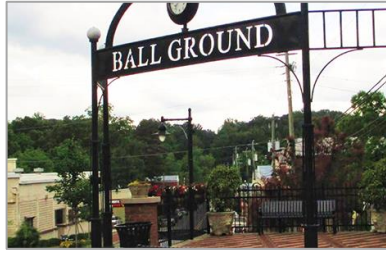


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# Impact Fee Program



## Ball Ground Georgia

Including the following:  
Parks and Recreation  
Road Improvements

## Methodology Report

DRAFT 12/4/23

**ROSS+associates**

urban planning & plan implementation

in association with  
**Hatley Plans LLC**

## Table of Contents

<b>Introduction .....</b>	<b>1</b>
■ Impact Fees Authorized .....	1
■ Focus of This Report .....	1
■ Future Demand for Public Facilities .....	2
Population Outlook .....	2
Increased Job Opportunities .....	2
■ Components of an Impact Fee Program .....	3
■ Editorial Conventions .....	4
<b>Creating an Impact Fee Program .....</b>	<b>5</b>
■ Categories for Assessment of Impact Fees .....	5
■ Limitations on Impact Fees .....	6
■ Cost Adjustments .....	7
■ Credits .....	7
■ Fee Calculations .....	7
■ Maximum Impact Fee Schedule .....	8
■ Program Administration and CIE Preparation Fees .....	8
■ Adoption of Impact Fees .....	11
■ Interpretation .....	11
■ Reductions in Impact Fee Assessments .....	12
Adoption of Reduced Impact Fees .....	12
Individual Fee Assessment .....	12
Individual Appeals .....	12
Credits .....	12
Exemptions .....	12
■ Periodic Review Recommended .....	13
<b>Forecasts .....</b>	<b>14</b>
<b>Parks and Recreation .....</b>	<b>16</b>
■ Introduction .....	16
■ Service Area .....	16
■ Current Parks and Recreation Facilities .....	16
■ Level of Service .....	17

■ Maximum Impact Fee Calculation – Parks and Recreation.....	20
■ Maximum Impact Fee – Parks and Recreation .....	22
<b>Road Improvements .....</b>	<b>23</b>
■ Introduction.....	23
■ Service Area .....	23
■ Planned Road Projects .....	23
Roberts Lake Road Realignment .....	23
Roundabout SR Business 5 @ Howell Bridge Road & Ball Ground Highway .....	23
Ball Ground By-Pass .....	24
Civic/Groover Realignment .....	24
Lowery Street Extension .....	25
Valley Street Traffic Improvements .....	25
Northridge Road Widening .....	25
Lantern Walk Dr at Sr Business 5 & Coy M. Holcomb.....	26
■ Road Improvement Project Costs .....	26
Currently Planned Projects .....	26
Future Road Improvement Projects .....	28
■ Maximum Impact Fee Calculation – Road Improvements.....	28
■ Maximum Road Improvements Impact Fee by Land Use .....	29
<b>Glossary .....</b>	<b>32</b>
■ General Terms .....	32
■ Residential Land Use Definitions.....	34
■ Nonresidential Land Use Definitions.....	36
<b>Appendix A: Future Growth.....</b>	<b>43</b>
■ Historic Population Growth .....	43
Types of Projections .....	43
■ Population Forecasts .....	45
■ Housing Unit Forecasts .....	48
Housing Unit Projections .....	48
■ Employment Forecasts.....	50
■ Summary: Future Growth in Ball Ground .....	52
<b>Appendix B: Trip Generation .....</b>	<b>53</b>
■ Summary .....	53

Level of Service.....	53
Approach .....	53
Summary Tables.....	54
■ Pass-by and Diverted Trips.....	55
■ Residential Trip Generation .....	56
■ Nonresidential Trip Generation .....	57
■ Terminology.....	60
<b>Appendix C: Cost Adjustments and Credits.....</b>	<b>61</b>
■ Cost Adjustments.....	61
Past Expenditures.....	61
Future Project Costs.....	61
■ Cost Inflatoms .....	62
Engineering News-Record’s Cost Indexes.....	62
Building Cost Inflator.....	63
Construction Cost Inflator.....	64
CPI Inflator.....	64
Calculating Net Present Value .....	66
■ Tax Credits .....	67
Per-Project Funding Shortfall Credit .....	67
Current Property Tax Bases .....	67
Tax Base Projections .....	68
■ Application of Tax Credits Against Impact Fees.....	72



## Introduction

Impact fees are a form of revenue allowed by the State of Georgia, and strictly defined and regulated through State law. Under this law, a City or County can collect money from new development based on that development's proportionate share—the 'fair share'—of the cost to provide future public facilities that will be needed. An impact fee is assessed as new development occurs and can help shift the burden for funding public facilities from the tax base as a whole to the new growth and development actually creating the need for these capital improvement projects.

An impact fee is a FEE, not a tax. With taxes—like property taxes and sales taxes—there is no direct relationship between the taxes one pays and the return—the services—that each taxpayer receives. Everyone pays school taxes based on the value of their property, regardless of whether they have one kid in school, six kids in school or no kids at all. A fee, on the other hand, must be related to the service being made available. For instance, only those obtaining a building permit pay the building permit fee (which covers the cost of plan reviews and approvals, and construction inspections). One's water bill is a fee because the amount is based on how much water they used. In the case of impact fees, the amount of each fee is directly related to the City's cost of making particular services available—the cost of recreation facilities, for instance, or road improvements that create added capacity to handle future traffic increases.

### ■ Impact Fees Authorized

Impact fees are authorized in Georgia pursuant to O.C.G.A. §36-71-1 et seq., the *Georgia Development Impact Fee Act* (DIFA), and are administered by the Georgia Department of Community Affairs under Chapter 110-12-2, *Development Impact Fee Compliance Requirements*, of the Georgia Administrative Code. The provisions of DIFA are extensive, in order to assure that new development pays no more than its fair share of the costs of future public facilities.

Other than staff and operations costs, revenue for such facilities can be produced from new development in two ways: through future taxes paid by the homes and businesses that growth creates, or through an impact fee assessed as new development occurs. 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. In addition, impact fees cannot be used to solve existing service deficiencies.

### ■ Focus of This Report

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

In this report capital costs have been examined for two public facility categories: parks & recreation facilities and road projects.

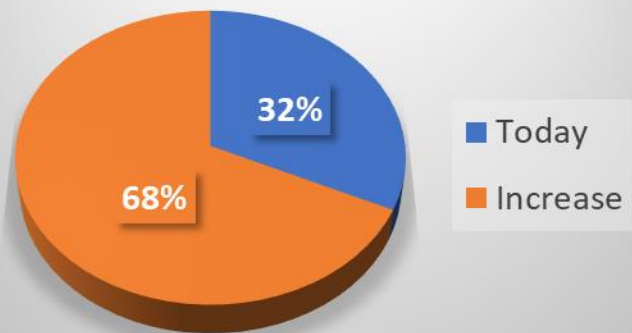
## ■ Future Demand for Public Facilities

Forecasts indicate continued growth ahead for Ball Ground as people continue to move into the city, propelled by favorable living conditions, a variety of housing types, and excellent access to schools, jobs and services. The number of jobs will also increase to meet the demands of growth and development.

### Population Outlook

Over the coming years to 2045, it is expected that more than two-thirds (about 68%) of the people that will be living in the city then are not here today. The future increase in population is not unprecedented. Looking back since 2000, despite a slump in the early 2010s, the Census Bureau population figures show that the City's population grew from 897 in 2000 to 2,853 in 2022—foreshadowing the future in that, in 2022, 69% of the population was new to the city. This was in spite of the national collapse of the housing market and the onset of the Great Recession in 2008, and its aftershock impact on the City. Population growth clearly slowed in 2011-12-13 and then recovered 'with a bang' in 2014. As the City further matures, development opportunities are expected to continue in which the annual rate of population growth will average 2.3% per year for the coming 22 years, reflecting a total increase of almost 6,400 people by 2045, an overall increase of 300%.

**Population Growth - 2045**

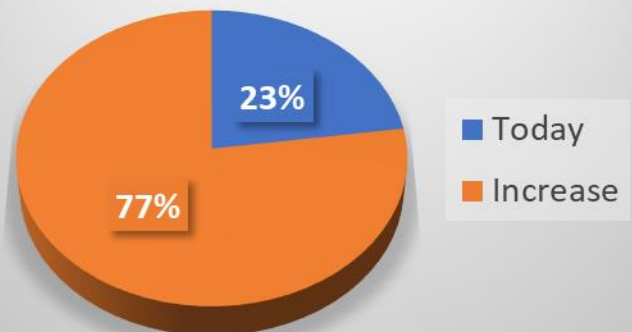


### Increased Job Opportunities

New employment opportunities will continue to be attracted to the City as well. It is expected that job growth in 'value-added'<sup>1</sup> categories in the coming decades will continue to reflect the City's status as a growing commercial/industrial center in northeast Cherokee County.

Compared to today's total value-added employment of 1,117, new jobs are projected to add 3,781 to that figure — an almost 440% increase over today. About one-half (49.8%) of the increase in jobs are projected to be in four employment categories: the most notable being Health Care & Social Assistance (526 new jobs), Accommodation & Food Services (471 new jobs), office administrators

**Employment Growth - 2045**



<sup>1</sup> Impact fees look specifically at what are called 'value-added' jobs. These are jobs in employment categories that create new or expanded places of business (other than governmental jobs which are otherwise exempt from impact fee assessments).

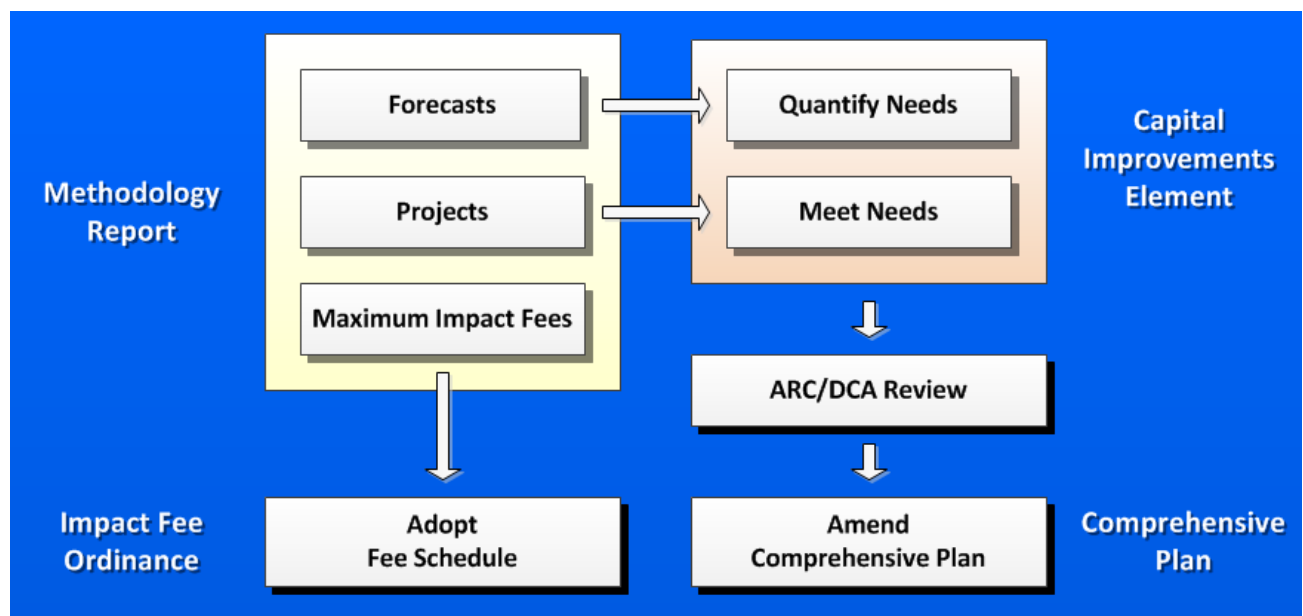
(464 new jobs), and retail trade (420 new jobs). Adding Professional & Technical Services (361 new jobs) and the catch-all category of 'other private services' (306 new jobs) to the 4 categories above, new employment opportunities in those 6 categories alone will comprise about two-thirds (67.4%) of all jobs by 2045.

Bottom line – 77.2% of all anticipated value-added jobs in the city in 2045 are not here now.

With all of 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.<sup>2</sup>

## ■ Components of an Impact Fee Program

An impact fee program consists of four components:



- A **Methodology Report**, which includes:
  - Forecasts of population, housing, employment and vehicle trip generation;
  - Capital improvement projects to serve new growth, based on Level of Service standards, for each public facility category; and,
  - the impact cost of new growth and development (and thus the maximum impact fees that can be assessed).
- A **Capital Improvements Element** (CIE) to implement proposed improvements, including a Five-Year Community Work Program for upcoming projects drawn from the Methodology Report.
- The creation of an **Impact Fee Ordinance**, including a schedule impact fees to be charged in each land use category.

<sup>2</sup> For more information on anticipated growth, see the Forecasts section of this report. In addition, detailed growth forecast methodologies are presented in Technical Appendix A, *Future Growth Forecasts*.

- The locally adopted **Comprehensive Plan**, which will be amended by the adoption of the CIE.

This **Methodology Report** contains growth forecasts for the City to the year 2045, identifies capital projects that would be needed to meet the City's adopted Level of Service standards, and presents all of the calculations related to establishing the maximum impact fees that could be charged for each public facility category.

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

***The maximum impact fees calculated in this Methodology Report are intended to generate discussion and determination by the City Council as to the appropriate fees to be charged.***

State law provides that new growth and development may not be charged more than their 'fair share' of the cost of capital improvements that will serve them. The maximums in this report establish that ceiling beyond which the City cannot go. Lower fees, however, are fully within the purview of the City Council, although the 'shortfall' in funding would have to be made up from revenue other than impact fees.

Once determined, the fees are summarized in an Impact Fee Schedule and incorporated into an **Impact Fee Ordinance**. Upon adoption of the ordinance, in conjunction with the CIE described above, the City may begin collecting impact fees.

## ■ Editorial Conventions

This report observes the following conventions:

The capitalized word 'City' applies to the government of Ball Ground, including the City Council or any of its departments or officials, as appropriate to the context. An example is "the City has adopted an impact fee ordinance".

The lower-case word 'city' refers to the geographical area of Ball Ground, as in "the population of the city has grown".

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

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

### **Importantly:**

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



## Creating an Impact Fee Program

This Methodology Report is the first step in establishing an impact fee program. It presents the methodologies used to determine new development's fair share of the City's investment in parks and recreation facilities and road projects. This report establishes clear public policies regarding infrastructure development and ensures sound fiscal planning for capital improvements. The report identifies the need for new facilities and includes either a compilation of the capital facilities on which impact fee revenue can be spent or, in the 'investment' approach, the amount of money that can be spent on impact fee eligible capital improvements in that public facility category. The calculations and information contained in this Methodology Report, repeated (as applicable) for each category of public facility for which an impact fee will be charged, are:

- a projection of needs for the twenty-two-year planning period—2023 to 2045;
- the designation of service areas—the geographic area in which a defined set of public facilities provide service to development within the area, if applicable;
- the designation of levels of service (LOS)—the service level that is being and will be provided;
- a schedule of improvements listing impact fee related projects and costs or maximum investment levels for the twenty-two-year planning period;
- a description of funding sources for the 22-year planning period;
- The calculation of the cost impact of new development, credits, and impact fees; and
- A schedule of maximum impact fees that could be adopted, by land use category.

It is important to note that the Georgia Development Impact Fee Act allows recovery by a local government of the cost of providing an improvement that is needed to serve the demands of new growth and development, even though that cost may have been incurred prior to creating an impact fee program (through adoption of an impact fee ordinance). As with all impact fees, the cost of the portion of such a facility meeting current needs must be borne by the locality (i.e., existing taxpayers), with future development being assessed only for the excess capacity that has been made available to serve that future growth in accordance with level of service standards that apply equally to both existing and future development. Because the amount of dollars eligible to be recovered through an impact fee is based on the existing capacity available to support future growth and development within the whole system, a value for the existing system must be determined if excess capacity exists.

As stated in the previous chapter, an additional document required of an impact fee program is the Capital Improvements Element (CIE), which is adopted as an amendment to the City's Comprehensive Plan. As defined by the Georgia Department of Community Affairs, the CIE must include certain calculations and information, which will be drawn from this Methodology Report as applicable. Both an adopted CIE and Impact Fee Ordinance are required for a community to collect impact fees.

### ■ Categories for Assessment of Impact Fees

To assist in paying for the high costs of expanding public facilities and services to meet the needs of projected growth and to ensure that new development pays a reasonable share of the costs of public facilities, Ball Ground is considering the implementation of impact fees for two categories. The chapters in this Methodology Report provide population and employment forecasts and detailed information regarding the inventory of current facilities, the level of service, and detailed calculations of the impact cost for the specific public facilities.

The following **Overview Table** shows the facility categories that are eligible for impact fee funding under Georgia law and that are considered in this report. The service area for each public facility category—that is, the geographical area served by the facility category—is also given, along with the basis for the standard adopted as the level of service to be delivered for each facility category.

**Table 1: Overview of Impact Fee Program Facilities**

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

Terms used in the **Overview Table**:

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

**Service Areas** are the geographic areas that the facilities serve, and the areas within which the impact fee can be collected. Impact fees collected in a service area for a particular category may only be spent for that purpose, and only for projects that serve that service area. The City of Ball Ground itself is a single service area

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

## ■ Limitations on Impact Fees

There are several requirements placed on impact fees by the Georgia Development Impact Fee Act and the rules and regulations of the Georgia Department of Community Affairs. These include:

- Impact fees must be spent in the same public facility category for which they were collected.
- Impact fees must be deposited into an interest-bearing account.
- Impact fees not encumbered within 6 years must be refunded to the fee payer, with interest.

