CAPITAL IMPROVEMENTS ELEMENT


Dawson County Est. 1857 "Where Quality of Life Matters"

Dawson County Georgia



Including the following public facility categories:

Library Services

Parks and Recreation

Fire Protection

Law Enforcement

Road Improvements

DRAFT AUTHORIZED FOR TRANSMITTAL 8.15.24

ROSS+associates
urban planning & plan implementation

in association with
Hatley Plans LLC

Introduction

The purpose of a Capital Improvements Element (CIE) is to establish where and when certain new public facilities are planned to be provided within a jurisdiction and the extent to which they may be financed through an impact fee program. A Capital Improvements Element is adopted as a chapter, or 'element', in a local government's Comprehensive Plan.

This document amends Dawson County's current CIE (2018) and, as such, updates[1] the County's impact fee program, which was first adopted in 2006 and last updated in 2018. All public facility categories from the current impact fee program are included and updated in this CIE.

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

- a **projection of needs** for the planning period[2];
- the designation of **service areas** - the geographic area in which a defined set of public facilities provide service to development within the area;
- the designation of **levels of service** (LOS) - the service level that will be provided;
- a **schedule of improvements** ("Community Work Program") listing impact fee related projects and costs for at least the coming 5 years; and
- a description of **funding sources** anticipated for the planning period.

Impact Fees Authorized

Impact Fees Authorized by the State

Impact fees are a form of revenue authorized and regulated in Georgia pursuant to O.C.G.A. §36-71-1 et seq., the *Georgia Development Impact Fee Act* (DIFA), and are administered by the Georgia Department of Community Affairs under Chapter 110-12-2, *Development Impact Fee Compliance Requirements*, of the Georgia Administrative Code.

Under DIFA, a city or county can collect money from new development based on—and that does not exceed—that development's proportionate share of the cost to fund future public facilities that will be needed. Impact fees cannot be not used to solve existing service deficiencies and must be spent only on public facilities that create new capacity to keep pace with the number of future residents and businesses as the county grows.

The key is that each 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 county 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.

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.

[1] A 'CIE amendment' results in a new list of impact fee eligible capital projects. In order to update the existing fee schedule to support funding of those projects, an amendment to the County's existing Development Impact Fee Ordinance is required.

[2] Typically 20 years, to be consistent with the long-range planning horizon of the Comprehensive Plan. However, the 2023 Dawson County Comprehensive Plan has no stated planning horizon, with the exception of the Transportation Element's evaluation of transportation needs to 2050. Accordingly, this CIE provides a projection of capital facility needs to 2050.

Categories for Assessment of Impact Fees

The chart below shows the public facility categories and specific facility types that are eligible for impact fee funding under Georgia law and that are currently included in the County's impact fee program and thus addressed 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

Public Facility Category	Eligible Facilities	Service Area	Level of Service Standard Based on ...
Library Services	Library facilities and collection materials	Countywide	Square footage of facilities and number of collection materials per dwelling unit
Parks and Recreation	Park land and recreation components	Countywide	Acreage and number of recreation components per dwelling unit
Fire Protection	Fire stations, fire trucks, auxiliary vehicles & ambulances	Countywide	Square footage of facilities and number of heavy vehicles per day-night population
Law Enforcement	Sheriff's patrol, inmate detention, E-911	Countywide	Square footage of facilities and number of specialized vehicles per day-night population
Road Improvements	Projects creating increased capacity	Countywide	Level of Service 'D' and trip generation by new growth

Eligible Facilities[3] under the Georgia Development Impact Fee Act (DIFA) are limited to capital items having a life expectancy of at least 10 years, such as land, buildings and certain vehicles. Impact fees cannot be used for the maintenance, supplies, personnel salaries, or other operational costs, or for short-term capital items such as computers, furniture or most automobiles. None of these costs are included in the impact fee program.

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

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

[3] For a complete list of 'eligible facilities' allowed under DIFA, see 'public facilities' in the Glossary in this report. Dawson County's impact fee program, however, comprises only those listed above.

Forecasts

In order to accurately calculate the demand for future services in Dawson County, new growth and development must be quantified in future projections. These projections include forecasts for population, households, housing units, and employment to the year 2050. These projections provide the baseline conditions from which current Level of Service calculations are produced. The projections used for each public facility category are specified in each public facility chapter that follows.

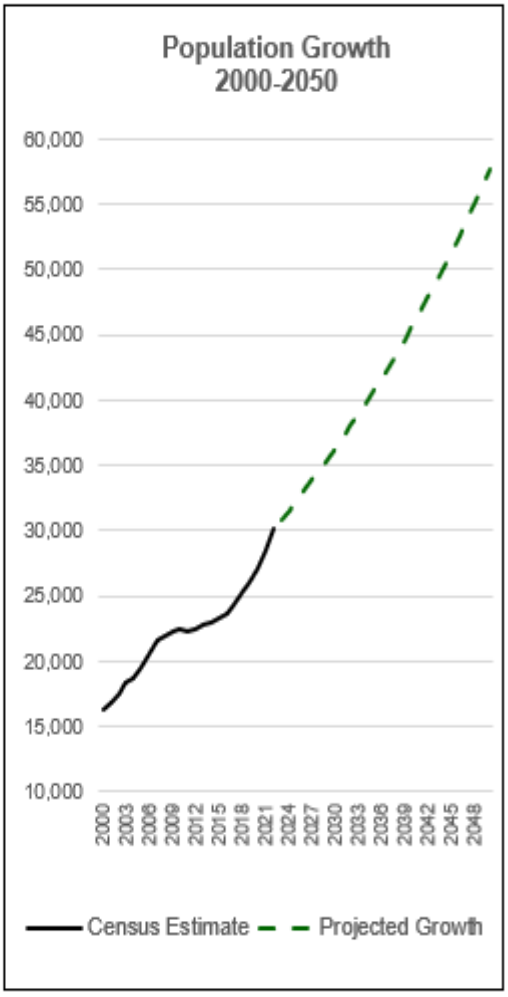
This chapter presents a summary of the forecasts that have been identified for use in this CIE, based on an analysis of past trends. For a more detailed description of the methodologies used in preparing the population, housing and employment forecasts, see Technical Appendix A – *Future Growth*.

Population, Housing and Employment Forecasts

Table 2 presents projected countywide population growth from 2023 to 2050 relative to growth over the preceding 20-year period, as reported by the Census Bureau.

Table 2: Projected Population Growth

Year	People
2023	30,843
2024	31,564
2025	32,303
2026	33,058
2027	33,831
2028	34,623
2029	35,433
2030	36,261
2031	37,109
2032	37,977
2033	38,866
2034	39,775
2035	40,705
2036	41,657
2037	42,632
2038	43,629
2039	44,649
2040	45,694
2041	46,762
2042	47,856
2043	48,975
2044	50,121
2045	51,293
2046	52,493
2047	53,721
2048	54,977
2049	56,263
2050	57,579
Increase:	*26,015*



The projections indicate a continuation of the previous population growth trend over the past two decades.

The solid line plotting U.S. Census population estimates from 2000 – 2022 reflect a period of strong growth up until the Great Recession, a result of which population growth slowed along with the collapse of the housing market, and then began to recover.

Recovery from the crash was steady—even outpacing the rebound in adjacent Gainesville-Hall County as well as the Atlanta Metro Area on an annual percent increase basis.

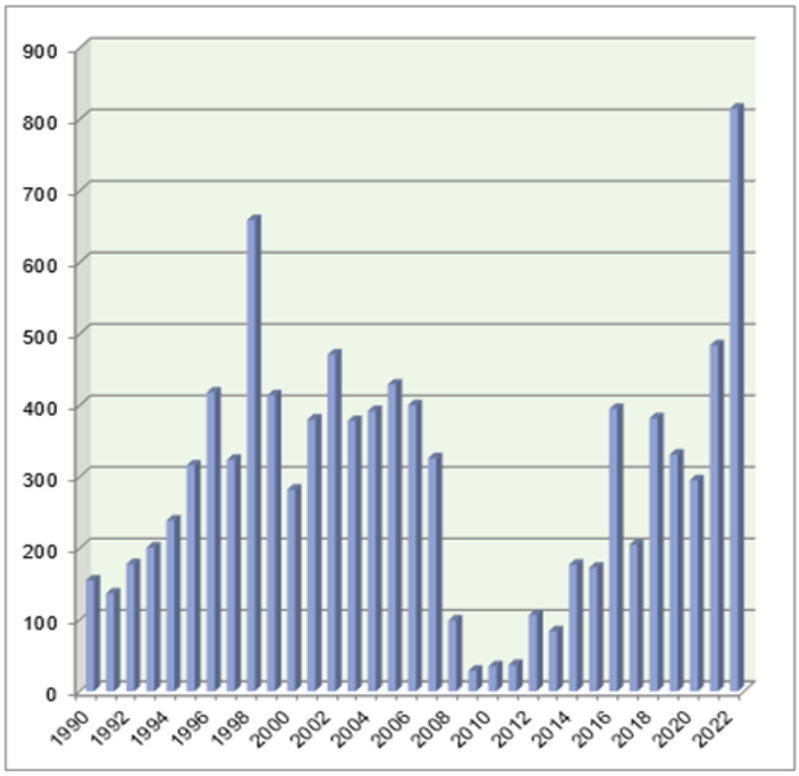
Starting around the middle of the past decade, growth returned at an accelerated pace, which is illustrated by residential building permit activity on Table 3.

Looking ahead, Dawson County is anticipated to continue its previous population growth trend over the past two decades. Overall, the county is expected to add 20,015 people to today's (2024) projected population of 31,564. The result is projected to be a 2050 population of 57,579, in which 45% of the future residents are not here today.

As shown below, going back to 1990 the county was on a clear upswing in residential development, trending higher and higher overall, slipping a bit in 2006, and then plummeting with the nationwide housing market crash in 2008. The county's housing industry has since regained its footing and permits have been on the rise, with residential building permits reaching numbers comparable to those in the mid-'90's and early 2000's.

Table 3: Residential Building Permit Activity

Calendar Year	New Housing Units Permitted
1990	155
1991	137
1992	178
1993	201
1994	239
1995	316
1996	418
1997	324
1998	659
1999	414
2000	282
2001	380
2002	471
2003	378
2004	392
2005	429
2006	400
2007	326
2008	99
2009	29
2010	35
2011	37
2012	107
2013	84
2014	177
2015	173
2016	395
2017	205
2018	382
2019	331
2020	295
2021	484
2022	815



Source: US Bureau of the Census, annual building permit data, 1990-2015; Dawson County 2016-2022.

Housing for this future population growth is anticipated to increase at a similar rate, yielding a 2050 housing stock of 26,634 dwelling units, based on the addition of 12,092 units to the existing housing supply. Employment in the county is projected to expand at a somewhat greater pace than population. Total 'value added' jobs[4] is projected by Woods & Poole Economics, Inc. [5] to increase by 16,933, which equates to almost 56% of all value-added jobs in 2050. Today, there are about 0.9 jobs for each housing unit in the county. By 2050, this is projected to grow to 1.14.

