
Capital Improvements Element



City of Fayetteville Impact Fee Program

Including the following
public facility categories:

**Fire Protection
Police Services
Parks and Recreation
Road Improvements**

Revised Draft: July 24, 2017

ROSS+associates

urban planning & plan implementation

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INTRODUCTION

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

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—2014 to 2035;
- the designation of **service areas**—the geographic area in which a defined set of public facilities provide service to development within the area;
- the designation of **levels of service (LOS)**—the service level that is being and/or will be provided;
- a **schedule of improvements** listing impact fee related projects and costs for the twenty-year planning period;
- a description of **funding sources** for the twenty-year planning period;
- The calculation of the **cost impact** of new development, credits, and impact fees; and
- A schedule of **maximum impact fees** that could be adopted, by land use category.

IMPACT FEES AUTHORIZED

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

CATEGORIES FOR ASSESSMENT OF IMPACT FEES

To assist in paying for the high costs of expanding public facilities and services to meet the needs of projected growth and to ensure that new development pays a reasonable share of the costs of public facilities, Fayetteville is updating its impact fees for parks, roads and public safety facilities (fire and police). The sections in this Methodology Report provide population and employment forecasts and detailed information regarding the inventory of current facilities, the level of service, and detailed calculations of the impact cost for the specific public facilities.

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

Overview of Impact Fee Program - Facilities

| | Fire Protection | Police Services | Parks and Recreation | Road Improvements |
|---|--|---|--|---|
| Eligible Facilities | Fire stations and fire apparatus (vehicles) | Occupied Facility space | Park acres, recreation components and trails | Road projects that increase capacity |
| Service Area | Citywide | Citywide | Citywide | Citywide |
| Level of Service Standard Based on ... | Square footage and number of vehicles per day/night population | Square footage of facilities per day/night population | Number of acres, components and trails per dwelling unit | Percent of future traffic generated by new growth |
| Historic Funding Source(s) | Impact Fees and General Fund | Impact Fees and General Fund | Impact Fees and General Fund | Impact Fees and General Fund |

Terms used in Overview Table:

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

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

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

Funding Sources include both impact fee collections and General Fund tax collections, depending on the proportion of impact fee eligibility. Impact fees will be used to fund all or a portion of eligible impact fee costs. Tax collections include the City’s normal annual property tax levy and any special levies for debt instruments (such as bonds) that are intended to provide funding for impact fee projects in whole or in part; the General Fund may be used also as an interim source pending reimbursement from impact fee collections. SPLOST funds may be applied as a primary source of partial funding in accordance with an approved SPLOST program, which is established with each new SPLOST authorization and is not an historically consistent source.

EDITORIAL CONVENTIONS

This report observes the following conventions:

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

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

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

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

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

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

FORECASTS

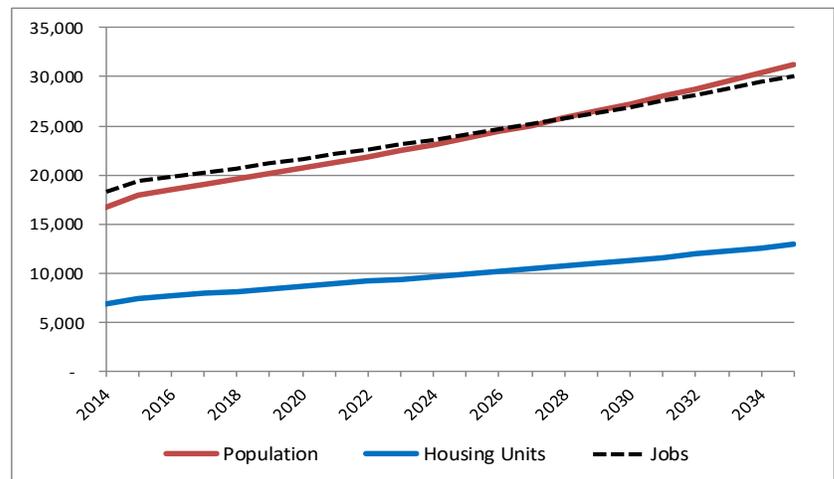
In order to accurately calculate the demand for future services for Fayetteville, new growth and development must be quantified in future projections. These projections include forecasts for population, households, housing units, and employment to the year 2035. These projections provide the base-line conditions from which Level of Service calculations are produced. Also, projections are combined to produce what is known as ‘day/night population.’ This is a method that combines resident population and employees in a service area to produce an accurate picture of the total number of persons that rely on certain 24-hour services, such as fire protection. The projections used for each public facility category are specified in each public facility chapter.

OVERVIEW

Continuing past trends, Fayetteville is expected to grow at a steady pace with regard to population and housing. Over the coming twenty years, the city is expected to almost double its number of residents and housing units, by more than 87% over 2014. Employment in Fayetteville is also expected to grow, attracting almost 12,000 new jobs by 2035 (about a 2/3 increase).

TABLE 1: SUMMARY OF FORECASTS

| | Population | Housing Units | Jobs |
|------|------------|---------------|--------|
| 2014 | 16,725 | 6,874 | 18,333 |
| 2015 | 17,989 | 7,432 | 19,348 |
| 2016 | 18,493 | 7,673 | 19,792 |
| 2017 | 19,011 | 7,914 | 20,241 |
| 2018 | 19,544 | 8,154 | 20,694 |
| 2019 | 20,092 | 8,397 | 21,153 |
| 2020 | 20,656 | 8,645 | 21,624 |
| 2021 | 21,235 | 8,897 | 22,105 |
| 2022 | 21,830 | 9,151 | 22,593 |
| 2023 | 22,442 | 9,406 | 23,088 |
| 2024 | 23,071 | 9,665 | 23,594 |
| 2025 | 23,718 | 9,929 | 24,113 |
| 2026 | 24,383 | 10,199 | 24,645 |
| 2027 | 25,066 | 10,474 | 25,190 |
| 2028 | 25,769 | 10,755 | 25,749 |
| 2029 | 26,492 | 11,042 | 26,324 |
| 2030 | 27,234 | 11,335 | 26,914 |
| 2031 | 27,998 | 11,635 | 27,521 |
| 2032 | 28,783 | 11,943 | 28,143 |
| 2033 | 29,590 | 12,258 | 28,783 |
| 2034 | 30,419 | 12,581 | 29,444 |
| 2035 | 31,272 | 12,914 | 30,124 |



| | Population | Housing Units | Jobs |
|----------|------------|---------------|--------|
| 2014 | 16,725 | 6,874 | 18,333 |
| 2035 | 31,272 | 12,914 | 30,124 |
| Increase | 14,547 | 6,040 | 11,791 |

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 standards where the Level of Service (LOS) is per capita based.

- Household data and forecasts are used to forecast future growth in the number of housing units.
- Housing unit data and forecasts relate to 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.
- 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.
- ‘Value added’ employment data is combined with population data to produce ‘day/night population’ figures. These figures represent the total number of persons receiving services, both in their homes and in their businesses, particularly from 24-hour operations such as fire protection and law enforcement.

POPULATION AND HOUSING UNIT FORECASTS

Table 2 presents the forecasts for population for each year from 2014 to 2035 and provides the forecasts for housing units over the same period.

TABLE 2: POPULATION AND HOUSING UNIT FORECASTS

| | County Population | Fayetteville Population | | Fayetteville Households | Housing Units |
|------|-------------------|-------------------------|------|-------------------------|---------------|
| 2014 | 109,664 | 16,725 | 2014 | 6,380 | 6,874 |
| 2015 | 112,751 | 17,989 | 2015 | 6,905 | 7,432 |
| 2016 | 114,096 | 18,493 | 2016 | 7,136 | 7,673 |
| 2017 | 115,458 | 19,011 | 2017 | 7,368 | 7,914 |
| 2018 | 116,835 | 19,544 | 2018 | 7,600 | 8,154 |
| 2019 | 118,230 | 20,092 | 2019 | 7,835 | 8,397 |
| 2020 | 119,640 | 20,656 | 2020 | 8,075 | 8,645 |
| 2021 | 121,068 | 21,235 | 2021 | 8,319 | 8,897 |
| 2022 | 122,512 | 21,830 | 2022 | 8,565 | 9,151 |
| 2023 | 123,974 | 22,442 | 2023 | 8,813 | 9,406 |
| 2024 | 125,454 | 23,071 | 2024 | 9,065 | 9,665 |
| 2025 | 126,950 | 23,718 | 2025 | 9,323 | 9,929 |
| 2026 | 128,465 | 24,383 | 2026 | 9,586 | 10,199 |
| 2027 | 129,998 | 25,066 | 2027 | 9,855 | 10,474 |
| 2028 | 131,549 | 25,769 | 2028 | 10,130 | 10,755 |
| 2029 | 133,119 | 26,492 | 2029 | 10,411 | 11,042 |
| 2030 | 134,707 | 27,234 | 2030 | 10,699 | 11,335 |
| 2031 | 136,315 | 27,998 | 2031 | 10,994 | 11,635 |
| 2032 | 137,941 | 28,783 | 2032 | 11,296 | 11,943 |
| 2033 | 139,587 | 29,590 | 2033 | 11,606 | 12,258 |
| 2034 | 141,253 | 30,419 | 2034 | 11,925 | 12,581 |
| 2035 | 142,938 | 31,272 | 2035 | 12,253 | 12,914 |

Source: ROSS+associates, based on projection of 2000-2014 Census Population Estimates, using a Growth Trend regression

Source: ROSS+associates, based on 2010 average population-per-household figures and Woods & Poole projections, and 2000-2010 housing occupancy rates.

The figures shown are, in essence, mid-year estimates reflecting Census Bureau practice. In other words, the increase in population between 2014 and 2035 would actually be from July 1, 2014 to July 1, 2035. For a more detailed description of the methodologies considered in preparing population, household and housing unit forecasts, see the Appendix to this report.

EMPLOYMENT FORECASTS

Table 3 shows the forecasts for employment growth countywide and in Fayetteville, from 2014 to 2035. The employment figures for Fayetteville are based on the city’s proportional share of total county employment in 2010. This forecast method is used in that it is expected that Fayetteville will continue to be the major center of employment in the county into the future.

TABLE 3: EMPLOYMENT FORECASTS

| | Total County | Value-Added Jobs* | Fayetteville Jobs |
|------|--------------|-------------------|-------------------|
| 2014 | 69,712 | 65,355 | 18,333 |
| 2015 | 71,578 | 67,160 | 19,348 |
| 2016 | 72,348 | 67,939 | 19,792 |
| 2017 | 73,146 | 68,744 | 20,241 |
| 2018 | 73,965 | 69,572 | 20,694 |
| 2019 | 74,805 | 70,419 | 21,153 |
| 2020 | 75,678 | 71,299 | 21,624 |
| 2021 | 76,577 | 72,205 | 22,105 |
| 2022 | 77,509 | 73,142 | 22,593 |
| 2023 | 78,472 | 74,109 | 23,088 |
| 2024 | 79,469 | 75,112 | 23,594 |
| 2025 | 80,502 | 76,149 | 24,113 |
| 2026 | 81,573 | 77,222 | 24,645 |
| 2027 | 82,680 | 78,333 | 25,190 |
| 2028 | 83,828 | 79,483 | 25,749 |
| 2029 | 85,020 | 80,676 | 26,324 |
| 2030 | 86,255 | 81,912 | 26,914 |
| 2031 | 87,533 | 83,189 | 27,521 |
| 2032 | 88,855 | 84,511 | 28,143 |
| 2033 | 90,222 | 85,877 | 28,783 |
| 2034 | 91,639 | 87,292 | 29,444 |
| 2035 | 93,105 | 88,756 | 30,124 |

In Table 3 the total employment figures are refined to produce what is referred to as ‘value added’ jobs. ‘Value added’ jobs is a refinement that excludes any employment that is considered to be transitory in nature, such as agricultural and construction employment. This is done to better measure the services being provided by the City, which in this report will be measured and, ultimately, assessed based on structures. Transitory employment does not require a structure to be built to house the employment, and so does not come under the assessment of impact fees.

A more detailed description of the methodologies considered in preparing the employment forecasts are found in the Appendix to this report.

* Total employment, less farm, forestry and construction workers

Source:

Woods & Poole employment forecasts adjusted to the countywide Growth Trend population regression, allocated to Fayetteville based on 2010 census commuting data, and averaged between the city’s 2010 percentage of the county and the jobs-per-household ratios projected to 2035.

SERVICE AREA PROJECTIONS

In Table 4 the service area forecasts are presented for a single citywide service area measured in two ways: citywide housing units (which quantifies Parks and Recreation service demands), and citywide day/night population (Police and Fire).

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

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

TABLE 4: SERVICE AREA FORECASTS

| | Housing Units (Parks) | Day/Night Population (Fire, Police) |
|------|--------------------------|--|
| 2014 | 6,874 | 35,058 |
| 2015 | 7,432 | 37,336 |
| 2016 | 7,673 | 38,285 |
| 2017 | 7,914 | 39,252 |
| 2018 | 8,154 | 40,238 |
| 2019 | 8,397 | 41,245 |
| 2020 | 8,645 | 42,280 |
| 2021 | 8,897 | 43,339 |
| 2022 | 9,151 | 44,423 |
| 2023 | 9,406 | 45,529 |
| 2024 | 9,665 | 46,665 |
| 2025 | 9,929 | 47,831 |
| 2026 | 10,199 | 49,027 |
| 2027 | 10,474 | 50,256 |
| 2028 | 10,755 | 51,518 |
| 2029 | 11,042 | 52,815 |
| 2030 | 11,335 | 54,148 |
| 2031 | 11,635 | 55,518 |
| 2032 | 11,943 | 56,925 |
| 2033 | 12,258 | 58,373 |
| 2034 | 12,581 | 59,863 |
| 2035 | 12,914 | 61,396 |

The figures on Table 4 are the figures that will be used in subsequent public facility category chapters to calculate impact costs and fees.

Net Increase: **6,040** **26,338**

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

FIRE PROTECTION

INTRODUCTION

Fire protection is provided by the City Fire Department throughout the entire city. The capital value of fire protection is based upon fire stations, administrative office space, and fire apparatus.

Table 5 shows the Department's current inventory of 'system improvements' (fire stations and fire apparatus having a useful life of 10 years or more). In addition, system improvements are listed that are proposed to serve the growing city for the next 20 years to 2035.

TABLE 5: FIRE PROTECTION SYSTEM IMPROVEMENTS

| System Improvement | Description | Square Feet or # Vehicles |
|---|----------------------|---------------------------|
| Existing System Improvements | | |
| <i>Fire Stations</i> | | |
| Station 91/HQ | 95 Johnson Avenue | 9,987 |
| Station 92 | 124 Pavilion Parkway | 5,920 |
| <i>Total Existing Floor Area</i> | | 15,907 |
| <i>Fire Apparatus*</i> | | |
| Engine 91 | Pumper | 1 |
| Engine 92 | Pumper | 1 |
| Engine 93 | Pumper | 1 |
| Tower 91 | Aerial | 1 |
| Rescue 9 | Support | 1 |
| Tactical Unit 9 | Support | 1 |
| <i>Total Existing Vehicles</i> | | 6 |
| Planned System Improvements | | |
| <i>Fire Stations</i> | | |
| Station 93 | Veterans Parkway | 9,500 |
| Station 94 | Rewine Road | 8,000 |
| <i>Total Planned Floor Area</i> | | 17,500 |
| <i>Fire Apparatus*</i> | | |
| Quint | Aerial | 1 |
| Engine | Support | 1 |
| Engine | Support | 1 |
| Engine | Support | 1 |
| <i>Total Planned Vehicles</i> | | 4 |
| Total Existing and Future System | | |
| Total Floor Area | | 33,407 |
| Total Vehicles | | 10 |

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

Currently, fire protection is provided by facilities with a combined square footage of 15,907, utilizing a total of 6 Fire Department vehicles. Future proposals to provide adequate fire protection services citywide include 2 new fire stations and 4 new vehicles.

