	103.90	2.67515	\$ 26,751.49	\$ 24,932.06	
1985	\$ 10,000.00	107.60	2.58316	\$ 25,831.60	\$ 24,324.00	
1986	\$ 10,000.00	109.60	2.53602	\$ 25,360.22	\$ 23,730.77	
1987	\$ 10,000.00	113.60	2.44673	\$ 24,467.25	\$ 23,152.00	
1988	\$ 10,000.00	118.30	2.34952	\$ 23,495.18	\$ 22,587.36	
1989	\$ 10,000.00	124.00	2.24152	\$ 22,415.16	\$ 22,036.48	
1990	\$ 10,000.00	130.70	2.12661	\$ 21,266.11	\$ 21,499.04	
1991	\$ 10,000.00	136.20	2.04073	\$ 20,407.34	\$ 20,974.70	
1992	\$ 10,000.00	140.30	1.98110	\$ 19,810.98	\$ 20,463.16	
1993	\$ 10,000.00	144.50	1.92352	\$ 19,235.16	\$ 19,964.09	
1994	\$ 10,000.00	148.20	1.87549	\$ 18,754.93	\$ 19,477.19	
1995	\$ 10,000.00	152.40	1.82381	\$ 18,238.06	\$ 19,002.16	
1996	\$ 10,000.00	156.90	1.77150	\$ 17,714.98	\$ 18,538.72	
1997	\$ 10,000.00	160.50	1.73176	\$ 17,317.63	\$ 18,086.59	
1998	\$ 10,000.00	163.00	1.70520	\$ 17,052.02	\$ 17,645.48	
1999	\$ 10,000.00	166.60	1.66836	\$ 16,683.55	\$ 17,215.13	
2000	\$ 10,000.00	172.20	1.61410	\$ 16,141.00	\$ 16,795.27	
2001	\$ 10,000.00	177.10	1.56944	\$ 15,694.41	\$ 16,385.66	
2002	\$ 10,000.00	179.90	1.54501	\$ 15,450.14	\$ 15,986.03	
2003	\$ 10,000.00	184.00	1.51059	\$ 15,105.87	\$ 15,596.15	
2004	\$ 10,000.00	188.90	1.47140	\$ 14,714.03	\$ 15,215.78	
2005	\$ 10,000.00	195.30	1.42318	\$ 14,231.85	\$ 14,844.69	
2006	\$ 10,000.00	201.60	1.37871	\$ 13,787.10	\$ 14,482.65	
2007	\$ 10,000.00	207.34	1.34053	\$ 13,405.29	\$ 14,129.43	
2008	\$ 10,000.00	215.30	1.29096	\$ 12,909.62	\$ 13,784.83	
2009	\$ 10,000.00	214.54	1.29557	\$ 12,955.71	\$ 13,448.64	2.580330%
2010	\$ 10,000.00	218.06	1.27466	\$ 12,746.63	\$ 13,120.64	
2011	\$ 10,000.00	224.94	1.23566	\$ 12,356.59	\$ 12,800.65	\$ 12,901.52
2012	\$ 10,000.00	229.59	1.21061	\$ 12,106.07	\$ 12,488.46	\$ 12,576.99
2013	\$ 10,000.00	232.96	1.19313	\$ 11,931.30	\$ 12,183.88	\$ 12,260.63
2014	\$ 10,000.00	236.74	1.17408	\$ 11,740.84	\$ 11,886.73	\$ 11,952.22
2015	\$ 10,000.00	237.02	1.17269	\$ 11,726.92	\$ 11,596.83	\$ 11,651.57
2016	\$ 10,000.00	240.01	1.15808	\$ 11,580.82	\$ 11,313.99	\$ 11,358.49
2017	\$ 10,000.00	245.12	1.13393	\$ 11,339.26	\$ 11,038.06	\$ 11,072.77
2018	\$ 10,000.00	251.11	1.10689	\$ 11,068.91	\$ 10,768.86	\$ 10,794.25
2019	\$ 10,000.00	255.66	1.08719	\$ 10,871.93	\$ 10,506.22	\$ 10,522.72
2020	\$ 10,000.00	261.56	1.06265	\$ 10,626.55	\$ 10,249.98	\$ 10,258.03
2021	\$ 10,000.00	277.95	1.00000	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
1982-21	\$ 400,000.00			\$ 674,001.84	\$ 674,001.84	
2011-21	\$ 110,000.00			\$ 125,349.20	\$ 125,349.20	