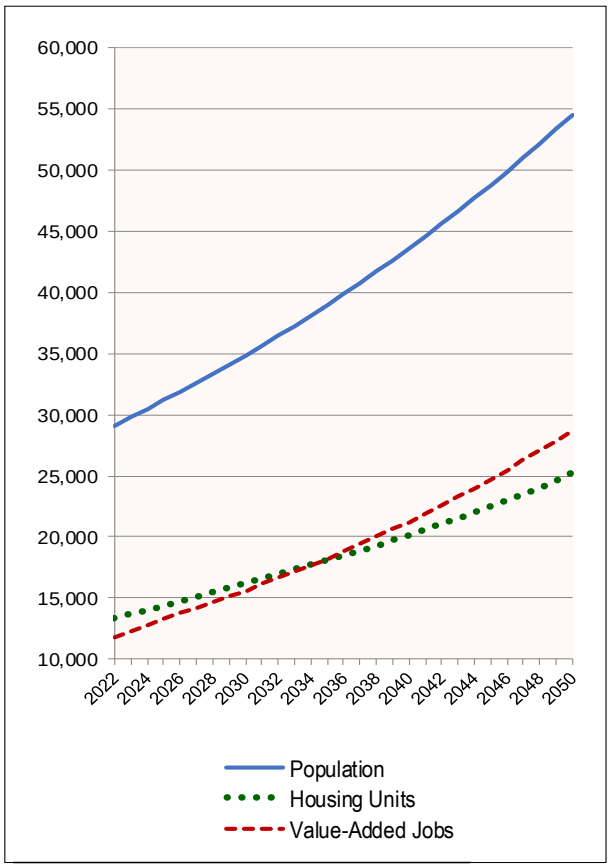
These housing and employment countywide forecasts are shown on Table 4.

[4] 'Value-added' jobs 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, as well as construction and agricultural jobs since they are transitory or non-site specific in nature and don't require building permits; as such, they are not assessed impact fees).

[5] Woods & Poole is a nationally recognized independent firm that specializes in long-term county economic data and demographic data projections. Their employment data include both full-time and part-time jobs by place of work.

Table 4: Forecasts of Future County Growth

Year	Population	Housing Units	Value-Added Jobs
2023	30,843	14,153	12,866
2024	31,564	14,542	13,322
2025	32,303	14,942	13,777
2026	33,058	15,291	14,268
2027	33,831	15,712	14,759
2028	34,623	16,080	15,249
2029	35,433	16,456	15,740
2030	36,261	16,841	16,231
2031	37,109	17,234	16,791
2032	37,977	17,637	17,350
2033	38,866	18,050	17,910
2034	39,775	18,472	18,469
2035	40,705	18,904	19,029
2036	41,657	19,347	19,671
2037	42,632	19,720	20,313
2038	43,629	20,182	20,956
2039	44,649	20,653	21,598
2040	45,694	21,137	22,240
2041	46,762	21,631	22,980
2042	47,856	22,136	23,721
2043	48,975	22,564	24,461
2044	50,121	23,092	25,202
2045	51,293	23,631	25,942
2046	52,493	24,185	26,804
2047	53,721	24,751	27,667
2048	54,977	25,329	28,529
2049	56,263	25,922	29,392
2050	57,579	26,634	30,254
Increase	*26,015*	*12,092*	*16,933*



■ Projections Related to Calculations in the CIE

Table 5 on the next page shows the forecasts that have been identified as the most likely for Dawson County, based on an analysis of past trends described above. These figures are used in calculating the Level of Service (LOS) and Future Demand for county facilities in each public facility category addressed in this report.

Countywide forecasts apply to all public facility categories, as they provide services available to each resident regardless of whether they live in the unincorporated area or inside the Dawsonville city limits.

The population figures on Table 5 represent a projection forward of past annual population figures (i.e., the past growth rate) as discussed above. To calculate the number of housing units anticipated in the future, the number of households (which equates to the number of occupied housing units) is calculated by dividing the most recently reported average household size in the county into the population forecasts, and then that is expanded to the total number of housing units by adding in vacant units. As noted above, employment forecasts are based on Woods & Poole Economics, Inc. data, as further described in the Appendix. 'Day-night population' combines population and employee projections and is further described below.

Because **library facilities** and **parks** predominantly serve residents (as opposed to businesses), the projected increase in housing units over the next 27 years quantifies demand for these facilities, as shown in the following public facility chapters.

For **fire protection** and **law enforcement**, the day-night population is used instead of housing units. Day-night population combines residents ('population') and employees (based on 'value-added' jobs) and is a measure of total services demanded of a 24-hour service provider facility. The Fire & Emergency Services Department, for instance, protects one's house from fire whether or not the residents are at home, and protects stores and offices whether or not they are open for business.

The **road improvements** category is unique, in that it utilizes vehicle trip generation data to calculate the amount of future traffic that is attributed to future growth and development (as described in the Technical Appendix).

Since '**housing unit'** and '**day-night population**' figures are used in the Level of Service and Future Demand calculations for the public facility categories in this CIE, as described above, they are highlighted in Table 5.

Table 5: Projections Used in CIE Calculations

Year	County Population	House-holds	Housing Units	Value-Added Jobs	Day-Night Population
2023	30,843	12,239	**14,153**	12,866	**43,709**
2024	31,564	12,575	**14,542**	13,322	**44,886**
2025	32,303	12,921	**14,942**	13,777	**46,080**
2026	33,058	13,223	**15,291**	14,268	**47,326**
2027	33,831	13,587	**15,712**	14,759	**48,590**
2028	34,623	13,905	**16,080**	15,249	**49,872**
2029	35,433	14,230	**16,456**	15,740	**51,173**
2030	36,261	14,563	**16,841**	16,231	**52,492**
2031	37,109	14,903	**17,234**	16,791	**53,900**
2032	37,977	15,252	**17,637**	17,350	**55,327**
2033	38,866	15,609	**18,050**	17,910	**56,776**
2034	39,775	15,974	**18,472**	18,469	**58,244**
2035	40,705	16,347	**18,904**	19,029	**59,734**
2036	41,657	16,730	**19,347**	19,671	**61,328**
2037	42,632	17,053	**19,720**	20,313	**62,945**
2038	43,629	17,452	**20,182**	20,956	**64,585**
2039	44,649	17,860	**20,653**	21,598	**66,247**
2040	45,694	18,278	**21,137**	22,240	**67,934**
2041	46,762	18,705	**21,631**	22,980	**69,742**
2042	47,856	19,142	**22,136**	23,721	**71,577**
2043	48,975	19,512	**22,564**	24,461	**73,436**
2044	50,121	19,969	**23,092**	25,202	**75,323**
2045	51,293	20,435	**23,631**	25,942	**77,235**
2046	52,493	20,914	**24,185**	26,804	**79,297**
2047	53,721	21,403	**24,751**	27,667	**81,388**
2048	54,977	21,903	**25,329**	28,529	**83,506**
2049	56,263	22,416	**25,922**	29,392	**85,655**
2050	57,579	23,032	**26,634**	30,254	**87,833**
2024-2050 Increase:	**26,015**	**10,457**	**12,092**	**16,933**	**42,948**

Library Services

Introduction

The Dawson County Library System provides library services through a central library facility in Dawsonville and a small satellite branch on Liberty Drive (east of Ga 400). The Dawson County Library and the Dawson County Satellite are part of the Chestatee Regional Library System and are maintained in part by financial contributions from Dawson County. The library facilities provide services to all residents of Dawson County through a variety of information and materials, facilities and programs.

Demand for library services is almost exclusively related to the county's resident population. Businesses make some use of public libraries for research purposes, but the use is incidental compared to that of the families and individuals who live in the county. Thus, a library services system impact fee is limited to future residential growth.

Service Area

Materials, facilities and services of the Dawson County library system are equally available to the county's population. The entire county is therefore considered a single service district for library services. An improvement in any part of the county increases service to all parts of the county to some extent.

Level of Service and Forecasted Demand

The County has adopted a level of service for library facilities based on the current level of service in facility space and collection materials. Existing service levels and quality of services are adequate to meet current needs and therefore establish the basis upon which the needs of future growth and development are to be met.

In Table 6, the library system's current building area (square feet in programmed space that is accessible to the public) and total collection materials are used to calculate future demand in square feet and collection volumes over the next two decades. Based on the adopted LOS, future growth will demand 11,789 additional square feet of library space by the year 2050 in order to maintain the adopted level of service. In addition, 36,257 collection materials will need to be added to serve new growth. Ultimately, more collection materials will need to be acquired in order to account for future collection material discards, as shown later in this chapter.

Table 6: Level of Service and New Growth Demand

Existing System Inventory*	Current Service Area	Level of Service	Service Area Growth	New Growth Demand
Collection Materials	**Number of Housing Units**	**Collection Materials per Housing Unit**	**Increase in Housing Units to 2050**	**Additional Collection Materials Needed**
42,437	14,153	2.9984	12,092	36,257
Building Area (Square Feet)	**Number of Housing Units**	**Square Feet of Floor Area per Housing Unit**	**Increase in Housing Units to 2050**	**Square Feet of Additional Floor Area Needed**
13,798	14,153	0.9749	12,092	11,789

* Includes Dawson County Library and Dawson County Satellite.

Table 7: Future Collection Materials Needed

Year	New Growth Demand			Plus Discarded Materials	Total Materials Needed (annual)
	New Dwelling Units	New Materials Needed (annual)	Running Total		
2024	*0*	*0*	*0*	*0*	*0*
2025	400	1,199	1,199	6	1,206
2026	349	1,046	2,246	5	1,052
2027	421	1,262	3,508	6	1,269
2028	368	1,103	4,612	6	1,109
2029	376	1,127	5,739	6	1,133
2030	385	1,154	6,893	6	1,160
2031	393	1,178	8,072	6	1,184
2032	403	1,208	9,280	6	1,215
2033	413	1,238	10,519	6	1,245
2034	422	1,265	11,784	7	1,272
2035	432	1,295	13,079	7	1,302
2036	443	1,328	14,408	7	1,335
2037	373	1,118	15,526	6	1,124
2038	462	1,385	16,911	7	1,392
2039	471	1,412	18,324	7	1,420
2040	484	1,451	19,775	7	1,459
2041	494	1,481	21,256	8	1,489
2042	505	1,514	22,770	8	1,522
2043	428	1,283	24,054	7	1,290
2044	528	1,583	25,637	8	1,591
2045	539	1,616	27,253	8	1,624
2046	554	1,661	28,914	9	1,670
2047	566	1,697	30,611	9	1,706
2048	578	1,733	32,344	9	1,742
2049	593	1,778	34,122	9	1,787
2050	712	2,135	36,257	11	2,146
Total	**12,092**	**36,257**		**186**	**36,444**

Note: Discard rate = 0.514%

Table 7 shows the number of collection materials demanded by new growth each year in the first columns, based on the adopted LOS. These are then increased by an average annual discard rate (0.5%) for 'weeded' volumes, which reflects the average rate over the past five years. By including the weeded volumes, the resulting 'total materials needed' reflects the total number of volumes required annually to maintain the LOS once these non-impact fee eligible volumes are discarded.

■ Projects to Meet Future Demand

New Collection Materials – *Costs and Schedule for Implementation*

The new collection materials needed to serve new growth and development, identified in Table 7, are used to calculate the future cost to meet service demand. Based on past library expenditures, the estimated average replacement cost per item is $27.80, which is factored into Table 8 on the next page.

The annual costs are then increased each year using the 10-year average Consumer Price Index (CPI) rate, and then reduced to current NPV dollars using the Discount Rate (See also Technical Appendix C – *Cost Adjustments and Credits* for further explanation). The percentage of the cost attributable to new growth in each year is based on the percentage of total volumes needed that are attributable to new growth's demand (the total number needed minus the discarded items as shown above).