- The same Level of Service must be applied to both the existing population and to new growth.
- All calculations must be made in Net Present Value.
- Annual Financial Reporting for the past fiscal year and an update of the City's 5-Year Community Work Program for impact fee funded projects is required.

## ■ Cost Adjustments

Calculations related to impact fees are required by law to be made in terms of the 'present value' of past and future costs in current (2023) dollars. For future expenditures, the current cost estimate is inflated to the year when the expenditure will be made, and then is 'discounted' back to 2023 to account for the current value of future money.

Three different cost inflators are used in the impact fee calculations, based on the type of project being considered. For infrastructure projects, such as recreation components, a 'construction cost inflator' is used. For projects that require construction of a structure (such as public bathroom facilities), a 'building cost inflator' is used as the appropriate inflation rate. For all non-construction types of projects (such as a vehicle or park land), an inflation rate is used that is based on the Consumer Price Index. Ten-year average rates for these three indices are shown on the table to the right.

Consumer Price Index (CPI)	2.580330%
Construction Cost Index (CCI)*	2.291672%
Building Cost Index (BCI)*	2.582557%
Discount Rate**	2.030000%

\* Source: Engineering News Record, Average Annual Indices 2012-2022.

\*\*Average annual return on the Georgia 1 Fund.

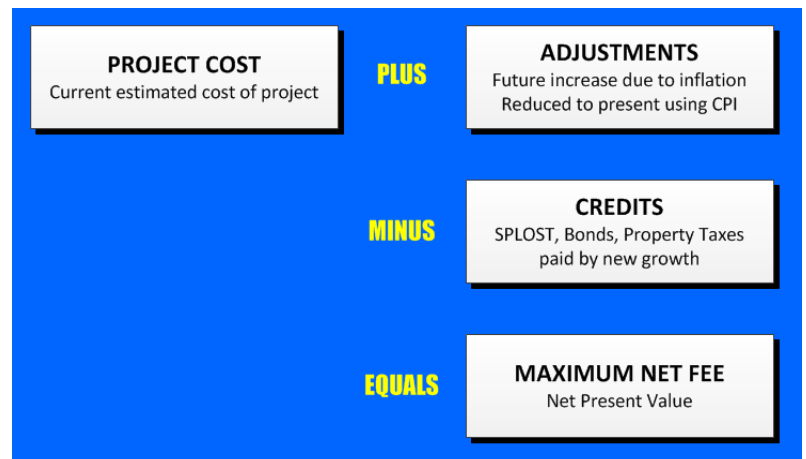
In all cases, a current interest rate equivalent to the rate of return on the savings accounts where the impact fee collections are deposited, is used as the 'discount rate' for Net Present Value calculations.

## ■ Credits

Under certain circumstances, future residents and businesses pay for capital improvements needed to serve them through an impact fee when a building permit is issued, and again through subsequent tax levies that pay for the non-impact fee eligible costs for the same improvements. If and when this 'double taxation' occurs, credits are subtracted from the impact fees in compensation so that new growth pays its 'fair share' only once. This is discussed thoroughly under the Cost Adjustments and Credits Appendix.

## ■ Fee Calculations

Calculating an impact fee involves several operations. These include determining the current cost estimate of each capital expenditure, the determination of that future cost in 2023 dollars using appropriate inflation factors, and the subtraction of credits for property taxes to avoid double taxation. In this report, the maximum allowable impact fee has been calculated for each public facility category to establish the 'ceiling' allowed under Georgia law.



## ■ Maximum Impact Fee Schedule

The fee schedule starting on the next page shows the maximum impact fee for each public facility category that could be charged in Ball Ground by the specific land use categories shown. The land use categories are the most common uses identified in the *Trip Generation* Manual, 11th Edition, Institute of Transportation Engineers (ITE); the ITE designation is shown in the left-hand column.

The total impact fee shown for each public facility category is drawn from that public facility category's chapter, which reflects the reductions for any credit based upon anticipated tax contributions from new development, where applicable, as well as a fee for administration of the Impact Fee Program and a fee for recoupment of the cost for preparing the impact fee's Capital Improvements Element.

To read the Maximum Impact Fee Schedule, first find the land use you want to investigate. Land uses are listed on the left side of the table and are grouped into categories. For example, industrial and warehouse uses are grouped together, as are all retail uses. Next, find the Total Impact Fee figure on the right of the row. This is the total impact fee per unit of measure. Finally, find the unit of measure—it is the last column of the land use category. The information can be read as follows: *this land use has an impact fee of \$X per unit of measure.*

As discussed on the following pages, ***the City could not charge more than the maximum fee in any given public facility category; only the same or less.***

## ■ Program Administration and CIE Preparation Fees

A surcharge of 3% for administration is added to the net impact fee for each land use category. The fees collected in this category can only be used for the administration of the impact fee program and are reported annually to the State just like the other service categories. Like any fee, this must have some rational and reasonable connection to the service rendered. Commonly, the administrative fee collected is used to offset some or all of the cost to handle impact fee calculations by the building permit staff; some or all of the cost for the finance department to process, record and distribute impact fees; and some or all of the cost for the management and oversight of the program by administrative staff in accordance with the provisions of the Impact Fee Ordinance.

In addition, a 2% fee is added to recoup the cost of preparing the Capital Improvements Element, as allowed by the State Impact Fee Law.

Table 2: Maximum Impact Fee Schedule

ITE Code	Land Use	Parks & Recreation	Road Improvements	TOTAL	Unit of Measure
<i>Residential</i>					
210	Single-Family Detached Housing	\$ 5,233.0970	\$ 5,598.2091	\$10,831.3061	per dwelling
215	Duplex or Townhouse 1-3 stories	\$ 5,233.0970	\$ 4,274.3484	\$ 9,507.4454	per dwelling
220	Multi-Family Low Rise 2-3 stories	\$ 5,233.0970	\$ 4,001.2650	\$ 9,234.3620	per dwelling
221	Mid-Rise Multi-Family 4-10 stories	\$ 5,233.0970	\$ 2,695.2141	\$ 7,928.3111	per dwelling
222	High-Rise Multi-Family over 10 stories	\$ 5,233.0970	\$ 2,695.2141	\$ 7,928.3111	per dwelling
255	Continuing Care Retirement Community	\$ 5,233.0970	\$ 1,466.3390	\$ 6,699.4359	per dwelling
260	Recreational Home (2nd home or STR)	\$ 5,233.0970	\$ 2,107.4912	\$ 7,340.5882	per dwelling
<i>Industrial (100-199)</i>					
110	General Light Industrial		\$ 2.8496	\$ 2.8496	per square foot
140	Manufacturing		\$ 2.8199	\$ 2.8199	per square foot
150	Warehousing		\$ 1.0152	\$ 1.0152	per square foot
151	Mini-Warehouse		\$ 0.8608	\$ 0.8608	per square foot
154	High-Cube Warehouse, short term		\$ 0.8311	\$ 0.8311	per square foot
155	High-Cube Warehouse, fulfillment center		\$ 1.0745	\$ 1.0745	per square foot
156	High-Cube Hub Warehouse		\$ 2.7486	\$ 2.7486	per square foot
180	Specialty Trade Contractor		\$ 5.8297	\$ 5.8297	per square foot
<i>Lodging (300-399)</i>					
310	Hotel or Conference Motel		\$ 4.7433	\$ 4.7433	per room
311	All Suites Hotel		\$ 2.6121	\$ 2.6121	per room
312	Business Hotel		\$ 2.3865	\$ 2.3865	per room
320	Motel		\$ 1.9888	\$ 1.9888	per room
<i>Recreational (400-499)</i>					
445	Movie Theater		\$ 46.3589	\$ 46.3589	per square foot
480	Amusement Park		\$ 31,707.3539	\$31,707.3539	per acre
488	Soccer Fields		\$ 42,345.7321	\$42,345.7321	per field
491	Racquet/Tennis Club		\$ 12.8883	\$ 12.8883	per square foot
495	Recreational Community Center		\$ 17.1093	\$ 17.1093	per square foot
<i>Institutional (500-599)</i>					
520	Private Elementary School		\$ 0.4071	\$ 0.4071	per square foot
522	Private Middle School (Junior High)		\$ 0.0149	\$ 0.0149	per square foot
530	Private High School		\$ 8.9761	\$ 8.9761	per employee
550	University or College		\$ 5.2776	\$ 5.2776	per employee
560	Church/Place of Worship		\$ 4.5118	\$ 4.5118	per square foot
565	Day Care Center		\$ 28.2701	\$ 28.2701	per square foot
566	Cemetery		\$ 3.5738	\$ 3.5738	per acre
<i>Medical (600-699)</i>					
610	Hospital		\$ 6.3937	\$ 6.3937	per square foot
620	Nursing Home		\$ 4.0072	\$ 4.0072	per square foot
630	Clinic		\$ 22.3216	\$ 22.3216	per square foot
640	Veterinary Clinic		\$ 12.7637	\$ 12.7637	per square foot



## Maximum Impact Fee Schedule, continued

ITE Code	Land Use	Parks & Recreation	Road Improvements	TOTAL	Unit of Measure
<i>Office (700-799)</i>					
710	General Office Building		\$ 6.4353	\$ 6.4353	per square foot
712	Small Office Building		\$ 8.5428	\$ 8.5428	per square foot
714	Corporate Headquarters Building		\$ 4.7196	\$ 4.7196	per square foot
715	Single-Tenant Office Building		\$ 7.7591	\$ 7.7591	per square foot
720	Medical-Dental Office Building		\$ 21.3717	\$ 21.3717	per square foot
750	Office Park		\$ 6.5718	\$ 6.5718	per square foot
760	Research and Development Center		\$ 6.5777	\$ 6.5777	per square foot
770	Business Park		\$ 7.3851	\$ 7.3851	per square foot

*Retail (800-899)*

812	Building Materials and Lumber Store		\$ 10.1219	\$ 10.1219	per square foot
813	Free-Standing Discount Superstore		\$ 29.9917	\$ 29.9917	per square foot
814	Variety Store		\$ 37.7924	\$ 37.7924	per square foot
815	Free-Standing Discount Store		\$ 31.9804	\$ 31.9804	per square foot
816	Hardware/Paint Store		\$ 4.7908	\$ 4.7908	per square foot
817	Nursery (Garden Center)		\$ 40.4282	\$ 40.4282	per square foot
818	Nursery (Wholesale)		\$ 23.1527	\$ 23.1527	per square foot
820	Shopping Center		\$ 21.9713	\$ 21.9713	per square foot
821	Shopping Plaza - No Supermarket (<150K)		\$ 56.0949	\$ 56.0949	per square foot
822	Strip Retail Plaza		\$ 32.3248	\$ 32.3248	per square foot
840	Automobile Sales (New)		\$ 16.5275	\$ 16.5275	per square foot
841	Automobile Sales Used)		\$ 16.0644	\$ 16.0644	per square foot
842	Recreation Vehicle Sales		\$ 2.9683	\$ 2.9683	per square foot
843	Auto Parts Store		\$ 32.3960	\$ 32.3960	per square foot
848	Tire Store		\$ 16.4384	\$ 16.4384	per square foot
850	Supermarket		\$ 55.7090	\$ 55.7090	per square foot
857	Discount Club		\$ 25.2068	\$ 25.2068	per square foot
861	Sporting Goods Superstore		\$ 14.1172	\$ 14.1172	per square foot
861	Home Improvement Superstore		\$ 18.2491	\$ 18.2491	per square foot
881	Pharmacy/Drugstore w/drive-through		\$ 64.3527	\$ 64.3527	per square foot
890	Furniture Store		\$ 3.7401	\$ 3.7401	per square foot

*Services (900-999)*

912	Drive-in Bank		\$ 59.5737	\$ 59.5737	per square foot
930	Fast Casual Restaurant		\$ 57.6681	\$ 57.6681	per square foot
931	Fine Dining Restaurant		\$ 49.7724	\$ 49.7724	per square foot
932	High-Turnover (Sit-Down) Restaurant		\$ 63.6403	\$ 63.6403	per square foot
934	Fast-Food Restaurant		\$ 277.5239	\$ 277.5239	per square foot
941	Quick Lubrication Vehicle Shop		\$ 41.3009	\$ 41.3009	per square foot
943	Automobile Parts & Service		\$ 9.8547	\$ 9.8547	per square foot
944	Gasoline/Service Station		\$ 713.5787	\$ 713.5787	per square foot
945	Convenience Store w/gas		\$ 854.8816	\$ 854.8816	per square foot

Notes: Total Fee per Unit includes administration and CIE preparation fees.

Total fees for a land use will be calculated to 4 decimal places and rounded down to whole cents.

## ■ Adoption of Impact Fees

As noted, the fee schedule on the preceding pages shows the maximum impact fees that could be adopted under State law. The City may adopt the maximum fee for either of the public facility categories, or could adopt a lower fee, as part of the Impact Fee Ordinance. In order to fulfill DIFA's requirement that new growth pay its fair, *proportionate* share, all fees in a particular public facility category could be reduced proportionally (that is, by the same percentage for all land uses in the category), but individual land use categories within a particular public facility category cannot be individually reduced or deleted as part of the Impact Fee Schedule. (For alternatives, see the *Reductions in Impact Fee Assessments* section later in this chapter.)

It must be remembered that any across-the-board reduction in the maximum allowable impact fees must be funded ultimately with other revenue—General Fund or SPLOST, for instance—to make up the shortfall in collections. An alternate approach to reduce the fees across the board in a particular public facility category is to determine that individual projects that are eligible to be funded with impact fees will, instead, be funded through other revenue sources (such as SPLOST, bonds, General Fund taxes, or other income sources). It must be recognized that such reductions will have to be funded from sources that are primarily paid for by the city's existing residents and businesses, while waiting for new development to occur.

## ■ Interpretation

Listed in the fee schedule are the most common land uses as identified in the *Trip Generation Manual*, 11th Edition, Institute of Transportation Engineers (ITE).<sup>3</sup> Persons per land use for residential uses are determined based on average numbers of persons per household; for non-residential land uses the average number of employees per unit of measure is based on data provided in the ITE *Trip Generation Manual*. As it is impossible, and impractical, to list every possible land use type, the following is the methodology that will be used to determine employment for land uses that are not on the actual fee table.

The nomenclature used in the fee schedules may be different from that used by developers. For example, a developer may be building a 35,000 square foot grocery store but does not see a grocery store on the fee schedule. In this situation, the applicable fee would be found under 'supermarket.' Simply inquiring to the City should clarify any such uncertainty. However, reference to the definitions in the City's Zoning Ordinance, or a source document such as the *North American Industrial Classification System* (from the U.S. Office of Management and Budget; latest edition available on the U.S. Census Bureau website), or a comprehensive dictionary (such as the *New Oxford American Dictionary*) may be helpful as an objective means of distinguishing among the types of land uses set out in the schedules.

For land uses not specified, a simple approach may be the most useful for most situations: an office type operation can be set at the same rate as a general office building. Many industrial uses can be assumed to be the same as general light industry. A machine shop or a bicycle assembly shop would both be 'light industry'.

Two categories on the Maximum Fee Schedule—Shopping Center and Strip Retail Plaza—are treated differently. The impact fees for these uses are assessed on the building's gross floor area as a whole when the building permit is issued, without regard to the actual uses that will be located within these

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<sup>3</sup> Note that definitions of all of the residential and nonresidential land uses listed on the Maximum Fee Schedule can be found (in alphabetical order) as part of the Glossary in this report, based on ITE's *Trip Generation Manual*, 11<sup>th</sup> Edition.

centers. The fee assumes a normal 'mix' of uses in such buildings and avoids the need to assess a new fee for each occupant as turnover occurs in the future.

## ■ Reductions in Impact Fee Assessments

Because the state law provides that new growth and development cannot be charged more than their fair proportionate share of the costs of the capital improvements needed to serve it, this Methodology Report calculates the maximum that could be charged as an impact fee in order to establish the 'ceiling' above which the City cannot go. There are, however, several ways that a lower impact fee could be charged, either for a specific project, across the board for all projects, or for a group of specific uses that are of special benefit to the City. These are discussed below.

### Adoption of Reduced Impact Fees

As noted, the fee schedule above shows the maximum impact fees that could be adopted under State law. The City may adopt the maximum fees for any given public facility category, or could adopt a lower fee across the board, as part of the Impact Fee Ordinance. In order to fulfill DIFA's requirement that new growth pay its fair, proportionate share, all fees in a particular public facility category could be reduced proportionally (that is, by the same percentage), but individual land use categories within the particular public facility category cannot be individually reduced or deleted as part of the fee schedule.

### Individual Fee Assessment

A landowner or developer may request an individual assessment when the average figures used in this Methodology Report do not apply to the specific project being proposed. This individual assessment determination will be made preferentially on alternate data available regarding the number of housing units or employment characteristics of the specific project, as applicable. Under the appeal procedures of the Development Impact Fee Ordinance, special circumstances can be considered and approved in modifying the fee for a particular project demonstrably differing from the average values used in this report.

### Individual Appeals

The Impact Fee Ordinance will provide for the appeal by anyone assessed an impact fee, first to the Impact Fee Administrator and then, if not resolved, to the City Council.

### Credits

Impact Fee Ordinance provisions address credits against impact fees that can be applied for expenditures made by a development toward the construction or provision of facilities that are included for impact fee funding in the adopted Capital Improvements Element. These credits are established through a private contractual agreement between the City and the developer or builder (as regulated by the Impact Fee Ordinance).