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

Using an annual expenditure of \$10,000 as an example, the multipliers on Table C-3 yield the figures shown for the CPI on the table under the 'present value' heading. Cumulatively, the \$400,000 spent over the 1982-2021 period would have a total present value of \$674,001.84 in today's dollars. Considering the present value figures for the \$10,000 annual expenditures, an average annual inflation rate of almost 2.5% yields the same total amount over the 1982-2021 period.

The 39-year average of annual CPI change (the period of 1982-2021) shown on Table C-3 would be useful in estimating the present value (PV) of past expenditures but would not be the best indicator of future change because of the long timeframe covered. Looking only at the change in CPI for the 10 years from 2011 to 2021, an average annual inflation rate of slightly more than 2.58% best captures the change over that period. Even though this 10-year rate is somewhat skewed by the 2021 one-year rate influenced by the pandemic, this rate (compared to the 1982-2021 period) is assumed to be experienced 'on average' in future years and is used for inflator calculations for future non-construction expenditures where the value of money is the issue.

Calculating Net Present Value

Determining the NPV of future project expenditures depends on the type of 'project' being funded, as discussed above. Specifically

- For a building construction project (such as a fire station), the current cost estimate for the project is inflated into the future using the average Building Cost Inflator (from Table C-1) applied to the number of years until the year planned for its construction. This future cost is then deflated back to the present using the Net Discount Rate (currently 1.95273%⁹) since this reflects the present value of a future amount of money.
- For other construction projects (such as road improvements), the current cost estimate for the project is inflated into the future using the average Construction Cost Inflator (from Table C-2) applied to the number of years until the year planned for its construction. Like building construction projects, this future cost is then deflated back to the present using the Net Discount Rate.
- For non-construction capital projects (such as fire truck purchases or land acquisition), the 10-year average CPI inflator is used to estimate the project expenditure in future dollars while, again, the Net Discount Rate is applied to deflate that future cost to present value.

⁹ The discount rate is based on the interest paid to local governments by the state's Georgia 1 Fund. From January '22 through November, the monthly rate varied from 0% in January to 3.58% in November (the last month reported). Over the 11-month period, the monthly average was 0.325%, yielding a mid-year average of 1.9527%. Because monthly deposits to the Fund would grow slowly, the effective rate of return is 0.97636%, which is the effective 'discount rate'.

Appendix D: Credits

The Georgia Development Impact Fee Act is very clear that new growth and development cannot be charged more in impact fees than their 'fair share' of the cost of providing public facilities needed to serve that new growth. The calculation of that 'fair share' is intrinsic to the impact fee calculations carried out for each public facility category.

■ Ineligible Impact Fee Project Amounts

In some cases, a project included in the impact fee program may not be 100% impact fee eligible. This is caused by projects that will also serve today's existing development to some extent, for which other revenue (such as property taxes) would be needed to cover the existing development's share of the project cost. Under normal circumstances, taxes generated by existing development would be used to cover existing development's 'fair share' of the project costs.

As new growth and development comes on line in the future, however, it will also be generating property tax revenue. To the extent that new growth will be contributing taxes to cover the cost of non-eligible portions of impact fee projects (for which they are not financially responsible), a credit must be applied reflecting the allocation of those tax collections in order to avoid new growth paying more than their 'fair share' of total costs.

■ Tax Credits

The calculation of new growth and developments 'fair share' is intrinsic to the impact fee calculations carried out in the chapters addressing each public facility category in this report. In those situations, however, in which new development will be paying impact fees for eligible project costs and also property taxes that will be used to cover the ineligible portions of impact fee project costs can create a potential situation of 'double taxation'. This situation relates to the portion of impact fee projects that are not eligible for impact fee funding (such as a public facility project that is only 90% impact fee eligible).

Per-Project Funding Shortfall Credit

For individual projects that are only partially eligible for impact fee funding, it is assumed for calculation purposes that the non-eligible portions will be covered by General Fund revenue.