Table 8: Cost of Collection Materials to Meet Future Demand

Year	Total Materials Needed (annual)	Total Current Cost	Net Present Value (NPV)*	% for New Growth	New Growth's Share (NPV)**
2025	1,206	$ 33,516.29	$ 34,102.95	99.49%	$ 33,928.56
2026	1,052	$ 29,242.96	$ 30,275.65	99.49%	$ 30,120.83
2027	1,269	$ 35,275.89	$ 37,160.90	99.49%	$ 36,970.87
2028	1,109	$ 30,834.99	$ 33,051.25	99.49%	$ 32,882.24
2029	1,133	$ 31,505.31	$ 34,360.86	99.49%	$ 34,185.15
2030	1,160	$ 32,259.43	$ 35,799.17	99.49%	$ 35,616.10
2031	1,184	$ 32,929.75	$ 37,182.69	99.49%	$ 36,992.55
2032	1,215	$ 33,767.66	$ 38,796.22	99.49%	$ 38,597.82
2033	1,245	$ 34,605.57	$ 40,454.84	99.49%	$ 40,247.96
2034	1,272	$ 35,359.68	$ 42,059.96	99.49%	$ 41,844.88
2035	1,302	$ 36,197.59	$ 43,810.30	99.49%	$ 43,586.27
2036	1,335	$ 37,119.29	$ 45,712.22	99.49%	$ 45,478.46
2037	1,124	$ 31,253.94	$ 39,162.77	99.49%	$ 38,962.51
2038	1,392	$ 38,711.31	$ 49,356.30	99.49%	$ 49,103.91
2039	1,420	$ 39,465.43	$ 51,198.54	99.49%	$ 50,936.73
2040	1,459	$ 40,554.71	$ 53,532.57	99.49%	$ 53,258.82
2041	1,489	$ 41,392.62	$ 55,595.00	99.49%	$ 55,310.71
2042	1,522	$ 42,314.31	$ 57,827.74	99.49%	$ 57,532.03
2043	1,290	$ 35,862.43	$ 49,868.31	99.49%	$ 49,613.30
2044	1,591	$ 44,241.50	$ 62,596.62	99.49%	$ 62,276.52
2045	1,624	$ 45,163.20	$ 65,019.22	99.49%	$ 64,686.73
2046	1,670	$ 46,420.06	$ 67,998.42	99.49%	$ 67,650.70
2047	1,706	$ 47,425.55	$ 70,687.33	99.49%	$ 70,325.85
2048	1,742	$ 48,431.04	$ 73,449.53	99.49%	$ 73,073.93
2049	1,787	$ 49,687.90	$ 76,674.67	99.49%	$ 76,282.58
2050	2,146	$ 59,658.99	$ 93,672.75	99.49%	$ 93,193.74
Total	**36,444**	**$ 1,013,197.39**	**$ 1,319,406.81**		**$ 1,312,659.75**

* Established by inflating the current cost estimate to each expenditure year above (based on 10-year average annual Consumer Price Index), then deflating it to the present year.

** This is the impact fee eligible cost of the project.

New Library Space – *Costs and Schedule for Implementation*

The building floor area needed to serve new growth (11,789 square feet, from Table 6) is used to calculate the future cost to meet service demand, as shown in Table 9.

Future building projects include a 952 square foot renovation project that will increase space for public use in the main branch library, a 3,500 square foot annex to serve areas outside of downtown Dawsonville, as well as an additional 7,337 square feet in future library space to serve growing residential areas. This "future library space" could be used to expand an existing facility and/or construct an additional stand-alone facility.

Altogether, 11,789 square feet in building area is the amount "demanded" by new growth in order for future residents to enjoy the same level of service as existing residents. Ultimately, building sizes below may change based on local needs; however, the total square footage allocated to future building space in any configuration cannot exceed 11,789 square feet in order to utilize impact fees. Any square footage beyond that will require another funding source.

The cost estimates for future building projects are shown in current dollars, and then increased using Engineering News Record's (ENR) 10-year average Building Cost Index (BCI), and then reduced by the Discount Rate to determine the Net Present Value. Actual implementation, however, may occur earlier for less money or later at greater cost.

Table 9: Cost of Building Projects to Meet Future Demand

Year	Capital Project	Number (Square Feet)*	Estimated Project Cost (current $)**	% Impact Fee Eligible	New Growth Share	Net Present Value***
2025	Library Renovation	952	$ 25,000.00	100%	$ 25,000.00	$ 25,303.00
2028	Library Annex	3,500	$ 1,000,000.00	100%	$ 1,000,000.00	$ 1,049,496.00
2038	Future Library Space	7,337	$ 2,237,785.00	100%	$ 2,237,785.00	$ 2,650,033.00
					TOTAL	**3,724,832.00**

*Building sizes may change based on local needs; however, the total square footage allocated to future building space in any configuration cannot exceed 11,789 square feet in order to utilize impact fees (see also Table 6). Any square footage beyond that will require another funding source.

**Sources: County's estimated contribution to the library renovation project (10% local match, based on award of $250,000 Public Library State Grant); the County's estimated budget for the annex; and, BNi Building News Square Foot 2023 Costbook ($305 per square foot) for future library space.

*** NPV based on 10-year average annual Building Cost Index (BCI), projected to future years of construction shown above. Implementation years subject to change during the annual budgeting process.

Parks and Recreation

Introduction

Public recreational opportunities are available in Dawson County through a number of parks facilities and programs operated by the County. Most parks and recreational components such as playgrounds, pickleball courts, and recreation centers are commonly viewed as 'residential amenities', thus demand for recreational facilities is almost exclusively related to the county's resident population. Businesses make some incidental use of public parks for office events, company softball leagues, etc., but the use is minimal compared to that of the families and individuals who live in the county. As such, the parks and recreation impact fee is limited to future residential growth.

Service Area

Parks and recreational facilities are made available to the county's population without regard to the political jurisdiction within which the resident lives. In addition, the facilities are provided equally to all residents, and often used on the basis of the programs available, as opposed to proximity of the facility. For instance, some programs are located only at certain centralized facilities, to which any Dawson County resident can come. Thus, the entire county is considered a single service area for parks and recreation.

Level of Service and Forecasted Demand

The County has determined that in most instances, existing amenities provided to residents now would also be appropriate to serve the future service area population – this is the adopted Level of Service (LOS), which is calculated by dividing the current inventory of each component by the current number of housing units in the county. Existing service levels and quality of services are adequate to meet current needs and therefore establish the basis upon which the needs of future growth and development are to be met.

A forward-looking approach, however, is utilized for canoe launches, park land, pickleball courts, park trails, and multi-use trails/greenways (which have a current inventory of "0" miles). This approach bases the Level of Service on the total number of existing *and future* amenities needed to serve all residents (i.e., housing units) through 2050. The number of future amenities is based on planning efforts that have identified future recreation components (such as a multi-use trail system in the *Dawson County Greenway and Trail Master Plan*), anticipated or planned project implementation, or observed needs for additional components to accommodate a growing community. These future items help establish the adopted LOS, because they – along with existing components that are adequate to meet current needs – are deemed the *total* number sufficient to serve residents for the coming decades.

The Level of Service standard for all components is then multiplied by the increase in housing units through 2050 to produce the future demand for recreation amenities created by future growth, as shown under 'Future Demand' on Table 10 on the next page.

Table 10: Level of Service and New Growth Demand

Recreation Component Type	Current Inventory	Level of Service (LOS)*	Future Demand**	Total Needed (Rounded)***	% Impact Fee Eligible
Baseball/Softball Fields	14	0.000962729	11.64	**12**	97.00%
Basketball Courts (outdoor)	1	0.000068766	0.83	**1**	83.00%
Batting Cages	3	0.000206299	2.49	**3**	83.00%
Canoe Launch	1	0.000112638	1.36	**2**	68.00%
Concessions/RR Building	2	0.000137533	1.66	**2**	83.00%
Dog Parks	1	0.000068766	0.83	**1**	83.00%
Multi-purpose Fields	2	0.000137533	1.66	**2**	83.00%
Park Land****	241.83 *acres*	0.012834347	155.00	**155**	100.00%
Parking	1,255 *spaces*	0.086301747	1,043.56	**1,043**	100.00%
Pavilions	4	0.000275065	3.32	**4**	83.00%
Pickleball Courts	2	0.000525644	6.35	**7**	90.71%
Playgrounds	2	0.000137533	1.66	**2**	83.00%
Rec Center / Gym	88,000 *sq.ft.*	6.051437216	73,173	**73,173**	100.00%
Soccer Fields	3	0.000206299	2.49	**3**	83.00%
Splashpads	1	0.000068766	0.83	**1**	83.00%
Tennis Courts	6	0.000412598	4.98	**5**	99.60%
Trails, Multi-use	0 *miles*	0.000735901	8.89	**8.89**	100.00%
Trails, Park	1.75 *miles*	0.000298491	3.60	**3.60**	100.00%

* LOS per housing unit, based on the current inventory divided by the current number of housing units (14,542), with the exception that the LOS calculations for canoe launches, park land, pickleball courts, and all trails are based on the the total number of such components that are anticipated to be adequate through 2050 (based on planned or anticipated projects, local needs, and the 2021 Dawson County Greenway and Trail Master Plan recommendations).

** Future Demand is calculated by multiplying the LOS by the increase in housing units (12,092) through 2050.

*** Rounded for all components except for parking spaces and trails.

**** County-owned parks that are open to the public (River Park, Rock Creek Park, and Veterans Memorial Park) or will be in the near-term (Styles Nature Trails).

Impact Fee Eligibility

For all components except trails, the future demand is rounded to whole numbers in the 'Total Needed' column. This is because the County cannot build a portion of a facility; it must build entire facilities. As a result, the '% Impact Fee Eligible' column may reflect a percentage less than 100%.

A component's impact fee eligibility ('% Impact Fee Eligible') is based on the extent to which future improvements are needed to specifically serve new growth and development (i.e. additional housing units between now and 2050), and only at the LOS applicable countywide.

For example, the adopted level of service indicates that only a portion of one additional splashpad (.83) is needed to serve the future population. Since a fraction of a splashpad cannot be built for it to fully serve its intended purpose, this number is rounded up to a single splashpad, of which 83% is the amount that new growth mathematically demands. This is therefore the percentage of the facility that is impact fee eligible, meaning no more than 83% of the cost of an additional splashpad can be funded with impact fees. The remaining 17% must come from another funding source.

It should be noted that future building area (in square feet) may be allocated across multiple projects, as needed. For example, a portion of the 73,173 square feet in needed 'rec center/gym' space on Table 10 could be used for a building expansion project, and the balance of the impact fee eligible square footage could be devoted to an additional building.

Or, by way of example, if a 90,000 square foot recreation facility is constructed and it is the County's intention to use impact fees to the greatest extent possible, still only 81.3% of the total cost of the project (73,173 s.f. divided by 90,000 s.f.) could be funded with impact fees. The remaining portion is not technically demanded by new growth and therefore must be funded by another source.

In addition, the square footage could apply to building replacement projects to the extent that the new building adds square footage to the existing building footprint. In other words, the impact fee eligible portion of the project is the difference in size between the existing and proposed replacement. Building replacement projects that result in the same or smaller building size, however, are not impact fee eligible.

Projects to Meet Future Demand

Costs and Schedule for Implementation

The projects needed to meet future growth demand are classified into three timeframes on Table 11 for implementation: 2025 for projects anticipated to begin in the near term (these projects are listed in the enclosed 5-Year Community Work Program, but years of implementation are subject to change during the annual budgeting and Annual CIE Update processes), 2030 when implementation is expected to start beyond the next five years, and 2035 for longer-range projects.

The selected years are the average years of completion for the purpose of calculating cost figures and because most improvements cannot be scheduled on an annual basis through 2050 with any certainty. Some improvements will occur earlier for less money, and some later at greater cost. All will average out.

Estimated current cost estimates are increased to the gross cost by 17% to account for contingencies and planning/architectural/engineering/legal fees, resulting in 'Total Cost (current dollars)' figures. These figures are converted to 'New Growth Share' dollars based on the percentage that each improvement is impact fee eligible.