### Exemptions

Exemptions from the established impact fee amounts on the adopted Impact Fee Schedule can be adopted by the City Council for development that encourages "affordable housing" or represents "extraordinary economic or employment growth". Any exemptions granted must be made up in the applicable impact fee fund(s) from City revenue other than impact fees. Either or both types of exemptions must be authorized as part of the Impact Fee Ordinance and can be applied by the City

Council based on criteria or standards adopted by Resolution following adoption of the Impact Fee Ordinance.

### ■ Periodic Review Recommended

A number of the factors that form the base-line assumptions in this report's impact cost calculations may change over time. In any impact fee program, the impact fee methodologies should be reviewed from time to time and should reflect changes in the growth and development of the city. Also, the fiscal elements of the impact fee system should be brought up to current dollars as inflation occurs.

- The 'planning horizon' of this methodology report is 2045. With each major update to the Comprehensive Plan, the Methodology Report (and impact fee methodologies) should be reviewed and updated as needed to meet any new goals, objectives or initiatives. The Community Work Programs in the Comprehensive Plan and the impact fee Capital Improvements Element should also be aligned.
- The amount of future tax revenue generated by future growth is directly related to the city's population and employment projections. These projections should be reviewed against other data, such as building permits and utility hook-ups, as applicable, to confirm continuing validity or to modify the methodologies.
- Costs should be maintained in present value terms. The land costs for public parks and impact fee eligible road project rights-of-way as well as the various facility construction costs, should be reviewed in light of inflationary trends.
- Projections in tax base growth should be updated from time to time to reflect actual growth, and to update the average new house values and value/employee then current in future years.
- Any changes in funding strategy for the facilities included in the impact fee program should be reflected in the impact fee calculations.
- New revenue sources, such as implementation of a new SPLOST program or T-SPLOST, should be reviewed for potential tax credits against impact fees.

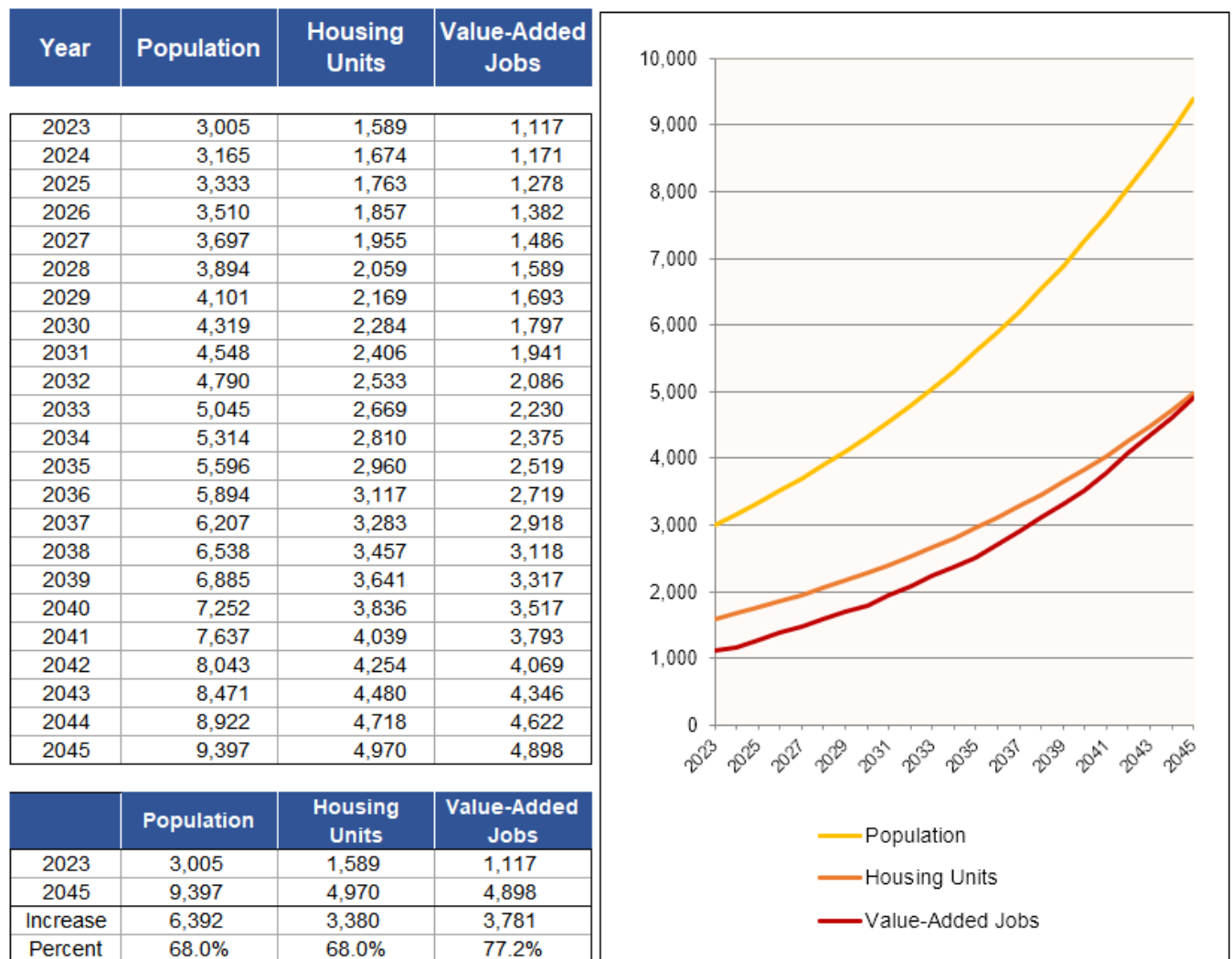
Changes in the pace of development will affect the timing of service delivery but not, *per se*, the methodology used to calculate the impact costs. For instance, if more residential and business development is built than was projected, facilities will be needed sooner to meet the Level of Service standards. Tax revenues will increase faster than projected as growth accelerates and more impact fees will be collected. In this way, more funds are produced to provide the services demanded in a timely manner. If growth slows, the opposite occurs: reduced impact fee revenue and lowered demand for services could delay the construction of impact fee projects.

## 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, housing units, and employment over the next 22 years to 2045.

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

**Table 3: Forecasts of Future City Growth**



The city is projected to continue its previous rate of population growth, having fully recovered from the lingering effects of the Great Recession. Overall, the city is expected to add almost 6,400 people to its current population and a net of almost 3,400 new housing units.



Employment in the City is also projected to continue at a steady pace. Of those employees working for businesses and institutions that would be subject to impact fees (so called 'value added' jobs<sup>4</sup>), an additional 3,781 are expected by 2045 citywide, resulting in a total more than 4 times today's figure. In 2045, then, a bit more than 77% of the value-added jobs will be new to the city.

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<sup>4</sup> These are jobs in employment categories that create new or expanded places of business (other than governmental jobs which are otherwise exempt from impact fee assessments).

## 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 4: 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
<b>Total Park Acreage</b>		<b>84.11</b>	

While Table 4 provides an inventory of the city's current parks, their type, acreage and location, Table 5 is an inventory of the city's existing recreation facilities.

**Table 5: 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 6 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 6, 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, as shown on Table 7.

**Table 6: 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 ...

Table 6 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
<b>Total</b>	<b>\$ 4,961,045.00</b>	<b>Total Capital Investment in Current Dollars</b>	<b>\$ 7,614,386.93</b>
	\$ 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. The original cost figures are taken from the left-hand column of Table 6 while the Net Present Value figures were shown at the bottom of the right-hand column. 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.<sup>5</sup>

**Table 7: 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
<b>Total Current Investment</b>	<b>\$ 4,961,045.00</b>	<b>\$ 7,614,386.93</b>

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

## ■ Maximum Impact Fee Calculation – Parks and Recreation

The maximum impact fee that could be charged in Ball Ground for the Parks & Recreation facility category, based on the calculations carried out in this chapter, is shown on Table 8. As noted, Parks and Recreation impact fees are collected only from residential development and are assessed as housing units are issued building permits.

The '2023 NPV' for each category (land, facilities and buildings) is transferred to Table 8, below, from Table 7, above. Those numbers are each divided by the total existing housing units (1,589) to determine the 'per housing unit' amount of investment existing today. The 'per 2023 housing unit' amounts are multiplied times the number of new housing units that are expected in the coming years (3,380) 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 2023 dollars.

All of the recreation components needed to serve future growth, of course, will not occur in the current year. However, since the actual pace and timing of construction for the 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.

To calculate the future 2034 Net Present Value (NPV) of the impact fee eligible cost estimate for the parks and recreation facilities, the NPV is calculated by increasing the current (2023) estimated cost using the CPI for acquisition of additional park lands, the Engineering News Record's (ENR) 10-year

<sup>5</sup> See Appendix C for how the average rate for each of the indexes was calculated.

average construction cost index (CCI) rate for all recreation facilities, and ENRs 10-year average building cost inflation (BCI) rate for recreation buildings and parking lots. All project costs are then reduced to current NPV dollars using the Net Discount Rate.

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%.

The total impact fee shown on the following table (\$5,233.10 for each new housing unit) is the maximum amount that could be charged for the Parks & Recreation future improvements. These maximum fees are transferred to the Maximum Impact Fee Schedule in the Introduction Chapter of this report.

**Table 8: 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
<b>= Net Impact Fee Cost per Housing Unit</b>				\$ 4,790.89	<b>\$ 4,983.90</b>
plus 3% Administration Fee				\$ 143.73	<b>\$ 149.52</b>
plus 2% CIE Preparation Fee				\$ 95.82	<b>\$ 99.68</b>
<b>= Total Maximum Impact Fee per Housing Unit</b>				<b>\$ 5,030.43</b>	<b>\$ 5,233.10</b>

\* 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.

## ■ Maximum Impact Fee – Parks and Recreation

The maximum impact fee that could be charged in Ball Ground for the Parks & Recreation facility category, based on the calculations carried out in this chapter, is shown on Table 9. Even though the utilization of the City's facilities may differ from one family to another, the fees for each type of housing are all the same because all of the residents have equal access and the opportunity to use the City's facilities on an equal basis.<sup>6</sup>

As noted above, the following are added to the net impact fee to produce the total maximum impact fee on the table:

- A 3% administrative fee; and,
- A 2% fee to cover the cost of preparing the Capital Improvements Element (CIE).

The total impact fees on the following table are transferred to the Maximum Impact Fee Schedule in the Introduction Chapter of this report.

**Table 9: Maximum Impact Fees -- Parks & Recreation**

ITE Code	Land Use	Total Fee per Unit	Unit of Measure
<i>Residential</i>			
210	Single-Family Detached Housing	\$ 5,233.0970	per dwelling
215	Duplex or Townhouse 1-3 stories	\$ 5,233.0970	per dwelling
220	Multi-Family Low Rise 2-3 stories	\$ 5,233.0970	per dwelling
221	Mid-Rise Multi-Family 4-10 stories	\$ 5,233.0970	per dwelling
222	High-Rise Multi-Family over 10 stories	\$ 5,233.0970	per dwelling
255	Continuing Care Retirement Community	\$ 5,233.0970	per dwelling
260	Recreational Home (2nd home or STR)	\$ 5,233.0970	per dwelling

Note: Total Fee per Dwelling includes administration and CIE preparation fees.

<sup>6</sup> Of course, if a particular residential development is approved with recreation facilities that will demonstratively reduce the resident's use of the city's public recreation facilities, a reduction in that project's impact fees for parks and recreation could be reduced through the appropriate appeal process contained in the City's Development Impact Fee Ordinance.

## 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.



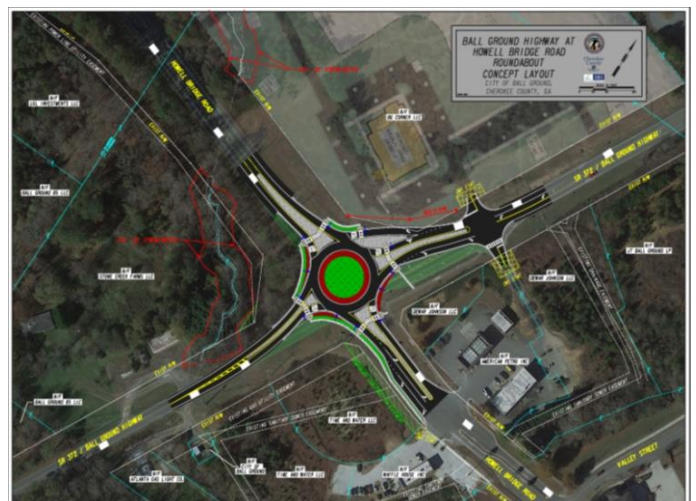
Given encroachments on right of way from one house and two garages the road cannot be widened.

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.

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

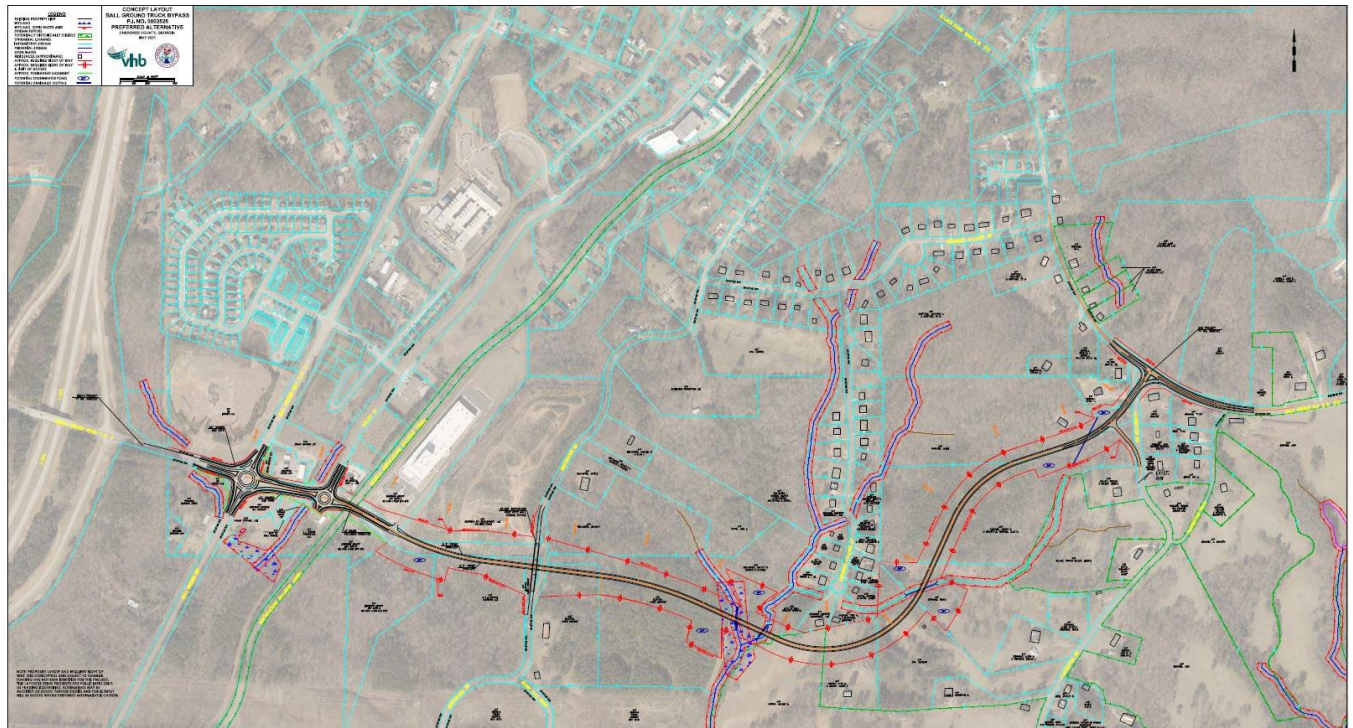
This project serves the dual purpose of increasing vehicle trips through the intersection and improving the safety of traversing traffic.





## Ball Ground By-Pass

The City is required to participate financially in this State DOT project. Vehicle trips into, out of 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 10 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 10: 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.<sup>7</sup>

The following Table 11 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.

<sup>7</sup> 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 11: 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 11 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 10 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 10, the total estimated cost of the City's current road projects came to almost \$11.9 million.

**Table 12: 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.

As depicted on **Error! Reference source not found.** on the next page, 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.<sup>8</sup> 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.

## ■ Maximum Impact Fee Calculation – Road Improvements

The maximum impact fee that could be charged in Ball Ground in the Road Improvements category, based on the calculations carried out in this chapter, is shown on Table 13, below. The '2023 New Growth's Share' for each category ('current road projects' and 'future road projects') are transferred to Table 13, below, from Table 11 and **Error! Reference source not found.**, respectively. Those numbers are each divided by the total number of new vehicle trips that are projected to 2045 (69,230) to determine the 'per vehicle trip' amount of costs for each category in 'current' (2023) dollars.

All of the road improvements needed to serve future growth, of course, will not occur in the same year, particularly for the anticipated future improvements. However, since the actual pace and timing of construction for the 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.

To calculate the future 2034 Net Present Value (NPV) of the impact fee eligible cost estimates for the construction of the road improvement projects, the NPV is calculated by increasing the current (2023) estimated cost using the Engineering News Record's (ENR) 10-year average construction cost index (CCI) rate, reduced to current NPV dollars using the Net Discount Rate.

<sup>8</sup> 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.



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%.

The total impact fee shown on the following table (\$593.66 for each new vehicle trip) is the maximum amount that could be charged new development for its fair share of the cost of the City's currently planned road improvements and future improvements that will be required to maintain the city's adopted level of service for both current and future residents and employees projected out to 2045. These maximum fees are transferred to the Maximum Impact Fee Schedule in the Introduction Chapter of this report.