Since both existing and future residents and businesses will be paying the property taxes, the situation that new growth would be paying both impact fees to cover its fair share of the costs and generating property taxes that can be used to cover the (ineligible) portion of the cost for which it is not responsible, results in a form of 'double taxation'. The creation of a credit that reduces the impact fee portion to account for the tax contribution is the subject of this section.

The following sections explain how these credits are calculated.

Current Property Tax Base

The table below shows the current property tax base figures for the city. This table and the projections that follow form the basis leading up to the '% New Growth' columns on subsequent tables. It is the percentages in the '% New Growth' columns that are used to calculate a credit against any portion of an impact fee project that is not impact fee eligible.

Table D-1 presents the most recent property tax base for the city, as reported to the State Department of Revenue. All properties in the city are assessed at the rate of 40% of their actual value. The

abbreviation 'M&O' means Maintenance and Operations, which is the historical term for the General Fund tax levy or millage rate.

Table D-1: Covington 2021 Tax Digest

Category	Total Assessed Value (@40%)	Total Tax Valuation (100% value)
Residential	\$ 271,215,568	\$ 678,038,920
Agricultural	2,426,400	6,066,000
Conservation Use	992,680	2,481,700
Commercial	229,862,891	574,657,228
Industrial	457,649,978	1,144,124,945
Utility	4,094,050	10,235,125
Motor Vehicle	2,894,050	7,235,125
Mobile Home	71,284	178,210
Heavy Equipment	286,462	716,155
Gross Digest	\$ 969,493,363	\$ 2,422,839,043
Exempt Residential	\$ 119,473,476	\$ 298,683,690
Other Exempt	\$ 5,166,461	\$ 12,916,153
Total Tax Base M&O	\$ 844,853,426	\$ 2,112,133,565
Net Residential	\$ 151,742,092	379,355,230

Source: Ga Dept. of Revenue, Consolidated Covington Tax Digest, 2021.

■ Citywide Tax Base Projections

In the following table, the total value added to the tax base by new growth and development throughout the city is calculated. New houses recently constructed in the city¹⁰ were actually sold at an overall median sales price of \$365,305, which would be a tax assessment value of \$146,122 at 40%.

Citywide nonresidential value added is calculated as the assessed value of all commercial, industrial, and utility property in the city divided by the current number of 'value-added' jobs in the city, resulting in a figure of \$25,883 in assessed value per employee. [The value added is expressed in *assessed* value terms; this is 40% of the market or appraised value. Millage rates are applied to assessed value, rather than appraised.]

¹⁰ As of August 21, 2022, Zillow reported 18 new homes constructed in 2022 that had been sold. Overall, actual sales prices ranged from a low of \$114,000 to a high of \$396,850.