To calculate the Net Present Value (NPV) of the impact fee eligible cost estimate for the construction of the recreation components, the current estimated costs are increased to the target years shown on Table 11 using Engineering News Record's (ENR) 10-year average building cost inflation (BCI) rate for recreation buildings (such as a gymnasium) and the 10-year average construction cost inflation (CCI) for all other projects. All project costs are then reduced to current NPV dollars using the Net Discount Rate.

Table 11: Costs to Meet Future Demand for Parks and Recreation

Year*	Component Type	Total Needed	Estimated Cost Per Unit**	Gross Cost Per Unit***	Total Cost (current dollars)	% Impact Fee Eligible	New Growth Share	Net Present Value (NPV)****
2025	Rec Center / Gym (square feet)	73,173	$ 150.00	$ 175.50	$ 12,841,861.50	100.00%	$ 12,841,861.50	$ 12,997,900.25
2025	Trails, Park (miles)	3.60	$ 223,000.00	$ 260,910.00	$ 939,276.00	100.00%	$ 939,276.00	$ 945,098.46
2030	Baseball/Softball Fields*****	12	$ 500,000.00	$ 585,000.00	$ 7,020,000.00	97.00%	$ 6,809,400.00	$ 7,066,621.22
2030	Basketball Courts, Outdoor	1	$ 70,000.00	$ 81,900.00	$ 81,900.00	83.00%	$ 67,977.00	$ 70,544.79
2030	Batting Cages	3	$ 27,000.00	$ 31,590.00	$ 94,770.00	83.00%	$ 78,659.10	$ 81,630.40
2030	Canoe Launch	2	$ 100,000.00	$ 117,000.00	$ 234,000.00	68.00%	$ 159,120.00	$ 165,130.67
2030	Concessions/RR Building	2	$ 460,000.00	$ 538,200.00	$ 1,076,400.00	83.00%	$ 893,412.00	$ 927,160.13
2030	Dog Parks	1	$ 25,000.00	$ 29,250.00	$ 29,250.00	83.00%	$ 24,277.50	$ 25,194.57
2030	Multi-purpose Fields*****	2	$ 1,000,000.00	$ 1,170,000.00	$ 2,340,000.00	83.00%	$ 1,942,200.00	$ 2,015,565.50
2030	Park Land (acres)	155	$ 25,000.00	$ 29,250.00	$ 4,533,750.00	100.00%	$ 4,533,750.00	$ 5,031,226.65
2030	Parking Space	1,043	$ 2,000.00	$ 2,340.00	$ 2,440,620.00	100.00%	$ 2,440,620.00	$ 2,532,813.03
2030	Pavilions	4	$ 70,000.00	$ 81,900.00	$ 327,600.00	83.00%	$ 271,908.00	$ 282,179.17
2030	Pickleball Courts	7	$ 125,000.00	$ 146,250.00	$ 1,023,750.00	90.71%	$ 928,687.50	$ 963,768.14
2030	Playgrounds	2	$ 106,000.00	$ 124,020.00	$ 248,040.00	83.00%	$ 205,873.20	$ 213,649.94
2030	Soccer Fields*****	3	$ 1,000,000.00	$ 1,170,000.00	$ 3,510,000.00	83.00%	$ 2,913,300.00	$ 3,023,348.25
2030	Splashpads	1	$ 500,000.00	$ 585,000.00	$ 585,000.00	83.00%	$ 485,550.00	$ 503,891.38
2030	Tennis Courts	5	$ 125,000.00	$ 146,250.00	$ 731,250.00	99.60%	$ 728,325.00	$ 755,837.06
2035	Trails, Multi-use (miles)	8.89	$ 1,500,000.00	$ 1,755,000.00	$ 15,601,950.00	100.00%	$ 15,601,950.00	$ 16,699,404.61
							TOTAL	**$ 54,300,964.22**

* Average implementation years, subject to change during the annual budgeting and Annual CIE Update processes.

** Sources of unit costs: 2018 Capital Improvements Element (CIE), actual costs from the County's Fixed Assets listing, Hwy 53 trail segment from the *Dawson County Greenway and Trail Master Plan*, and comparable facilities in GA communities, raised to current equivalent costs.

*** Includes 17% for contingency and planning/architectural/engineering/legal fees.

****NPV based on CPI for land, BCI for building square footage, and CCI for all other recreation components, in an average implementation year shown above.

*****Estimated costs for fields intended to accommodate use of artifical turf (and installation of lights)

Law Enforcement

Introduction

The Dawson County Sheriff's Office provides law enforcement services throughout Dawson County, which includes operation of the County detention facilities. The detention facilities and all law enforcement activities are administered from the Law Enforcement Center in Dawsonville; a precinct station is located in a different location than the Law Enforcement Center but contains no detention facilities.

The Sheriff's Office provides 24-hour countywide land and marine patrol; serves arrest warrants and civil papers issued by the court; detains suspects and those sentenced to the county detention center; transports inmates locally and throughout the state; provides security to the courts and the governmental center, and during county government meetings; investigates crimes; and operates the 911 emergency communications center.

Service Area

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

Level of Service and Forecasted Demand

The County has adopted a level of service for law enforcement services based on the current level of service in facility space and specialized vehicles (that have a service life of at least 10 years). Existing service levels and quality of services are adequate to meet current needs and therefore establish the basis upon which the needs of future growth and development are to be met.

The adopted LOS is calculated by dividing the current inventory of each facility type – that is, the number of inmate beds, total building area (square footage) supporting primary functions outside of the detention facility, and specialized vehicles – by the current day-night population. Day-night population is used as a measure in that law enforcement is a 24-hour service provided continuously to both residences and businesses in the service area.

The current inventories[6] include the following, which are summarized on Table 12:

- 192 inmate beds, 96 of which (or, 50%) are estimated to be used on an average daily basis
- 22,680 square feet in non-detention space, including square footage for Sheriff's Office HQ/administration, training and storage space, the K-9 building and kennels, and the 911 Center
- 5 vehicles (van, 4-wheeler, 2 UTVs, and BearCat) that have a service life of at least 10 years

The LOS standard calculated in Table 12 is then multiplied by the increase in day-night population to 2050 to produce the future demand for law enforcement facilities created by future growth, as shown in the far right column.

[6] Patrol vehicles are not inventoried because they do not factor into this chapter's calculations; only vehicles having a service life of at least 10 years are eligible for impact fee funding, and the sustained use and resulting wear and tear on patrol vehicles limit the number of years they are in service.

As shown on Table 12, while new growth will generate a total need for 92 future detention center beds, the 'residual' 96 beds currently available for use today (based on the daily utilization rate) are available to meet these future needs. Accordingly, no expansion of detention facilities is proposed at this time.

Table 12: Level of Service and New Growth Demand

Facility	Current Service Area Population	Level of Service	Service Area Growth	New Growth Demand
Applicable Detention Center Beds *	**Day-Night Population**	**Beds per Day-Night Population**	**Day-Night Pop Increase to 2050**	**Additional Beds Needed**
96	44,886	0.002139	42,948	92
		Less: Residual capacity in existing facility		(96)
		Net new beds needed **		-4
Sheriff's Office Operations (sq.ft.)	**Day-Night Population**	**Square Feet per Day-Night Population**	**Day-Night Pop Increase to 2050**	**Additional Square Feet Needed*** **
22,680	44,886	0.505286	42,948	21,701
Specialized Vehicles ** **	**Day-Night Population**	**Vehicles per Day-Night Population**	**Day-Night Pop Increase to 2050**	**Additional Vehicles Needed***** **
5	44,886	0.000111	42,948	4.78

* Of the Detention Center's 192 beds, utilization by persons arrested, convicted or serviting time for crimes committed in Dawson County is estimated at 50% on an average daily basis.

** Net number of additional beds needed does not justify expansion of detention facilities at this time.

*** Square feet to be allocated among EOC/911 Center, Training Facility, and future new construction or expansion projects to meet new growth demand.

**** Vehicles having a service life of at least 10 years.

***** Four vehicles will be purchased at 100% impact fee eligibility.

The future demand for services equates to additional building area (square footage) for Sheriff's Office law enforcement functions and additional vehicles.

The square footage shown under the 'New Growth Demand' column on Table 12 represents the maximum that can be funded with impact fees and may be allocated across future projects that add building area, as needed and identified by the County, as follows:

- expansion of an existing building;
- construction of an additional building (such as a precinct building to expand service);
- and/or replacement of an existing building.[7]

[7] NOTE: Building replacement projects are only impact fee eligible to the extent that the new building adds square footage to the existing building footprint. Building replacement projects that result in the same or smaller building size are not impact fee eligible.

Regarding future vehicle needs, 'New Growth Demand' technically requires 4.78 additional specialized vehicles based on the Level of Service, resulting in four new vehicles being 100% impact fee eligible and the potential for a fifth to be purchased. However, only a portion (78%) of a fifth vehicle is eligible for impact funding; the remaining 12% of the cost of that vehicle would have to be funded with sources other than impact fees. In this instance, the number of needed vehicles is rounded down to an even four due to the purchase of a fifth vehicle likely occurring at a point beyond 2050.

As previously noted, the net demand for additional beds in the detention facility does not justify expansion of detention facilities at this time.

■ Projects to Meet Future Demand

Costs and Schedule for Implementation

The following table lists estimated project costs and timeframes for future improvements needed to attain the Level of Service standards for law enforcement functions. They include a 911/Emergency Operations Center, a Training Facility, and specialized vehicles over the next five years, as well as future building projects to expand square footage that will be needed to meet the demand generated by population and business growth.

The timing and specific nature of these longer-range projects can be determined at a later date, but the combined square footage of *all* future buildings shown on Table 13 cannot exceed 21,701 square feet in order to utilize impact fees. Anything above this square footage is technically not required by new growth and development and therefore not eligible for impact fee funding. Other funds would have to be utilized.

In addition to building needs, Table 13 lists four vehicles to be added to the Sheriff's Office fleet of "specialized vehicles". Since patrol vehicles typically do not have a service life of 10 years, they are not eligible for impact fee funding and are not included in the list of future vehicle purchases.

The Net Present Value (NPV) of the impact fee eligible cost estimates are calculated by increasing the current estimated costs using Engineering News Record's (ENR) 10-year average building cost index (BCI) rate for future building area and the 10-year average Consumer Price Index (CPI) rate for all vehicles. All costs are then reduced using the Net Discount Rate (see Technical Appendix for additional information).

Table 13: Costs to Meet Future Demand for Law Enforcement Facilities

Year	Capital Improvement	Number	Estimated Project Cost (current $)*	% Impact Fee Eligible	New Growth Share	Net Present Value**
2025	EOC/911 Center (square feet)	4,836	n/a***	n/a***	n/a***	n/a***
2025	Dive Team Boat	1	$ 135,000	100.00%	$ 135,000	$ 137,363
2027	Training Facility (square feet)	5,000	$ 1,500,000	100.00%	$ 1,500,000	$ 1,555,346
2028	Incident Command Vehicle	1	$ 200,000	100.00%	$ 200,000	$ 214,375
2034	Future Building Expansion (square feet)	5,933	$ 1,779,750	100.00%	$ 1,779,750	$ 2,008,220
2035	Specialized Vehicle	1	$ 167,500	100.00%	$ 167,500	$ 202,727
2040	Specialized Vehicle	1	$ 167,500	100.00%	$ 167,500	$ 221,101
2044	Future Building Expansion (square feet)	5,933	$ 1,779,750	100.00%	$ 1,779,750	$ 2,266,018
					TOTAL	**$ 6,605,150**

* Source: Cost estimates based on Sheriff's Office information and current prevailing rates for various vehicle types.