**Table 13: Calculation of Maximum Impact Fee**

	2023 New Growth's Share	Total New Vehicle Trips	Current Cost per Vehicle Trip	2034 NPV Cost per Vehicle Trip*
Total New Growth's Share of Current Road Improvement Projects	\$ 8,745,050.00	69,230	\$ 126.32	\$ 129.93
Future Growth's Share of Future Road Projects	\$ 29,309,632.09	69,230	\$ 423.36	\$ 435.46
Net Total Cost per Vehicle Trip				\$ 565.39
plus 3% Administration Fee				\$ 16.96
plus 2% CIE Preparation Fee				\$ 11.31
<b>= Total Maximum Impact Fee per Vehicle Trip</b>				<b>\$ 593.66</b>

\* Net Present Value calculation based on the Engineering News Record Construction Cost Index.

## ■ Maximum Road Improvements Impact Fee by Land Use

The maximum impact fees that could be charged in Ball Ground for the Road Improvements category, based on the calculations carried out in this chapter, is shown on Table 14 by land use category, beginning on the next page.

As noted on Table 13, the following are added to the net impact fee to produce the total maximum impact fee on the table:

- A 3% administrative fee; and,
- A 2% fee to cover the cost of preparing the Capital Improvements Element (CIE).

The total impact fees on the following table are transferred to the Maximum Impact Fee Schedule in the Introduction Chapter of this report.

Table 14: Maximum Impact Fees -- Road Improvements

ITE Code	Land Use	Trip Ends	Total Fee per Unit	Unit of Measure
Total Cost per Trip End:			\$ 593.6595	
<i>Residential</i>				
210	Single-Family Detached Housing	9.43	\$ 5,598.2091	per dwelling
215	Duplex or Townhouse 1-3 stories	7.20	\$ 4,274.3484	per dwelling
220	Multi-Family Low Rise 2-3 stories	6.74	\$ 4,001.2650	per dwelling
221	Mid-Rise Multi-Family 4-10 stories	4.54	\$ 2,695.2141	per dwelling
222	High-Rise Multi-Family over 10 stories	4.54	\$ 2,695.2141	per dwelling
255	Continuing Care Retirement Community	2.47	\$ 1,466.3390	per dwelling
260	Recreational Home (2nd home or STR)	3.55	\$ 2,107.4912	per dwelling
<i>Industrial (100-199)</i>				
110	General Light Industrial	0.004800	\$ 2.8496	per square foot
140	Manufacturing	0.004750	\$ 2.8199	per square foot
150	Warehousing	0.001710	\$ 1.0152	per square foot
151	Mini-Warehouse	0.001450	\$ 0.8608	per square foot
154	High-Cube Warehouse, short term	0.001400	\$ 0.8311	per square foot
155	High-Cube Warehouse, fulfillment center	0.001810	\$ 1.0745	per square foot
156	High-Cube Hub Warehouse	0.004630	\$ 2.7486	per square foot
180	Specialty Trade Contractor	0.009820	\$ 5.8297	per square foot
<i>Lodging (300-399)</i>				
310	Hotel or Conference Motel	0.007990	\$ 4.7433	per room
311	All Suites Hotel	0.004400	\$ 2.6121	per room
312	Business Hotel	0.004020	\$ 2.3865	per room
320	Motel	0.003350	\$ 1.9888	per room
<i>Recreational (400-499)</i>				
445	Movie Theater	0.078090	\$ 46.3589	per square foot
480	Amusement Park	53.410000	\$ 31,707.3539	per acre
488	Soccer Fields	71.330000	\$ 42,345.7321	per field
491	Racquet/Tennis Club	0.021710	\$ 12.8883	per square foot
495	Recreational Community Center	0.028820	\$ 17.1093	per square foot
<i>Institutional (500-599)</i>				
520	Private Elementary School	0.000686	\$ 0.4071	per square foot
522	Private Middle School (Junior High)	0.000025	\$ 0.0149	per square foot
530	Private High School	0.015120	\$ 8.9761	per employee
550	University or College	0.008890	\$ 5.2776	per employee
560	Church/Place of Worship	0.007600	\$ 4.5118	per square foot
565	Day Care Center	0.047620	\$ 28.2701	per square foot
566	Cemetery	0.006020	\$ 3.5738	per acre
<i>Medical (600-699)</i>				
610	Hospital	0.010770	\$ 6.3937	per square foot
620	Nursing Home	0.006750	\$ 4.0072	per square foot
630	Clinic	0.037600	\$ 22.3216	per square foot
640	Veterinary Clinic	0.021500	\$ 12.7637	per square foot



## Maximum Impact Fees -- Road Improvements, continued

ITE Code	Land Use	Trip Ends	Total Fee per Unit	Unit of Measure
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*Office (700-799)*

710	General Office Building	0.010840	\$ 6.4353	per square foot
712	Small Office Building	0.014390	\$ 8.5428	per square foot
714	Corporate Headquarters Building	0.007950	\$ 4.7196	per square foot
715	Single-Tenant Office Building	0.013070	\$ 7.7591	per square foot
720	Medical-Dental Office Building	0.036000	\$ 21.3717	per square foot
750	Office Park	0.011070	\$ 6.5718	per square foot
760	Research and Development Center	0.011080	\$ 6.5777	per square foot
770	Business Park	0.012440	\$ 7.3851	per square foot

*Retail (800-899)*

812	Building Materials and Lumber Store	0.017050	\$ 10.1219	per square foot
813	Free-Standing Discount Superstore	0.050520	\$ 29.9917	per square foot
814	Variety Store	0.063660	\$ 37.7924	per square foot
815	Free-Standing Discount Store	0.053870	\$ 31.9804	per square foot
816	Hardware/Paint Store	0.008070	\$ 4.7908	per square foot
817	Nursery (Garden Center)	0.068100	\$ 40.4282	per square foot
818	Nursery (Wholesale)	0.039000	\$ 23.1527	per square foot
820	Shopping Center	0.037010	\$ 21.9713	per square foot
821	Shopping Plaza - No Supermarket (<150K)	0.094490	\$ 56.0949	per square foot
822	Strip Retail Plaza	0.054450	\$ 32.3248	per square foot
840	Automobile Sales (New)	0.027840	\$ 16.5275	per square foot
841	Automobile Sales Used	0.027060	\$ 16.0644	per square foot
842	Recreation Vehicle Sales	0.005000	\$ 2.9683	per square foot
843	Auto Parts Store	0.054570	\$ 32.3960	per square foot
848	Tire Store	0.027690	\$ 16.4384	per square foot
850	Supermarket	0.093840	\$ 55.7090	per square foot
857	Discount Club	0.042460	\$ 25.2068	per square foot
861	Sporting Goods Superstore	0.023780	\$ 14.1172	per square foot
861	Home Improvement Superstore	0.030740	\$ 18.2491	per square foot
881	Pharmacy/Drugstore w/drive-through	0.108400	\$ 64.3527	per square foot
890	Furniture Store	0.006300	\$ 3.7401	per square foot

*Services (900-999)*

912	Drive-in Bank	0.100350	\$ 59.5737	per square foot
930	Fast Casual Restaurant	0.097140	\$ 57.6681	per square foot
931	Fine Dining Restaurant	0.083840	\$ 49.7724	per square foot
932	High-Turnover (Sit-Down) Restaurant	0.107200	\$ 63.6403	per square foot
934	Fast-Food Restaurant	0.467480	\$ 277.5239	per square foot
941	Quick Lubrication Vehicle Shop	0.069570	\$ 41.3009	per square foot
943	Automobile Parts & Service	0.016600	\$ 9.8547	per square foot
944	Gasoline/Service Station	1.202000	\$ 713.5787	per square foot
945	Convenience Store w/gas	1.440020	\$ 854.8816	per square foot

Note: Total Fee per Unit includes administration and CIE preparation fees.

## Glossary

The general terms, below, used in this Report are based on those in the Georgia Development Impact Fee Act. Additional definitions of residential and nonresidential uses follow, based on the *Trip Generation Manual*, Institute of Transportation Engineers, 11th Edition (ITE).<sup>9</sup> The residential and nonresidential land uses are those used in the Parks and Recreation and Road Improvements chapters and listed in the Impact Fee Schedules.

### ■ General Terms

**Capital improvement:** An improvement with a useful life of 10 years or more, by new construction or other action, which increases the service capacity of a public facility.

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

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

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

**Eligible facilities:** Capital improvements addressed in this report, authorized by the Georgia Development Impact Act, include the following categories:

- (A) Roads, streets, and bridges, including rights of way, traffic signals, landscaping, and any local components of state or federal highways;
- (B) Parks, open space, and recreation areas 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.

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<sup>9</sup> Where uncertainty exists or interpretation is needed, reference to the definitions in the City's Zoning Ordinance, or a source document such as the *North American Industrial Classification System* (from the U.S. Office of Management and Budget; latest edition available on the U.S. Census Bureau website), or a comprehensive dictionary (such as the *New Oxford American Dictionary* or *Webster's American Dictionary of the English Language*) may be helpful as an objective means of distinguishing among the types of land uses set out in the schedules.

**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:** That portion of the cost of system improvements which is reasonably related to the service demands and needs of the project.

**Rational nexus:** The clear and fair relationship between fees charged and services provided.

**Service area:** A geographic area defined by a municipality, county, or intergovernmental agreement in which a defined set of public facilities provides 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 ...

1. 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,
2. 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,
3. Administrative costs, provided that such administrative costs shall not exceed 3 percent of the total amount of the costs; and,
4. 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.

System improvement 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."

## ■ Residential Land Use Definitions

Land Use Category	ITE Code	Description
Single-Family Detached Housing	210	A single-family detached housing site includes any single-family detached home on an individual lot.
Single-Family Attached Housing (aka duplex or triplex)	215	Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space.
Multi-Family Housing (Low-Rise)	220	Low-rise multi-family housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwellings and that have two or three floors (levels).
Multi-Family Housing (Mid-Rise)	221	Mid-rise multifamily housing includes apartments and condominiums located in a building that has between four and 10 floors of living space. Access to individual dwelling units is through an outside building entrance, lobby, elevator, and a set of hallways.
Multi-Family Housing (High-Rise)	222	High-rise multifamily housing includes apartments, townhouses, and condominiums. Each building has more than 10 floors of living space. Access to individual dwelling units is through an outside building entrance, lobby, elevator, and a set of hallways.
Affordable Housing	223	Affordable housing includes all multifamily housing that is rented at below market rate to households that include at least one employed member. Eligibility to live in affordable housing can be a function of limited household income and resident age.
Off-Campus Student Apartment (Low-Rise)	225	An off-campus student apartment (low-rise) houses college or university students in structures with two or three floors of living space. The apartments are typically rented by the bedroom and most contain a common area or shared living space (living room, kitchen, dining area). Each bedroom typically has a private bath. These apartments are sometimes called independent bedroom apartments.
Off-Campus Student Apartment (Mid-Rise)	226	An off-campus student apartment (mid-rise) complex houses college or university students in structures with between four and 10 floors of living space. The apartments are typically rented by the bedroom and most contain a common area or shared living space (living room, kitchen, dining area). Each bedroom typically has a private bath. These apartments are sometimes called independent bedroom apartments.
Low-Rise Residential with Ground-Floor Commercial	230	This is a mixed-use multifamily housing building with two or three floors of residential living space and commercial space open to the public on the ground level. These facilities are typically found in dense multi-use urban and city center core settings.
Mid-Rise Residential with Ground-Floor Commercial	231	This is a mixed-use multifamily housing building with between four and 10 floors of residential space and commercial space open to the public on the ground level. These facilities are typically found in dense multi-use urban and city center core settings.
Mobile Home Park	240	A mobile home park generally consists of manufactured homes that are sited and installed on permanent foundations. The mobile home park typically includes community facilities such as a recreation room, swimming pool, and laundry facilities.
Senior Adult Housing—Single-Family	251	These are independent living developments that are called various names including retirement communities, age-restricted housing, and active adult communities. The development has a specific age restriction for its residents, typically a minimum of 55 years of age for at least one resident of the household. Residents in these communities are typically considered active and requiring little to no medical supervision. The dwelling units can be either detached or attached, and may include amenities such as a golf course, swimming pool, 24-hour security, transportation, and common recreation facilities.

Land Use Category	ITE Code	Description
Senior Adult Housing—Multi-Family	252	These are independent living developments that are called various names including retirement communities, age-restricted housing, and active adult communities. The development has a specific age restriction for its residents, typically a minimum of 55 years of age for at least one resident of the household. Residents in these communities are typically considered active and requiring little to no medical supervision. The dwelling units share both floors and walls with other units in the residential building.
Congregate Care Facility	253	This is an independent living development that provides centralized amenities such as dining, housekeeping, communal transportation, and organized social/recreational activities. Each individual dwelling unit often has a kitchenette. Assistance is typically available for housekeeping or minor household maintenance. Limited medical services (such as nursing and dental) may or may not be provided. The resident may contract additional medical services or personal assistance.
Assisted Living	254	An assisted living complex is a residential setting that provides either routine general protective oversight or assistance with activities necessary for independent living to persons with mental or physical limitations. The typical resident has difficulty managing in an independent living arrangement but does not require nursing home care. Its centralized services typically include dining, housekeeping, social and physical activities, medication administration, and communal transportation. The complex commonly provides separate living quarters for each resident. Alzheimer's and ALS care are commonly offered at an assisted living facility; living quarter for these patients may be located separately from the other residents. Assisted care commonly bridges the gap between independent living and a nursing home. (See ITE 620 under nonresidential uses.) This use is sometimes known as personal care, residential care, or domiciliary care.
Continuing Care Retirement Community (CCRC)	255	This land use provides multiple elements of senior adult living. A CCRC enables a resident to transition in place from independent living to increased care as the medical needs of the resident change. Housing options may include various combinations of senior adult housing (both single-family and multi-family), congregate care, assisted living, and nursing homes. The community may also contain special services such as medical, dining, recreational, communal transportation, and some limited supporting retail facilities. A CCRC is usually a self-contained village.
Recreational Homes	260	This is either (1) a second home used by its owner periodically for recreation or (2) a home rented by its owner to others on a short-term or seasonal basis. Some sites are located within a resort that contains local services and complete recreational facilities. Recreational homes are distinguished from timeshares (ITE 265).
Timeshare	265	A timeshare is a development where multiple purchasers buy interests in the same property and each purchaser receives the right to use the facility for a period of time each year. The shared property is commonly a vacation or recreational condominium
Residential Planned Unit Development	270	A residential planned unit development (PUD) is defined as containing any combination of residential land uses. These uses might also contain supporting services such as limited retail and recreational facilities.

## ■ Nonresidential Land Use Definitions

Land Use Category	ITE Code	Description
All Suites Hotel	311	Places of lodging for travelers and tourists that provide sleeping accommodations, a small restaurant and lounge, and a small amount of meeting space. Each suite includes a sitting room and separate bedroom. An in-room kitchen is often provided. <i>In contrast, see Hotel or Conference Hotel (ITE 310) and Motel (ITE 320).</i>
Amusement Park	480	An outdoor facility that contains rides, entertainment, refreshment stands, and picnic areas.
Auto Parts Store	843	Retail store specializing in the sale of automobile parts for maintenance and repair. The facilities within this land use are not typically equipped for on-site vehicle repair. <i>In contrast, see Automobile Parts and Service (ITE 943) and Tire Store (ITE 848).</i>
Automobile Parts and Service	943	Facilities specializing in the sale of automobile parts for do-it-yourself maintenance and repair including tires, batteries, oil, and spark plugs. A full array of on-site services for motor vehicles is also available. An automotive parts and service center may also sell automobile parts to retailers and repair facilities. <i>In contrast, see Auto Parts Store (ITE 843) and Tire Store (ITE 848).</i>
Automobile Sales (New)	840	Dealerships offering new cars for sale or lease. Automobile services, parts sales, and used car sales may also be available. Some dealerships also provide truck sales and servicing. <i>In contrast, see Automobile Sales, Used (ITE 841) and Recreational Vehicle Sales (ITE 842).</i>
Automobile Sales (Used)	841	Dealerships offering used cars for sale or lease. Automobile services, parts sales may also be available. Some dealerships also provide truck sales and servicing. <i>In contrast, see Automobile Sales, New (ITE 840) and Recreational Vehicle Sales (ITE 842).</i>
Building Materials and Lumber Store	812	A free-standing building that sells hardware, building materials and lumber. The lumber may be stored in the main building or in a yard or storage sheds. <i>In contrast, see Hardware/Paint Store (ITE 816).</i>
Business Park	770	A group of flex-type or incubator one- or two-story buildings served by a common roadway system. The tenant space is flexible and lends itself to a variety of uses, although a greater percentage of uses is typically industrial/warehousing. The rear side of the building is often served by a garage door. Tenants may be start-up companies or small mature companies that require a variety of space. The space may include offices, retail and wholesale stores, restaurants, recreational areas and warehousing, manufacturing, light industrial, or scientific research functions. <i>In contrast, see Office Park (ITE 750) and Research and Development Center (ITE 760).</i>
Car Wash & Detail Center	949	A facility that provides for the manual cleaning of the exterior of vehicles as well as interior car-detailing services. <i>In contrast, see Self-Service Car Wash (ITE 945).</i>
Cemetery	566	A place for burying the deceased, possibly including buildings used for funeral services, a mausoleum, and a crematorium.
Church/Place of Worship	560	A building in which public worship services are held. A church, synagogue or any other religious facility generally houses an assembly hall or sanctuary and may also house meeting rooms, classrooms, and, occasionally, dining, catering, or event facilities. Some may offer day care or extended care programs during the week.