Table D-2: Tax Base Increases from New Growth

Year	Residential			Non-Residential			Total Annual Added Assessed Value
	Total Housing Units	New Housing Units	Added Assessed Value*	Value-Added Employees	New Employees	Added Assessed Value**	
2020	6,046			14,353			
2021	6,129			15,228			\$ 46,003,792
2022	6,232	103	\$ 8,420,792	16,102	875	\$ 37,583,000	\$ 45,633,819
2023	6,331	99	\$ 8,093,771	16,976	874	\$ 37,540,048	\$ 45,470,308
2024	6,428	97	\$ 7,930,260	17,850	874	\$ 37,540,048	\$ 45,225,042
2025	6,522	94	\$ 7,684,994	18,724	874	\$ 37,540,048	\$ 44,979,777
2026	6,613	91	\$ 7,439,729	19,598	874	\$ 37,540,048	\$ 44,773,314
2027	6,702	89	\$ 7,276,218	20,471	873	\$ 37,497,096	\$ 44,734,511
2028	6,790	88	\$ 7,194,463	21,345	874	\$ 37,540,048	\$ 44,571,000
2029	6,876	86	\$ 7,030,952	22,219	874	\$ 37,540,048	\$ 44,571,000
2030	6,962	86	\$ 7,030,952	23,093	874	\$ 37,540,048	\$ 10,861,978
2031	7,046	84	\$ 6,867,442	23,186	93	\$ 3,994,536	\$ 10,698,467
2032	7,128	82	\$ 6,703,931	23,279	93	\$ 3,994,536	\$ 10,698,467
2033	7,210	82	\$ 6,703,931	23,372	93	\$ 3,994,536	\$ 10,780,222
2034	7,293	83	\$ 6,785,686	23,465	93	\$ 3,994,536	\$ 10,534,957
2035	7,373	80	\$ 6,540,421	23,558	93	\$ 3,994,536	\$ 10,737,270
2036	7,456	83	\$ 6,785,686	23,650	92	\$ 3,951,584	\$ 10,780,222
2037	7,539	83	\$ 6,785,686	23,743	93	\$ 3,994,536	\$ 10,943,733
2038	7,624	85	\$ 6,949,197	23,836	93	\$ 3,994,536	\$ 10,780,222
2039	7,707	83	\$ 6,785,686	23,929	93	\$ 3,994,536	\$ 10,943,733
2040	7,792	85	\$ 6,949,197	24,022	93	\$ 3,994,536	\$ 14,801,116
2041	7,879	87	\$ 7,112,708	24,201	179	\$ 7,688,408	\$ 15,046,381
2042	7,969	90	\$ 7,357,973	24,380	179	\$ 7,688,408	\$ 15,166,940
2043	8,061	92	\$ 7,521,484	24,558	178	\$ 7,645,456	\$ 15,291,647
2044	8,154	93	\$ 7,603,239	24,737	179	\$ 7,688,408	\$ 15,455,158
2045	8,249	95	\$ 7,766,750	24,916	179	\$ 7,688,408	

*New housing unit value is estimated at the median assessed value per housing unit of: \$ 146,122

Net housing unit value is median value minus the average residential exemption: \$ 81,755

**Nonresidential value is estimated at an assessed value per 'value-added' employee of: \$ 42,952

■ Application of Credits Against Impact Fees – Generally

As the city grows, new development will add to the property tax base every year and will thus represent an ever-increasing proportion of the total taxable values.

Table D-3: Total Tax Base 2022-2045

Year	All Development		Residential Only	
	Added Assessed Value	Total Tax Base	Added Assessed Value	Total Net Residential Tax Base
2020	\$ -		\$ -	
2021	\$ -	\$ 844,853,426	\$ -	\$ 151,742,092
2022	\$ 46,003,792	\$ 890,857,218	\$ 8,420,792	\$ 160,162,884
2023	\$ 45,633,819	\$ 936,491,036	\$ 8,093,771	\$ 168,256,654
2024	\$ 45,470,308	\$ 981,961,344	\$ 7,930,260	\$ 176,186,914
2025	\$ 45,225,042	\$ 1,027,186,387	\$ 7,684,994	\$ 183,871,909
2026	\$ 44,979,777	\$ 1,072,166,163	\$ 7,439,729	\$ 191,311,637
2027	\$ 44,773,314	\$ 1,116,939,477	\$ 7,276,218	\$ 198,587,855
2028	\$ 44,734,511	\$ 1,161,673,988	\$ 7,194,463	\$ 205,782,318
2029	\$ 44,571,000	\$ 1,206,244,988	\$ 7,030,952	\$ 212,813,270
2030	\$ 44,571,000	\$ 1,250,815,989	\$ 7,030,952	\$ 219,844,223
2031	\$ 10,861,978	\$ 1,261,677,967	\$ 6,867,442	\$ 226,711,665
2032	\$ 10,698,467	\$ 1,272,376,434	\$ 6,703,931	\$ 233,415,596
2033	\$ 10,698,467	\$ 1,283,074,901	\$ 6,703,931	\$ 240,119,527
2034	\$ 10,780,222	\$ 1,293,855,123	\$ 6,785,686	\$ 246,905,213
2035	\$ 10,534,957	\$ 1,304,390,080	\$ 6,540,421	\$ 253,445,634
2036	\$ 10,737,270	\$ 1,315,127,351	\$ 6,785,686	\$ 260,231,321
2037	\$ 10,780,222	\$ 1,325,907,573	\$ 6,785,686	\$ 267,017,007
2038	\$ 10,943,733	\$ 1,336,851,306	\$ 6,949,197	\$ 273,966,204
2039	\$ 10,780,222	\$ 1,347,631,529	\$ 6,785,686	\$ 280,751,891
2040	\$ 10,943,733	\$ 1,358,575,262	\$ 6,949,197	\$ 287,701,088
2041	\$ 14,801,116	\$ 1,373,376,377	\$ 7,112,708	\$ 294,813,795
2042	\$ 15,046,381	\$ 1,388,422,759	\$ 7,357,973	\$ 302,171,769
2043	\$ 15,166,940	\$ 1,403,589,698	\$ 7,521,484	\$ 309,693,252
2044	\$ 15,291,647	\$ 1,418,881,345	\$ 7,603,239	\$ 317,296,491
2045	\$ 15,455,158	\$ 1,434,336,503	\$ 7,766,750	\$ 325,063,241