SERVICE AREA

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

residents and employees within this area have equal access to the benefits of the program.

LEVEL OF SERVICE

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

TABLE 6: LEVEL OF SERVICE CALCULATIONS: CURRENT AND FUTURE

| Facility | Service Population | Level of Service |
|----------------------------------|----------------------------------|--|
| Existing Square Feet | 2014 Day/Night Population | Square Feet per 2014 Day/Night Population |
| 15,907 | 35,058 | 0.453734 |
| Existing Vehicles | 2014 Day/Night Population | Vehicles per 2014 Day/Night Population |
| 6 | 35,058 | 0.000171 |
| Future System: Floor Area | 2035 Day/Night Population | Square Feet per 2035 Day/Night Population |
| 33,407 | 61,396 | 0.544125 |
| Future System: Vehicles | 2035 Day/Night Population | Vehicles per 2035 Day/Night Population |
| 10 | 61,396 | 0.000163 |

Table 6 presents the calculation of the Level of Service (LOS) for both the current inventory of facilities and vehicles, and for the system as proposed to serve the city for the next 20 years and to maintain the City’s excellent ISO rating.

For reasons that will be explained below, the LOS figures based on the future 2035 day night population are recommended as the adopted Level of Service.

FORECASTS FOR SERVICE AREA

FUTURE DEMAND

The applicable Level of Service standards from Table 6 are multiplied by the forecasted day/night population increases to produce the expected future demand in Table 7.

The ‘day/night population increase’ figures are taken from Table 4.

TABLE 7: FUTURE DEMAND CALCULATION

| Level of Service | Future Population | New Growth Demand |
|---|---|------------------------------|
| Square Feet per 2014 Day/Night Population | Day/Night Population Increase (2014-35) | Net New Square Feet Demanded |
| 0.4537 | 26,338 | 11,950 |
| Vehicles per 2014 Day/Night Population | Day/Night Population Increase (2014-35) | Net New Vehicles Demanded* |
| 0.000171 | 26,338 | 4.51 |
| Square Feet per 2035 Day/Night Population | Day/Night Population Increase (2014-35) | Net New Square Feet Demanded |
| 0.544125 | 26,338 | 14,331 |
| Vehicles per 2035 Day/Night Population | Day/Night Population Increase (2014-35) | Net New Vehicles Demanded* |
| 0.000163 | 26,338 | 4.29 |

* Only 4 vehicles are proposed to be added to the inventory, all of which will be 100% eligible for impact fee funding.

Following the format of Table 6, Table 7 calculates the demand for future facilities to serve new growth and development for both the ‘current’ LOS and for the system as proposed for the future.

A total of 17,500 square feet of new space is proposed to adequately serve the city in the future, including both current and future residents and businesses, while maintaining the city’s ISO rating. As a result, each of the two approaches reveals a current shortfall in space serving the current day/night population. If the LOS based on the existing system is used to determine future demand, only 11,950 sf is needed to serve future growth and development (68.3% of the total proposed), leaving about one-third of the proposed space (31.7%) to be funded by the existing tax base.

Alternately, if funding of the future proposed system is fairly apportioned between current residents and businesses and new growth and development, the

portion of the new space requiring funding from the existing tax base falls to less than one-fifth (19.1%).

Note that, because only ‘whole’ vehicles can be purchased, more new vehicles would need to be added to the inventory than are technically demanded by new growth—5 new vehicles to meet the current LOS calculations and 4 to meet the demands for the future system. However, since only 3 new vehicles need to be acquired to cover expansion of the fleet to meet the needs of future growth and development, all of the vehicles would be 100% impact fee eligible.

FUTURE COSTS

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

The facility and fire apparatus system improvements shown on Table 8 are based on the City’s desire to increase fire protection services in a balanced way to appropriately serve all residents and businesses in the city in 2035. The proposed system improvements are listed on Table 5, and are ‘scheduled’ for construction or acquisition in the appropriate years (in order to enable Net Present Value calculations based on the 2014 cost estimates shown).

TABLE 8: FUTURE SYSTEM IMPROVEMENT COSTS

| Year | Fire Stations | | | Vehicles | | |
|------|---------------|-------------|------------|----------|--------|-------------|
| | Facility | Square Feet | 2014 Cost* | Type | Number | 2014 Cost** |
| 2015 | | - | \$ - | | - | \$ - |
| 2016 | | - | - | Quint | 1 | 1,000,000 |
| 2017 | Station 93 | 9,500 | 2,090,000 | | - | - |
| 2018 | | - | - | Engine | 1 | 600,000 |
| 2019 | | - | - | | - | - |
| 2020 | | - | - | | - | - |
| 2021 | | - | - | | - | - |
| 2022 | | - | - | | - | - |
| 2023 | | - | - | | - | - |
| 2024 | | - | - | | - | - |
| 2025 | Station 94 | 8,000 | 1,760,000 | Engine | 2 | 1,200,000 |
| 2026 | | - | - | | - | - |
| 2027 | | - | - | | - | - |
| 2028 | | - | - | | - | - |
| 2029 | | - | - | | - | - |
| 2030 | | - | - | | - | - |
| 2031 | | - | - | | - | - |
| 2032 | | - | - | | - | - |
| 2033 | | - | - | | - | - |
| 2034 | | - | - | | - | - |
| 2035 | | - | - | | - | - |

* Facility cost is estimated at \$200 per square foot for construction plus 10% for design.

** Vehicle cost is estimated using current prevailing rates for similar vehicles. The Quint was purchased in 2016 with short-term financing, and is included in the impact fee calculations for recoupment and future debt service.

Estimated improvement costs (in 2014 dollars) are based on the following:

- For new facility space: Prevailing construction costs averaging \$200 per square foot are increased by 10% to cover design services, for a total of \$220 per sf.
- For fire apparatus: Estimates are based on prevailing costs of similar vehicles for a quint (aerial) and engine equipped to City specifications.

The total cost figures from Table 8 are then converted to ‘impact fee eligible’ costs (in 2014 dollars) based on the percentage that each improvement is impact fee eligible. As noted above, all of the fire trucks are 100% eligible under the adopted LOS. Since only 14,159 square feet (80.9%) of the proposed 17,500 sf are impact fee eligible, the cost of the second proposed fire station is reduced accordingly. These calculations are shown on Table 9.

TABLE 9: IMPACT FEE COST CALCULATIONS

| Year | Costs in 2014 Dollars | | | | Total Impact Fee Eligible | Net Present Value* |
|------|------------------------|-----------------------|------------------------|-----------------------|---------------------------|------------------------|
| | Fire Station Costs | % Impact Fee Eligible | Vehicle Costs | % Impact Fee Eligible | | |
| 2015 | \$ - | | \$ - | | \$ - | \$ - |
| 2016 | - | | 1,000,000.00 | 100.0% | 1,000,000.00 | 1,031,760.54 |
| 2017 | 2,090,000.00 | 100.0% | | | 2,090,000.00 | 2,222,650.91 |
| 2018 | - | | 600,000.00 | 100.0% | 600,000.00 | 638,717.89 |
| 2019 | - | | - | | - | - |
| 2020 | - | | - | | - | - |
| 2021 | - | | - | | - | - |
| 2022 | - | | - | | - | - |
| 2023 | - | | - | | - | - |
| 2024 | - | | - | | - | - |
| 2025 | 1,760,000.00 | 60.4% | 1,200,000.00 | 100.0% | 2,262,820.00 | 2,757,003.07 |
| 2026 | - | | - | | - | - |
| 2027 | - | | - | | - | - |
| 2028 | - | | - | | - | - |
| 2029 | - | | - | | - | - |
| 2030 | - | | - | | - | - |
| 2031 | - | | - | | - | - |
| 2032 | - | | - | | - | - |
| 2033 | - | | - | | - | - |
| 2034 | - | | - | | - | - |
| 2035 | - | | - | | - | - |
| | \$ 3,850,000.00 | 81.9% | \$ 2,800,000.00 | 100.0% | \$ 5,952,820.00 | \$ 6,650,132.41 |

* Net Present Value = 2014 cost estimate for fire stations inflated to target year using the ENR Building Cost Index (BCI), and the Consumer Price Index (CPI) for vehicles, both reduced to NPV using the Discount Rate.

The Net Present Value of the cost estimates for new fire stations are calculated by increasing the current (2014) estimated construction costs using the Engineering News Record’s 10-year average building cost inflation (BCI) rate, and then discounting this future amount back to 2014 dollars using the Net discount Rate. For non-construction improvements (fire vehicles), the currently estimated costs are inflated to their target years using the 10-year average CPI and then reduced using the Net Discount Rate to produce the Net Present Value. (The approaches to calculating NPV are explained in detail in the Cost Adjustments and Credits Chapter of this report.)

POLICE SERVICES

INTRODUCTION

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

SERVICE AREA

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

LEVEL OF SERVICE

The level of service for Police Department services in Fayetteville is measured in terms of the number of square feet of occupied facility space, the amount of land devoted to outdoor parking and storage, and the number of major vehicles (such as the Mobile Command Unit), per day/night population in the service area. Table 10 presents a current inventory of facility space, land and major vehicles. Day/night population is used as a measure in that Police Department provides its law enforcement services to both residences and businesses in the service area on a 24-hour basis.

TABLE 10: POLICE SERVICES SYSTEM INVENTORY

| System Improvement | Quantity |
|---------------------------------------|---------------|
| <i>Buildings</i> | |
| Police Headquarters | 18,288 |
| Evidence Storage | 695 |
| Detention Space | 160 |
| Garage Area | 800 |
| <i>Total Floor Area (square feet)</i> | 19,943 |
| <i>Parking and Storage</i> | |
| Parking/Outside Storage (sq feet) | 80,000 |
| <i>Major Vehicles*</i> | |
| Mobile Command Unit | 1 |

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

TABLE 11: CURRENT LEVEL OF SERVICE CALCULATION

| Facility | Service Population | Level of Service |
|---------------------------------------|----------------------------------|--|
| Existing Square Feet | 2014 Day/Night Population | Square Feet per 2014 Day/Night Population |
| 19,943 | 35,058 | 0.568857 |
| Existing Parking & Storage | 2014 Day/Night Population | Parking & Storage per 2014 Day/Night Population |
| 80,000 | 35,058 | 2.281933 |
| Existing Major Vehicles | 2014 Day/Night Population | Major Vehicles per 2014 Day/Night Population |
| 1 | 35,058 | 0.000029 |

Table 11 presents the calculation of the current Level of Service (LOS) standards for police service system improvements in the city. The inventory of each category is divided by the current day/night population to obtain the LOS per person enjoyed throughout the city.

FORECASTS FOR SERVICE AREA

FUTURE DEMAND

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

TABLE 12: FUTURE DEMAND CALCULATION

| Level of Service | Future Population | New Growth Demand |
|---|---|----------------------------------|
| Square Feet per 2014 Day/Night Population | Day/Night Population Increase (2014-35) | Total Square Feet for New Growth |
| 0.5689 | 26,338 | 14,982 |
| Parking & Storage per 2014 Day/Night Population | Day/Night Population Increase (2014-35) | Total Square Feet for New Growth |
| 2.281933 | 26,338 | 60,101 |
| Major Vehicles per 2014 Day/Night Population | Day/Night Population Increase (2014-35) | Net New Vehicles Demanded* |
| 0.0000285242 | 26,338 | 0.751 |

In Table 12, the facility space, land and major vehicle los standards from Table 11 are next multiplied by the forecasted citywide day/night population increase to produce the expected demand that future growth and development will place on the city.

* One (whole) major vehicle can be added, which will be 75.1% eligible for impact fee funding.

Table 13 provides current cost estimates (in 2014 dollars) of new system improvements that are proposed to address future needs.

Estimated improvement costs (in 2014 dollars) are based on the following:

- For new facility space: Prevailing construction costs averaging \$220 per square foot are used.
- For major vehicles, the cost is specifically based on the type of vehicle that is needed—a Crime Scene Unit—and the price is an estimate of current, prevailing costs for such a vehicle meeting Fayetteville specifications.

TABLE 13: FUTURE SYSTEM IMPROVEMENT COSTS

| Year | Facility | Buildings | | Parking & Storage | | Major Vehicles | |
|------|---------------------|-------------|------------|-------------------|------------|----------------|------------|
| | | Square Feet | 2014 Cost* | Square Feet | 2014 Cost* | Number | 2014 Cost* |
| 2014 | | - | \$ - | - | \$ - | - | \$ - |
| 2015 | | - | - | - | - | - | - |
| 2016 | Crime Scene Vehicle | - | - | - | - | 1 | 100,000 |
| 2017 | Office space | 2,000 | 440,000 | - | - | - | - |
| 2018 | | - | - | - | - | - | - |
| 2019 | | - | - | - | - | - | - |
| 2020 | | - | - | - | - | - | - |
| 2021 | | - | - | - | - | - | - |
| 2022 | | - | - | - | - | - | - |
| 2023 | | - | - | - | - | - | - |
| 2024 | | - | - | - | - | - | - |
| 2025 | Expansion | 2,000 | 440,000 | - | - | - | - |
| 2026 | | - | - | - | - | - | - |
| 2027 | | - | - | - | - | - | - |
| 2028 | | - | - | - | - | - | - |
| 2029 | | - | - | - | - | - | - |
| 2030 | | - | - | - | - | - | - |
| 2031 | | - | - | - | - | - | - |
| 2032 | | - | - | - | - | - | - |
| 2033 | | - | - | - | - | - | - |
| 2034 | | - | - | - | - | - | - |
| 2035 | | - | - | - | - | - | - |
| | | 4,000 | \$ 880,000 | - | \$ - | 1 | \$ 100,000 |

* Construction cost for buildings is estimated at \$200 per square foot for construction plus 10% for design. No outdoor parking and storage is proposed. The crime scene vehicle is estimated at prevailing rates.

CARRY-OVER PROJECT COSTS

A new Police Headquarters building was built by the City in 2006, the cost of which was included in the 2007 CIE Amendment for impact fee collection. At that time, the project was determined to be 38.11% impact fee eligible and the net project cost was included in the City's impact fee calculations. To date, the full amount of the impact fee eligible cost has not been spent, leaving a net amount for future growth and development.

Table 14 shows the original cost of the project, the percent impact fee eligible and the resulting ‘impact fee cost’. Subtracting out the amount of previously collected impact fees expended on the project, over \$1.7 million (in 2006 dollars) remains. In 2014 dollars, using the CPI inflation rate to determine the current value of the remainder, almost \$1.981 million can be collected in impact fees to fully fund new growth’s share of the project.¹

TABLE 14: CARRY-OVER POLICE SERVICES PROJECTS

| Project Description | Total City Cost* | % Impact Fee Eligible | Impact Fee Cost | Impact Fees Expended** | Net City Cost | Year of Completion | Net Present Value*** |
|---------------------|------------------|-----------------------|-----------------|------------------------|-----------------|--------------------|----------------------|
| Police Headquarters | \$ 6,746,135.00 | 38.11% | \$ 2,570,889.04 | \$ 856,635.13 | \$ 1,714,253.91 | 2006 | \$ 1,980,890.12 |
| | \$ 6,746,135.00 | | \$ 2,570,889.04 | \$ 856,635.13 | \$ 1,714,253.91 | | \$ 1,980,890.12 |

* Original cost of project.

** Impact fees collected prior to 2014 and expended on project.

*** Net Present Value = cost in year expended, inflated to 2014 using the Consumer Price Index.

FUTURE COSTS

In addition to the carry-over project discussed above, the costs of new facility floor area and the number of major vehicles proposed to serve future growth and development to 2035 are transferred from Table 24 to Table 26, including the years in which the various improvements are anticipated to be needed.