Land Use Category	ITE Code	Description
Clinic	630	A facility that provides limited diagnostic and outpatient care but is unable to provide prolonged in-house medical and surgical care. A clinic may have a lab facility and supporting pharmacy. <i>In contrast, see Hospital (ITE 610) and Medical-Dental Office Building (ITE 720).</i>
Convenience Store with Gas	945	A facility with a co-located convenience store and gas station. The convenience store sells groceries and other everyday items that a person may need or want as a matter of convenience. Some stores offer limited seating. The gas station sells automotive fuels such as gasoline and diesel. Extended hours of operation (with many open 24 hours, 7 days a week) are common at these facilities. The sites in this land use include both self-pump and attendant-pumped fueling positions and both pre-pay and post-pay operations. <i>In contrast, see Gasoline/Service Station (944) and Truck Stop (ITE 950).</i>
Corporate Headquarters Building	714	A single tenant office building that houses the corporate headquarters of a company or organization, which generally consists of offices, meeting rooms, space for file storage and data processing, an employee restaurant or cafeteria, and other service functions. This category includes a regional headquarters building of a state-wide or national company. <i>In contrast, see General Office Building (ITE 710) and Single-Tenant Office Building (ITE 715).</i>
Daycare Center	565	A facility that cares for preschool age children, normally during the daytime hours. The facility generally includes classrooms, offices, eating areas, and a playground. After-school care for school age children may also be provided.
Discount Club	857	A discount store or warehouse where shoppers pay a membership fee in order to take advantage of discounted prices on a wide variety of items such as food, clothing, household items, tires and appliances; many items are sold in large quantities or bulk.
Drive-in Bank	912	Contains banking facilities for both the motorist while in a vehicle, and someone who walks into the building. The drive-in lanes may or may not provide an automatic teller machine (ATM).
Fast Casual Restaurant	930	A sit-down restaurant with no (or very limited) wait staff or table service. A customer typically orders off a menu board, pays for food before the food is prepared, and seats themselves. The menu generally contains higher-quality, made-to-order food items with fewer frozen or processed ingredients than at a fast-food restaurant. Most patrons eat their meal within the restaurant, but a significant proportion of the restaurant sales can be carry-out orders. <i>In contrast, see Fast Food Restaurant (ITE 934), Fine Dining Restaurant (ITE 931), and High-Turnover (Sit Down) Restaurant (ITE 932).</i>
Fast Food Restaurant	934	Any fast-food restaurant with a drive-through window. This type of restaurant is characterized by a large drive-through and large carry-out clientele, long hours of service and high turnover rates for eat-in customers. The restaurant does not provide table service. A patron generally orders from a menu board and pays before receiving the meal. <i>In contrast, see Fast Casual Restaurant, (ITE 930), Fine Dining Restaurant (931) and High-Turnover (Sit Down) Restaurant (ITE 932).</i>
Fine-Dining Restaurant	931	A full-service eating establishment with a typical duration of stay of at least 1 hour. A fine dining restaurant generally does not serve breakfast; some do not serve lunch; all serve dinner. This type of restaurant often requests and sometimes requires a reservation and is generally not part of a chain. A patron commonly waits to be seated, is served by wait staff, orders from a menu and pays after the meal. Some sites have lounge or bar facilities (serving alcoholic beverages), but meal service is the primary draw to the restaurant. <i>In contrast, see Fast Casual Restaurant (930), Fast Food Restaurant (ITE 934), and High-Turnover (Sit Down) Restaurant (ITE 932).</i>

Land Use Category	ITE Code	Description
Free-Standing Discount Store	815	A retail store that generally offers centralized cashiers and sells products that are advertised at discount prices. Discount stores offer a variety of customer services and typically maintain long store hours 7 days a week. The stores included in this land use are often the only ones on the site but they can also be found in mutual operation with a related or unrelated garden center and/or service station. A free-standing discount store can also be found on a separate parcel within a retail complex. <i>In contrast, see Variety Store (ITE 814).</i>
Furniture Store	890	A full-service retail facility that specializes in the sale of furniture and often carpeting. A furniture store is generally large and may include storage areas. Both traditional retail furniture stores and warehouse stores with showrooms are included in this category. Although some home accessories may be sold, a furniture store primarily focuses on the sale of pre-assembled furniture. A majority of items sold at these facilities are ordered for delivery.
Gasoline/Service Station	944	A gasoline/service station where the primary business is the fueling of motor vehicles. The sites included generally have a small building (less than 2,000 gross square feet) that houses a cashier and limited space for motor vehicle maintenance supplies and general convenience products. Service stations may also have ancillary facilities for servicing and repairing motor vehicles, as well as a car wash. <i>In contrast, see Convenience Store with Gas (ITE 945) and Truck Stop (ITE 950).</i>
General Light Industrial	110	A free-standing facility with minimal office space devoted to a single industrial use, but having an emphasis on activities other than manufacturing. Typical light industrial activities include printing, material testing, and assembly of data processing equipment. <i>In contrast, see Manufacturing (ITE 140).</i>
General Office Building	710	Office building greater than 10,000 square feet and where affairs of a business, commercial or industrial organization, professional person or firm are conducted. The building is designed to contain multiple tenants that can include, as examples, professional services, insurance companies, investment brokers, a banking institution, a restaurant, or other service retailers. <i>In contrast, see Business Park and Corporate Headquarters Building, above, and Medical-Dental Office Building, Office Park, Research and Development Center, and Single-Tenant Office Building.</i>
Hardware/Paint Store	816	A free-standing building that sells hardware and paint supplies. <i>(In contrast, see Building Materials and Lumber Store, above.)</i>
High Cube Warehouse		A high-cube warehouse (HCW) is a building used primarily for the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. The warehouse typically has a ceiling height of 24 feet or more and has a high level of on-site automation and logistics management. The warehouse can be free-standing or located in an industrial park. The amount of office/employee welfare space is typically an insignificant portion of the overall building square footage.
High Cube Parcel Hub Warehouse	156	A high-cube warehouse (HCW) that serves as a regional and local freight-forwarder facility for time sensitive shipments via airfreight and ground carriers. A site can also include truck maintenance, wash, or fueling facilities. Some limited assembly and repackaging may occur within the facility. <i>In contrast, see High-Cube Warehouse, Fulfillment (ITE 155), High-Cube Warehouse, Short-Term (ITE 154) and Warehousing (150).</i>

Land Use Category	ITE Code	Description
High-Cube Warehouse, Fulfillment	155	A high-cube warehouse (HCW; see footnote) with either a sort or non-sort facility. A sort facility is a fulfillment center that ships out smaller items, requiring extensive sorting, typically by manual means. A non-sort facility is a fulfillment center that ships large box items that are processed primarily with automation rather than through manual means. Some limited assembly and repackaging may occur within the facility. <i>In contrast, see High-Cube Parcel Hub Warehouse (ITE 156), High-Cube Warehouse, Short-Term (ITE 154) and Warehousing (ITE 150).</i>
High-Cube Warehouse, Short-Term	154	A high-cube warehouse (HCW; see footnote) that is a distribution facility for the movement of large volumes of freight with only short-term storage of products. Some limited assembly and repackaging may occur within the facility. <i>In contrast, see High-Cube Parcel Hub Warehouse (ITE 156), High-Cube Warehouse, Fulfillment (ITE 155) and Warehousing (ITE 150).</i>
High-Turnover (Sit-Down) Restaurant	932	Sit-down, full-service eating establishments with a typical duration of stay of 60 minutes or less. This type of restaurant is usually moderately priced, frequently belongs to a restaurant chain, and is commonly referred to as casual dining. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours a day. These restaurants typically do not accept reservations. A patron commonly waits to be seated, is served by wait staff, orders from a menu, and pays after the meal. Some facilities offer carry-out for a small proportion of its customers. Some facilities may also contain a bar area for serving food and alcoholic drinks. <i>In contrast, see Fast Casual Restaurant (ITE 930), Fast Food Restaurant (934), and Fine Dining Restaurant (ITE 931).</i>
Hospital	610	Any institution where medical or surgical care and overnight accommodations is given to nonambulatory and ambulatory patients. <i>In contrast, see Clinic (ITE 630) and Medical-Dental Office Building (ITE 720).</i>
Hotel or Conference Hotel	310	A place of lodging for travelers and tourists that provides sleeping accommodations and supporting facilities such as a full-service restaurant, cocktail lounge, meeting rooms, banquet room, and convention facilities. A swimming pool or another recreational facility such as a fitness room is also typically provided. <i>In contrast, see All-Suites Hotel (ITE 311) and Motel (ITE 320).</i>
Manufacturing	140	Facility where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to actual production of goods, a manufacturing facility typically has an office and may provide space for warehouse, research, and associated functions. <i>In contrast, see General Light Industrial (ITE 110).</i>
Medical-Dental Office Building	720	A facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical or surgical care. One or more private physicians or dentists generally operate this type of facility. <i>In contrast, see Clinic (ITE 630) and General Office Building (ITE 710).</i>
Motel	320	A place of lodging for travelers and tourists that provides sleeping accommodations and provides little or no meeting space and few supporting facilities. Exterior corridors accessing rooms (immediately adjacent to a parking lot) is common for a motel. <i>In contrast, see All Suites Hotel (ITE 311) and Hotel or Conference Hotel (ITE 310).</i>
Movie Theater	445	A building where movies are screened for public entertainment. A theater includes a lobby, refreshment area, and audience seating for each movie screen.

Land Use Category	ITE Code	Description
Nursery (Garden Center)	817	A free-standing building with an outside storage area for planting or landscape stock that primarily serves the general public. Some have large greenhouses and offer landscaping services. Most have office, storage, and shipping facilities. <i>In contrast, see Nursery (Wholesale), ITE 818.</i>
Nursery (Wholesale)	818	A free-standing building with an outside storage area for planting or landscape stock that primarily serves contractors and suppliers. Some have large greenhouses and offer landscaping services. Most have office, storage, and shipping facilities. <i>In contrast, see Nursery (Garden Center), ITE 817.</i>
Nursing Home	620	A facility whose primary function is to provide 24-hour per day care for persons unable to care for themselves. The term is applicable not only to rest homes, but also to chronic care and convalescent homes. Assisted living and continuing care retirement communities can be included in this category.
Office Park	750	General office buildings and support services, such as banks, restaurants, and service stations, arranged in a park- or campus-like atmosphere. <i>In contrast, see Business Park (ITE 770) and Research and Development Center (760).</i>
Pharmacy/Drugstore – no drive through	880	A retail facility that primarily sells prescription and non-prescription drugs. A pharmacy/drugstore also typically sells cosmetics, toiletries, medications, stationery, personal care products, limited food products, and general merchandise.
Pharmacy/Drugstore – with drive through	881	A pharmacy/drugstore (see above) with a drive-through window.
Private Elementary School	520	A privately owned, state accredited school that serves students attending kindergarten through fifth or sixth grade.
Private High School	534	A privately owned, state accredited school that serves students who have completed middle school / junior high school.
Private Middle School (Junior High)	522	A privately owned, state accredited school that serves students who have completed elementary school and have not yet entered high school.
Quick Lubrication Vehicle Shop	941	A business where the primary activity is to perform oil change services for vehicles. Other ancillary services may include preventive maintenance, such as fluid and filter changes. Automobile repair service is generally not provided. <i>In contrast, see Automobile Parts &amp; Service (ITE 943).</i>
Racquet/Tennis Club	491	A membership-based indoor or outdoor facility that primarily caters to racquet sports (tennis, racquetball, pickle ball, handball, squash), and may include ancillary facilities such as whirlpools, saunas, weight rooms, snack bars, small retail stores, and daycare.
Recreational Community Center	495	A stand-alone facility similar to and including YMCAs. These facilities often include classes and clubs for adults and children, a day care or nursery school, meeting rooms and other social facilities, swimming pools and whirlpools, saunas, tennis, racquetball, handball, pickle ball, basketball and volleyball courts; outdoor athletic fields/courts, exercise classes, weightlifting and gymnastics equipment, locker rooms, and a restaurant or snack bar. Public access is typically allowed and a membership fee may be charged.
Recreational Vehicle (RV) Sales	842	A free-standing facility that specializes in the sales of new RVs. Recreational vehicle services, parts and accessories sales, and substantial used RV sales may also be available. Some RV dealerships may also include boat sales and servicing. <i>In contrast, see Automobile Sales, New (ITE 840) and Automobile Sales, Used (ITE 841).</i>

Land Use Category	ITE Code	Description
Research & Development Center	760	A facility or group of facilities devoted almost exclusively to research and development activities. While they may also contain offices and some light fabrication areas, the primary function is that of scientific research and product or business development. <i>In contrast, see Office Park (ITE 750) and Business Park (ITE 770).</i>
Self-Service Car Wash	945	Facility that allows for the manual cleaning of vehicles by providing stalls for the driver to park and wash the vehicle. <i>In contrast, see Car Wash &amp; Detail Center (ITE 949).</i>
Shopping Center	820	An integrated group of commercial establishments that is planned, developed, owned and managed as a unit and often has more than one anchor store. It is related to its market area in terms of size, location, and type of store. <b><i>Individual stores, recreational facilities, movie theaters, office space, eating establishments and other uses located within a shopping center building are each charged the shopping center impact fee rate</i></b> because the rate already assumes a wide variety of uses that are commonly found in shopping centers. <i>In contrast, see Strip Retail Plaza (ITE 822).</i>
Single-Tenant Office Building	715	A free-standing building exclusively occupied by a single business or company and generally contains its offices, meeting rooms, space for file storage and data processing, and possibly other service functions including an employee restaurant or cafeteria. <i>In contrast, see General Office Building (ITE 710), Corporate Headquarters Building (ITE 714), and Small Office Building (ITE 172).</i>
Small Office Building	712	A smaller-scale office building (generally, 10,000 square feet of gross floor area or less) that typically houses a single tenant. It is a location where affairs of a business, commercial or industrial organization, or professional person or firm are conducted. <i>In contrast, see General Office Building (ITE 710), Corporate Headquarters Building (ITE 714), and Single-Tenant Office Building (ITE 715).</i>
Specialty Trade Contractor	180	A business primarily involved in providing contract repairs and services to meet industrial or residential needs. This land use includes businesses that provide the following services: plumbing, heating and cooling, machine repair, electrical and mechanical repair, industrial supply, roofing, locksmith, weed and pest control, and cleaning.
Sporting Goods Superstore	861	A free-standing facility that specializes in the sale of athletic and outdoor-oriented merchandise. It typically offers a variety of customer services and centralized cashiers and maintains long store hours 7 days a week. Examples of items sold in these stores include outdoor/athletic clothing, sports equipment, shoes, and hunting/boating/fishing gear. Some may also carry automotive supplies.
Strip Retail Plaza	822	An integrated, open-air group of commercial establishments that is planned, developed, owned, and managed as a unit. Strip retail plazas are smaller than shopping centers and do not contain a supermarket or other major tenant "anchor". <b><i>Individual establishments located within a strip retail plaza building are each charged the strip retail plaza impact fee rate</i></b> because the rate already assumes a wide variety of uses that are commonly found in shopping centers. <i>In contrast, see Shopping Center (ITE 820).</i>
Supermarket	850	A free-standing retail store that sells a complete assortment of food, beverage, food preparation materials, and household products. A supermarket may also provide additional products and services such as a bakery, dry cleaning, floral arrangements, greeting cards, a limited-service bank, and a pharmacy. This category includes both traditional supermarkets and discount supermarkets.

Land Use Category	ITE Code	Description
Tire Store	848	Primary business is the sales and marketing of tires for automotive vehicles. Services offered by these stores usually include tire installation and repair, as well as other limited automotive maintenance or repair services as an accessory use. These stores generally do not contain large storage or warehouse areas. <i>In contrast, see Auto Parts Store (ITE 843) and Automotive Parts &amp; Service (ITE 943).</i>
Truck Stop	950	A facility located adjacent to an interstate highway interchange that provides commercial vehicle fueling, space and supplies for self-service vehicle maintenance, and other services specific to the needs of truckers (e.g., showers, on-site truck parking area). The facility typically contains a convenience store, restroom facilities, and one or more restaurants (either fast-food or high-turnover sit-down). <i>In contrast, see Convenience Store with Gas (ITE 945) and Gasoline/Service Station (ITE 944).</i>
University		A 4-year university or college that may or may not offer graduate programs.
Variety Store	814	A retail store that sells a broad range of inexpensive items often at a uniform price. A variety store is commonly referred to as a “dollar store.” Items typically sold at a variety store include kitchen supplies, cleaning products, home office supplies, food products, household goods, decorations, and toys. <i>In contrast, see Free-Standing Discount Store (ITE 815).</i>
Veterinary Clinic	640	A facility that specializes in the medical care and treatment of animals. Includes the term “Animal Hospital.”
Warehousing	150	A facility that is primarily devoted to the storage of materials, but it may also include office and maintenance areas. <i>In contrast, see High-Cube Warehouse classifications (ITE 156, 155 and 154).</i>



## Appendix A: Future Growth

In order to accurately calculate the demand for future services for Ball Ground, 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 (2023) or future (2045) Level of Service calculations are produced.

### ■ Historic Population Growth

Every year, the US Census Bureau estimates the population in Ball Ground and its cities between decennial censuses (e.g., 2000 and 2010). After a decennial census, the Bureau revises the 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. Subsequently, in 2023 the Census Bureau provided annual estimates that revised the previously published estimate for 2020 and added estimates for 2021 and 2022.

All of the annual Census estimates beginning in 2000 are shown in Table A-1 on the next page. For context, the other cities in Cherokee County and the county itself are included in the table.

### 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, and are used to calculate impact costs when the cost is assessed when a building permit is issued. The number of households—defined as *occupied* housing units—is always smaller than the total supply of available 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 24-hour services.

Citywide forecasts are prepared to address those public facility categories that are delivered by the City throughout the city, which includes parks and recreation facilities and road improvements. Although population, housing and employment forecasts are included in this report, the key factors relating to road improvements are vehicle trips generated by housing units and employees, and the demand for recreational facilities by households.