Notes: All figures are assessed value (at 40%).
Residential values are net of average M&O exemptions.

Table D-3 shows the increase in taxable value added each year from all new residential and nonresidential development together on the left, and from residential development alone (i.e., new housing units) on the right.

Also shown is the cumulative increase in the 'total tax base' generated by all residential and nonresidential growth together.

In the right-hand columns, annually added assessed values are shown as well as the 'Total Net Residential Tax Base' generated each year by the annual 'contribution' from new residential growth.¹¹

¹¹ The impact fee categories studied in this Methodology Report all fall under the "all development" tax base figures. The 'residential only' figures are provided for contrast and would apply if a new impact fee category were added in the future for which only residential uses would be assessed the impact fee.

By dividing the total property tax bases each year by the cumulative new growth amounts, the percentage of the total tax base amounts generated by new growth and development is calculated.

These '% new growth' figures, shown on Table D-4, are used to determine the extent to which the ineligible portion of an impact fee project paid from the General Fund would represent a contribution from new growth for which it is not responsible (having covered its funding responsibility through the impact fees that it generated).

Table D-4: Share of Tax Base Generated by New Growth

Year	Fees based on Day-Night Populaton			Fees based on Housing Units		
	Total Property Tax Base	Tax Base Added by All New Growth	% New Growth	Total Net Residential Tax Base*	Net Tax Base Added by New Residential*	% New Growth
2020	\$ -			\$ -		
2021	\$ 844,853,426			\$ 151,742,092		
2022	\$ 890,857,218	\$ 46,003,792	5.16%	\$ 160,162,884	\$ 8,420,792	5.26%
2023	\$ 936,491,036	\$ 54,054,610	5.77%	\$ 168,256,654	\$ 16,514,562	9.82%
2024	\$ 981,961,344	\$ 61,984,870	6.31%	\$ 176,186,914	\$ 24,444,822	13.87%
2025	\$ 1,027,186,387	\$ 69,669,865	6.78%	\$ 183,871,909	\$ 32,129,817	17.47%
2026	\$ 1,072,166,163	\$ 77,109,593	7.19%	\$ 191,311,637	\$ 39,569,545	20.68%
2027	\$ 1,116,939,477	\$ 84,342,859	7.55%	\$ 198,587,855	\$ 46,845,763	23.59%
2028	\$ 1,161,673,988	\$ 91,580,274	7.88%	\$ 205,782,318	\$ 54,040,226	26.26%
2029	\$ 1,206,244,988	\$ 98,611,226	8.18%	\$ 212,813,270	\$ 61,071,178	28.70%
2030	\$ 1,250,815,989	\$ 105,642,179	8.45%	\$ 219,844,223	\$ 68,102,131	30.98%
2031	\$ 1,261,677,967	\$ 78,964,109	6.26%	\$ 226,711,665	\$ 74,969,573	33.07%
2032	\$ 1,272,376,434	\$ 85,668,040	6.73%	\$ 233,415,596	\$ 81,673,504	34.99%
2033	\$ 1,283,074,901	\$ 92,371,971	7.20%	\$ 240,119,527	\$ 88,377,435	36.81%
2034	\$ 1,293,855,123	\$ 99,157,657	7.66%	\$ 246,905,213	\$ 95,163,121	38.54%
2035	\$ 1,304,390,080	\$ 105,698,078	8.10%	\$ 253,445,634	\$ 101,703,542	40.13%
2036	\$ 1,315,127,351	\$ 112,440,813	8.55%	\$ 260,231,321	\$ 108,489,229	41.69%
2037	\$ 1,325,907,573	\$ 119,269,451	9.00%	\$ 267,017,007	\$ 115,274,915	43.17%
2038	\$ 1,336,851,306	\$ 126,218,648	9.44%	\$ 273,966,204	\$ 122,224,112	44.61%
2039	\$ 1,347,631,529	\$ 133,004,335	9.87%	\$ 280,751,891	\$ 129,009,799	45.95%
2040	\$ 1,358,575,262	\$ 139,953,532	10.30%	\$ 287,701,088	\$ 135,958,996	47.26%
2041	\$ 1,373,376,377	\$ 150,760,111	10.98%	\$ 294,813,795	\$ 143,071,703	48.53%
2042	\$ 1,388,422,759	\$ 158,118,085	11.39%	\$ 302,171,769	\$ 150,429,677	49.78%
2043	\$ 1,403,589,698	\$ 165,596,616	11.80%	\$ 309,693,252	\$ 157,951,160	51.00%
2044	\$ 1,418,881,345	\$ 173,242,807	12.21%	\$ 317,296,491	\$ 165,554,399	52.18%
2045	\$ 1,434,336,503	\$ 181,009,557	12.62%	\$ 325,063,241	\$ 173,321,149	53.32%