The LOS demand for future major vehicles calls for only a portion of a vehicle. Because only ‘whole’ vehicles can be purchased, one new vehicle is proposed to be purchased but only a portion would be impact fee-eligible and subject to impact fee collections from new growth. Thus, while 1 major vehicle is needed to be acquired to address the needs of future growth and development, it will not be 100% impact fee eligible. The vehicle will, however, provide service to growth beyond 2035, and can be funded through a future extension of the City’s impact fee program at that time.

The total cost figures are then aggregated to produce the ‘total impact fee eligible’ dollars on the table, based on the percentage that each improvement is impact fee eligible. (Note that only a portion of the major vehicle is impact fee eligible, as discussed above.) These impact fee eligible costs, which are shown in current (2014) dollars, are then converted to their Net Present Values based on the year in which they are scheduled.

¹ Note that impact fees previously collected from ‘past’ new growth and still on hand will be credited against the total cost of eligible impact fee projects that can be collected from future growth.

TABLE 15: PROJECT COSTS TO MEET FUTURE DEMAND

| Year | Costs in 2014 Dollars | | | | | | | |
|--|-----------------------|-----------------------|-------------------------|-----------------------|----------------------|-----------------------|---------------------------|-----------------------|
| | Building Costs | % Impact Fee Eligible | Parking & Storage Costs | % Impact Fee Eligible | Major Vehicle Cost | % Impact Fee Eligible | Total Impact Fee Eligible | Net Present Value* |
| Carry-Over Project (Headquarters) | | | | | | | | |
| 2006 | \$6,746,135.00 | 38.1% | | | | | \$1,714,253.91 | \$1,980,890.12 |
| Future System Improvements | | | | | | | | |
| 2014 | \$ - | | \$ - | | \$ - | | \$ - | \$ - |
| 2015 | - | | - | | - | | - | - |
| 2016 | - | | - | | 100,000.00 | 75.1% | 75,126.37 | 77,512.42 |
| 2017 | 440,000.00 | 100.0% | - | | - | | 440,000.00 | 467,926.51 |
| 2018 | - | | - | | - | | - | - |
| 2019 | - | | - | | - | | - | - |
| 2020 | - | | - | | - | | - | - |
| 2021 | - | | - | | - | | - | - |
| 2022 | - | | - | | - | | - | - |
| 2023 | - | | - | | - | | - | - |
| 2024 | - | | - | | - | | - | - |
| 2025 | 440,000.00 | 100.0% | - | | - | | 440,000.00 | 551,371.41 |
| 2026 | - | | - | | - | | - | - |
| 2027 | - | | - | | - | | - | - |
| 2028 | - | | - | | - | | - | - |
| 2029 | - | | - | | - | | - | - |
| 2030 | - | | - | | - | | - | - |
| 2031 | - | | - | | - | | - | - |
| 2032 | - | | - | | - | | - | - |
| 2033 | - | | - | | - | | - | - |
| 2034 | - | | - | | - | | - | - |
| 2035 | - | | - | | - | | - | - |
| | \$7,626,135.00 | | \$ - | | \$ 100,000.00 | | \$2,669,380.28 | \$3,077,700.46 |

* Net Present Value = 2014 cost estimate for buildings inflated to target year using the ENR Building Cost Index (BCI), and the Consumer Price Index (CPI) for outdoor parking & storage and for vehicles, all reduced to 2014 NPV using the Discount Rate.

Calculation of the Net Present Value for the headquarters building was described above and shown on Table 14. The Net Present Values for new building construction are calculated by increasing the current (2014) estimated construction costs using the Engineering News Record’s 10-year average building cost inflation (BCI) rate, and then discounting this future amount back to 2014 dollars using the Net Discount Rate. For non-construction improvements (such as land and major vehicles) the currently estimated cost is inflated to its target year using the 10-year average CPI and then reduced using the Net Discount Rate to produce the Net Present Value. (The approaches to calculating NPV are explained in detail in the Cost Adjustments and Credits Chapter of this report.)

PARKS AND RECREATION

INTRODUCTION

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

The City's facilities focus on limited and specialized recreational opportunities because its residents also have access to Fayette County parks and recreational programs and facilities, relieving the City from having to provide such major improvements such as ball fields, tennis and basketball courts.

SERVICE AREA

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

LEVEL OF SERVICE

The determination of Level of Service (LOS) standards for park lands and for recreational components such as playgrounds and trails begins with an inventory of existing City facilities.

TABLE 16: CURRENT INVENTORY OF PARK ACRES

| Facility | Park Acreage |
|---------------------------------|---------------|
| Parks | |
| Jack Day Park | 0.25 |
| Burch Park | 17.89 |
| Jeff Davis Park | 1.03 |
| Patriot Park | 7.00 |
| Church Street Park | 2.57 |
| <i>Total Park Acres</i> | 28.74 |
| Conservation Area | |
| The Ridge | 308.00 |
| <i>Total Conservation Acres</i> | 308.00 |
| Total Acres | 336.7 |

Table 16 shows the current inventory of park and conservation lands controlled by the City, while Table 17 includes a listing of current recreational facilities and trails.

Table 17 also provides calculations of the current Level of Service based on the inventory of lands and facilities in the city. For recreational lands, the LOS is based on the current number of housing units in the city, yielding the number of acres provided for each housing unit.

For recreational facilities, the number of components currently available for each type is divided by the number of housing units, as are the number of miles of trails, resulting in the number of components and trail miles per housing unit in the city.

TABLE 17: CURRENT LEVEL OF SERVICE CALCULATIONS

| Facility | Service Parameters | Level of Service |
|--------------------------------------|--------------------------------------|--|
| Existing Park Acreage | Existing Housing Units (2014) | Park Acres per Housing Unit |
| 28.7 | 6,874 | 0.004181 |
| Existing Conservation Acreage | Existing Housing Units (2014) | Conservation Acres per Housing Unit |
| 308.0 | 6,874 | 0.044807 |
| Component Type | Current Inventory (2014) | Components per Housing Unit |
| Recreation Facilities | | |
| Picnic Pavillion | 1 | 0.000145 |
| Playground | 1 | 0.000145 |
| Gazebo | 1 | 0.000145 |
| Amphitheater | 1 | 0.000145 |
| Concession Building | 1 | 0.000145 |
| Restrooms | 1 | 0.000145 |
| Trails (miles): | | |
| Redwine Multi-Use Path | 2.68 | |
| Patriot Park Walking Trail | 4.00 | |
| Lester Road Multi-Use Path | 1.13 | |
| <i>Total Trail Miles</i> | 7.81 | 0.001136 |

*Includes multi-purpose, walking, and jogging trails.

Note that the categories of components shown in this table are not necessarily the only component types that are or will be provided to City residents in the future.

FORECASTS FOR SERVICE AREA

FUTURE DEMAND

Applying the City's current Level of Service standards to the number of housing units that are projected for the city by 2035 results in figures that establish the maximum number of acres, recreation components and trail miles that could be included in an impact fee program. These maximums are shown on Table 18.

TABLE 18: FUTURE DEMAND MAXIMUMS

| Level of Service | Future Service Parameters | New Growth Demand |
|--|--|-------------------------------------|
| Park Acres per Housing Unit | Number of New Housing Units (2014-35) | Acres Demanded by New Growth |
| 0.004181 | 6,040 | 25.25 |
| Conservation Acres per Housing Unit | Number of New Housing Units (2014-35) | Acres Demanded by New Growth |
| 0.044807 | 6,040 | 270.63 |
| Components per Housing Unit | New Components Demanded (2014-2035) | |
| Recreation Facilities | | |
| 0.000145 | 0.8787 | Picnic Pavillion |
| 0.000145 | 0.8787 | Playground |
| 0.000145 | 0.8787 | Gazebo |
| 0.000145 | 0.8787 | Amphitheater |
| 0.000145 | 0.8787 | Concession Building |
| 0.000145 | 0.8787 | Restrooms |
| Trails (miles)* | | |
| 0.001136 | 6.8624 | Total Trail Miles |

* Includes multi-purpose and walking trails.

The 'new growth demand' figures are determined by multiplying the Level of Service standard for each item times the number of housing units anticipated to be added to the city between 2014 and 2035. The 'new housing units' figure is the citywide increase taken from Table 4: Service Area Forecasts.

SYSTEM IMPROVEMENTS PROPOSED

Within the context of the maximum acres of land, recreation facilities and trail miles that the City could authorize, there are specific plans for future system improvements to accommodate both existing and future residents. These plans address the specialized nature of the City's particular needs while recognizing the availability of the broader range of recreational opportunities provided to city residents by the County parks and recreation system.

Table 19 presents the City’s proposed system improvements that will serve its future growth and development. The first column of the table shows all system categories and the maximum number of acres, components and trail miles that could be justified to serve new growth.

TABLE 19: COSTS OF FUTURE PARK IMPROVEMENTS

| Improvement Type | Units Justified to Serve New Growth | Units to be Added (2014-2035) | Cost per Unit | Gross Cost | % for New Growth | Net Cost to New Growth |
|----------------------------------|-------------------------------------|-------------------------------|-------------------|-------------------|------------------|------------------------|
| New Park Lands | | | | | | |
| Park Acres | 25.25 | 0.00 | n/a | | 100.0% | \$ - |
| Conservation Acres | 270.63 | 0.00 | n/a | | 100.0% | \$ - |
| <i>Subtotal Land</i> | <i>295.88</i> | <i>0.00</i> | | | <i>100.0%</i> | <i>\$ -</i> |
| New Recreation Facilities | | | | | | |
| Picnic Pavillion* | 0.8787 | 1 | \$ 24,000 | \$ 24,000 | 87.87% | \$ 21,089 |
| Playground (Tot Lot)* | 0.8787 | 1 | \$ 10,000 | \$ 10,000 | 87.87% | \$ 8,787 |
| Gazebo* | 0.8787 | 1 | \$ 10,000 | \$ 10,000 | 87.87% | \$ 8,787 |
| Amphitheater | 0.8787 | 0 | n/a | | | \$ - |
| Concession Building | 0.8787 | 0 | n/a | | | \$ - |
| Restrooms | 0.8787 | 0 | n/a | | | \$ - |
| Other Improvements 1** | n/a | 1 | \$ 188,600 | \$ 188,600 | 87.87% | \$ 165,723 |
| Other Improvements 2** | n/a | 1 | \$ 93,000 | \$ 93,000 | 87.87% | \$ 81,719 |
| <i>Subtotal Rec Facilities</i> | | <i>5</i> | <i>\$ 325,600</i> | <i>\$ 325,600</i> | <i>87.87%</i> | <i>\$ 286,105</i> |
| New Trails | | | | | | |
| The Ridge Trails 1 | 1.307 | 1.307 | \$ 3,600 | \$ 3,600 | 100.0% | \$ 3,600 |
| The Ridge Trails 2 | 0.492 | 0.492 | \$ 10,400 | \$ 10,400 | 100.0% | \$ 10,400 |
| The Ridge Boardwalk | 0.189 | 0.189 | \$ 200,800 | \$ 200,800 | 100.0% | \$ 200,800 |
| Other Trails*** | 4.874 | 4.874 | \$ 21,120 | \$ 102,933.9 | 100.0% | \$ 102,934 |
| <i>Subtotal Trail Miles</i> | <i>6.862</i> | <i>6.862</i> | | <i>\$ 317,734</i> | <i>100.0%</i> | <i>\$ 317,734</i> |
| | | | | \$ 643,334 | | \$ 603,839 |

NOTE: Cost estimates are based on known or comparable facility costs.

* Facility is located within The Ridge recreation development.

** Development costs for The Ridge (P.K. Dixon Property) not included above or for trails, below, by Phase (1 or 2).

*** Cost estimates are based on budget estimates for The Ridge recreation development for those trails noted; cost of other trails (shown per mile) based on \$4 per foot.

Because of past land purchases (specifically the P.K. Dixon property), there is no need for further land purchases to achieve the City’s goals. In addition, there is no need to provide a second amphitheater (along with its concession building and restrooms), although partial funding of such a facility could be included in an impact fee program. Thus, no ‘units to be added’ are shown for these potential system improvements and therefore no costs to be collected from future growth.

The City does, however, plan to include a number of recreational facilities and trails as part of development of The Ridge project (i.e., the former P.K. Dixon property previously acquired). However, because one cannot construct a portion of a facility, but must construct only ‘whole’ numbers of facility types, the ‘units justified to serve new growth’ figures (taken from Table 18) are rounded up to the next ‘whole’ component in the ‘units to be added’ column. For example, new growth needs only a portion of a new gazebo by 2035 to meet its service demand. But since one cannot construct

0.8787 of a gazebo, one whole gazebo will have to be built. As a result the total cost of the gazebo is only 87.87% eligible to be recovered from new growth through an impact fee.

Specific recreational facilities to be constructed for which LOS standards were calculated are shown on Table 19, as well as additional improvements to be constructed as part of Phase 1 and Phase 2 of The Ridge project. Collectively, all 'new recreational facilities' to be included in The Ridge project are included in the subtotal for recreational facilities. The same LOS standard applicable for all specified facilities is applied equally to all 'other' facilities proposed in the development.

The Ridge recreational development also includes a number of trails, including a boardwalk. These are listed on Table 19. Because the total number of trail miles justified to serve new growth is greater than the miles to be built in The Ridge, an 'other trails' category is included for future construction of trails in or connected to The Ridge system or in other locations within the city. Since the total miles to be constructed satisfies the miles that are justified to serve new growth, each of the trail projects are 100% impact fee eligible.

CARRY-OVER PROJECTS

Three mayor projects were included in the City's 2007 CIE Amendment for impact fee collection, each of which have outstanding balances yet to be collected from future growth and development. Level of Service standards for each project were determined in the 2007 impact fee program, along with costs, which are shown on Table 20. To date, the full amount of the impact fee eligible cost of each project has not been collected or spent, leaving a net amount for future growth and development.

TABLE 20: CARRY-OVER PARKS PROJECTS

| Project Description | Total City Cost* | % Impact Fee Eligible | Impact Fee Cost | Impact Fees Expended** | Net City Cost | Year of Completion | Net Present Value*** |
|---------------------------------|------------------|-----------------------|-----------------|------------------------|-----------------|--------------------|----------------------|
| P.K. Dixon Property Acquisition | \$ 499,265.64 | 44.05% | \$ 219,913.00 | \$ - | \$ 219,913.00 | 2010 | \$ 234,940.90 |
| Holliday Dorsey Fife House | \$ 1,564,823.95 | 100.00% | \$ 1,564,823.95 | \$ 166,212.83 | \$ 1,398,611.12 | 2004 | \$ 1,724,808.10 |
| Amphitheater | \$ 2,560,364.00 | 49.71% | \$ 1,272,831.81 | \$ 191,492.81 | \$ 1,081,339.00 | 2005 | \$ 1,289,838.65 |
| | \$ 4,624,453.59 | | \$ 3,057,568.76 | \$ 357,705.64 | \$ 2,699,863.12 | | \$ 3,249,587.65 |

* Original cost of project less grants or other non-city assistance.

** Impact fees collected prior to 2014 and expended on project.

*** Net Present Value = cost in year expended, inflated to 2014 using the Consumer Price Index.

Table 20 shows the original cost of each project, the percent impact fee eligible and the resulting 'impact fee cost'. Subtracting out the amount of previously collected impact fees expended on the projects, almost \$2.7 million (in 2006 dollars) remains. In 2014 dollars, using the CPI inflation rate to determine the current value of the remainder, almost \$3.3 million can be collected in impact fees to fully fund new growth's share of the projects.²

² Note that impact fees previously collected from 'past' new growth and still on hand will be credited against the total cost of eligible impact fee projects that can be collected from future 2014-2035 growth.