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
Ball Ground	897	952	1,009	1,061	1,117	1,185	1,266	1,335	1,380	1,413	1,648
Canton	8,458	9,978	11,475	12,953	14,468	16,095	17,949	19,659	21,023	22,192	24,392
Holly Springs	3,613	4,186	4,767	5,324	5,905	6,547	7,267	7,930	8,455	8,897	9,365
Mountain Park (pt.)	10	11	12	14	15	16	17	19	20	20	13
Nelson (pt.)	319	348	377	405	434	468	507	541	567	586	577
Waleska	624	670	658	695	711	671	685	688	670	670	618
Woodstock	10,929	12,284	13,631	14,938	16,296	17,793	19,520	21,082	22,273	23,261	25,048
Unincorporated Area	118,927	122,760	126,753	130,195	134,159	139,353	146,030	151,290	153,883	155,193	155,660
Cherokee County Total	143,777	151,189	158,682	165,585	173,105	182,128	193,241	202,544	208,271	212,232	217,580
Geography	Population Estimate (as of July 1)										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ball Ground	1,661	1,682	1,698	1,886	1,957	2,158	2,293	2,373	2,388	2,494	2,674
Canton	24,773	25,097	25,448	26,117	26,869	27,620	29,301	30,292	31,647	33,419	34,663
Holly Springs	9,542	9,753	9,879	10,328	10,794	11,374	11,999	12,934	15,496	16,474	17,477
Mountain Park (pt.)	13	13	13	14	14	14	14	14	14	13	13
Nelson (pt.)	580	586	588	594	595	601	603	604	596	600	605
Waleska	625	646	665	832	838	837	849	918	919	923	924
Woodstock	25,591	26,105	27,867	28,874	30,937	32,354	33,129	33,808	34,698	35,235	36,377
Unincorporated Area	157,117	158,978	160,476	163,930	165,880	169,536	172,422	176,065	176,528	179,017	182,106
Cherokee County Total	220,150	223,103	226,826	232,757	237,999	244,575	250,655	257,058	262,313	268,175	274,839

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 2009: Intercensal Estimates, US Bureau of the Census: Annual Estimates Program. For 2010-2019 intercensal estimates adjusted to revised 2020 population estimates published by Census Bureau in 2023; 2021 and 2022 estimates published in 2023 by Census Bureau.

## ■ 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-2 on the next page shows the results based on the Census estimates for 2000-2022. Table A-3 on the page after that, shows the results based on the nearer term Census estimates for 2010-2022. The original annual census figures are shown in the left-hand column on each table, and the raw numbers of each projection method are shown in grey.

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 algorithm changes the original Census figures as well. Because of this, the projected future population estimates must be rectified so that the Census 2022 population figure is the 'start' population for each forecast.

The rectifications to the actual Census figures are accomplished by first determining the extent to which the raw results from each projection method diverges from the actual 2022 Census population. These variances are shown at the bottom of each table as the 'adjustments' needed to bring the forecast numbers in line with the Census. These percentages are then applied to every subsequent 'projected' population each year to correlate the data to the same line function that the 'raw' projections followed.

The graphs beside each table show the original Census figures and the results of the linear and growth trend projections, as adjusted to the 2022 Census. The average between the two projections on each tables graph is shown with a green dashed line.

An examination of the lines describing the growth trends appear more to reflect the city's population increases in much of the 2000-2010 years, and a resumption of growth following the (rather mild) impact of the Great Recession on the city's housing industry, as shown on Table A-2. Census figures suggest that the city's population growth has proceeded more along a curved line at an ever-increasing rate of expansion.

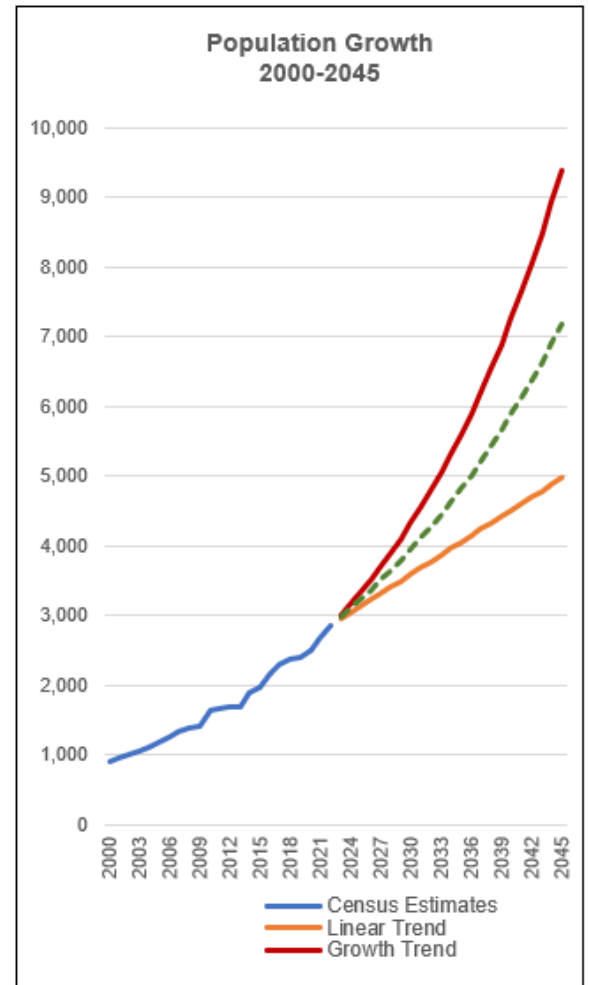
It is therefore recommended that the 'growth trend' algorithm based on the 2000-2022 population estimates more realistically describes future population growth 'on average' in the city in the years to come.<sup>10</sup>

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<sup>10</sup> Interestingly, the recommended population figures for the city appear to comport well with the population forecasts prepared by the Atlanta Regional Commission, which cover the entire Census Tract (901) in which the city is located. In 2045, the city would comprise 55% of the ARC total for the Census Tract, having grown from 31% in 2030.

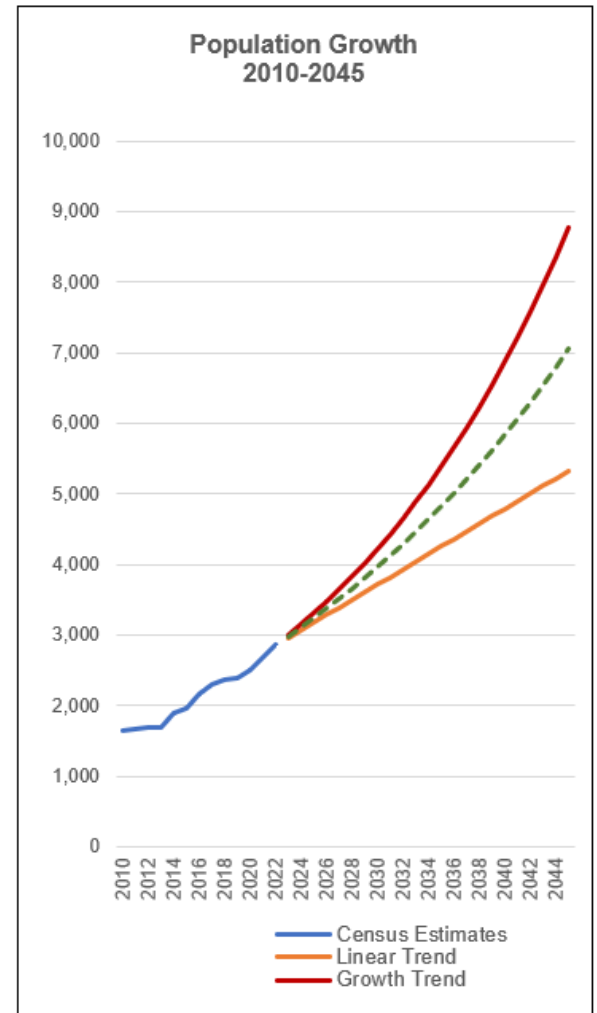
**Table A-2: Ball Ground Forecast based on 2000-2022 Growth**

	Census Estimate	Linear Trend Raw	Growth Trend Raw	Linear Trend Adjusted	Growth Trend Adjusted
2000	897	770	913		
2001	952	856	962		
2002	1,009	941	1,013		
2003	1,061	1,027	1,067		
2004	1,117	1,113	1,124		
2005	1,185	1,198	1,183		
2006	1,266	1,284	1,246		
2007	1,335	1,369	1,313		
2008	1,380	1,455	1,382		
2009	1,413	1,540	1,456		
2010	1,648	1,626	1,533		
2011	1,661	1,712	1,615		
2012	1,682	1,797	1,701		
2013	1,698	1,883	1,791		
2014	1,886	1,968	1,887		
2015	1,957	2,054	1,987		
2016	2,158	2,140	2,093		
2017	2,293	2,225	2,204		
2018	2,373	2,311	2,321		
2019	2,388	2,396	2,445		
2020	2,494	2,482	2,575		
2021	2,674	2,567	2,712		
2022	2,853	2,653	2,856	2,853	2,853
2023		2,739	3,008	2,945	3,005
2024		2,824	3,168	3,037	3,165
2025		2,910	3,336	3,129	3,333
2026		2,995	3,514	3,221	3,510
2027		3,081	3,701	3,313	3,697
2028		3,167	3,898	3,405	3,894
2029		3,252	4,105	3,497	4,101
2030		3,338	4,323	3,589	4,319
2031		3,423	4,553	3,681	4,548
2032		3,509	4,795	3,773	4,790
2033		3,595	5,051	3,865	5,045
2034		3,680	5,319	3,957	5,314
2035		3,766	5,602	4,049	5,596
2036		3,851	5,900	4,142	5,894
2037		3,937	6,214	4,234	6,207
2038		4,022	6,544	4,326	6,538
2039		4,108	6,893	4,418	6,885
2040		4,194	7,259	4,510	7,252
2041		4,279	7,645	4,602	7,637
2042		4,365	8,052	4,694	8,043
2043		4,450	8,480	4,786	8,471
2044		4,536	8,931	4,878	8,922
2045		4,622	9,406	4,970	9,397
Adjustment to 2022		2,653	2,856	107.535%	99.895%



**Table A-3: Ball Ground Forecast based on 2010-2022 Growth**

	Census Estimate	Linear Trend Raw	Growth Trend Raw	Linear Trend Adjusted	Growth Trend Adjusted
2010	1,648	1,512	1,566		
2011	1,661	1,616	1,645		
2012	1,682	1,720	1,727		
2013	1,698	1,824	1,813		
2014	1,886	1,928	1,904		
2015	1,957	2,032	1,999		
2016	2,158	2,136	2,099		
2017	2,293	2,240	2,205		
2018	2,373	2,344	2,315		
2019	2,388	2,448	2,431		
2020	2,494	2,552	2,552		
2021	2,674	2,656	2,680		
2022	2,853	2,760	2,814	2,853	2,853
2023		2,864	2,955	2,960	2,996
2024		2,968	3,103	3,068	3,146
2025		3,072	3,259	3,175	3,303
2026		3,175	3,422	3,283	3,469
2027		3,279	3,593	3,390	3,642
2028		3,383	3,773	3,498	3,825
2029		3,487	3,962	3,605	4,016
2030		3,591	4,160	3,713	4,217
2031		3,695	4,368	3,820	4,428
2032		3,799	4,587	3,928	4,650
2033		3,903	4,817	4,035	4,883
2034		4,007	5,058	4,143	5,127
2035		4,111	5,311	4,250	5,384
2036		4,215	5,577	4,358	5,653
2037		4,319	5,856	4,465	5,936
2038		4,423	6,149	4,573	6,233
2039		4,527	6,457	4,680	6,545
2040		4,631	6,780	4,788	6,873
2041		4,735	7,120	4,895	7,217
2042		4,839	7,476	5,003	7,578
2043		4,943	7,850	5,110	7,958
2044		5,047	8,243	5,218	8,356
2045		5,151	8,656	5,325	8,774
Adjustment to 2022		2,760	2,814	103.384%	101.371%





## ■ Housing Unit Forecasts

The future increase in the number of housing units in the city is based on the population forecasts presented in the previous section, specifically the growth trend forecast on Table A-2.

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. Thus, the housing unit is used as the basis for assessing impact fees rather than the number of residents that may occupy the housing unit. To calculate the number of housing units anticipated in the future, the approach is to first 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.

It is important to note that impact fees are not based on the number of people residing in a housing unit (even the average number). 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 that are due because the demand for services would vary as the number of residents in the unit varies. Instead, by using an average fee per housing unit based on the type of housing, the demand for services which would otherwise vary as the population in the unit changes over the coming years ahead is avoided.

By way of example: The use of public park and recreation facilities is independent of household sizes in various types of dwellings. An apartment occupant may have exercise or recreation needs beyond facilities available in the apartment complex, while the family in a single-family home may (or may not) have a swimming pool and/or tennis court on their own property or available as amenities in their subdivision, reducing their reliance on city parks for their recreation needs. On the other hand, some residents or whole families may be more oriented to physical fitness and avail themselves of city parks and recreation facilities more often than other families.

The Georgia Development Impact Fee Law anticipated these individual variations and included a number of avenues to address them. These are described under the *Reductions in Impact Fee Assessments* section earlier in this report.

## Housing Unit Projections

As shown on Table A-4, on the next page, future population numbers from Table A-2 are converted into the number of households expected in future years for the city. Based on the number of households, the number of actual housing units can be calculated.

The conversion from population to the number of households is based on data taken from the 2020 Census for the city. According to the Census, the city contained a total population of 2,494 residents, living 1,249 housing units. This produces an occupancy rate of 0.5000802 housing units per resident.

This occupancy rate is assumed to persist into the future. Thus, the occupancy rate times the population in each year to 2045 produces the number of households in each year.

The 2020 Census also reported a total of 1,319 housing units in the city. Compared to the 1,249 occupied housing units, this equated to a vacancy rate of 5.3071%. Reversed, this vacancy rate equates to an occupancy rate of 94.693%. In other words, dividing the total housing units by the number of occupied housing units, there were 1.056045 total housing units in the city for each occupied unit (i.e., household).

These calculations resulted in the figures shown on Table A-4.

**Table A-4: Housing Unit Forecasts: 2023-2045**

	Ball Ground			
	Total Population	Average Pop per Household	Households	Housing Units
2020	2,494	1.996797	1,249	1,319
2021	2,674	1.997013	1,339	1,414
2022	2,853	1.996501	1,429	1,509
2023	3,005	1.996514	1,505	1,589
2024	3,165	1.996581	1,585	1,674
2025	3,333	1.996949	1,669	1,763
2026	3,510	1.996694	1,758	1,857
2027	3,697	1.997244	1,851	1,955
2028	3,894	1.996688	1,950	2,059
2029	4,101	1.996418	2,054	2,169
2030	4,319	1.996653	2,163	2,284
2031	4,548	1.996699	2,278	2,406
2032	4,790	1.996839	2,399	2,533
2033	5,045	1.996528	2,527	2,669
2034	5,314	1.996838	2,661	2,810
2035	5,596	1.996511	2,803	2,960
2036	5,894	1.996575	2,952	3,117
2037	6,207	1.996588	3,109	3,283
2038	6,538	1.996814	3,274	3,457
2039	6,885	1.996900	3,448	3,641
2040	7,252	1.996571	3,632	3,836
2041	7,637	1.996670	3,825	4,039
2042	8,043	1.996896	4,028	4,254
2043	8,471	1.997016	4,242	4,480
2044	8,922	1.996853	4,468	4,718
2045	9,397	1.996708	4,706	4,970
<b>2023-2045</b>	<b>6,392</b>		<b>3,201</b>	<b>3,380</b>

Occupancy rate based on 2020 Census data = 94.693%

Source: 2020-2045 City Population based on 2000-2022 Growth Trend forecast.

Note: There are no Group Quarters in Ball Ground, per Census Bureau.

Over the forecast period, a net total of 3,380 new housing units are projected to be added to the city's housing stock, 3.13 times the number in 2023 and producing slightly more than 77% of the total housing stock in 2045.

It is worth noting that more than the 3,380 units will most likely be constructed. However, accounting for demolitions, replacing an old housing unit with a new housing unit is not impact fee eligible because there is no net increase in the demand for public services. Thus, this net total increase of 3,380 will produce increased demands for public services and will therefore be eligible for impact fee assessments.

## ■ Employment Forecasts

The following Table A-5 shows the forecasts for employment growth citywide in Ball Ground, from 2023 to 2045. The employment figures for Ball Ground are based on forecasts published by Woods & Poole Economics in their latest (2022) *Georgia State Profile*, published in 2023, which includes a data book for each county in the state.

In contrast to the Census Bureau, Woods & Poole counts jobs, not just employed people, which captures people holding two or more jobs, self-employed sole proprietors, part-time workers, and vacant but available positions. This gives a more complete picture than other forecasts based on the Census data, which counts only the number of **people** that are employed, not the total number of **jobs** available.