Notes: All figures are assessed value (at 40%).
Residential values are net of M&O exemptions.

* Annual figures reflect an average M&O exemption of ... 44.05%

The left-hand portion of Table D-4 relates to tax credits that would apply to public facility categories that serve the entire city, such as the police and fire departments. Within each portion of the table,

the tax base generated only by new residential growth (housing units) and by the combination of residential and nonresidential growth (the day-night population) are shown. In any given year, the percentage from the applicable '% New Growth' column for that year would be applied as a credit against any portion of an impact fee project that is intended to be expended that year which is not impact fee eligible.

By way of example, if a particular project were only 80% impact fee eligible, then the other 20% would be expected to be generated from non-new growth sources since the 'ineligible' portion would be the responsibility of the current residents and businesses in the city. Assuming property taxes are the funding source for the non-eligible portion, it must be recognized that some of that 20% would, in fact, be generated by new growth through its ever-increasing property tax contributions. The solution is to find the percentage of new growth participation in property taxes for the particular year of expenditure for the particular type of project.

The ineligible portion of a fire department project in 2030, for instance, would garner 8.45% in property tax revenue from new residential and nonresidential growth. Thus, the impact fee eligible portion of such a project would be reduced by that percentage (the ineligible 20% of the total cost times 8.45%). The object, in the long run, is to assure

that new growth pays no more than its 'fair share' of the cost of facilities that are needed to specifically serve it through this combination of impact fees paid as part of the building permit process, and property taxes generated in the future, while the existing residents and businesses pay their fair share of the cost that specifically serves only them.

Table D-5: Credit Percentages

Year	For Fees Based on:	
	Day- Night Population	Housing Units

2020		
2021		
2022	5.16%	5.26%
2023	5.77%	9.82%
2024	6.31%	13.87%
2025	6.78%	17.47%
2026	7.19%	20.68%
2027	7.55%	23.59%
2028	7.88%	26.26%
2029	8.18%	28.70%
2030	8.45%	30.98%
2031	6.26%	33.07%
2032	6.73%	34.99%
2033	7.20%	36.81%
2034	7.66%	38.54%
2035	8.10%	40.13%
2036	8.55%	41.69%
2037	9.00%	43.17%
2038	9.44%	44.61%
2039	9.87%	45.95%
2040	10.30%	47.26%
2041	10.98%	48.53%
2042	11.39%	49.78%
2043	11.80%	51.00%
2044	12.21%	52.18%
2045	12.62%	53.32%

Application of Credits Against Impact Fees

For both simplicity and clarity, the property tax credit projections in the previous two tables are summarized in Table D-5.