FUTURE COSTS

Table 21 provides a listing of the carry-over and future capital project costs for the recreation components in place and proposed to serve new growth. The current (2014) ‘impact fee eligible cost’ figures are drawn from Table 19 for new components and from Table 20 for the carry-over projects. The year each project was or is proposed to be constructed is also shown.

TABLE 21: ELIGIBLE AND NON-ELIGIBLE PROJECT COSTS TO SERVE FUTURE GROWTH

| Component | Impact Fee Eligible Cost (2014) | Year | Net Present Value | Non-Eligible Project Cost | Net Present Value |
|----------------------------------|---------------------------------|------|------------------------|---------------------------|---------------------|
| Carry-Over Projects | | | | | |
| P.K. Dixon Property | \$ 219,913.00 | 2010 | \$ 234,940.90 | \$ - | |
| Holiday Dorsey Fife House | \$ 1,398,611.12 | 2004 | \$ 1,724,808.10 | \$ - | |
| Amphitheater | \$ 1,081,339.00 | 2005 | \$ 1,289,838.65 | \$ - | |
| New Park Lands | \$ - | | | \$ - | |
| New Recreation Facilities | | | | | |
| Picnic Pavillion | \$ 21,088.80 | 2016 | \$ 22,458.98 | \$ 2,911.20 | \$ 3,100.35 |
| Playground (Tot Lot) | \$ 8,787.00 | 2016 | \$ 9,357.91 | \$ 1,213.00 | \$ 1,291.81 |
| Gazebo | \$ 8,787.00 | 2018 | \$ 9,965.91 | \$ 1,213.00 | \$ 1,375.74 |
| Other Improvements 1 | \$ 165,722.82 | 2016 | \$ 176,490.14 | \$ 22,877.18 | \$ 24,363.55 |
| Other Improvements 2 | \$ 81,719.10 | 2018 | \$ 92,682.95 | \$ 11,280.90 | \$ 12,794.40 |
| New Trails | | | | | |
| The Ridge Trails 1 | \$ 3,600.00 | 2016 | \$ 3,833.90 | \$ - | \$ - |
| The Ridge Trails 2 | \$ 10,400.00 | 2018 | \$ 11,795.32 | \$ - | \$ - |
| The Ridge Boardwalk | \$ 200,800.00 | 2018 | \$ 227,740.34 | \$ - | \$ - |
| Other Trails | \$ 102,933.89 | 2025 | \$ 145,518.46 | \$ - | \$ - |
| | \$ 3,303,701.72 | | \$ 3,949,431.55 | \$ 39,495.28 | \$ 42,925.85 |

For new projects, Net Present Value = 2014 cost estimate inflated to target year using the ENR Construction Cost Index, reduced to 2014 NPV using the Discount Rate.

The Net Present Value of each of the carry-over projects is taken from Table 20. For the construction of the new recreational facilities and the trails, the Net Present Values are calculated by increasing the current (2014) estimated construction costs using the Engineering News Record’s 10-year average construction cost inflation (CCI) rate, and then discounting the future amounts back to 2014 dollars using the Net discount Rate. This is done for both the impact fee eligible costs and the non-eligible costs. (The approaches to calculating NPV are explained in detail in the Cost Adjustments and Credits Section of this report.)

ROAD IMPROVEMENTS

INTRODUCTION

The information in this chapter is derived from road project information reflecting currently on-going and proposed road projects.

SERVICE AREA

The service area for these road projects is defined as the entire city, in that these road projects are recognized as providing primary access to all properties within the city as part of the citywide network of principal streets and thoroughfares. All new development within the city will be served by this citywide 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 city.

LEVEL OF SERVICE STANDARDS

Level of Service 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.

LEVEL OF SERVICE

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

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 2035 will represent a certain portion of all 2035 traffic, new growth would be responsible for that portions' cost of the road improvements.

It is noted that the cost-impact of non-Fayetteville generated traffic on the roads traversing the city (cross commutes) is off-set by state and federal assistance. The net cost of the road projects that accrues to Fayetteville reasonably represents (i.e., is 'roughly proportional' to) the impact on the roads by Fayetteville residents and businesses.

The basis for the road impact fee would therefore be Fayetteville's cost for the improvements divided by all traffic in 2035 (existing today plus new growth)—i.e., the cost per trip—times the traffic generated by new growth alone. For an individual land use, the cost per trip (above) would be applied to the number of trips that will be generated by the new development when a building permit is issued, assuring that new growth would only pay its 'fair share' of the road improvements that serve it.

FORECASTS FOR SERVICE AREA

Projects that provide road capacity that will serve new growth have been identified by the City and are shown on Table 22. This is not a list of all City road projects. These projects were selected for inclusion in the City's impact fee program because the specific improvements proposed will increase traffic capacity and reduce congestion to some extent, whether through road widening, improved intersection operations or upgraded signalization.

The cost figures shown in the first four columns of Table 22 are in current dollars. These figures are then calculated in Net Present Value (as discussed in the Cost Adjustments and Credits chapter) and shown in the last column, based on the anticipated year of project expenditure.

TABLE 22: ROAD PROJECTS AND ESTIMATED COSTS

| Project Description | Total Cost | Total City Cost* | Impact Fees Expended** | Net City Cost | Projected Year of Completion | Net Present Value*** |
|---|------------------|------------------|------------------------|------------------|------------------------------|----------------------|
| Lafayette Ave Extension | \$ 665,500.00 | \$ 665,500.00 | \$ 8,873.37 | \$ 656,626.63 | 2020 | \$ 768,535.30 |
| Lafayette/Glynn Street | 250,000.00 | 250,000.00 | 8,873.37 | 241,126.63 | 2020 | 282,221.77 |
| Jeff Davis Shoulder | 425,000.00 | 425,000.00 | 20,820.25 | 404,179.75 | 2018 | 444,203.27 |
| Stonewall/85 Left Turn | 142,000.00 | 142,000.00 | 8,873.38 | 133,126.62 | 2015 | 133,126.62 |
| Grady/Beauregard | 819,052.00 | 819,052.00 | | 819,052.00 | 2020 | 958,642.77 |
| LaFayette/Tiger Trail | 600,000.00 | 600,000.00 | 50,307.07 | 549,692.93 | 2017 | 585,407.50 |
| Highway 54/Gingercake | 11,000.00 | 11,000.00 | - | 11,000.00 | 2017 | 11,714.69 |
| Hood Ave Conn/SR92 | 1,639,800.00 | 560,000.00 | 82,878.95 | 477,121.05 | 2016 | 492,376.87 |
| Highway 85 Medians Phase 1 | 83,352.33 | 83,352.33 | - | 83,352.33 | 2016 | 86,017.50 |
| Highway 85 Medians Phase 2 | 83,352.33 | 83,352.33 | - | 83,352.33 | 2016 | 86,017.50 |
| Highway 85 Medians Phase 3 | 83,352.33 | 83,352.33 | - | 83,352.33 | 2016 | 86,017.50 |
| Highway 85 Streetscape | 28,296.00 | 28,296.00 | - | 28,296.00 | 2017 | 30,134.44 |
| Redwine/Ramah Road Roundabout | 900,000.00 | 900,000.00 | - | 900,000.00 | 2020 | 1,053,386.72 |
| Veterans Pkwy Large Roundabout x 2 | \$ 2,600,000.00 | 2,600,000.00 | | 2,600,000.00 | 2022 | 3,240,834.15 |
| Veterans Pkwy Small Roundabout (Sndy Crk) | \$ 900,000.00 | 900,000.00 | | 900,000.00 | 2022 | 1,121,827.21 |
| Veterans Pkwy 4-lane expansion (1.5 mile) | \$ 8,000,000.00 | 8,000,000.00 | | 8,000,000.00 | 2022 | 9,971,797.38 |
| Fischer Road Extension (Downtown Expan.) | 12,000,000.00 | 12,000,000.00 | - | 12,000,000.00 | 2020 | 14,045,156.20 |
| Highway 54/Grady Avenue | 500,000.00 | 500,000.00 | - | 500,000.00 | 2019 | 567,082.53 |
| | \$ 29,730,704.99 | \$ 28,650,904.99 | \$ 180,626.39 | \$ 28,470,278.60 | | \$ 33,964,499.91 |

* Total cost of project less grants or other non-city assistance.

** Impact fees collected prior to 2014 and expended on project.

*** Net Present Value = 2014 cost estimate inflated to target year using the ENR Construction Cost Index, reduced to 2015 NPV using the Discount Rate.

ELIGIBLE COSTS

As discussed thoroughly in the *Methodology: Trip Generation* section of the Technical Appendix, new growth and development will represent 40.7% of the primary trip traffic on Fayetteville's road network in 2035. To that extent, new growth's fair share of the road project costs that are attributed to new growth are shown on the following table.

TABLE 23: ELIGIBLE COST CALCULATION

| Project | Net Present Value | % Impact Fee Eligible* | New Growth Cost |
|---|-------------------|------------------------|------------------|
| Lafayette Ave Extension | \$ 768,535.30 | 40.7% | \$ 312,568.09 |
| Lafayette/Glynn Street | 282,221.77 | 40.7% | 114,781.35 |
| Jeff Davis Shoulder | 444,203.27 | 40.7% | 180,660.23 |
| Stonewall/85 Left Turn | 133,126.62 | 40.7% | 54,143.42 |
| Grady/Beauregard | 958,642.77 | 40.7% | 389,885.98 |
| LaFayette/Tiger Trail | 585,407.50 | 40.7% | 238,088.87 |
| Highway 54/Gingercake | 11,714.69 | 40.7% | 4,764.44 |
| Hood Ave Conn/SR92 | 492,376.87 | 40.7% | 200,252.73 |
| Highway 85 Medians Phase 1 | 86,017.50 | 40.7% | 34,983.85 |
| Highway 85 Medians Phase 2 | 86,017.50 | 40.7% | 34,983.85 |
| Highway 85 Medians Phase 3 | 86,017.50 | 40.7% | 34,983.85 |
| Highway 85 Streetscape | 30,134.44 | 40.7% | 12,255.87 |
| Redwine/Ramah Road Roundabout | 1,053,386.72 | 40.7% | 428,418.93 |
| Veterans Pkwy Large Roundabout x 2 | 3,240,834.15 | 40.7% | 1,318,067.40 |
| Veterans Pkwy Small Roundabout (Sndy Crk) | 1,121,827.21 | 40.7% | 456,254.10 |
| Veterans Pkwy 4-lane expansion (1.5 mile) | 9,971,797.38 | 40.7% | 4,055,592.00 |
| Fischer Road Extension (Downtown Expan.) | 14,045,156.20 | 40.7% | 5,712,252.37 |
| Highway 54/Grady Avenue | 567,082.53 | 40.7% | 230,635.99 |
| | \$ 33,964,499.91 | | \$ 13,813,573.32 |

* See the *Methodology--Trip Generation* section in the Technical Appendix.

COMMUNITY WORK PROGRAM

The City's 5-Year Community Work Program, covering 2017 to 2021, is contained in the Comprehensive Plan in its entirety.

The following impact fee funded projects are excerpted from the Community Work Program for informational purposes related to this Community Facilities Element.

| Project | Start Year | Comp. Year | Cost Estimate | Funding Source | Responsible Party |
|--------------------------------------|------------|------------|---------------|--------------------------------|-------------------|
| Impact Fee Related Projects | | | | | |
| Design/Construct New Fire Station 93 | 2017 | 2019 | \$2,222,000 | 100% Impact Fees | Fire Department |
| Fire Apparatus - Engine | 2018 | 2018 | \$638,718 | 100% Impact Fees | Fire Department |
| Police Dept. Office Space Expansion | 2017 | 2018 | \$467,927 | 100% Impact Fees | Police Department |
| Park improvements: Gazebo | 2018 | 2018 | \$11,342 | 87.87% Impact Fees; SPLOST, GF | Public Services |
| Park improvements: The Ridge | 2018 | 2018 | \$105,477 | 87.87% Impact Fees; SPLOST, GF | Public Services |
| The Ridge Trails 2 | 2018 | 2018 | \$11,795 | 100% Impact Fees | Public Services |
| The Ridge Boardwalk | 2018 | 2018 | \$227,740 | 100% Impact Fees | Public Services |
| Lafayette Ave Extension | On-going | 2020 | \$768,535 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Lafayette/Glynn Extension | On-going | 2020 | \$282,222 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Jeff Davis Shoulder | On-going | 2018 | \$444,203 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Grady/Beauregard | On-going | 2020 | \$958,643 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Lafayette/Tiger Trail | On-going | 2017 | \$585,408 | 40.7% Impact Fees; SPLOST, GF | Public Services |

| Project | Start Year | Comp. Year | Cost Estimate | Funding Source | Responsible Party |
|--|------------|------------|---------------|-------------------------------|-------------------|
| Highway 54/Gingercake | On-going | 2017 | \$11,715 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Highway 85 Streetscape | On-going | 2017 | \$30,134 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Redwine/Ramah Road Roundabout | On-going | 2020 | \$1,053,387 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Veterans Pkwy Large Roundabout x 2 | On-going | 2022 | \$3,240,834 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Veterans Pkwy Small Roundabout (Sandy Creek) | On-going | 2022 | \$1,121,827 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Veterans Pkwy 4-lane expansion (1.5 mile) | On-going | 2022 | \$9,971,797 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Fischer Road Extension (Downtown Expansion) | On-going | 2020 | \$14,045,156 | 40.7% Impact Fees; SPLOST, GF | Public Services |
| Highway 54/Grady Avenue | On-going | 2019 | \$567,082 | 40.7% Impact Fees; SPLOST, GF | Public Services |

NOTE: All impact fee related project costs are calculated as Net Present Value as required by the Georgia Development Impact Fee law.

GLOSSARY

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

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

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

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

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

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

- (A) Water supply production, treatment, and distribution facilities;
- (B) Waste-water collection, treatment, and disposal facilities;
- (C) Roads, streets, and bridges, including rights of way, traffic signals, landscaping, and any local components of state or federal highways;
- (D) Storm-water collection, retention, detention, treatment, and disposal facilities, flood control facilities, and bank and shore protection and enhancement improvements;
- (E) Parks, open space, and recreation areas and related facilities;
- (F) Public safety facilities, including police, fire, emergency medical, and rescue facilities; and
- (G) Libraries and related facilities.

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

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

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

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

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

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

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

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

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

APPENDIX

TECHNICAL ANALYSIS—POPULATION FORECASTS

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

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

The various approaches presented in the Methodology below are:

- 2000-2014 Census population data projected to 2035 on a ‘straight line’ basis for each city in Fayette County using a ‘linear trend’ regression.
- 2000-2014 Census population data projected to 2035 on a ‘curved line’ basis for each city in Fayette County using a ‘growth trend’ regression.
- 2000-2007 Census population data projected to 2035 for each city and the county as a whole, assuming that future growth will return to the historic rates experienced before the great Recession.

In the process:

- Linear and growth trend projections were made for the county and compared to forecasts by the State OPB and Woods & Poole;
- Each city’s future ‘share’ of the county population was calculated and considered; and
- Historical data on the total number of new housing units that were authorized by building permits in the county’s three largest cities (Fayetteville, Peachtree City and Tyrone) and in the unincorporated area of the county was considered.