**Table A-5: Ball Ground Employment Forecast (Jobs)**

	2023	2025	2030	2035	2040	2045	2023-2045 Change	
							Number	Percent
<b>Total Employment</b>	<b>1,341</b>	<b>1,522</b>	<b>2,102</b>	<b>2,898</b>	<b>3,997</b>	<b>5,502</b>	<b>4,161</b>	<b>75.63%</b>
Farm Employment	5	5	6	7	8	9	4	44.44%
Forestry, Fishing	3	3	4	4	5	6	3	50.00%
Mining	2	2	2	2	2	3	1	33.33%
Construction	112	122	157	201	263	340	228	67.06%
<b>Total Not Building Related</b>	<b>122</b>	<b>132</b>	<b>169</b>	<b>214</b>	<b>278</b>	<b>358</b>	<b>236</b>	<b>65.92%</b>
Federal Civilian	4	5	6	7	9	11	7	63.64%
Federal Military	7	8	9	11	13	15	8	53.33%
State & Local Government	91	99	121	147	180	220	129	58.64%
<b>Total Government</b>	<b>102</b>	<b>112</b>	<b>136</b>	<b>165</b>	<b>202</b>	<b>246</b>	<b>144</b>	<b>58.54%</b>
Utilities	1	1	1	2	2	3	2	66.67%
Manufacturing	82	92	119	153	198	256	174	67.97%
Wholesale Trade	34	38	49	62	79	101	67	66.34%
Retail Trade	166	184	246	329	440	586	420	71.67%
Transportation & Warehousing	46	52	75	109	156	224	178	79.46%
Information	15	17	23	33	46	64	49	76.56%
Finance & Insurance	63	70	99	137	185	246	183	74.39%
Real Estate	82	93	128	175	237	319	237	74.29%
Professional & Technical Services	104	120	171	240	335	465	361	77.63%
Management of Companies	2	2	2	3	4	4	2	50.00%
Administrative & Waste Services	117	141	202	288	410	581	464	79.86%
Educational Services	33	41	63	96	145	218	185	84.86%
Health Care & Social Assistance	115	133	199	296	437	641	526	82.06%
Arts, Entertainment & Recreation	44	50	71	101	142	200	156	78.00%
Accommodation & Food Services	115	132	194	281	407	586	471	80.38%
Other Private Services	98	112	155	214	294	404	306	75.74%
<b>Total Value-Added</b>	<b>1,117</b>	<b>1,278</b>	<b>1,797</b>	<b>2,519</b>	<b>3,517</b>	<b>4,898</b>	<b>3,781</b>	<b>77.19%</b>

Source: Woods & Poole Economics, Inc., 2023 Georgia Data Book, Cherokee County, as adjusted to Ball Ground.

Table A-5, above, shows the W&P forecasts for the 'types of employment' in three groups. The 'non-building' types of jobs are those that primarily occur out-of-doors. Such jobs include any employment that is considered to be locationally transitory in 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. A construction worker, most commonly working at construction site locations, might have an office in town or work out of his home. Both the office or the home may have existed before impact fees took effect or would have paid an impact fee if built after impact fees were adopted.

The second category—government—sets those county, city, state, and federal jobs apart since impact fees are not charged for such buildings that are actually owned by those governments, 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 therefore 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).

Table A-6 summarizes the detailed forecasts from Table A-5 by each of the three 'types of employment' for each of the forecast years to 2045. As indicated above, only the 'value-added jobs' would be located in buildings that would be subject to impact fee assessments.

**Table A-6: Summary - Jobs in Ball Ground**

	Total Jobs	Not Building Related	Government	Value-Added Jobs
2023	1,341	122	102	1,117
2024	1,401	125	105	1,171
2025	1,522	132	112	1,278
2026	1,638	139	117	1,382
2027	1,754	147	122	1,486
2028	1,870	154	126	1,589
2029	1,986	162	131	1,693
2030	2,102	169	136	1,797
2031	2,261	178	142	1,941
2032	2,420	187	148	2,086
2033	2,580	196	153	2,230
2034	2,739	205	159	2,375
2035	2,898	214	165	2,519
2036	3,118	227	172	2,719
2037	3,338	240	180	2,918
2038	3,558	252	187	3,118
2039	3,778	265	195	3,317
2040	3,997	278	202	3,517
2041	4,298	294	211	3,793
2042	4,599	310	220	4,069
2043	4,900	326	228	4,346
2044	5,201	342	237	4,622
2045	5,502	358	246	4,898
Increase 2045	4,161	236	144	3,781

## ■ Summary: Future Growth in Ball Ground

Table A-7 summarizes the growth anticipated in Ball Ground in the coming 22 years. Most relevant are the future number of housing units, which play a major role in calculating the impact on the city's parks and recreation facilities, and, in combination with future value-added employment are used in calculating the future demands placed on road improvement projects in the city. The day-night population figures would be useful if the city determined to consider adding a 24-hour service (such as public safety) to its impact fee program in the future.

**Table A-7: Future Growth Forecasts**

	Housing Units	Population	Value-Added Employees	Day-Night Population
2023	1,589	3,005	1,117	4,122
2024	1,674	3,165	1,171	4,335
2025	1,763	3,333	1,278	4,611
2026	1,857	3,510	1,382	4,892
2027	1,955	3,697	1,486	5,182
2028	2,059	3,894	1,589	5,483
2029	2,169	4,101	1,693	5,794
2030	2,284	4,319	1,797	6,116
2031	2,406	4,548	1,941	6,490
2032	2,533	4,790	2,086	6,876
2033	2,669	5,045	2,230	7,275
2034	2,810	5,314	2,375	7,688
2035	2,960	5,596	2,519	8,115
2036	3,117	5,894	2,719	8,612
2037	3,283	6,207	2,918	9,126
2038	3,457	6,538	3,118	9,655
2039	3,641	6,885	3,317	10,203
2040	3,836	7,252	3,517	10,769
2041	4,039	7,637	3,793	11,430
2042	4,254	8,043	4,069	12,113
2043	4,480	8,471	4,346	12,817
2044	4,718	8,922	4,622	13,544
2045	4,970	9,397	4,898	14,295
2023-2045	3,380	6,392	3,781	10,173



## 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 describes the process through which this determination is made.

### ■ Summary

A Level of Service must be established for road improvements in order to ensure 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

For calculation purposes, the City has set its Level of Service for road improvements at LOS 'D', a minimum level below which some roads in the city may operate today. Using this LOS maximizes roadway capacity before traffic conditions actually break down (LOS "F"). In many cases, initial road improvements will raise the Level of Service above LOS "D". This is, of course, beneficial because future increases in traffic will slowly erode the LOS, dropping the LOS to the extent that future traffic is added. Improvements, therefore, are planned so that each road project will not drop below LOS "D" by 2045.

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 represent 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 by 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, and commuters that come in to work in the city.

The basis for the road impact fees 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 2023 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 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 Tables

The table below shows how the portion of 2045 traffic generated by new growth is calculated. The figures represent all trips generated in each land use category, including pass-by and diverted trips. Internal commutes are subtracted since they are already included in the residential trips.


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

	2023	2045	Increase	Percent New Growth Trip Ends
Residential Trips	14,681	45,919	31,238	
Commercial	22,852	103,339	80,487	
Industrial+Utility	687	2,460	1,773	
Less: Internal Commutes*	-2,158	-6,750	-4,592	
<b>Net Trip Ends</b>	<b>36,062</b>	<b>144,968</b>	<b>108,906</b>	<b>75.124%</b>

\* Residents who work in Ball Ground. These trips to and from work are included in the residential trips.

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

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

	Percent Primary Trip Ends*	Primary Trip Ends			Percent New Growth Primary Trip Ends
		2023	2045	Increase	
Residential Trips	100%	14,681	45,919	31,238	
Commercial	51%	11,628	52,581	40,953	
Industrial+Utility	92%	632	2,263	1,631	
Less: Internal Commutes	100%	-2,158	-6,750	-4,592	
<b>Net New Primary Trip Ends</b>		<b>24,783</b>	<b>94,013</b>	<b>69,230</b>	<b>73.6%</b>

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

Overall, new residents and businesses located within Ball Ground will generate 73.6% (more accurately, 73.639097%) of all Ball Ground vehicles on its roads in 2050. Thus, new growth's 'fair share' of the cost to the City to provide road improvements to serve current and future traffic cannot exceed this figure.

### ■ 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 traffic on the road network and deletes them from the total trip ends reported in ITE's *Trip Generation* manual. While the table above uses overall average percentages of primary trip ends derived from ITE for broad land use categories, the actual percentage for each land use listed on the impact fee schedule for roads is applied to the total trip ends to determine the primary trip ends attributed to that particular land use.

## ■ 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 relevant to Ball ground are 'single-family units' and 'single-family attached units', which are shown on the following table. There are no multi-family units now or expected.

**Table B-3: Residential Units by Type: 2023 and 2045**

	2021*	Percent**	Total in 2023	Increase 2023-2045	Total in 2045
Single-Family Units	898	91.45%	1,453	3,092	4,545
Single-Family Attached	84	8.55%	136	288	425
<b>Total</b>	<b>982</b>	<b>100.0%</b>	<b>1,589</b>	<b>3,380</b>	<b>4,970</b>

\* Based on Census 2021 American Community Survey data report.


\*\* Percent of 2021 total housing units.

The 2021 breakdown of housing units by type on the table above are taken from the most recent American Community Survey for Ball Ground (published by the Census Bureau). The 2021 percentage by housing type (single-family and single-family attached) is calculated and applied to the total number of housing units projected in 2023 (taken from the Future Growth Appendix of this report).

It is assumed that these percentages will persist into the future, producing a breakdown of the projected increase of 3,380 new housing units forecast for the 2023-2045 period.

The next table, below, calculates the amount of traffic that is generated by the city's housing stock today, the amount that will be generated in 2045, and the increase in new trips that will be generated by new residential growth and development as a percentage of all trips in 2045.

**Table B-4: Residential Trip Generation - 2023-2045 New Growth Increase**

	ADT* Trip Ends	2023 Units	2023 ADT Trip Ends	2045 Units	2045 ADT Trip Ends	Increase 2023-2045	Percent New Growth Trip Ends
Single-Family Units	9.43	1,453	13,702	4,545	42,859	29,157	
Multi-Family Units	7.20	136	979	425	3,060	2,081	
<b>Total</b>		<b>1,589</b>	<b>14,681</b>	<b>4,970</b>	<b>45,919</b>	<b>31,238</b>	

\* 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’ on a normal weekday, using average trip generation rates derived through multiple traffic studies (350 for single-family and 86 for apartments) and published by ITE. The rates are expressed for ‘trip ends’—that is, traffic both leaving and coming to a housing unit.

Comparing traffic in 2023 to 2045, the future increase in trip ends generated by new housing units can be calculated, which will represent 68.028% of all residential trip ends in the city.

It should be noted that the traffic generated includes trips to and from work and, more particularly, city residents who work at a business within the city.

## ■ Nonresidential Trip Generation

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

The alternate is to view nonresidential traffic generation on a broad ‘average’ basis. For this, there is data available from ITE for a number of individual uses relating to the total number of trips generated per employee. These trips, of course, include not only trips taken by the employees (to/from work, lunch, etc.) but also customers and others that are attracted to the use, deliver to, 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. 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 use by the same floor area (and thus the number per ‘1’ square foot of floor area for impact fee calculations).

The table on the following page shows the ‘trip ends 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 is 4.21 trips per employee for ‘industrial’ uses and 23.95 for all ‘commercial’ 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. The last column shows the average rate for all ‘commercial’ uses listed, as opposed to the ‘industrial’ uses shown at the top of the column on its top left.

Although the ‘overall’ averages are useful for projecting total traffic generation, impact fees for particular uses will reflect the actual average trip generation rate for the specific 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	}	23.95
	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	}	
	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 today and projected to 2045.

**Table B-6: Value-Added Employment 2023-2045**


	2023 Value-Added Employees	2045 Value-Added Employees	Change
Retail Trade	166	586	420
Information	15	64	49
Finance & Insurance	63	246	183
Real Estate	82	319	237
Professional & Technical Services	104	465	361
Management of Companies	2	4	2
Administrative & Waste Services	117	581	464
Educational Services	33	218	185
Health Care & Social Assistance	115	641	526
Arts, Entertainment & Recreation	44	200	156
Accommodation & Food Services	115	586	471
Other Private Services	98	404	306
<b>Total Commercial</b>	<b>954</b>	<b>4,314</b>	<b>3,360</b>
Utilities	34	101	67
Manufacturing	1	3	2
Wholesale Trade	82	256	174
Transportation & Warehousing	46	224	178
<b>Total Industrial+Utility</b>	<b>163</b>	<b>584</b>	<b>421</b>

The table is based on the numbers of 'value-added' employees calculated for each 'commercial' land use category and each 'industrial' category, taken from the employment projections in Appendix A. The focus is on the value-added employment figures because these categories are assessed impact fees, as opposed to the 'not building related' and 'government' employment categories.

Lastly, the following table calculates the total number of trip ends that will be generated by new nonresidential growth in future traffic on Ball Ground's roads, and the percentage of that growth in relation to total trip ends on the city's roads in 2045 (78.414%).

The results of the residential and nonresidential trip generation analyses are combined on the Summary table 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. From these figures, as discussed above, pass-by and diverted trip ends are then deleted to determine primary trip ends, which more closely relates to vehicles on the road and thus contribute to traffic congestion.

**Table B-7: Nonresidential Trip Generation - 2023-2045 New Growth Increase**

	2023 Employees	Avg. ADT	2023 Trip Ends	2045 Employees	2045 Trip Ends	2023-2045 Increase	Percent New Growth Trip Ends
Commercial	954	23.95	22,852	4,314	103,339	80,487	
Industrial+Utility	163	4.21	687	584	2,460	1,773	
Total	1,117		23,539	4,898	105,799	82,260	
Less: Internal Commutes* at		14.70%	-2,158		-6,750	-4,592	
<b>Net Nonres Trip Ends</b>			<b>21,381</b>		<b>99,049</b>	<b>77,668</b>	
							<b>78.414%</b>

\* Residents who work in Ball Ground based on 2020 Census data. These trips are included in residential trip generation rate.

## ■ Terminology

This Methodology 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 and Credits

### ■ 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 (2023) using an inflation rate to bring past expenditures up and to increase current cost estimates into future expenditures expected in a particular year, 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 project), current 2023 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 expenditure in the future, 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 Inflators

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

For projects that require construction of a structure (such as a community center), a ‘building cost inflator’ is used as the appropriate inflation rate.

For infrastructure projects, such as roads, a ‘construction cost inflator’ is used.

For all non-construction types of projects (such as a recreational swing set), an inflation rate is used that is based on the Consumer Price Index. These different types of inflators are discussed below.

### Engineering News-Record’s Cost Indexes

The Engineering News-Record (ENR)<sup>11</sup> 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.

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<sup>11</sup> 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
				\$ 1,253,634.95	\$ 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 region.

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. In 2022, for instance, the same building project would have cost a few pennies more than \$159,029 due to inflation in construction materials and personnel costs.

When the total for all such projects is summed for the 2012-2022 period (\$1,253,634.96), 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 average 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 road improvements, trails, baseball fields and other projects that do not involve buildings.) 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 =
					<b>2.2916719%</b>
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, only the future value of money needs to be considered (without regard to inflation in labor or materials costs). For this calculation, the Consumer Price Index (CPI) is used, assuming past experience will continue into the foreseeable future.

Table C-3 shows the CPI figures for every year since 1982, when the current CPI was first calibrated.

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: Non-Construction Cost Inflator - CPI**

Year	Amount	CPI*		Present Value: CPI	Long Term Inflator =	10-Year Inflator =	
		1982-84=100	2021=1.0				
					2.49984150%		
1982	\$ 10,000.00	96.50	2.88029	\$ 28,802.90	\$ 10,000.00		
1983	\$ 10,000.00	99.60	2.79064	\$ 27,906.43	\$ 10,000.00		
1984	\$ 10,000.00	103.90	2.67515	\$ 26,751.49	\$ 10,000.00		
1985	\$ 10,000.00	107.60	2.58316	\$ 25,831.60	\$ 10,000.00		
1986	\$ 10,000.00	109.60	2.53602	\$ 25,360.22	\$ 10,000.00		
1987	\$ 10,000.00	113.60	2.44673	\$ 24,467.25	\$ 10,000.00		
1988	\$ 10,000.00	118.30	2.34952	\$ 23,495.18	\$ 10,000.00		
1989	\$ 10,000.00	124.00	2.24152	\$ 22,415.16	\$ 10,000.00		
1990	\$ 10,000.00	130.70	2.12661	\$ 21,266.11	\$ 10,000.00		
1991	\$ 10,000.00	136.20	2.04073	\$ 20,407.34	\$ 10,000.00		
1992	\$ 10,000.00	140.30	1.98110	\$ 19,810.98	\$ 10,000.00		
1993	\$ 10,000.00	144.50	1.92352	\$ 19,235.16	\$ 10,000.00		
1994	\$ 10,000.00	148.20	1.87549	\$ 18,754.93	\$ 10,000.00		
1995	\$ 10,000.00	152.40	1.82381	\$ 18,238.06	\$ 10,000.00		
1996	\$ 10,000.00	156.90	1.77150	\$ 17,714.98	\$ 10,000.00		
1997	\$ 10,000.00	160.50	1.73176	\$ 17,317.63	\$ 10,000.00		
1998	\$ 10,000.00	163.00	1.70520	\$ 17,052.02	\$ 10,000.00		
1999	\$ 10,000.00	166.60	1.66836	\$ 16,683.55	\$ 10,000.00		
2000	\$ 10,000.00	172.20	1.61410	\$ 16,141.00	\$ 10,000.00		
2001	\$ 10,000.00	177.10	1.56944	\$ 15,694.41	\$ 10,000.00		
2002	\$ 10,000.00	179.90	1.54501	\$ 15,450.14	\$ 10,000.00		
2003	\$ 10,000.00	184.00	1.51059	\$ 15,105.87	\$ 10,000.00		
2004	\$ 10,000.00	188.90	1.47140	\$ 14,714.03	\$ 10,000.00		
2005	\$ 10,000.00	195.30	1.42318	\$ 14,231.85	\$ 10,000.00		
2006	\$ 10,000.00	201.60	1.37871	\$ 13,787.10	\$ 10,000.00		
2007	\$ 10,000.00	207.34	1.34053	\$ 13,405.29	\$ 10,000.00		
2008	\$ 10,000.00	215.30	1.29096	\$ 12,909.62	\$ 10,000.00		
2009	\$ 10,000.00	214.54	1.29557	\$ 12,955.71	\$ 10,000.00		2.580330%
2010	\$ 10,000.00	218.06	1.27466	\$ 12,746.63	\$ 10,000.00		
2011	\$ 10,000.00	224.94	1.23566	\$ 12,356.59	\$ 10,000.00		\$ 12,901.52
2012	\$ 10,000.00	229.59	1.21061	\$ 12,106.07	\$ 10,000.00	\$ 12,576.99	
2013	\$ 10,000.00	232.96	1.19313	\$ 11,931.30	\$ 10,000.00	\$ 12,260.63	
2014	\$ 10,000.00	236.74	1.17408	\$ 11,740.84	\$ 10,000.00	\$ 11,952.22	
2015	\$ 10,000.00	237.02	1.17269	\$ 11,726.92	\$ 10,000.00	\$ 11,651.57	
2016	\$ 10,000.00	240.01	1.15808	\$ 11,580.82	\$ 10,000.00	\$ 11,358.49	
2017	\$ 10,000.00	245.12	1.13393	\$ 11,339.26	\$ 10,000.00	\$ 11,072.77	
2018	\$ 10,000.00	251.11	1.10689	\$ 11,068.91	\$ 10,000.00	\$ 10,794.25	
2019	\$ 10,000.00	255.66	1.08719	\$ 10,871.93	\$ 10,000.00	\$ 10,522.72	
2020	\$ 10,000.00	261.56	1.06265	\$ 10,626.55	\$ 10,000.00	\$ 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	\$ 400,000.00		
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 almost 2.6% (2.58033%) 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 2.03%<sup>12</sup>) since this reflects the present value of a future amount of money.
- For other construction projects (such as recreation facilities), 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 ambulance purchases or land acquisition), the 10-year average CPI inflator (from Table C-3) 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.