** NPV for building area and vehicles based on 10-year average annual Building Cost Index (BCI) and Consumer Price Index (CPI), respectively, projected to the anticipated implementation year and then reduced to current NPV dollars.

*** To be fully funded with SPLOST revenue.

Fire Protection

Introduction

Fire protection services are provided to the entire county through the Dawson County Fire & Emergency Services Department. The capital value of the department's services is based upon fire stations, administrative office space, and apparatus having a life of 10 years or more.

The Fire & Emergency Services department provides service throughout Dawson County, including the City of Dawsonville and 50 miles of shoreline on Lake Sydney Lanier. Services are provided through three operating divisions: Fire/Rescue, the Emergency Management Agency, and Emergency Medical Services. For the purpose of impact fees, the term 'fire protection' as used in this chapter applies only to the Fire/Rescue Division.

Service Area

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

Level of Service and Forecasted Demand

The County has adopted a Level of Service (LOS) for fire protection facilities based on the total number – existing buildings and fire apparatus that are adequate to meet current needs *and* planned projects – that are anticipated to serve the county through 2050. Existing inventories and planned improvements are shown on Table 14.

Overall, future building plans call for the replacement (and enlargement) of three stations and the construction of ultimately seven new stations over the coming decades. These proposed new stations are strategically located throughout the county, although future growth patterns could produce changes in the location of some stations or the order in which construction would need to occur. A key factor in determining future station locations is consideration of achieving ISO standards with regard to response times and road miles to be travelled within each fire service district.

This forward-looking approach for the adopted Level of Service is presented on Table 15 by dividing the combined 'existing and planned' building area (square footage) and vehicles (expected to be in service for at least 10 years) by the 2050 day-night population for the countywide service area. Day-night population is used as a measure in that public safety is a 24-hour service provided continuously to both residences and businesses in the service areas.

Table 14: Existing and Planned Fire Protection Facilities

Description	Square Feet	Vehicles*					
		Engine	Quint	Tender	Brush	Squad	Marine
Existing							
Station 1 - Memory Ln.	10,708	1		1	1		
Station 2 - Liberty Dr.	9,801	1	1			1	
Station 3 - Harmony Church Rd.	3,884	2					1
Station 4 - Emma Terrace	2,160	1		1			
Station 5 - Kelly Bridge Rd.	1,800			1			
Station 6 - Hubbard Rd.	6,500	1					
Station 7 - Dawson Forest Rd.	6,944	1		1			
Station 8 - Sweetwater Juno Rd.	6,048	1		1		1	
Total Existing System	**47,845**	**8**	**1**	**5**	**1**	**2**	**1**
Planned							
Station 1 Vehicle Addition			1				
Station 3 Replacement	6,100	1					
Station 4 Replacement	6,100	1					
Station 5 Replacement	6,100	1					
Station 9 - SR 138 Area	6,100	1		1			
Station 10 - Etowah River Rd. Area	6,100	1			1		
Station 11 - War Hill Park Area	6,100	1		1			
Station 12 - SR 136 @ Shoal Creek Area	6,100	1		1			
Station 13 - Dawson Forest @ Red Rider Area	6,100	1				1	
Station 14 - SR 136 @ Cothran Rd. Area	6,100	1		1			
Total Planned Improvements	**54,900**	**9**	**1**	**4**	**1**	**1**	**0**
Total Existing and Planned System*	**94,901**	**17**	**2**	**9**	**2**	**3**	**1**

* Heavy vehicles expected to be kept for 10 years or more in service. Includes frontline and reserve vehicles.

** Excludes existing square footage in Stations 3, 4 and 5, which are being replaced with larger facilities.

Table 15: Level of Service and New Growth Demand

Facility	Current Service Area Population	Level of Service		Service Area Growth	New Growth Demand
Existing & Planned Building Area (square feet) *	**2050 Day-Night Population**	**Square Feet per Day-Night Population**		**Day-Night Population Increase to 2050**	**Square Feet of Additional Floor Area Needed**
94,901	87,833	1.0805		42,948	**46,404**

Existing & Planned Fire Apparatus *	2050 Day-Night Population	Fire Apparatus per Day-Night Population		Day-Night Population Increase to 2050	Additional Fire Apparatus Needed **
34	87,833	0.000387		42,948	**16.62**

* See Table 14 for details.

** 16 fire apparatus at 100% impact fee eligibility will be added. See also Table 14.

The LOS standard in Table 15 on the previous page is multiplied by the increase in day-night population to 2050 to produce the demand for all fire protection facilities created by *future growth*, as shown under the 'New Growth Demand' column. The future demand for services equates to additional building area (46,404 square feet) for additional fire stations as well as 16 additional fire apparatus.

■ Projects to Meet Future Demand

Costs and Schedule for Implementation

Table 16 shows the proposed schedule of capital improvements, in pace with annual demands generated by population and business growth. As noted below the table, some of the building area and vehicles required to meet the future demand for services are being deferred to 2053, based on the anticipated pace of development. Project costs are shown on Table 17.

Table 16: Schedule for Fire Protection Improvements

Year*	Day-Night Population		Capital Project**	Additional Building Area (sf)**	Additional Fire Apparatus				
	Total	Cumulative Additions			Engine	Quint	Tender	Brush	Squad
2023	43,709	0							
2024	44,886	1,177							
2025	46,080	2,371	Station 1 Vehicle			1			
			Station 3 Replacement	2,216	1				
2026	47,326	3,617	Station 4 Replacement	3,940	1				
2027	48,590	4,881							
2028	49,872	6,163	Station 5 Replacement	4,300	1				
			Station 9 (new)	6,100	1		1		
2029	51,173	7,464							
2030	52,492	8,783							
2031	53,900	10,191							
2032	55,327	11,618							
2033	56,776	13,067	Station 10 (new)	6,100	1			1	
2034	58,244	14,535							
2035	59,734	16,025							
2036	61,328	17,619							
2037	62,945	19,236							
2038	64,585	20,876	Station 11 (new)	6,100	1		1		
2039	66,247	22,538							
2040	67,934	24,225							
2041	69,742	26,033							
2042	71,577	27,868							
2043	73,436	29,727	Station 12 (new)	6,100	1		1		
2044	75,323	31,614							
2045	77,235	33,526							
2046	79,297	35,588							
2047	81,388	37,679							
2048	83,506	39,797	Station 13 (new)	6,100	1				1
2049	85,655	41,946							
2050	87,833	44,124							
Totals				**40,956**	**8**	**1**	**3**	**1**	**1**

*Actual implementation dates will be determined through the annual budget adoption process.

**Station 14 (up to 6,719 square feet would be impact fee eligible) and the purchase of 1 engine and 1 tender are deferred to 2053 and are therefore not shown above. In addition, the existing square footage being replaced in Stations 3, 4 and 5 is deducted from the overall square footage of the new buildings; only square footage that increases a building's size (and thus capacity), is impact fee eligible.

***The size of each facility may vary.

The following table lists estimated project costs and timeframes for providing future fire protection components needed to attain the applicable Level of Service standards. The Net Present Value (NPV) of the impact fee eligible cost estimates are calculated by increasing the current estimated costs using Engineering News Record's (ENR) 10-year average building cost index (BCI) rate for future building area and the 10-year average Consumer Price Index (CPI) rate for all vehicles. Project costs are then reduced using the Net Discount Rate (see Technical Appendix for additional information).

Table 17: Costs to Meet Future Demand for Fire Protection Facilities

Year	Description	Total Needed	Estimated Project Cost	% Impact Fee Eligible	New Growth Share	Net Present Value (NPV)***
2025	Station 1 Quint	1	$ 1,300,000	100%	$ 1,300,000	$ 1,315,796.00
	Station 3 Replacement	n/a**	n/a**	n/a**	n/a**	n/a**
	Station 3 Engine	1	$ 750,000	100%	$ 750,000	$ 763,127.00
2026	Station 4 Replacement (sq.ft.)	6,100	$ 3,500,000	64.59%	$ 2,260,656	$ 2,315,927.00
	Station 4 Engine	1	$ 750,000	100%	$ 750,000	$ 776,485.00
2028	Station 5 Replacement (sq.ft.)	6,100	$ 3,500,000	70.49%	$ 2,467,213	$ 2,589,330.00
	Station 5 Engine	1	$ 750,000	100%	$ 750,000	$ 803,906.00
	Station 9 (sq.ft.)	6,100	$ 3,500,000	100%	$ 3,500,000	$ 3,673,236.00
	Station 9 Engine	1	$ 750,000	100%	$ 750,000	$ 803,906.00
	Station 9 Tender	1	$ 300,000	100%	$ 300,000	$ 321,562.00
2033	Station 10 (sq.ft.)	6,100	$ 3,500,000	100%	$ 3,500,000	$ 3,901,889.00
	Station 10 Engine	1	$ 750,000	100%	$ 750,000	$ 876,770.00
	Station 10 Brush	1	$ 150,000	100%	$ 150,000	$ 175,354.00
2038	Station 11 (sq.ft.)	6,100	$ 3,500,000	100%	$ 3,500,000	$ 4,144,776.00
	Station 11 Engine	1	$ 750,000	100%	$ 750,000	$ 956,237.00
	Station 11 Tender	1	$ 300,000	100%	$ 300,000	$ 382,495.00
2043	Station 12 (sq.ft.)	6,100	$ 3,500,000	100%	$ 3,500,000	$ 4,402,782.00
	Station 12 Engine	1	$ 750,000	100%	$ 750,000	$ 1,042,908.00
	Station 12 Tender	1	$ 300,000	100%	$ 300,000	$ 417,163.00
2048	Station 13 (sq.ft.)	6,100	$ 3,500,000	100%	$ 3,500,000	$ 4,676,848.00
	Station 13 Engine	1	$ 750,000	100%	$ 750,000	$ 1,137,434.00
	Station 13 Squad	1	$ 250,000	100%	$ 250,000	$ 379,144.00
					TOTAL	**$ 35,857,075.00**

*Source: Building cost estimates based on Fire & Emergency Services Department information. Vehicle cost estimates based on current prevailing rates for various apparatus types.

**To be fully funded with SPLOST revenue.

*** NPV for building area and vehicles based on 10-year average annual Building Cost Index (BCI) and Consumer Price Index (CPI), respectively, projected to the anticipated implementation year and then reduced to current NPV dollars.

A final table depicting future projects and costs is associated with the Etowah Water and Sewer Authority's program of extending new major water mains and replacing some undersized distribution water mains in various parts of the county. The County has undertaken a cooperative program of funding fire hydrants to be placed as these new mains are installed, thus bringing a considerable increase in firefighting capability to these currently unserved areas. Since these extensions will increase capacity for all properties in the water service areas, thus promoting new growth and development, the expenditures are 100% impact fee eligible.

Table 18: Fire Hydrant Extension Program

Year	Avg. Number of Hydrants	Total Cost (NPV)
2025	11	$ 94,079.00
2026	11	$ 94,662.00
2027	11	$ 95,249.00
2028	11	$ 95,840.00
2029	11	$ 96,434.00
2030	11	$ 97,031.00
2031	11	$ 97,633.00
2032	11	$ 98,238.00
2033	11	$ 98,847.00
2034	11	$ 99,460.00
2035	11	$ 100,076.00
2036	11	$ 100,697.00
2037	11	$ 101,321.00
2038	11	$ 101,949.00
2039	11	$ 102,581.00
2040	11	$ 103,217.00
2041	11	$ 103,857.00
2042	11	$ 104,501.00
2043	11	$ 105,148.00
2044	11	$ 105,800.00
2045	11	$ 106,456.00
2046	11	$ 107,116.00
2047	11	$ 107,780.00
2048	11	$ 108,448.00
2049	11	$ 109,120.00
2050	11	$ 109,797.00
Total	**286**	**$ 2,645,337.00**

The Net Present Value cost is the current cost estimate inflated to each future year using the ENR's Construction Cost Index (CCI), reduced by the discount rate to 2024 equivalent dollars.