CONCLUSION

Fayetteville’s population growth proceeded at a relatively steady pace during the past decade, but levelled off somewhat starting in 2010 and ‘up-ticked’ in 2014. Building permitting for housing units totaled more than every other city in the county during the pre-recession years of 2000 to 2007, but fell dramatically during the Great Recession (as was the case in all of the cities in Fayette County). Compared to Peachtree City, Fayetteville’s percentage share of countywide population increased gradually throughout the 2000-2010 period while Peachtree City’s share fell slowly but steadily during the same decade. Future population growth in the coming 21 years to 2035 is expected to resume

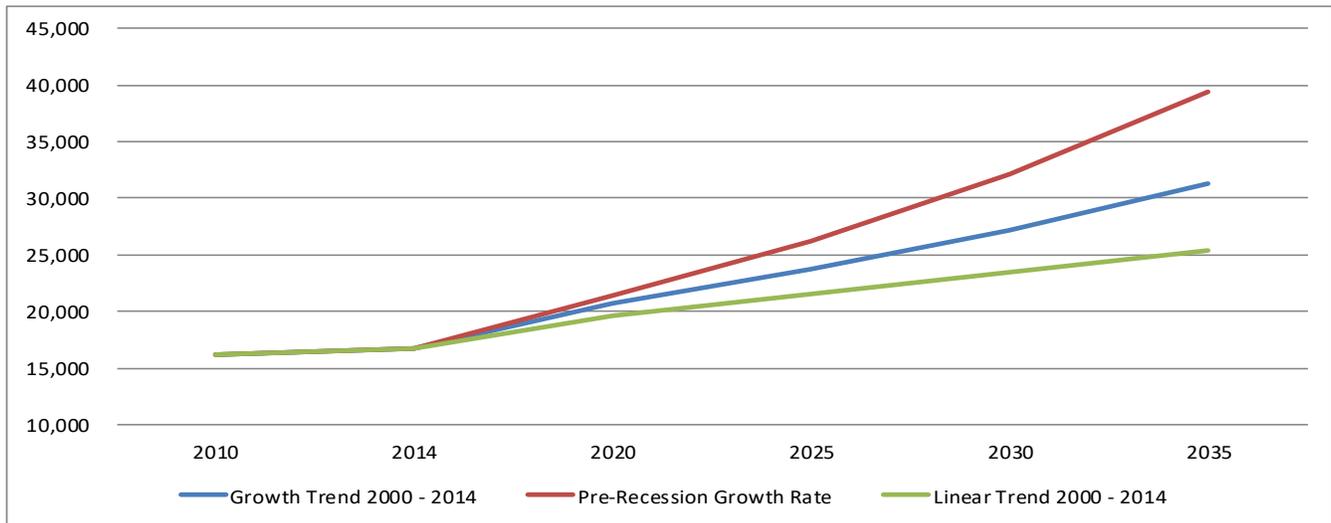
and continue within the city, possibly generating additional annexations, such that the city’s percentage share of the total county will continue to grow and Fayetteville’s 2035 population will draw closer to that of Peachtree City. This trend has already begun, considering the city’s rebound in building permit activity in 2012.

ALTERNATE POPULATION FORECASTS

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

Summary: Fayetteville Population Forecasts

| | 2010 | 2014 | 2020 | 2025 | 2030 | 2035 | Change 2014-2035 |
|---------------------------|--------|--------|--------|--------|--------|--------|------------------|
| Linear Trend 2000 - 2014 | 16,156 | 16,725 | 19,598 | 21,549 | 23,500 | 25,451 | 8,726 |
| Growth Trend 2000 - 2014 | 16,156 | 16,725 | 20,656 | 23,718 | 27,234 | 31,272 | 14,547 |
| Pre-Recession Growth Rate | 16,156 | 16,725 | 21,357 | 26,183 | 32,100 | 39,354 | 22,629 |



| | 2000-2007 | 2000-2014 | Linear Trend | Growth Trend | Pre-Recession Growth |
|-------------------------|-----------|-----------|--------------|--------------|----------------------|
| Percent Increase | 32.41% | 47.79% | 52.17% | 86.98% | 135.30% |
| Average Annual Increase | 4.63% | 3.41% | 2.48% | 4.14% | 6.44% |

The growth rate figures below the graph are particularly revealing.

Although the **Pre-Recession Growth** approach was intended to ‘resume’ the normal growth of the 2000-2007 period, the projection actually exaggerates the results: while the 2000-2007 average annual increase comes out at 4.63%, the data projected to 2035 averages 6.44% per year. This anomaly is a function of the math trying to smooth out a curvilinear pattern to data points that vary each year, both up and down, in a short period of time.

The **Growth Trend** forecast more closely replicates the pre-recession growth rate with an average at 4.14% per year, resuming after the recessionary slump. Even so, the forecast indicates that the city's population will almost double over the coming 21 years (compared to a 48% increase experienced between 2000 and 2014, including the slump).

The **Linear Trend** forecast proceeds at a low average annual rate of 2.48%, which is below the 3.41% averaged over the good and bad years of the 2000-2014 period. On the other hand, if growth slackens over the next 21 years at the Linear Trend 2.48% annual rate, by 2035 the city still will have increased its population by 52.17%.

RECOMMENDATION

Fayette County has been a 'hot market' for housing for many years and, despite the Great Recession, will be again in the future. Although Fayetteville authorized building permits between 2000 and 2014 for more housing units than any other city in the county, the unincorporated area of the county outstripped it by 48%, and permitting in the unincorporated area rebounded from the recession more quickly than did the cities, starting in 2010 and jumping notably from 2012 on. Fayetteville followed soon after in 2012, rebounding well ahead of Peachtree City and Tyrone.

For Fayetteville, the ability of the city to accommodate future market demand for new housing relies to a large extent on the availability of land for new development, coupled possibly with some limited redevelopment of older deteriorating areas in the decades ahead. The City has annexed land to the west for development of Pinewood Studios and attendant businesses, as well as some new housing. As Fayetteville resumes its role, along with the unincorporated area, as 'the other' hot market for housing and capitalizes on new businesses related to the movie and video industry, additional annexations providing more land availability may occur that will realize the city's future growth potential.

We believe that an approach recognizing that growth will resume a more 'normal' pattern following the recessionary slump is the most realistic. That approach is best reflected in the **Growth Trend** forecast for the reasons described above.

METHODOLOGY

HISTORIC POPULATION GROWTH

On Table 1 the latest population estimates are shown for each year between 2000 and 2014, for each city in Fayette County and the county as a whole, prepared by the Census Bureau as part of their Annual Estimates program. These particular figures are from the Intercensal Estimates for 2000-2009 (the Bureau revises its annual estimates for the preceding decade after a Decennial Census to correct individual errors) and from the Census Bureau's Annual Estimates Program for 2010, 2011, 2012, 2013 and 2014. (When the 2014 annual estimates were published, the 2010 estimate was slightly revised.)

It is important to note that Census Bureau estimates are made as of July 1 of each year, so they are slightly off from the Decennial Census figures for 2000 and 2010. Each Decennial Census is taken as of

April 1. For instance, the population figure for '2007' on Table 1 would be as of July 1, 2007, covering the previous 12 months from June 30, 2006.³

Also shown on Table 1 is each city's percentage of the total Fayette County population each year. These percentages will be compared later to percentage share trends into the future to 2035.

PROJECTING HISTORIC TRENDS INTO THE FUTURE

In order to get a 'handle' on population projections for Fayette County and its cities, the population figures from the Census Bureau (Table 1) are projected to the year 2035 using two types of regression analysis (often called 'trend analysis' and referred to by mathematicians as using the 'least squares' method):

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

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

ALTERNATE PROJECTIONS

Tables 2 and 3 present alternate projections for the cities that comprise Fayette County, and Table 4 for the county as a whole, based on the Census population data for 2000 to 2014.

Table 2 shows the results of the linear trend regression approach for each of the cities, while Table 3 shows the projections from the growth trend regression approach. For Fayetteville, the projections result in 2035 populations that differ by 23% (5,821 people). This is not as great as the difference for Tyrone (51%), but far larger than for Peachtree City (2%) which is a considerably more 'mature' built-out city than Fayetteville. However, because the growth trend regression results in a notably larger population for Fayetteville in 2035 over the linear trend regression, a perceptible 'curve' in the historic data is indicated.

Table 4 presents the results of the linear trend and growth trend approaches to 2035 for the county as a whole. The results diverge by about 5% over the projection period.

For comparison purposes, forecasts prepared for Fayette County by the State OPB (made to 2030 and extended to 2035) and by Woods & Poole (which are generally recognized by DCA as authoritative) are also shown on Table 4, along with a 'pre-recession' growth forecast for the county (discussed below).

Overall, the countywide linear trend projection and the OPB forecast result in very similar but low population figures in 2035, while the Woods & Poole figure appears overly enthusiastic compared to the others. The growth trend and the 'pre-recession' projections bear further consideration as appearing to be moderate interpretations of future market pressures and population growth.

³ Since the effects of the Great Recession were first observed in late 2007, we therefore refer to the 'pre-recession' years as ending in 2007 and the slump beginning in 2008 when using the annual Census estimates.

PRE-RECESSION GROWTH RATES

Up to this point, the various projections have been based on the full complement of historic data from 2000 to 2014. This span of time, of course includes what may be considered ‘normal’ growth between 2000 and 2007, followed by the recessionary slump from 2008 to 2010 and the flicker of a recovery starting in 2011-2012.

The projections on Table 5 are made on the assumption that, now that recovery seems to be a reality at last, ‘normal’ growth will eventually return. Basing the projections for the county and all of its cities on the 2000-2007 period is a two-step procedure: First projections to 2035 are made using the growth trend regression model against the ‘normal’ years, with the first projection year being 2008. (This, of course, results in 2014 figures larger than the Census data.) The second step, therefore, is to adjust the projections to the ‘actual’ 2014 figure, reducing the initial data stream for each city and the county across the board.

Table 6 converts the ‘pre-recession’ projections from 2015 to 2035 for the cities into percentage shares of the county total which, when compared to the percentage shares of the 2000-2014 period show a continuing trend from the past into the future.

GROWTH TREND COUNTY SHARES

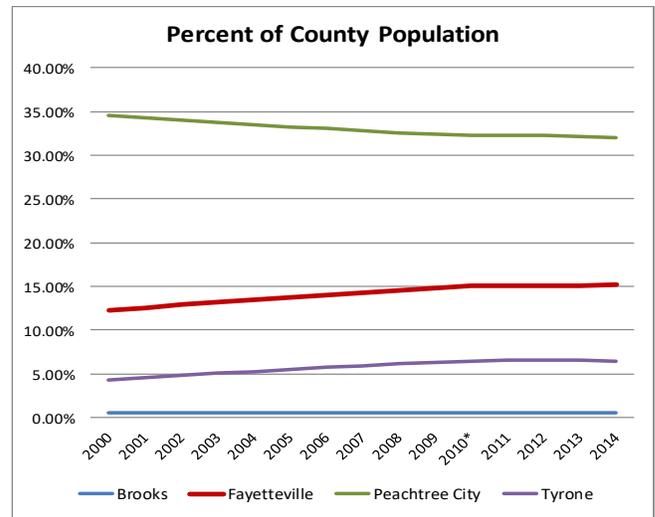
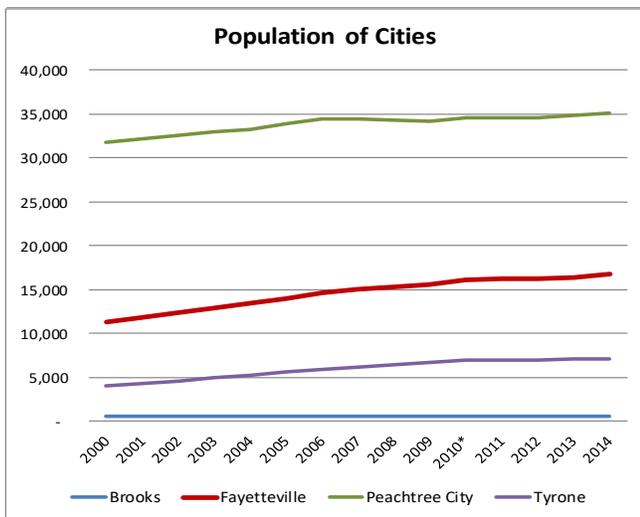
For comparison purposes, Table 7 has been prepared to show the percentage shares of the county and for each city using the Growth Trend figures - from Table 3 for the cities and from Table 4 for the county. The Growth Trend projection to 2035 for the county as a whole is 145,297, compared to the Pre-recession Growth trend projection reaching 164,948. When compared to the percentage shares of the 2000-2014 period, the city shares produced by the Growth Trend show a continuing trend from the past into the future, much like the results of the Pre-Recession Growth projections and ending with roughly similar percentages for each city in 2035.

As an aside to the population projections, Table 8 shows the total number of housing units authorized by building permits in the county’s largest three cities and in the unincorporated area. Nothing better reflects the devastating effects of the recession on all of these jurisdictions as permitting began to plummet for most starting in calendar year 2007 and continued with dramatic reductions in 2008. Some turn-around can be seen in the unincorporated area beginning in 2010 and in Fayetteville in 2012, while Peachtree City and Tyrone have seen very modest increases.

Table 1: Census Population Data

| | ← Intercensal Population Estimates → | | | | | | | | | | Annual Estimates Program | | | | |
|---------------------|--------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|---------------|---------------|---------------|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010* | 2011 | 2012 | 2013 | 2014 |
| Brooks | 490 | 496 | 501 | 506 | 511 | 520 | 527 | 527 | 524 | 522 | 526 | 526 | 527 | 533 | 540 |
| Fayetteville | 11,317 | 11,855 | 12,358 | 12,887 | 13,421 | 14,027 | 14,587 | 14,985 | 15,265 | 15,563 | 16,156 | 16,191 | 16,203 | 16,354 | 16,725 |
| Peachtree City | 31,764 | 32,211 | 32,519 | 32,934 | 33,303 | 33,913 | 34,391 | 34,455 | 34,301 | 34,183 | 34,512 | 34,566 | 34,635 | 34,867 | 35,063 |
| Tyrone | 3,982 | 4,304 | 4,609 | 4,931 | 5,247 | 5,605 | 5,946 | 6,214 | 6,439 | 6,663 | 6,952 | 6,985 | 7,013 | 7,073 | 7,135 |
| Woolsey | 156 | 157 | 157 | 158 | 159 | 161 | 162 | 161 | 159 | 158 | 159 | 159 | 159 | 160 | 163 |
| Fayette County | 92,073 | 94,086 | 95,707 | 97,634 | 99,443 | 101,961 | 104,099 | 104,989 | 105,192 | 105,493 | 106,990 | 107,211 | 107,432 | 108,355 | 109,664 |

| | Percent of County Population | | | | | | | | | | | | | | |
|---------------------|------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010* | 2011 | 2012 | 2013 | 2014 |
| Brooks | 0.53% | 0.53% | 0.52% | 0.52% | 0.51% | 0.51% | 0.51% | 0.50% | 0.50% | 0.49% | 0.49% | 0.49% | 0.49% | 0.49% | 0.49% |
| Fayetteville | 12.29% | 12.60% | 12.91% | 13.20% | 13.50% | 13.76% | 14.01% | 14.27% | 14.51% | 14.75% | 15.10% | 15.10% | 15.08% | 15.09% | 15.25% |
| Peachtree City | 34.50% | 34.24% | 33.98% | 33.73% | 33.49% | 33.26% | 33.04% | 32.82% | 32.61% | 32.40% | 32.26% | 32.24% | 32.24% | 32.18% | 31.97% |
| Tyrone | 4.32% | 4.57% | 4.82% | 5.05% | 5.28% | 5.50% | 5.71% | 5.92% | 6.12% | 6.32% | 6.50% | 6.52% | 6.53% | 6.53% | 6.51% |
| Woolsey | 0.17% | 0.17% | 0.16% | 0.16% | 0.16% | 0.16% | 0.16% | 0.15% | 0.15% | 0.15% | 0.15% | 0.15% | 0.15% | 0.15% | 0.15% |



* Revised by Census Bureau in 2014.