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<sup>12</sup> The impact fee law requires that impact fees be maintained in an interest-bearing account. The appropriate discount rate would therefore be the interest rate that the locality receives on a savings account that includes checking/withdrawal privileges. The discount rate used in this report is based on the interest paid to local governments by the state's Georgia 1 Fund. From July '22 through June '23, the monthly rate varied from 1.56% in July to 5.12% in June (the last month reported). Over the 12-month period, the monthly average was 3.714% and the median was 4.06%. Because monthly deposits to the Fund would grow slowly, the effective rate of return is 2.03% over time, which is the effective 'discount rate' based on the median.

## ■ Tax Credits

An important restriction on an impact fee program is that new growth and development cannot be charged more in impact fees than their 'fair share' of the cost of funding the public facilities needed to serve just that new growth. The calculation of that 'fair share' is intrinsic to the impact fee calculations carried out in the chapters addressing each public facility category in this report. There is a situation, however, that could arise in which new development will be paying property taxes for the same projects for which impact fees are being assessed. This situation relates to the portion of impact fee projects that are not eligible for impact fee funding (such as a project that is only 90% impact fee eligible leaves 10% to be funded by existing development). If fees are set at the 100% eligibility level, of course, there are no tax credits because there are no portions of the project that must be funded from alternate sources.

### Per-Project Funding Shortfall Credit

As noted, some capital projects in the impact fee program may have portions that are not 100% impact fee eligible. More likely in Ball Ground, the fees could potentially be set at less than 100% of the amount that is impact fee eligible. These are situations in which a project serves both a future (impact fee eligible) need *and* a need to provide service to the current residents and businesses at the same level of service as new growth, or alternately, the fees are reduced by some percentage, across the board leaving the unfunded portion to receive additional tax funding. In the first instance, funding for the non-eligible portions are the responsibility of the current residents and businesses, not new growth. In the other instance, the portion that was impact fee eligible but excluded from the reduced adopted fee must be calculated as a credit for new development.

To the extent that new growth would be contributing property taxes for non-eligible portions of impact fee projects (for which they are not financially responsible), a credit must be applied reflecting these tax collections in order to avoid new growth paying more than their 'fair share' of total costs. In the second instance, which is more applicable to Ball Ground, the tax generated for costs that are actually impact fee eligible must also be considered as a credit. In this latter case, new developments total fee would consist of the actual payment assessed at the time of building permit issuance plus the amount that new growth's taxes would generate payment for the excluded but eligible portion of the total fee calculated in this Methodology Report.

For individual projects that are only partially eligible for impact fee funding as well as the portion that was eligible but not included in the impact fee payment, it is assumed for calculation purposes that the non-eligible and/or the eligible-but-excluded portions will be covered by General Fund revenue.

To the extent that credits are due, they are subtracted from the impact fee project costs as part of the calculation of maximum impact fees allowed within each of the public facility chapters to which they apply.

The following sections explain how these credits are calculated.

### Current Property Tax Bases

Table C-4 summarizes the most recent property tax base for Ball Ground as actually reported by 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.

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 applied as a credit against any portion of an impact fee project that is not impact fee eligible or any potential



situation where a portion of an impact fee eligible project is shifted to be recovered from property taxes.

**Table C-4: Ball Ground 2021 Tax Digest**

Category	Total Assessed Value (@40%)	Total Tax Valuation (100% value)
Residential	\$ 94,228,765	\$ 235,571,913
Historic	\$ 188,760	471,900
Agricultural	\$ 7,577,934	18,944,835
Conservation Use	\$ 755,240	1,888,100
Commercial	\$ 14,028,124	35,070,310
Industrial	\$ 13,857,861	34,644,653
Utility	\$ 2,482,584	6,206,460
Motor Vehicle	\$ 931,810	2,329,525
Mobile Home	\$ 29,648	74,120
<b>Gross Digest</b>	<b>\$ 134,080,726</b>	<b>\$ 332,798,170</b>
Exempt*	\$ 2,535,888	\$ 6,339,720
<b>Total Tax Base M&amp;O</b>	<b>\$ 131,544,838</b>	<b>\$ 328,862,095</b>

\* Classification of property totally exempted from ad valorem taxation. This includes non-profit homes for the aged, public property, places of religious worship, property used for charitable purposes, places of religious burial, charity hospitals, educational institutions, etc.

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

### 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. 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.

New houses recently constructed in the city<sup>13</sup> were being actually sold at an overall average sales price of \$516,925, which would be a tax assessment value of \$206,770 at 40%.

<sup>13</sup> As of August 15, 2023, Zillow reported 12 new homes constructed throughout the city in 2022 and 2023 that were actually sold. Overall, sales prices ranged from a low of \$357,695 to a high of \$765,000.

Citywide nonresidential value added is calculated as the assessed value of all commercial, industrial and utility property in the city divided by the number of 'value-added' jobs in the city in 2021, resulting in a figure of \$32,001 in assessed value per employee.

Using these average tax base contribution figures, Table C-5 calculates the contributions that new growth will generate each year out to 2045.<sup>14</sup>

**Table C-5: 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**	
2022	1,509			1,041			
2023	1,589	80	\$ 16,595,238	1,117	76	\$ 2,432,076	\$ 19,027,314
2024	1,674	84	\$ 17,468,671	1,171	54	\$ 1,728,054	\$ 19,196,725
2025	1,763	89	\$ 18,342,105	1,278	107	\$ 3,424,107	\$ 21,766,212
2026	1,857	94	\$ 19,433,897	1,382	104	\$ 3,328,104	\$ 22,762,001
2027	1,955	98	\$ 20,307,330	1,486	104	\$ 3,328,104	\$ 23,635,434
2028	2,059	105	\$ 21,617,481	1,589	104	\$ 3,328,104	\$ 24,945,585
2029	2,169	110	\$ 22,709,273	1,693	104	\$ 3,328,104	\$ 26,037,377
2030	2,284	115	\$ 23,801,065	1,797	104	\$ 3,328,104	\$ 27,129,169
2031	2,406	121	\$ 25,111,215	1,941	144	\$ 4,608,144	\$ 29,719,359
2032	2,533	128	\$ 26,421,365	2,086	144	\$ 4,608,144	\$ 31,029,509
2033	2,669	135	\$ 27,949,874	2,230	144	\$ 4,608,144	\$ 32,558,018
2034	2,810	142	\$ 29,260,024	2,375	144	\$ 4,608,144	\$ 33,868,168
2035	2,960	150	\$ 31,006,891	2,519	144	\$ 4,608,144	\$ 35,615,035
2036	3,117	157	\$ 32,535,400	2,719	200	\$ 6,400,200	\$ 38,935,600
2037	3,283	166	\$ 34,282,267	2,918	200	\$ 6,400,200	\$ 40,682,467
2038	3,457	174	\$ 36,029,134	3,118	200	\$ 6,400,200	\$ 42,429,334
2039	3,641	184	\$ 37,994,360	3,317	200	\$ 6,400,200	\$ 44,394,560
2040	3,836	194	\$ 40,177,944	3,517	200	\$ 6,400,200	\$ 46,578,144
2041	4,039	204	\$ 42,143,169	3,793	276	\$ 8,832,276	\$ 50,975,445
2042	4,254	214	\$ 44,326,753	4,069	276	\$ 8,832,276	\$ 53,159,029
2043	4,480	226	\$ 46,728,696	4,346	276	\$ 8,832,276	\$ 55,560,972
2044	4,718	239	\$ 49,348,996	4,622	276	\$ 8,832,276	\$ 58,181,272
2045	4,970	251	\$ 51,969,297	4,898	276	\$ 8,832,276	\$ 60,801,573

\*New housing unit value is estimated at an average assessed value per housing unit of: \$ 206,770

\*\*Nonresidential value is estimated at an assessed value per 'value-added' employee of: \$ 32,001

<sup>14</sup> Note that the assessed value figure and the value per employee on Table C-5 are not inflated into the future because, whether inflated or not, the percentages (the ratios between the tax base increases and the projected growth figures shown on subsequent tables below, would be the same).

The annual tax contributions added from new growth on Table C-5 are then transferred to the following Table C-6 under the columns 'All Development' and 'Residential Only'. These annual figures are accumulated under the relevant columns shown for the total tax base that is generated from all new value-added development and for residential development only. For the parks & recreation public facility category, impact fees will only be assessed against residential growth. For road improvements, the tax contributions from all new growth in the city would apply, since all land use types of new development are assessed for those improvements.

**Table C-6: Total Tax Base 2023-2045**

Year	All Development		Residential Only	
	Added Assessed Value	Total Tax Base	Added Assessed Value	Total Net Residential Tax Base
2021		\$ 131,544,838		\$ 94,228,765
2022		\$ 144,297,341		\$ 100,562,289
2023	\$ 19,027,314	\$ 163,324,655	\$ 16,595,238	\$ 117,157,527
2024	\$ 19,196,725	\$ 182,521,380	\$ 17,468,671	\$ 134,626,198
2025	\$ 21,766,212	\$ 204,287,592	\$ 18,342,105	\$ 152,968,303
2026	\$ 22,762,001	\$ 227,049,593	\$ 19,433,897	\$ 172,402,200
2027	\$ 23,635,434	\$ 250,685,027	\$ 20,307,330	\$ 192,709,530
2028	\$ 24,945,585	\$ 275,630,612	\$ 21,617,481	\$ 214,327,011
2029	\$ 26,037,377	\$ 301,667,988	\$ 22,709,273	\$ 237,036,283
2030	\$ 27,129,169	\$ 328,797,157	\$ 23,801,065	\$ 260,837,348
2031	\$ 29,719,359	\$ 358,516,516	\$ 25,111,215	\$ 285,948,563
2032	\$ 31,029,509	\$ 389,546,025	\$ 26,421,365	\$ 312,369,928
2033	\$ 32,558,018	\$ 422,104,043	\$ 27,949,874	\$ 340,319,802
2034	\$ 33,868,168	\$ 455,972,211	\$ 29,260,024	\$ 369,579,826
2035	\$ 35,615,035	\$ 491,587,247	\$ 31,006,891	\$ 400,586,718
2036	\$ 38,935,600	\$ 530,522,847	\$ 32,535,400	\$ 433,122,118
2037	\$ 40,682,467	\$ 571,205,314	\$ 34,282,267	\$ 467,404,385
2038	\$ 42,429,334	\$ 613,634,649	\$ 36,029,134	\$ 503,433,520
2039	\$ 44,394,560	\$ 658,029,209	\$ 37,994,360	\$ 541,427,880
2040	\$ 46,578,144	\$ 704,607,353	\$ 40,177,944	\$ 581,605,824
2041	\$ 50,975,445	\$ 755,582,798	\$ 42,143,169	\$ 623,748,993
2042	\$ 53,159,029	\$ 808,741,827	\$ 44,326,753	\$ 668,075,746
2043	\$ 55,560,972	\$ 864,302,799	\$ 46,728,696	\$ 714,804,442
2044	\$ 58,181,272	\$ 922,484,071	\$ 49,348,996	\$ 764,153,438
2045	\$ 60,801,573	\$ 983,285,644	\$ 51,969,297	\$ 816,122,735

Notes: All figures are assessed value (at 40%).

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 for each year.

These '% New Growth' figures, shown on Table C-7, 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 (since the impact fees that new growth generated covered its funding responsibility).

**Table C-7: 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
2021	\$ 131,544,838			\$ 94,228,765		
2022	\$ 144,297,341			\$ 100,562,289		
2023	\$ 163,324,655	\$ 19,027,314	11.65%	\$ 117,157,527	\$ 22,928,762	19.57%
2024	\$ 182,521,380	\$ 38,224,039	20.94%	\$ 134,626,198	\$ 40,397,433	30.01%
2025	\$ 204,287,592	\$ 59,990,251	29.37%	\$ 152,968,303	\$ 58,739,538	38.40%
2026	\$ 227,049,593	\$ 82,752,252	36.45%	\$ 172,402,200	\$ 78,173,435	45.34%
2027	\$ 250,685,027	\$ 106,387,686	42.44%	\$ 192,709,530	\$ 98,480,765	51.10%
2028	\$ 275,630,612	\$ 131,333,271	47.65%	\$ 214,327,011	\$ 120,098,246	56.04%
2029	\$ 301,667,988	\$ 157,370,647	52.17%	\$ 237,036,283	\$ 142,807,518	60.25%
2030	\$ 328,797,157	\$ 184,499,816	56.11%	\$ 260,837,348	\$ 166,608,583	63.87%
2031	\$ 358,516,516	\$ 214,219,175	59.75%	\$ 285,948,563	\$ 191,719,798	67.05%
2032	\$ 389,546,025	\$ 245,248,684	62.96%	\$ 312,369,928	\$ 218,141,163	69.83%
2033	\$ 422,104,043	\$ 277,806,702	65.81%	\$ 340,319,802	\$ 246,091,037	72.31%
2034	\$ 455,972,211	\$ 311,674,870	68.35%	\$ 369,579,826	\$ 275,351,061	74.50%
2035	\$ 491,587,247	\$ 347,289,906	70.65%	\$ 400,586,718	\$ 306,357,953	76.48%
2036	\$ 530,522,847	\$ 386,225,506	72.80%	\$ 433,122,118	\$ 338,893,353	78.24%
2037	\$ 571,205,314	\$ 426,907,973	74.74%	\$ 467,404,385	\$ 373,175,620	79.84%
2038	\$ 613,634,649	\$ 469,337,308	76.48%	\$ 503,433,520	\$ 409,204,755	81.28%
2039	\$ 658,029,209	\$ 513,731,868	78.07%	\$ 541,427,880	\$ 447,199,115	82.60%
2040	\$ 704,607,353	\$ 560,310,012	79.52%	\$ 581,605,824	\$ 487,377,059	83.80%
2041	\$ 755,582,798	\$ 611,285,457	80.90%	\$ 623,748,993	\$ 529,520,228	84.89%
2042	\$ 808,741,827	\$ 664,444,486	82.16%	\$ 668,075,746	\$ 573,846,981	85.90%
2043	\$ 864,302,799	\$ 720,005,458	83.30%	\$ 714,804,442	\$ 620,575,677	86.82%
2044	\$ 922,484,071	\$ 778,186,730	84.36%	\$ 764,153,438	\$ 669,924,673	87.67%
2045	\$ 983,285,644	\$ 838,988,303	85.32%	\$ 816,122,735	\$ 721,893,970	88.45%

Note: All figures are assessed value (at 40%).



## ■ Application of Tax Credits Against Impact Fees

As discussed in this Appendix, 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 C-8 summarizes the percentage increase in taxable value created each year from residential development (new housing units) and from all new residential and value-added nonresidential development together (the 'day-night population'). The figures were calculated on Table C-7 and shown on Table C-8 for simplicity.

**Table C-8: Credit Percentages**

Year	For Fees Based on:	
	Day-Night Population	Housing Units
2023	11.45%	19.57%
2024	20.67%	30.01%
2025	28.97%	38.40%
2026	35.98%	45.34%
2027	41.94%	51.10%
2028	47.14%	56.04%
2029	51.66%	60.25%
2030	55.62%	63.87%
2031	59.26%	67.05%
2032	62.47%	69.83%
2033	65.34%	72.31%
2034	67.90%	74.50%
2035	70.22%	76.48%
2036	72.38%	78.24%
2037	74.33%	79.84%
2038	76.10%	81.28%
2039	77.70%	82.60%
2040	79.17%	83.80%
2041	80.56%	84.89%
2042	81.83%	85.90%
2043	82.99%	86.82%
2044	84.06%	87.67%
2045	85.04%	88.45%

These 'percent new growth' figures 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).

As discussed at the beginning of this section on Tax Credits, these contributions are applied as credits against total impact fee contributions, such that new growth and development's total share of the cost of future capital projects that will serve it will be generated by the net amount of the cost of the improvements minus the credit for the taxes it generates that will be used to pay for the ineligible costs of the same improvements (if any). If there are no ineligible costs for a particular project improvement, there is therefore no credit associated with that improvement.