Road Improvements

Introduction

The information in this chapter is derived from local road project information reflecting proposed road improvement projects that create new capacity.

Service Area

The service area for these road projects is defined as the entire county, in that these road projects are part of the countywide network of principal streets and thoroughfares. All new development within the county will be served by this countywide network, such that improvements to any part of this network to relieve congestion or to otherwise improve capacity will positively affect capacity and reduce congestion throughout the county.

Level of Service

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

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

The traffic volume that produces different Level of Service grades differs according to road type, size, signalization, topography, condition and access. The County has set its Level of Service for road improvements at LOS D. Using this standard maximizes roadway capacity before traffic conditions actually break down (LOS "F").

Future Road Improvement Projects – Costs and Schedule

Projects providing road capacity that will serve new growth have been identified by the County and are shown on Table 19. This is not a list of all local road projects. These projects were selected for inclusion in the County's impact fee program because the specific improvements proposed will increase traffic capacity to some extent, whether through road widening or improved intersection operations. Projects are largely drawn from the Transportation Element of the 2023 Comprehensive Plan, which was developed to identify long-range transportation needs and plan for future growth.

As more fully explained in the Trip Generation Appendix, only 52.14% of improvement costs are eligible for cost recovery from new growth, based on the increase in traffic that new growth will add to the traffic level existing today. At that rate, approximately $1.5 million in road improvement projects would be eligible for funding. This figure represents the Net Present Value costs, which convert current project costs using ENR's construction cost index (CCI) applied to the relevant year of construction.

Table 19: Road Projects and Eligible Costs

Capacity-Adding Projects	Total Cost (current $)*	Estimated Year of Completion	Net Present Value **	% Impact Fee Eligible	New Growth Cost (NPV)
Lumpkin Campground Rd. @ SR 53 Intersection Improvements	$ 340,000.00	2026	$ 344,228.30	52.14%	$ 179,495.43
Lumpkin Campground Rd. @ Dawson Forest Rd. Widening & Turn Lanes	$ 500,000.00	2026	$ 506,218.09	52.14%	$ 263,963.87
Lumpkin Campground Rd. @ Dawson Forest Rd. Widening	$ 310,000.00	2027	$ 315,800.76	52.14%	$ 164,672.09
Lumpkin Campground Rd. @ Whitmire/Red Rider Roundabout	$ 240,000.00	2028	$ 246,006.48	52.14%	$ 128,278.36
Goshen Church Road Bridge Widening	$1,500,000.00	2032	$ 1,576,020.57	52.14%	$ 821,804.87
				TOTAL	**$ 1,558,214.62**

* Total estimated cost of project that will *not* be funded by TSPLOST (in current dollars and less expenditures to date).

** Net Present Value = current cost inflated to target year using the ENR Construction Cost Index, (CCI) reduced to the current year using the Discount Rate.

5-Year Community Work Program (CWP)

NOTE:

- The capital projects listed below are those anticipated to be implemented in the *near-term* (between 2024/25 and 2029) **If a specific project in the body of this CIE is not included below, it is because implementation is expected to occur after 2029**.
- For a *complete list* of impact fee eligible capital projects, refer to the public facility chapters in the body of this CIE.
- The *maximum number* of each type of impact fee eligible project is included in the public facility chapters of the CIE and cannot be exceeded by what is shown below or cumulatively in future Community Work Programs. (Any additional projects of the same type that may be desired must be funded from sources other than impact fees.)
- *Impact fee funding* for each project cannot exceed the maximum established below (see the Funding Source column) and as shown in the public facility chapters of this CIE.

5-Year Community Work Program: Impact Fee Eligible Projects

Category	Project	2025	2026	2027	2028	2029	Responsible Party	Cost Estimate*	Funding Source**	Notes
Library Services	Collection Materials	✓	✓	✓	✓	✓	Chestatee Regional Library System/BOC	$168,951	Up to 99.49% Impact Fees; Local Taxation Sources	On-going annual purchases (2025-2029). Cost estimate associated with the purchase of 6,941 materials in total.
Library Services	Library Renovation	✓	✓				Chestatee Regional Library System/BOC	$25,303	Up to 100% Impact Fees; Local Taxation Sources	Cost is the County's estimated contribution to the project.
Library Services	Library Annex				✓	✓	Chestatee Regional Library System/BOC	$1,046,496	Up to 100% Impact Fees; Local Taxation Sources	Estimated 3,500 sq.ft. in size
Parks and Recreation	Park Trails	✓	✓	✓	✓	✓	Parks & Recreation Department	$260,910/mile	Up to 100% Impact Fees; Local Taxation Sources	3.72 miles in park trail miles can be constructed with impact fees (implementation may be on-going over several years)
Parks and Recreation	Rec Center / Gym Building Space	✓	✓				Parks & Recreation Department	$175/ sq.ft.	Up to 100% Impact Fees; Local Taxation Sources	73,173 square feet is the maximum building area that can be funded with impact fees
Law Enforcement	Dive Team Boat (1)	✓					Sheriff's Office	$135,788	Up to 100% Impact Fees; Local Taxation Sources	
Law Enforcement	Training Facility			✓	✓		Sheriff's Office	$1,520,660	Up to 100% Impact Fees; Local Taxation Sources	Estimated 5,000 sq.ft. in size

Category	Project	2025	2026	2027	2028	2029	Responsible Party	Cost Estimate*	Funding Source**	Notes
Law Enforcement	Incident Command Vehicle (1)				✓		Sheriff's Office	$204,711	Up to 100% Impact Fees; Local Taxation Sources	
Fire Protection	Fire Hydrant Extension Program	✓	✓	✓	✓	✓	BOC/Etowah Water and Sewer Authority	$476,264	Up to 100% Impact Fees; Local Taxation Sources	On-going. Cost estimate associated with a total of 55 hydrants (2025-2029).
Fire Protection	Station 1 Quint	✓					Fire & Emergency Services Department	$1,315,796	Up to 100% Impact Fees; Local Taxation Sources	
Fire Protection	Station 3 Engine	✓					Fire & Emergency Services Department	$763,127	Up to 100% Impact Fees; Local Taxation Sources	
Fire Protection	Station 4 Replacement		✓	✓			Fire & Emergency Services Department	$3,585,572	Up to 64.59% Impact Fees; Local Taxation Sources	3,940 sq.ft. of 6,100 sq.ft. building is impact fee eligible
Fire Protection	Station 4 Engine		✓				Fire & Emergency Services Department	$776,485	Up to 100% Impact Fees; Local Taxation Sources	
Fire Protection	Station 5 Replacement				✓	✓	Fire & Emergency Services Department	$3,673,236	Up to 70.49% Impact Fees; Local Taxation Sources	4,300 sq.ft. of 6,100 sq.ft. building is impact fee eligible
Fire Protection	Station 5 Engine				✓		Fire & Emergency Services Department	$803,906	Up to 100% Impact Fees; Local Taxation Sources	
Fire Protection	Station 9 (New)				✓	✓	Fire & Emergency Services Department	$3,673,236	Up to 100% Impact Fees; Local Taxation Sources	
Fire Protection	Station 9 Engine				✓		Fire & Emergency Services Department	$803,906	Up to 100% Impact Fees; Local Taxation Sources	
Fire Protection	Station 9 Tender				✓		Fire & Emergency Services Department	$321,562	Up to 100% Impact Fees; Local Taxation Sources	
Road Improvements	Lumpkin Campground Rd. @ SR 53 Intersection Improvements		✓				Public Works Department	$344,228	Up to 53.07% Impact Fees; Local Taxation Sources	
Road Improvements	Lumpkin Campground Rd. @ Dawson Forest Rd. Widening & Turn Lanes		✓				Public Works Department	$506,218	Up to 53.07% Impact Fees; Local Taxation Sources	

Category	Project	2025	2026	2027	2028	2029	Responsible Party	Cost Estimate*	Funding Source**	Notes
Road Improvements	Lumpkin Campground Rd. @ Dawson Forest Rd. Widening			✓			Public Works Department	$315,800	Up to 53.07% Impact Fees; Local Taxation Sources	
Road Improvements	Lumpkin Campground Rd. @ Whitmire/Red Rider Rounda-bout				✓		Public Works Department	$246,006	Up to 53.07% Impact Fees; Local Taxation Sources	

* Net Present Value costs (rounded) used when total project costs are provided, based on information in the respective public facility chapter of this CIE; actual costs may vary.
** Local Taxation Sources include but are not limited to the County General Fund, SPLOST, TSPLOST, or other local taxation sources, as determined during the annual budget adoption process.

Exemption Policy

The following policy is excerpted from the Development Impact Fee Ordinance of Dawson County, Georgia (the "Impact Fee Ordinance"). It is provided here to comply with State requirements regarding exemptions being supported by the local government's Comprehensive Plan, of which a CIE is a component.

Dawson County recognizes that certain office, retail trade, lodging, service, and industrial development projects provide extraordinary benefit in support of the economic advancement of the county's citizens over and above the access to jobs, goods and services that such uses offer in general. To encourage such development projects, the board of commissioners may consider granting a reduction in the impact fee for such a development project upon the determination and relative to the extent that the business or project represents extraordinary economic development and employment growth of public benefit to Dawson County in accordance with adopted exemption criteria. It is also recognized that the cost of system improvements otherwise foregone through exemption of any impact fee must be funded through revenue sources other than impact fees.

Glossary

The following are terms that may appear in this CIE. Where possible, the definitions are taken directly from the Georgia Development Impact Fee Act.

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.

Public facilities *(also referred to as **eligible facilities** in this CIE)*:[8] capital improvements in one of the following categories:

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

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

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

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

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

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

(G) Libraries and related facilities.

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

[8] This is the full list of eligible facilities as defined by the Development Impact Fee Act. This report addresses only those that are included in the County's impact fee program.

facility included in a plan for public facilities approved by the governing body of the municipality or city shall be considered a project improvement.

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

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

Service area: a geographic area defined by a municipality, city, or intergovernmental agreement in which a defined set of public facilities provide service to development within the area. Service areas shall be designated on the basis of sound planning or engineering principles or both.

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

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

Appendix A – Future Growth

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 persons receiving services, both in their homes and in their businesses, to produce an accurate picture of the total number of persons that rely on certain 24-hour services, such as fire protection.

Countywide forecasts are prepared to address those public facility categories that are delivered by the County throughout the county. This includes all of the public facility categories addressed in this report —library services, parks & recreation, fire protection, law enforcement and road improvements.

Population and Housing Forecasts

In order to accurately calculate the demand for future services for Dawson County, new growth and development must be quantified in future projections. These projections include forecasts for population, households, housing units, and employment to the year 2050. These projections provide the baseline conditions from which the Level of Service calculations are produced.

Historic Population Growth

Every year, the US Census Bureau estimates the population in Dawson County between decennial censuses (e.g., 2010 and 2020). 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 estimated for 2020 and 2021 and added an estimate for 2022.

Since the public facility categories addressed in this report are countywide (including Dawsonville), Table A-1 shows the annual population estimates published by the Bureau of the Census for the county.