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

Sources: For 2010 to 2014: Census Estimates Program, 2011-2014, US Bureau of the Census.

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

Table 2: City Projections, Linear Trend

| | Brooks | Fayetteville | Peachtree City | Tyrone | Woolsey |
|------|--------|--------------|----------------|--------|---------|
| 2000 | 490 | 11,317 | 31,764 | 3,982 | 156 |
| 2001 | 496 | 11,855 | 32,211 | 4,304 | 157 |
| 2002 | 501 | 12,358 | 32,519 | 4,609 | 157 |
| 2003 | 506 | 12,887 | 32,934 | 4,931 | 158 |
| 2004 | 511 | 13,421 | 33,303 | 5,247 | 159 |
| 2005 | 520 | 14,027 | 33,913 | 5,605 | 161 |
| 2006 | 527 | 14,587 | 34,391 | 5,946 | 162 |
| 2007 | 527 | 14,985 | 34,455 | 6,214 | 161 |
| 2008 | 524 | 15,265 | 34,301 | 6,439 | 159 |
| 2009 | 522 | 15,563 | 34,183 | 6,663 | 158 |
| 2010 | 526 | 16,156 | 34,512 | 6,952 | 159 |
| 2011 | 526 | 16,191 | 34,566 | 6,985 | 159 |
| 2012 | 527 | 16,203 | 34,635 | 7,013 | 159 |
| 2013 | 533 | 16,354 | 34,867 | 7,073 | 160 |
| 2014 | 540 | 16,725 | 35,063 | 7,135 | 163 |
| 2015 | 542 | 17,648 | 35,562 | 7,844 | 161 |
| 2016 | 545 | 18,038 | 35,777 | 8,082 | 162 |
| 2017 | 548 | 18,428 | 35,992 | 8,320 | 162 |
| 2018 | 551 | 18,818 | 36,207 | 8,558 | 162 |
| 2019 | 554 | 19,208 | 36,422 | 8,796 | 162 |
| 2020 | 557 | 19,598 | 36,637 | 9,034 | 163 |
| 2021 | 560 | 19,989 | 36,852 | 9,272 | 163 |
| 2022 | 563 | 20,379 | 37,067 | 9,510 | 163 |
| 2023 | 566 | 20,769 | 37,282 | 9,748 | 163 |
| 2024 | 569 | 21,159 | 37,497 | 9,986 | 164 |
| 2025 | 572 | 21,549 | 37,712 | 10,224 | 164 |
| 2026 | 575 | 21,939 | 37,927 | 10,462 | 164 |
| 2027 | 578 | 22,330 | 38,142 | 10,700 | 164 |
| 2028 | 581 | 22,720 | 38,357 | 10,938 | 165 |
| 2029 | 583 | 23,110 | 38,572 | 11,176 | 165 |
| 2030 | 586 | 23,500 | 38,787 | 11,414 | 165 |
| 2031 | 589 | 23,890 | 39,002 | 11,652 | 165 |
| 2032 | 592 | 24,280 | 39,217 | 11,890 | 166 |
| 2033 | 595 | 24,671 | 39,432 | 12,128 | 166 |
| 2034 | 598 | 25,061 | 39,647 | 12,366 | 166 |
| 2035 | 601 | 25,451 | 39,863 | 12,604 | 166 |

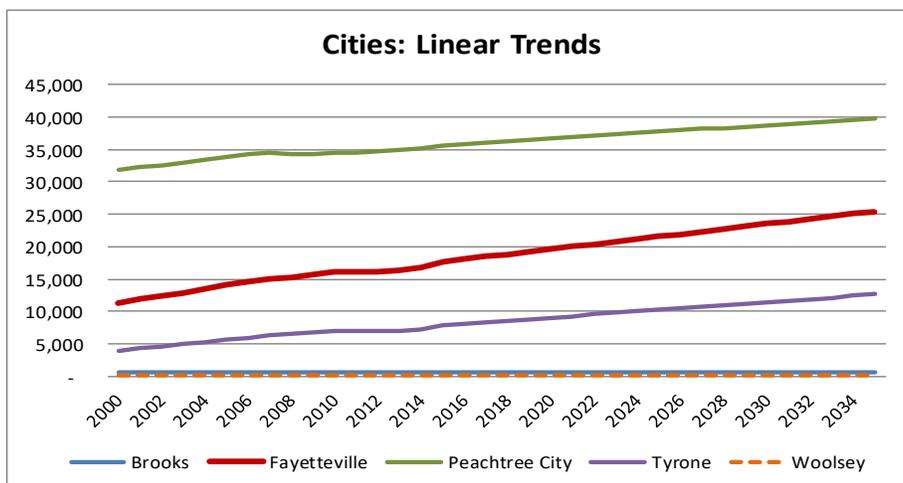


Table 3: City Projections, Growth Trend

| | Brooks | Fayetteville | Peachtree City | Tyrone | Woolsey |
|------|--------|--------------|----------------|--------|---------|
| 2000 | 490 | 11,317 | 31,764 | 3,982 | 156 |
| 2001 | 496 | 11,855 | 32,211 | 4,304 | 157 |
| 2002 | 501 | 12,358 | 32,519 | 4,609 | 157 |
| 2003 | 506 | 12,887 | 32,934 | 4,931 | 158 |
| 2004 | 511 | 13,421 | 33,303 | 5,247 | 159 |
| 2005 | 520 | 14,027 | 33,913 | 5,605 | 161 |
| 2006 | 527 | 14,587 | 34,391 | 5,946 | 162 |
| 2007 | 527 | 14,985 | 34,455 | 6,214 | 161 |
| 2008 | 524 | 15,265 | 34,301 | 6,439 | 159 |
| 2009 | 522 | 15,563 | 34,183 | 6,663 | 158 |
| 2010 | 526 | 16,156 | 34,512 | 6,952 | 159 |
| 2011 | 526 | 16,191 | 34,566 | 6,985 | 159 |
| 2012 | 527 | 16,203 | 34,635 | 7,013 | 159 |
| 2013 | 533 | 16,354 | 34,867 | 7,073 | 160 |
| 2014 | 540 | 16,725 | 35,063 | 7,135 | 163 |
| 2015 | 543 | 17,989 | 35,607 | 8,185 | 161 |
| 2016 | 546 | 18,493 | 35,836 | 8,538 | 162 |
| 2017 | 549 | 19,011 | 36,067 | 8,906 | 162 |
| 2018 | 552 | 19,544 | 36,299 | 9,290 | 162 |
| 2019 | 555 | 20,092 | 36,533 | 9,691 | 162 |
| 2020 | 558 | 20,656 | 36,768 | 10,109 | 163 |
| 2021 | 562 | 21,235 | 37,004 | 10,545 | 163 |
| 2022 | 565 | 21,830 | 37,242 | 11,000 | 163 |
| 2023 | 568 | 22,442 | 37,482 | 11,474 | 163 |
| 2024 | 571 | 23,071 | 37,723 | 11,969 | 164 |
| 2025 | 575 | 23,718 | 37,966 | 12,486 | 164 |
| 2026 | 578 | 24,383 | 38,210 | 13,024 | 164 |
| 2027 | 581 | 25,066 | 38,456 | 13,586 | 164 |
| 2028 | 585 | 25,769 | 38,704 | 14,172 | 165 |
| 2029 | 588 | 26,492 | 38,953 | 14,783 | 165 |
| 2030 | 591 | 27,234 | 39,203 | 15,421 | 165 |
| 2031 | 595 | 27,998 | 39,455 | 16,086 | 165 |
| 2032 | 598 | 28,783 | 39,709 | 16,780 | 166 |
| 2033 | 602 | 29,590 | 39,965 | 17,504 | 166 |
| 2034 | 605 | 30,419 | 40,222 | 18,259 | 166 |
| 2035 | 609 | 31,272 | 40,481 | 19,046 | 167 |

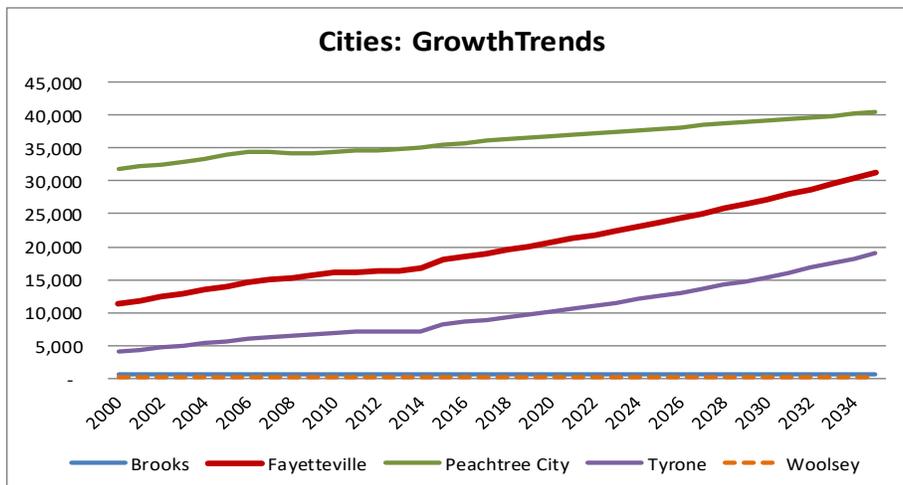


Table 4: Fayette County Projections

| | Census: Linear | Census: Growth | Pre-Recession Growth | Georgia OPB | Woods & Poole |
|------|-------------------|-------------------|-------------------------|-------------|------------------|
| 2000 | 92,073 | | | | |
| 2001 | 94,086 | | | | |
| 2002 | 95,707 | | | | |
| 2003 | 97,634 | | | | |
| 2004 | 99,443 | | | | |
| 2005 | 101,961 | | | | |
| 2006 | 104,099 | | | | |
| 2007 | 104,989 | | | | |
| 2008 | 105,192 | | | | |
| 2009 | 105,493 | | | | |
| 2010 | 106,990 | | | | 107,010 |
| 2011 | 107,211 | | | | 107,784 |
| 2012 | 107,432 | | | 109,058 | 110,865 |
| 2013 | 108,355 | | | 110,281 | 114,038 |
| 2014 | 109,664 | 109,664 | 109,664 | 111,503 | 117,300 |
| 2015 | 112,302 | 112,751 | 111,817 | 112,725 | 120,642 |
| 2016 | 113,504 | 114,096 | 114,011 | 113,696 | 124,064 |
| 2017 | 114,706 | 115,458 | 116,249 | 114,668 | 127,570 |
| 2018 | 115,908 | 116,835 | 118,531 | 115,639 | 131,160 |
| 2019 | 117,109 | 118,230 | 120,858 | 116,611 | 134,835 |
| 2020 | 118,311 | 119,640 | 123,230 | 117,582 | 138,589 |
| 2021 | 119,513 | 121,068 | 125,649 | 118,892 | 142,431 |
| 2022 | 120,714 | 122,512 | 128,115 | 120,202 | 146,354 |
| 2023 | 121,916 | 123,974 | 130,630 | 121,512 | 150,358 |
| 2024 | 123,118 | 125,454 | 133,194 | 122,822 | 154,449 |
| 2025 | 124,320 | 126,950 | 135,808 | 124,132 | 158,617 |
| 2026 | 125,521 | 128,465 | 138,474 | 125,409 | 162,871 |
| 2027 | 126,723 | 129,998 | 141,192 | 126,686 | 167,208 |
| 2028 | 127,925 | 131,549 | 143,964 | 127,962 | 171,627 |
| 2029 | 129,126 | 133,119 | 146,789 | 129,239 | 176,124 |
| 2030 | 130,328 | 134,707 | 149,671 | 130,516 | 180,704 |
| 2031 | 131,530 | 136,315 | 152,609 | 131,662 | 185,375 |
| 2032 | 132,732 | 137,941 | 155,604 | 132,971 | 190,128 |
| 2033 | 133,933 | 139,587 | 158,658 | 134,294 | 194,972 |
| 2034 | 135,135 | 141,253 | 161,773 | 135,630 | 199,904 |
| 2035 | 136,337 | 142,938 | 164,948 | 136,980 | 204,922 |

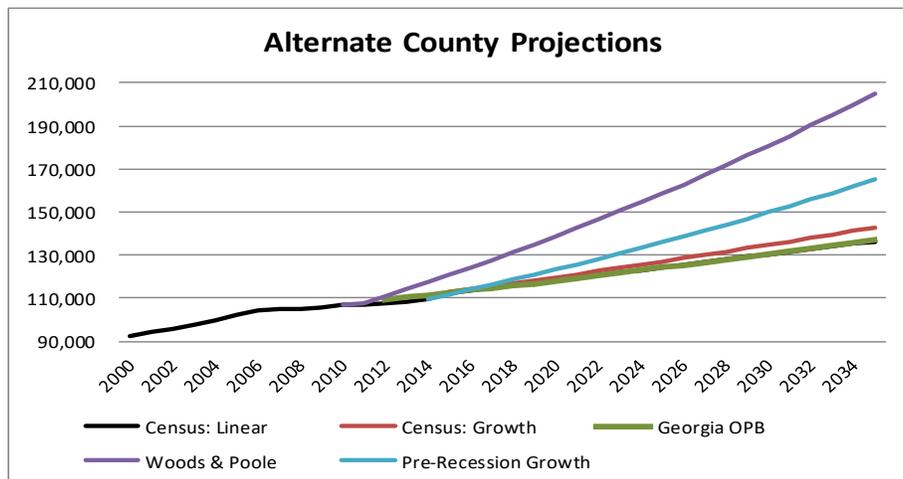


Table 5: Pre-Recession Growth Resumes

| | Brooks | Fayetteville | Peachtree City | Tyrone | Woolsey | Fayette County |
|------|--------|--------------|----------------|--------|---------|----------------|
| 2000 | 490 | 11,317 | 31,764 | 3,982 | 156 | 92,073 |
| 2001 | 496 | 11,855 | 32,211 | 4,304 | 157 | 94,086 |
| 2002 | 501 | 12,358 | 32,519 | 4,609 | 157 | 95,707 |
| 2003 | 506 | 12,887 | 32,934 | 4,931 | 158 | 97,634 |
| 2004 | 511 | 13,421 | 33,303 | 5,247 | 159 | 99,443 |
| 2005 | 520 | 14,027 | 33,913 | 5,605 | 161 | 101,961 |
| 2006 | 527 | 14,587 | 34,391 | 5,946 | 162 | 104,099 |
| 2007 | 527 | 14,985 | 34,455 | 6,214 | 161 | 104,989 |
| 2008 | 524 | 15,265 | 34,301 | 6,439 | 159 | 105,192 |
| 2009 | 522 | 15,563 | 34,183 | 6,663 | 158 | 105,493 |
| 2010 | 526 | 16,156 | 34,512 | 6,952 | 159 | 106,990 |
| 2011 | 526 | 16,191 | 34,566 | 6,985 | 159 | 107,211 |
| 2012 | 527 | 16,203 | 34,635 | 7,013 | 159 | 107,432 |
| 2013 | 533 | 16,354 | 34,867 | 7,073 | 160 | 108,355 |
| 2014 | 540 | 16,725 | 35,063 | 7,135 | 163 | 109,664 |
| 2015 | 546 | 17,421 | 35,497 | 7,607 | 164 | 111,817 |
| 2016 | 552 | 18,145 | 35,937 | 8,110 | 165 | 114,011 |
| 2017 | 558 | 18,900 | 36,382 | 8,647 | 166 | 116,249 |
| 2018 | 565 | 19,686 | 36,832 | 9,218 | 167 | 118,531 |
| 2019 | 571 | 20,504 | 37,288 | 9,828 | 168 | 120,858 |
| 2020 | 577 | 21,357 | 37,750 | 10,478 | 168 | 123,230 |
| 2021 | 584 | 22,245 | 38,217 | 11,171 | 169 | 125,649 |
| 2022 | 590 | 23,171 | 38,691 | 11,910 | 170 | 128,115 |
| 2023 | 597 | 24,134 | 39,170 | 12,698 | 171 | 130,630 |
| 2024 | 604 | 25,138 | 39,655 | 13,538 | 172 | 133,194 |
| 2025 | 610 | 26,183 | 40,146 | 14,433 | 173 | 135,808 |
| 2026 | 617 | 27,272 | 40,643 | 15,388 | 174 | 138,474 |
| 2027 | 624 | 28,406 | 41,146 | 16,406 | 175 | 141,192 |
| 2028 | 631 | 29,588 | 41,656 | 17,491 | 176 | 143,964 |
| 2029 | 638 | 30,818 | 42,171 | 18,648 | 177 | 146,789 |
| 2030 | 645 | 32,100 | 42,694 | 19,881 | 178 | 149,671 |
| 2031 | 652 | 33,435 | 43,222 | 21,197 | 179 | 152,609 |
| 2032 | 660 | 34,826 | 43,757 | 22,599 | 180 | 155,604 |
| 2033 | 667 | 36,274 | 44,299 | 24,093 | 181 | 158,658 |
| 2034 | 675 | 37,782 | 44,848 | 25,687 | 182 | 161,773 |
| 2035 | 682 | 39,354 | 45,403 | 27,386 | 183 | 164,948 |