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*
Dawson County	16,222	16,842	17,472	18,336	18,735	19,580	20,633	21,498	21,956	22,340	22,358

Geography	Population Estimate (as of July 1)											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Dawson County	22,334	22,511	22,730	23,024	23,371	23,664	24,410	25,106	26,091	27,056	28,475	30,138

* 2010 estimate revised by Census Bureau in 2020.
Note: All data as of July 1 of each year. 2000, 2010 and 2020 estimates differ from Decennial Census counts, which were as of April 1.
Sources: For 2000 to 2010: Intercensal Estimates, US Bureau of the Census: Annual Estimates Program. For 2011-2019 intercensus estimates adjusted to revised 2020 population estimates published by Census Bureau in 2022, along with new estimates for 2021 and 2022.

As the following Table A-2 indicates, Dawson County posted a significant percentage increase in population between 2000 and 2022 overall, of almost 86%. Growth from 2000 to 2010 registered a growth increase for just those 10 years of about 37.4%, while the more recent 2010-2022 period experienced a slight drop to about 34.8%. The Great Recession, which began in mid-2008, had some impact on the housing industry and then the economy in general, affecting the county as well. However, as Table A-1 shows, over the past 22 years, the county has continued to grow every year except for 2011 based on Census estimates.

Table A-2: Comparison of Population Growth Rates - 2000-2022

Geography	2000-2010 Increase	Percent	2010-2022 Increase	Percent	2000-2022 Increase	Percent
Dawson County	6,136	37.83%	7,780	34.80%	13,916	85.78%

Population Forecasts

Two forecast methods were used to project the county's past population growth forward to 2050, one using a 'linear trend' (straight line) and the other a 'growth trend' (curved line) forecast algorithm. Table A-3 shows the raw results using the Census estimates for 2000-2022.

The algorithms used to prepare the projections present a 'smooth' straight or curved line from the 'start' date (2000), which also changes the Census population figures for each year from 2000 to 2022 on the tables. 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 Table A-3 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.

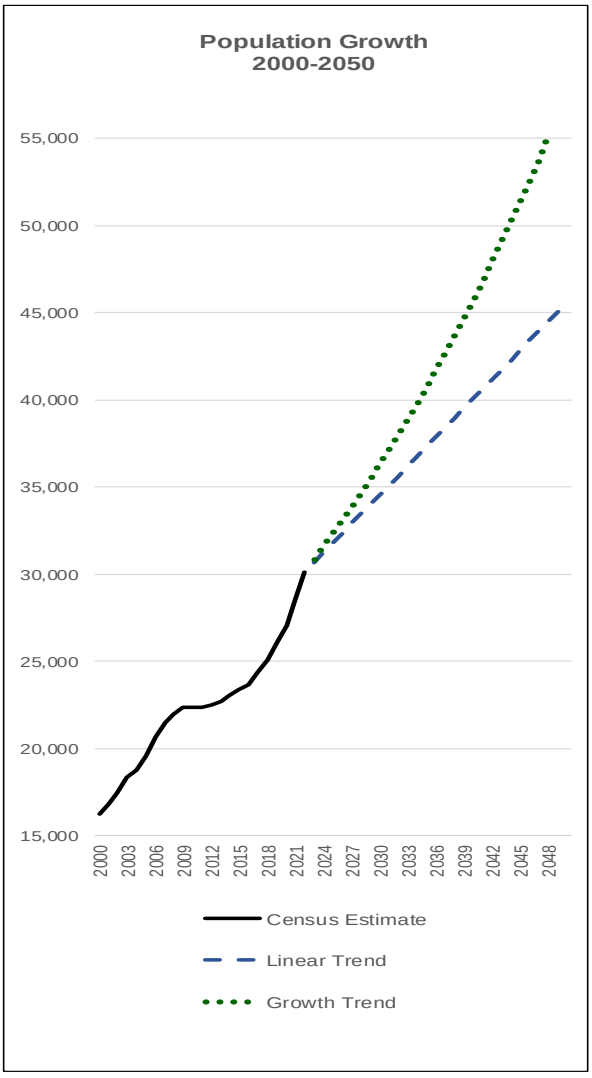
The graph plots the two projections as well as the annual Census estimates.

The line plotting the Census estimates reflects a period of strong growth up until the Recession, during which growth slowed considerably at first and then began to recover. Starting around the middle of the decade, growth returned at an accelerated pace reflecting a combination of returning prosperity, pent-up demand, an aging/retiring population and, most recently, changing work patterns.

Overall, the 'growth trend' forecast best reflects these societal, living/working relationships and economic changes, as well as suburban development pressure heading northward from Forsyth County and the greater Metro Atlanta region. These factors are anticipated to drive future growth. The adjusted growth trend population figures to 2050 are highlighted on the table.

Table A-3: Dawson County Population Projections Based on 2000-2022 Growth

Year	Census Estimate	Linear Trend Raw	Growth Trend Raw	Linear Trend Adjusted	Growth Trend Adjusted
2000	16,222	16,755	17,146	16,222	16,222
2001	16,842	17,267	17,547	16,842	16,842
2002	17,472	17,779	17,958	17,472	17,472
2003	18,336	18,291	18,378	18,336	18,336
2004	18,735	18,803	18,807	18,735	18,735
2005	19,580	19,315	19,247	19,580	19,580
2006	20,633	19,827	19,698	20,633	20,633
2007	21,498	20,338	20,158	21,498	21,498
2008	21,956	20,850	20,630	21,956	21,956
2009	22,340	21,362	21,112	22,340	22,340
2010	22,358	21,874	21,606	22,358	22,358
2011	22,334	22,386	22,112	22,334	22,334
2012	22,511	22,898	22,629	22,511	22,511
2013	22,730	23,410	23,158	22,730	22,730
2014	23,024	23,922	23,700	23,024	23,024
2015	23,371	24,434	24,254	23,371	23,371
2016	23,664	24,946	24,821	23,664	23,664
2017	24,410	25,458	25,402	24,410	24,410
2018	25,106	25,970	25,996	25,106	25,106
2019	26,091	26,482	26,604	26,091	26,091
2020	27,056	26,993	27,226	27,056	27,056
2021	28,475	27,505	27,863	28,475	28,475
2022	30,138	28,017	28,515	30,138	30,138
2023		28,529	29,182	30,689	**30,843**
2024		29,041	29,864	31,239	**31,564**
2025		29,553	30,563	31,790	**32,303**
2026		30,065	31,278	32,341	**33,058**
2027		30,577	32,009	32,891	**33,831**
2028		31,089	32,758	33,442	**34,623**
2029		31,601	33,524	33,993	**35,433**
2030		32,113	34,308	34,543	**36,261**
2031		32,625	35,111	35,094	**37,109**
2032		33,136	35,932	35,645	**37,977**
2033		33,648	36,772	36,195	**38,866**
2034		34,160	37,633	36,746	**39,775**
2035		34,672	38,513	37,297	**40,705**
2036		35,184	39,414	37,847	**41,657**
2037		35,696	40,336	38,398	**42,632**
2038		36,208	41,279	38,949	**43,629**
2039		36,720	42,244	39,499	**44,649**
2040		37,232	43,233	40,050	**45,694**
2041		37,744	44,244	40,601	**46,762**
2042		38,256	45,279	41,151	**47,856**
2043		38,768	46,338	41,702	**48,975**
2044		39,280	47,422	42,253	**50,121**
2045		39,791	48,531	42,803	**51,293**
2046		40,303	49,666	43,354	**52,493**
2047		40,815	50,827	43,905	**53,721**
2048		41,327	52,016	44,455	**54,977**
2049		41,839	53,233	45,006	**56,263**
2050		42,351	54,478	45,557	**57,579**
Adjustment to 2022		28,017	28,515	107.569%	105.692%



Housing Unit Forecasts

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; excludes group quarters) and then to expand that to the total number of housing units by adding in vacant units.

Table A-4: Housing Unit Forecasts: 2023-2050

Year	Dawson County				
	Population	Average HH Size*	House-holds	Occupancy Rate	Total Housing Units
2020	27,056	2.61	10,313	86.47493%	11,926
2021	28,475	2.54	11,211	86.47493%	12,964
2022	30,138	2.53	11,912	86.47493%	13,775
2023	30,843	2.52	12,239	86.47493%	14,153
2024	31,564	2.51	12,575	86.47493%	14,542
2025	32,303	2.50	12,921	86.47493%	14,942
2026	33,058	2.50	13,223	86.47493%	15,291
2027	33,831	2.49	13,587	86.47493%	15,712
2028	34,623	2.49	13,905	86.47493%	16,080
2029	35,433	2.49	14,230	86.47493%	16,456
2030	36,261	2.49	14,563	86.47493%	16,841
2031	37,109	2.49	14,903	86.47493%	17,234
2032	37,977	2.49	15,252	86.47493%	17,637
2033	38,866	2.49	15,609	86.47493%	18,050
2034	39,775	2.49	15,974	86.47493%	18,472
2035	40,705	2.49	16,347	86.47493%	18,904
2036	41,657	2.49	16,730	86.47493%	19,347
2037	42,632	2.50	17,053	86.47493%	19,720
2038	43,629	2.50	17,452	86.47493%	20,182
2039	44,649	2.50	17,860	86.47493%	20,653
2040	45,694	2.50	18,278	86.47493%	21,137
2041	46,762	2.50	18,705	86.47493%	21,631
2042	47,856	2.50	19,142	86.47493%	22,136
2043	48,975	2.51	19,512	86.47493%	22,564
2044	50,121	2.51	19,969	86.47493%	23,092
2045	51,293	2.51	20,435	86.47493%	23,631
2046	52,493	2.51	20,914	86.47493%	24,185
2047	53,721	2.51	21,403	86.47493%	24,751
2048	54,977	2.51	21,903	86.47493%	25,329
2049	56,263	2.51	22,416	86.47493%	25,922
2050	57,579	2.50	23,032	86.47493%	26,634
2024-50 Increase	26,015		10,457		12,092

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

Sources: 2020-22 Population Estimates, US Bureau of the Census.
2023-2050 Population - 2000-2022 Growth Trend Adjusted forecast.

The future increase in the number of housing units in the county (including Dawsonville and the unincorporated area) is based on the population forecasts presented in the previous section.

Household Projections

As shown on Table A-4, future population numbers from Table A-3 are converted into the number of households expected in future years for the county.

This conversion from population to the number of households is based on the average household size data taken from the Woods & Poole annual forecasts for the county.

New Housing Units

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

This is accomplished by increasing the number of households in the county with the vacancy rate reported in the 2020 Census. Again, these ratios are assumed to continue at the same ratio each year into the future.

To calculate the number of housing units anticipated in the future, the approach is to take 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, using an average fee per housing unit based on average household sizes results in 'averaging' the demand for services which would otherwise vary as the population in the unit changes over the coming years ahead.

Employment Forecasts

The following Table A-5 shows the forecasts for employment growth countywide in Dawson County, to 2050. The employment figures for Dawson County are based on forecasts published by Woods & Poole Economics' *Georgia State Profile*, which includes separate data 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.

On Table A-5, on the next page, the W&P forecasts for the 'types of employment' are shown 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.

The second category—'government'—sets those city, county, 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. This category includes public (but not private) schools.