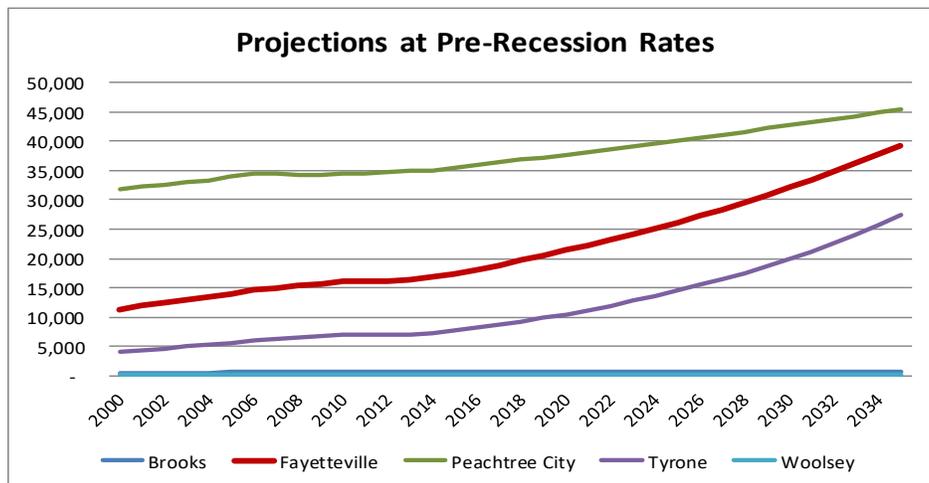


Table 6: Pre-Recession Growth - Percent of County

| | Fayette County | Brooks | Fayetteville | Peachtree City | Tyrone | Woolsey |
|------|----------------|--------|--------------|----------------|--------|---------|
| 2000 | 92,073 | 0.53% | 12.29% | 34.50% | 4.32% | 0.17% |
| 2001 | 94,086 | 0.53% | 12.60% | 34.24% | 4.57% | 0.17% |
| 2002 | 95,707 | 0.52% | 12.91% | 33.98% | 4.82% | 0.16% |
| 2003 | 97,634 | 0.52% | 13.20% | 33.73% | 5.05% | 0.16% |
| 2004 | 99,443 | 0.51% | 13.50% | 33.49% | 5.28% | 0.16% |
| 2005 | 101,961 | 0.51% | 13.76% | 33.26% | 5.50% | 0.16% |
| 2006 | 104,099 | 0.51% | 14.01% | 33.04% | 5.71% | 0.16% |
| 2007 | 104,989 | 0.50% | 14.27% | 32.82% | 5.92% | 0.15% |
| 2008 | 105,192 | 0.50% | 14.51% | 32.61% | 6.12% | 0.15% |
| 2009 | 105,493 | 0.49% | 14.75% | 32.40% | 6.32% | 0.15% |
| 2010 | 106,990 | 0.49% | 15.10% | 32.26% | 6.50% | 0.15% |
| 2011 | 107,211 | 0.49% | 15.10% | 32.24% | 6.52% | 0.15% |
| 2012 | 107,432 | 0.49% | 15.08% | 32.24% | 6.53% | 0.15% |
| 2013 | 108,355 | 0.49% | 15.09% | 32.18% | 6.53% | 0.15% |
| 2014 | 109,664 | 0.49% | 15.25% | 31.97% | 6.51% | 0.15% |
| 2015 | 111,817 | 0.49% | 15.58% | 31.75% | 6.80% | 0.15% |
| 2016 | 114,011 | 0.48% | 15.92% | 31.52% | 7.11% | 0.14% |
| 2017 | 116,249 | 0.48% | 16.26% | 31.30% | 7.44% | 0.14% |
| 2018 | 118,531 | 0.48% | 16.61% | 31.07% | 7.78% | 0.14% |
| 2019 | 120,858 | 0.47% | 16.97% | 30.85% | 8.13% | 0.14% |
| 2020 | 123,230 | 0.47% | 17.33% | 30.63% | 8.50% | 0.14% |
| 2021 | 125,649 | 0.46% | 17.70% | 30.42% | 8.89% | 0.13% |
| 2022 | 128,115 | 0.46% | 18.09% | 30.20% | 9.30% | 0.13% |
| 2023 | 130,630 | 0.46% | 18.48% | 29.99% | 9.72% | 0.13% |
| 2024 | 133,194 | 0.45% | 18.87% | 29.77% | 10.16% | 0.13% |
| 2025 | 135,808 | 0.45% | 19.28% | 29.56% | 10.63% | 0.13% |
| 2026 | 138,474 | 0.45% | 19.69% | 29.35% | 11.11% | 0.13% |
| 2027 | 141,192 | 0.44% | 20.12% | 29.14% | 11.62% | 0.12% |
| 2028 | 143,964 | 0.44% | 20.55% | 28.94% | 12.15% | 0.12% |
| 2029 | 146,789 | 0.43% | 20.99% | 28.73% | 12.70% | 0.12% |
| 2030 | 149,671 | 0.43% | 21.45% | 28.53% | 13.28% | 0.12% |
| 2031 | 152,609 | 0.43% | 21.91% | 28.32% | 13.89% | 0.12% |
| 2032 | 155,604 | 0.42% | 22.38% | 28.12% | 14.52% | 0.12% |
| 2033 | 158,658 | 0.42% | 22.86% | 27.92% | 15.19% | 0.11% |
| 2034 | 161,773 | 0.42% | 23.35% | 27.72% | 15.88% | 0.11% |
| 2035 | 164,948 | 0.41% | 23.86% | 27.53% | 16.60% | 0.11% |

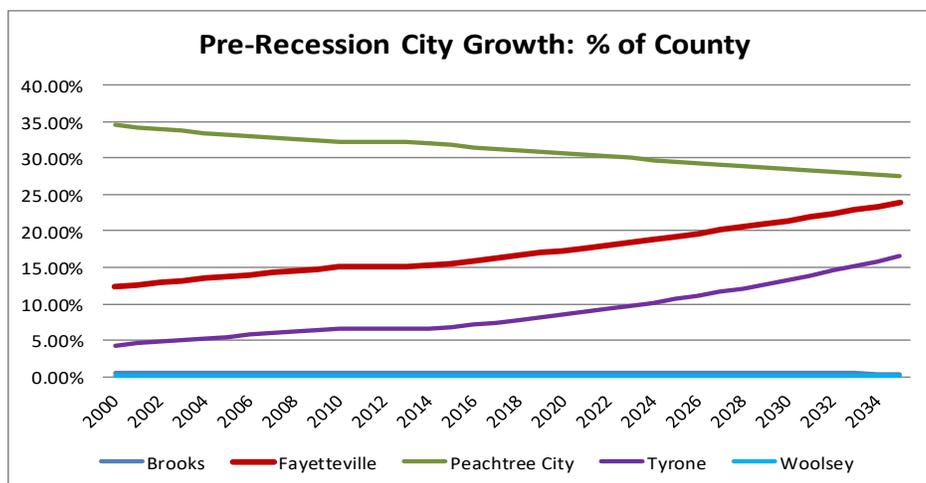


Table 7: Growth Trend Forecast - Percent of County

| | Fayette County | Brooks | Fayetteville | Peachtree City | Tyrone | Woolsey |
|------|----------------|--------|--------------|----------------|--------|---------|
| 2000 | 92,073 | 0.53% | 12.29% | 34.50% | 4.32% | 0.17% |
| 2001 | 94,086 | 0.53% | 12.60% | 34.24% | 4.57% | 0.17% |
| 2002 | 95,707 | 0.52% | 12.91% | 33.98% | 4.82% | 0.16% |
| 2003 | 97,634 | 0.52% | 13.20% | 33.73% | 5.05% | 0.16% |
| 2004 | 99,443 | 0.51% | 13.50% | 33.49% | 5.28% | 0.16% |
| 2005 | 101,961 | 0.51% | 13.76% | 33.26% | 5.50% | 0.16% |
| 2006 | 104,099 | 0.51% | 14.01% | 33.04% | 5.71% | 0.16% |
| 2007 | 104,989 | 0.50% | 14.27% | 32.82% | 5.92% | 0.15% |
| 2008 | 105,192 | 0.50% | 14.51% | 32.61% | 6.12% | 0.15% |
| 2009 | 105,493 | 0.49% | 14.75% | 32.40% | 6.32% | 0.15% |
| 2010 | 106,994 | 0.49% | 15.10% | 32.26% | 6.50% | 0.15% |
| 2011 | 107,232 | 0.49% | 15.10% | 32.23% | 6.51% | 0.15% |
| 2012 | 107,442 | 0.49% | 15.08% | 32.24% | 6.53% | 0.15% |
| 2013 | 108,365 | 0.49% | 15.09% | 32.18% | 6.53% | 0.15% |
| 2014 | 111,999 | 0.48% | 14.93% | 31.31% | 6.37% | 0.15% |
| 2015 | 113,395 | 0.48% | 15.86% | 31.40% | 7.22% | 0.14% |
| 2016 | 114,810 | 0.48% | 16.11% | 31.21% | 7.44% | 0.14% |
| 2017 | 116,242 | 0.47% | 16.36% | 31.03% | 7.66% | 0.14% |
| 2018 | 117,691 | 0.47% | 16.61% | 30.84% | 7.89% | 0.14% |
| 2019 | 119,159 | 0.47% | 16.86% | 30.66% | 8.13% | 0.14% |
| 2020 | 120,646 | 0.46% | 17.12% | 30.48% | 8.38% | 0.13% |
| 2021 | 122,150 | 0.46% | 17.38% | 30.29% | 8.63% | 0.13% |
| 2022 | 123,674 | 0.46% | 17.65% | 30.11% | 8.89% | 0.13% |
| 2023 | 125,216 | 0.45% | 17.92% | 29.93% | 9.16% | 0.13% |
| 2024 | 126,778 | 0.45% | 18.20% | 29.76% | 9.44% | 0.13% |
| 2025 | 128,359 | 0.45% | 18.48% | 29.58% | 9.73% | 0.13% |
| 2026 | 129,960 | 0.44% | 18.76% | 29.40% | 10.02% | 0.13% |
| 2027 | 131,581 | 0.44% | 19.05% | 29.23% | 10.33% | 0.12% |
| 2028 | 133,222 | 0.44% | 19.34% | 29.05% | 10.64% | 0.12% |
| 2029 | 134,884 | 0.44% | 19.64% | 28.88% | 10.96% | 0.12% |
| 2030 | 136,566 | 0.43% | 19.94% | 28.71% | 11.29% | 0.12% |
| 2031 | 138,269 | 0.43% | 20.25% | 28.54% | 11.63% | 0.12% |
| 2032 | 139,994 | 0.43% | 20.56% | 28.37% | 11.99% | 0.12% |
| 2033 | 141,740 | 0.42% | 20.88% | 28.20% | 12.35% | 0.12% |
| 2034 | 143,507 | 0.42% | 21.20% | 28.03% | 12.72% | 0.12% |
| 2035 | 145,297 | 0.42% | 21.52% | 27.86% | 13.11% | 0.11% |

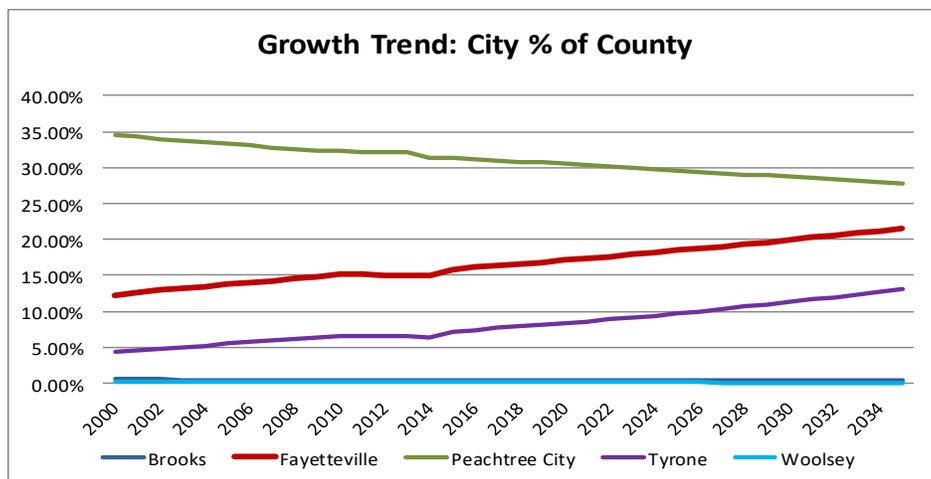
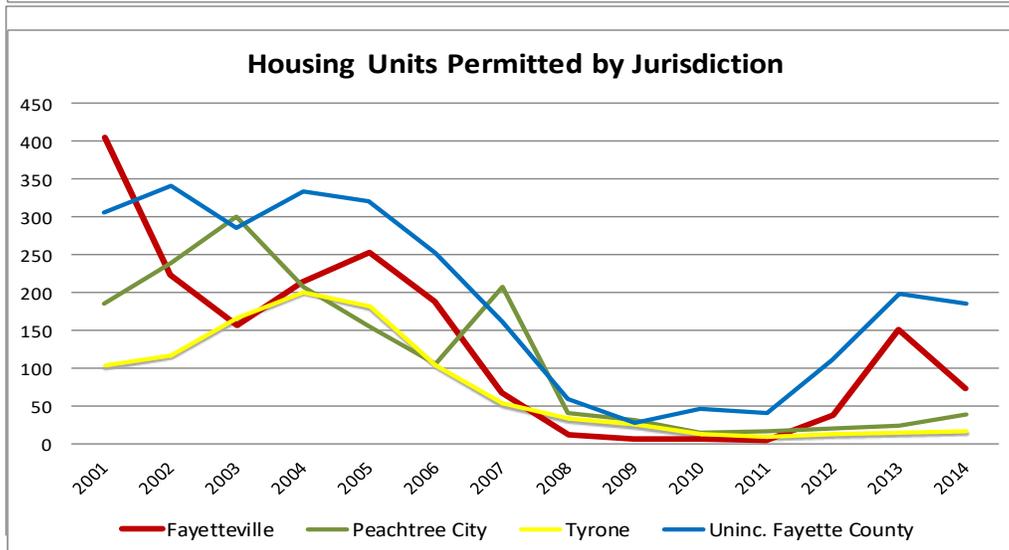
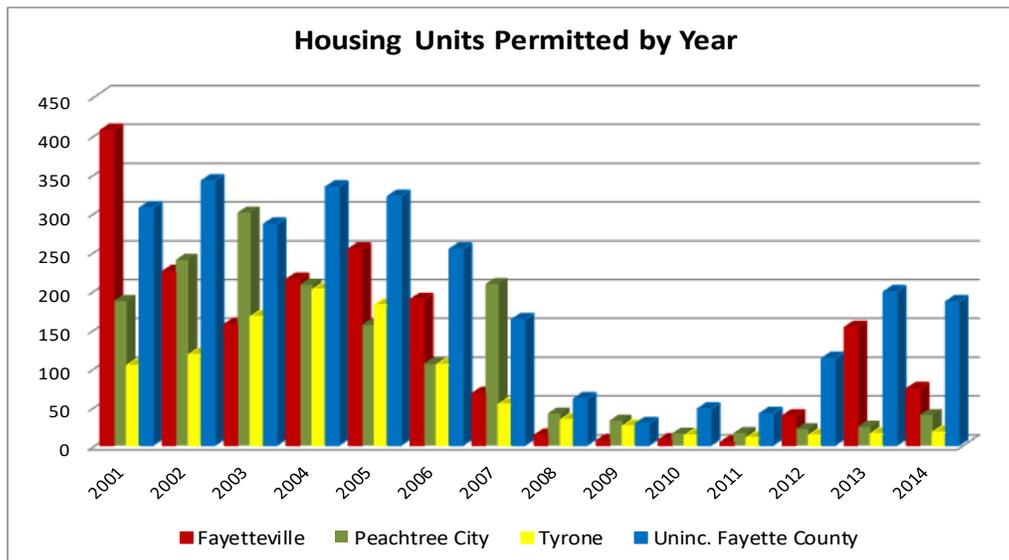