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 County 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-5: County-wide Employment Forecast (Jobs)

Employment Classification	2023	2025	2030	2035	2040	2045	2050
Total Employment	**15,608**	**16,587**	**19,222**	**22,210**	**25,623**	**29,541**	**34,082**
Farm Employment	231	233	237	241	246	250	254
Forestry, Fishing	59	61	65	70	76	82	89
Mining	23	26	31	37	44	54	65
Construction	999	1,022	1,083	1,146	1,210	1,278	1,350
Total Not Building Related	**1,312**	**1,342**	**1,416**	**1,494**	**1,576**	**1,664**	**1,758**
Federal Civilian	49	51	57	65	73	82	93
Federal Military	74	75	78	81	84	88	91
State & Local Government	1,307	1,344	1,442	1,544	1,651	1,765	1,885
Total Government	**1,430**	**1,470**	**1,577**	**1,690**	**1,808**	**1,935**	**2,069**
Utilities	9	10	10	10	11	11	11
Manufacturing	1,317	1,419	1,704	2,045	2,454	2,945	3,534
Wholesale Trade	375	408	497	601	725	871	1,047
Retail Trade	3,655	3,870	4,415	5,000	5,637	6,337	7,121
Transportation & Warehousing	141	147	161	176	189	203	217
Information	121	128	148	170	195	223	255
Finance & Insurance	581	631	762	897	1,037	1,183	1,338
Real Estate	750	797	913	1,034	1,160	1,292	1,432
Professional & Technical Services	711	764	906	1,058	1,222	1,401	1,593
Management of Companies	41	43	45	49	52	55	58
Administrative & Waste Services	771	806	895	990	1,090	1,195	1,308
Educational Services	137	147	172	199	227	258	293
Health Care & Social Assistance	1,190	1,337	1,790	2,380	3,138	4,103	5,329
Arts, Entertainment & Recreation	371	397	463	535	617	707	807
Accommodation & Food Services	1,780	1,895	2,205	2,551	2,940	3,374	3,860
Other Private Services	916	978	1,145	1,334	1,546	1,784	2,051
Total Value-Added	**12,866**	**13,777**	**16,231**	**19,029**	**22,240**	**25,942**	**30,254**

Source: Woods & Poole Economics, Inc., 2022 Georgia Data Book, Dawson County, as adjusted.

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 2050. 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 - Countywide Job Increases

Year	Total Jobs	Not Building Related	Government	Value-Added Jobs
2023	15,608	1,312	1,430	**12,866**
2024	16,098	1,327	1,450	**13,322**
2025	16,587	1,342	1,470	**13,777**
2026	17,114	1,357	1,491	**14,268**
2027	17,641	1,372	1,513	**14,759**
2028	18,168	1,386	1,534	**15,249**
2029	18,695	1,401	1,556	**15,740**
2030	19,222	1,416	1,577	**16,231**
2031	19,820	1,432	1,600	**16,791**
2032	20,417	1,447	1,622	**17,350**
2033	21,015	1,463	1,645	**17,910**
2034	21,612	1,478	1,667	**18,469**
2035	22,210	1,494	1,690	**19,029**
2036	22,893	1,510	1,714	**19,671**
2037	23,575	1,527	1,737	**20,313**
2038	24,258	1,543	1,761	**20,956**
2039	24,940	1,560	1,784	**21,598**
2040	25,623	1,576	1,808	**22,240**
2041	26,407	1,594	1,833	**22,980**
2042	27,190	1,611	1,859	**23,721**
2043	27,974	1,629	1,884	**24,461**
2044	28,757	1,646	1,910	**25,202**
2045	29,541	1,664	1,935	**25,942**
2046	30,449	1,683	1,962	**26,804**
2047	31,357	1,702	1,989	**27,667**
2048	32,266	1,720	2,015	**28,529**
2049	33,174	1,739	2,042	**29,392**
2050	34,082	1,758	2,069	**30,254**
Increase 2024-50	18,474	431	619	**16,933**

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 Dawson County's roads will be generated by new growth, over and above the traffic generated by the city's residents and businesses today. This Technical Appendix describes the process through which this determination is made.

Summary

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

Level of Service

The County has set its Level of Service for road improvements at LOS 'D', a minimum level below which some roads in the county 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 2050.

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 2050 will represent a certain portion of all 2050 traffic, new growth would be responsible for that portions' cost of the road improvements.

It is noted that the cost-impact of non-Dawson County generated traffic on the roads traversing the county (cross commutes) is off-set by state and federal assistance. The net cost of the road projects that accrues to Dawson County reasonably represents (i.e., is 'roughly proportional' to) the impact on the roads by Dawson County residents driving to and from their homes, and commuters that come in to work in the county.

The basis for the road impact fees would therefore be Dawson County's cost for the improvements divided by all traffic generated within the county in 2050 (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 Dawson County residents and businesses on the road system within the county 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 Dawson County-generated traffic from new growth in the county is calculated from housing unit and employment forecasts to 2050.
- The portion of total 2050 traffic that is generated by new housing units and employment in the county establishes the percentage of Dawson County's cost of the future road improvements that can be included in an impact fee.

Summary Table

The table below shows how the portion of 2050 traffic generated by new growth is calculated. The figures represent all trips generated in each land use category, including pass-by and diverted trips.

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

Land Use Category	2024	2050	Increase	Percent New Growth Trip Ends
Residential Trips	133,960	245,350	111,390	
Commercial	307,650	685,821	378,171	
Industrial+Utility	7,212	18,185	10,973	
Less: Internal Commutes*	(17,951)	(32,877)	(14,926)	
Net Trip Ends	**430,871**	**916,479**	**485,608**	**52.99%**

* Residents who work in Dawson County. 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, below.

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

Land Use Category	Percent Primary Trip Ends*	Primary Trip Ends			Percent New Growth Primary Trip Ends
		2024	2050	Increase	
Residential Trips	100%	133,960	245,350	111,390	
Commercial	63%	193,943	432,342	238,399	
Industrial+Utility	92%	6,635	16,730	10,095	
Less: Internal Commutes	100%	(17,951)	(32,877)	(14,926)	
Net New Primary Trip Ends		**316,587**	**661,545**	**344,958**	**52.14%**

* Derived from Trip General Manual, Institute of Transportation Engineers (various editions, based on availablility of applicable data).

Overall, new residents and businesses located within Dawson County are projected to generate 52.14% (more accurately, 54.1442986%) of all Dawson County vehicles on its roads. Thus, new growth's 'fair share' of the cost to the County 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 Dawson County'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.

Residential Trip Generation

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

Table B-3: Residential Units by Type: 2024 and 2045

Dwelling Type	Total in 2020*	Percent	Total in 2024**	Increase 2024-2050	Total in 2050
Single-Family Units	10,869	91.14%	13,253	11,020	24,273
Multi-Family Units	1,057	8.86%	1,289	1,072	2,361
Total	**11,926**	**100.0%**	**14,542**	**12,092**	**26,634**

* Based on the 2020 5-Year American Community Survey data report (Census Bureau), updated to the 2020 Census count.

** See Appendix A: Future Growth for housing unit projections.

The 2020 breakdown of housing units by type on the table above are taken from the most recent American Community Survey for Dawson County (published by the Census Bureau), updated to the 2020 Census. The 2020 percentage by housing type (single-family and multi-family) is calculated and applied to the total number of housing units projected in 2024 (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 12,092 new housing units forecast for the 2024-2050 period.

The next table, below, calculates the amount of traffic that is generated by the county's housing stock today, the amount that will be generated in 2050, and the increase in new trips that will be generated by new residential growth and development as a percentage of all trips in 2050.

Table B-4: Residential Trip Generation - 2023-2050 New Growth Increase

Dwelling Type	ADT* Trip Ends	2024 Units	2024 ADT Trip Ends	2050 Units	2050 ADT Trip Ends	Increase 2024-2050	Percent New Growth Trip Ends
Single-Family Units	9.43	13,253	124,976	24,273	228,894	103,918	
Multi-Family Units	6.97	1,289	8,984	2,361	16,456	7,472	
Total		**14,542**	**133,960**	**26,634**	**245,350**	**111,390**	**45.4%**

* 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 (174 for single-family and 44 for multi-family; multi-family ADT numbers above are the average of the trip end data for attached single-family dwelling units and low-rise apartments) that are published by ITE. The rates are expressed for 'trip ends'—that is, traffic both leaving and coming to a housing unit.

Comparing traffic in 2024 to 2050, the future increase in trip ends can be calculated, which will represent 45.4% of all residential trip ends that are generated by housing units in the county.

It should be noted that the traffic generated includes trips to and from work and, more particularly, residents who work at a business within the county (referred to as 'internal commutes'). Commute data source is the U.S. Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics.

Nonresidential Trip Generation

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

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

The Average Daily Traffic (ADT) numbers, 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).

'Trip ends per employee' per 1,000 square feet of floor area is calculated for uses for which impact fees are commonly collected and for which the data is available.

Overall, the average trip generation rate of 'industrial uses' is 3.78 trips per employee and 26.95 for all 'commercial' uses, based on figures in the Institute of Traffic Engineers' Trip General Manual (primarily the 11th edition; earlier editions were utilized if applicable data was not provided in the 11th ed.). 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.

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.

Lastly, Table B-5 reflects the current and future numbers of 'value-added' employees calculated for each 'commercial' land use category and each 'industrial+utility' category, based on 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.

This table calculates the total number of trip ends that will be generated by new nonresidential growth in future traffic on Dawson County's roads (excluding internal commutes by residents who also work in the county), and the percentage of that growth in relation to total trip ends on the county's roads in 2050 (55.8%).

Table B-5: Nonresidential Trip Generation - 2024-2050 New Growth Increase

Nonresidential Land Use Category	2024 Employees	2024 Trip Ends	2050 Employees	2050 Trip Ends	2024-2050 Increase	Percent New Growth Trip Ends
Commercial	11,414	307,650	25,445	685,821	378,171	
Industrial+Utility	1,907	7,212	4,809	18,185	10,973	
Total	13,322	314,862	30,254	704,006	389,144	
Less: Internal Commutes* at	13.40%	17,951		32,877	14,926	
Net Nonres Trip Ends		**296,911**		**671,129**	**374,218**	**55.8%**

* Source: U.S. Census Bureau (2024), Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics

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 Dawson County 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.

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

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 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 five years ago; what is important is the money was spent five years ago and what that money would be worth today had it been saved instead of spent.

Future Project Costs

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

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

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

In this Appendix, two important adjustments are discussed that are required to convert current cost estimates into future cost figures, and then back into current dollars. First, an appropriate cost inflator is identified. This adjustment factor is important in determining the future cost of a project, based on current cost estimates. The cost inflator may be based on anticipated inflation in construction or building costs, or on anticipated inflation in the value of money (for capital projects that do not include a construction component). In essence, costs increase over time. By identifying the appropriate inflation rate that is related to the type of project (building construction, project construction, or non-construction), current cost estimates can be used to predict future costs in the year they are expected to occur.

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

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 fire station), a 'building cost inflator' is used as the appropriate inflation rate. For infrastructure projects, such as roads or ball fields, a 'construction cost inflator' is used. For all non-construction types of projects (such as a fire truck or park land), an inflation rate is used that is based on the Consumer Price Index. These different types of inflators are discussed below.

Index *	10-Year Average
Consumer Price Index (CPI)	3.7701280%
Construction Cost Index (CCI)	2.6171924%
Building Cost Index (BCI)	3.2241982%
Discount Rate**	1.98500%

* Based on data from the U.S. Dept. of Labor, Bureau of Labor Statistics (for CPI) and Engineering News Record's Average Annual Indices (CCI and BCI) through 2023.

** Average annual return at prevailing interest rate.

Engineering News-Record's Cost Indexes

The Engineering News-Record (ENR)[9] 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.

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.

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 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 since this reflects the present value of a future amount of money.
- For other construction projects (such as recreation facilities and roads), the current cost estimate for the project is inflated into the future using the average Construction Cost Inflator 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.

[9] 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

- For non-construction capital projects (such as fire truck purchases or land acquisition), the 10-year average CPI inflator is used to estimate the project expenditure in future dollars while, again, the Net Discount Rate is applied to deflate that future cost to present value.