Table 8: Housing Units Permitted 2001-2014

| | Fayetteville | Peachtree City | Tyrone | Uninc. Fayette County |
|------|--------------|----------------|--------|-----------------------|
| 2001 | 406 | 186 | 103 | 306 |
| 2002 | 224 | 239 | 117 | 341 |
| 2003 | 156 | 300 | 166 | 285 |
| 2004 | 214 | 207 | 201 | 333 |
| 2005 | 253 | 155 | 181 | 321 |
| 2006 | 188 | 105 | 104 | 253 |
| 2007 | 67 | 208 | 53 | 162 |
| 2008 | 13 | 41 | 33 | 60 |
| 2009 | 6 | 32 | 25 | 28 |
| 2010 | 7 | 15 | 13 | 47 |
| 2011 | 4 | 16 | 10 | 41 |
| 2012 | 38 | 21 | 13 | 112 |
| 2013 | 152 | 24 | 15 | 198 |
| 2014 | 73 | 39 | 17 | 185 |

Note: Uninc. Fayette County includes Brooks and Woolsey.



TECHNICAL ANALYSIS—HOUSING AND EMPLOYMENT FORECASTS

Following on the selection of the population forecast we will use for the impact fee calculations (the ‘Growth Trend’ forecast), estimates have been made of the future number of housing units and employment in the City to 2035. Note that Parks & Recreation LOS standards will be based on the number of housing units in the city, while Fire Protection and Police Services will combine population and employment into a ‘day-night’ population to reflect their 24-hour service demand. (Road improvements, of course, are based on capacity calculations rather than housing unit, population or employment forecasts).

HOUSING UNITS

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

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

Our assumption is that the average population-per-household sizes in Fayetteville will ‘track’ proportionally the sociometric trend projected by Woods & Poole countywide. In 2010, the average population-per-household size in Fayetteville was 2.65 people, compared to the countywide figure of 2.79. The Fayetteville 2010 figure is a little over 95% of the countywide figure; this percentage is applied to the countywide averages through 2035 to arrive at future average population-per-household sizes for Fayetteville. These average household sizes are then divided into the Fayetteville projected population every year to arrive at the household forecasts.

Housing Units were calculated for Fayetteville beginning with the 2010 housing occupancy rate, and building back to the 2000 occupancy rate by 2035 following our assumption that the city will get back to its pre-recessionary levels as time goes by. To arrive at the total housing unit estimates each year, including vacant units, the number of households (i.e., occupied housing units) is divided by the applicable occupancy rate.

Housing Unit Forecasts

| Fayette County (Woods & Poole) | | | | Fayetteville | | | | |
|--------------------------------|------------|---------------------------|--------------|---------------------------|------------------|----------------|---------------------|--------|
| Population | Households | Population per Household* | Population** | Population per Household* | Total Households | Occupancy Rate | Total Housing Units | |
| 2000 | 92,073 | 31,818 | 2.89 | 11,148 | 2.57 | 4,338 | 94.9% | 4,572 |
| 2001 | 94,086 | 33,265 | 2.83 | | | | | |
| 2002 | 95,707 | 33,892 | 2.82 | | | | | |
| 2003 | 97,634 | 34,940 | 2.79 | | | | | |
| 2004 | 99,443 | 35,432 | 2.81 | | | | | |
| 2005 | 101,961 | 36,399 | 2.80 | | | | | |
| 2006 | 104,099 | 37,128 | 2.80 | | | | | |
| 2007 | 104,989 | 37,595 | 2.79 | | | | | |
| 2008 | 105,192 | 37,607 | 2.80 | Multiplier: | 95.09% | | | |
| 2009 | 105,493 | 37,491 | 2.81 | | | | | |
| 2010 | 107,010 | 38,328 | 2.79 | 15,945 | 2.65 | 6,006 | 92.4% | 6,499 |
| 2011 | 107,784 | 38,789 | 2.78 | 16,191 | 2.64 | 6,128 | 92.5% | 6,624 |
| 2012 | 110,865 | 39,641 | 2.80 | 16,203 | 2.66 | 6,093 | 92.6% | 6,579 |
| 2013 | 114,038 | 41,082 | 2.78 | 16,354 | 2.64 | 6,196 | 92.7% | 6,683 |
| 2014 | 117,300 | 42,548 | 2.76 | 16,725 | 2.62 | 6,380 | 92.8% | 6,874 |
| 2015 | 120,642 | 44,033 | 2.74 | 17,989 | 2.61 | 6,905 | 92.9% | 7,432 |
| 2016 | 124,064 | 45,523 | 2.73 | 18,493 | 2.59 | 7,136 | 93.0% | 7,673 |
| 2017 | 127,570 | 47,010 | 2.71 | 19,011 | 2.58 | 7,368 | 93.1% | 7,914 |
| 2018 | 131,160 | 48,498 | 2.70 | 19,544 | 2.57 | 7,600 | 93.2% | 8,154 |
| 2019 | 134,835 | 49,998 | 2.70 | 20,092 | 2.56 | 7,835 | 93.3% | 8,397 |
| 2020 | 138,589 | 51,517 | 2.69 | 20,656 | 2.56 | 8,075 | 93.4% | 8,645 |
| 2021 | 142,431 | 53,060 | 2.68 | 21,235 | 2.55 | 8,319 | 93.5% | 8,897 |
| 2022 | 146,354 | 54,600 | 2.68 | 21,830 | 2.55 | 8,565 | 93.6% | 9,151 |
| 2023 | 150,358 | 56,145 | 2.68 | 22,442 | 2.55 | 8,813 | 93.7% | 9,406 |
| 2024 | 154,449 | 57,708 | 2.68 | 23,071 | 2.54 | 9,065 | 93.8% | 9,665 |
| 2025 | 158,617 | 59,287 | 2.68 | 23,718 | 2.54 | 9,323 | 93.9% | 9,929 |
| 2026 | 162,871 | 60,888 | 2.67 | 24,383 | 2.54 | 9,586 | 94.0% | 10,199 |
| 2027 | 167,208 | 62,510 | 2.67 | 25,066 | 2.54 | 9,855 | 94.1% | 10,474 |
| 2028 | 171,627 | 64,154 | 2.68 | 25,769 | 2.54 | 10,130 | 94.2% | 10,755 |
| 2029 | 176,124 | 65,819 | 2.68 | 26,492 | 2.54 | 10,411 | 94.3% | 11,042 |
| 2030 | 180,704 | 67,504 | 2.68 | 27,234 | 2.55 | 10,699 | 94.4% | 11,335 |
| 2031 | 185,375 | 69,215 | 2.68 | 27,998 | 2.55 | 10,994 | 94.5% | 11,635 |
| 2032 | 190,128 | 70,953 | 2.68 | 28,783 | 2.55 | 11,296 | 94.6% | 11,943 |
| 2033 | 194,972 | 72,720 | 2.68 | 29,590 | 2.55 | 11,606 | 94.7% | 12,258 |
| 2034 | 199,904 | 74,521 | 2.68 | 30,419 | 2.55 | 11,925 | 94.8% | 12,581 |
| 2035 | 204,922 | 76,349 | 2.68 | 31,272 | 2.55 | 12,253 | 94.9% | 12,914 |

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

** 2000 and 2014: Census population counts as of April 1 each year. 2011-2013: Annual Census Estimates, 2013.
2015-2035: Projected Population.

EMPLOYMENT

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

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

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

Employment Forecasts: Fayette County

| | Total Jobs | Non-Site Specific* | Value-Added Jobs |
|------|------------|--------------------|------------------|
| 2010 | 67,776 | 4,550 | 63,226 |
| 2011 | 68,487 | 4,440 | 64,047 |
| 2012 | 68,511 | 4,388 | 64,123 |
| 2013 | 68,988 | 4,365 | 64,623 |
| 2014 | 69,712 | 4,357 | 65,355 |
| 2015 | 71,578 | 4,418 | 67,160 |
| 2016 | 72,348 | 4,409 | 67,939 |
| 2017 | 73,146 | 4,402 | 68,744 |
| 2018 | 73,965 | 4,393 | 69,572 |
| 2019 | 74,805 | 4,386 | 70,419 |
| 2020 | 75,678 | 4,379 | 71,299 |
| 2021 | 76,577 | 4,372 | 72,205 |
| 2022 | 77,509 | 4,367 | 73,142 |
| 2023 | 78,472 | 4,363 | 74,109 |
| 2024 | 79,469 | 4,357 | 75,112 |
| 2025 | 80,502 | 4,353 | 76,149 |
| 2026 | 81,573 | 4,351 | 77,222 |
| 2027 | 82,680 | 4,347 | 78,333 |
| 2028 | 83,828 | 4,345 | 79,483 |
| 2029 | 85,020 | 4,344 | 80,676 |
| 2030 | 86,255 | 4,343 | 81,912 |
| 2031 | 87,533 | 4,344 | 83,189 |
| 2032 | 88,855 | 4,344 | 84,511 |
| 2033 | 90,222 | 4,345 | 85,877 |
| 2034 | 91,639 | 4,347 | 87,292 |
| 2035 | 93,105 | 4,349 | 88,756 |

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

Source: Woods & Poole Economics, 2014 Georgia State Profile, adjusted to Growth Trend projection by ROSS+associates.

The following table on the right compares employment figures from the Census Bureau to the adjusted W&P figures for 2010. That was the first and only year that the Census Bureau published its employment figures at the city level. Since these are derived from census ‘employed persons’ data and commuting patterns, the real figures would be higher.

Countywide, the adjusted 2010 W&P employment figure is 1.44 times the number reported by the Census Bureau. This multiplier is applied to the Fayetteville Census number to arrive at an allocation of the W&P countywide figure.

Benchmark Data: 2010

Total Jobs in County

| | |
|-----------------|--------|
| Woods & Poole* | 63,226 |
| Census Bureau** | 44,031 |
| Multiplier: | 1.44 |

Fayetteville

| | |
|-------------------------------|--------|
| Census Bureau** | 12,183 |
| × Multiplier = Estimated Jobs | 17,494 |
| Fayetteville % of County | 27.67% |
| Households | 6,006 |
| Jobs per Household | 2.91 |

* Value-Added Jobs, as adjusted.

** Based on commuting patterns of employed persons.

The left portion of the table below takes the estimated jobs figure for Fayetteville in 2010 (17,494) and carries it forward to 2035 as a percentage of total value-added county jobs. This ‘percentage share’ approach assumes that Fayetteville will continue to maintain its current percentage of county-wide employment over the projection period. This approach results in an employment increase between 2014 and 2035 of almost 6,500 jobs, a 36% increase.

Employment Forecasts: Fayetteville

| | Percent of County Jobs | | Jobs per Household Ratio | | | Averaged Number | |
|------|------------------------|-------------------|--------------------------|-------------------|-------------------|-------------------|-------------------|
| | Total County Jobs* | Fayetteville Jobs | Number of Households | Fayetteville Jobs | Percent of County | Fayetteville Jobs | Percent of County |
| | At: | 27.67% | | At: | 2.91 | | |
| 2010 | 63,226 | 17,494 | 6,006 | 17,494 | 27.67% | 17,494 | 27.67% |
| 2011 | 64,047 | 17,721 | 6,128 | 17,849 | 27.87% | 17,785 | 27.77% |
| 2012 | 64,123 | 17,742 | 6,093 | 17,747 | 27.68% | 17,745 | 27.67% |
| 2013 | 64,623 | 17,881 | 6,196 | 18,047 | 27.93% | 17,964 | 27.80% |
| 2014 | 65,355 | 18,083 | 6,380 | 18,583 | 28.43% | 18,333 | 28.05% |
| 2015 | 67,160 | 18,582 | 6,905 | 20,113 | 29.95% | 19,348 | 28.81% |
| 2016 | 67,939 | 18,798 | 7,136 | 20,785 | 30.59% | 19,792 | 29.13% |
| 2017 | 68,744 | 19,021 | 7,368 | 21,461 | 31.22% | 20,241 | 29.44% |
| 2018 | 69,572 | 19,250 | 7,600 | 22,137 | 31.82% | 20,694 | 29.74% |
| 2019 | 70,419 | 19,484 | 7,835 | 22,821 | 32.41% | 21,153 | 30.04% |
| 2020 | 71,299 | 19,728 | 8,075 | 23,520 | 32.99% | 21,624 | 30.33% |
| 2021 | 72,205 | 19,978 | 8,319 | 24,231 | 33.56% | 22,105 | 30.61% |
| 2022 | 73,142 | 20,238 | 8,565 | 24,948 | 34.11% | 22,593 | 30.89% |
| 2023 | 74,109 | 20,505 | 8,813 | 25,670 | 34.64% | 23,088 | 31.15% |
| 2024 | 75,112 | 20,783 | 9,065 | 26,404 | 35.15% | 23,594 | 31.41% |
| 2025 | 76,149 | 21,070 | 9,323 | 27,156 | 35.66% | 24,113 | 31.67% |
| 2026 | 77,222 | 21,367 | 9,586 | 27,922 | 36.16% | 24,645 | 31.91% |
| 2027 | 78,333 | 21,674 | 9,855 | 28,705 | 36.64% | 25,190 | 32.16% |
| 2028 | 79,483 | 21,992 | 10,130 | 29,506 | 37.12% | 25,749 | 32.40% |
| 2029 | 80,676 | 22,322 | 10,411 | 30,325 | 37.59% | 26,324 | 32.63% |
| 2030 | 81,912 | 22,664 | 10,699 | 31,164 | 38.05% | 26,914 | 32.86% |
| 2031 | 83,189 | 23,018 | 10,994 | 32,023 | 38.49% | 27,521 | 33.08% |
| 2032 | 84,511 | 23,383 | 11,296 | 32,902 | 38.93% | 28,143 | 33.30% |
| 2033 | 85,877 | 23,761 | 11,606 | 33,805 | 39.36% | 28,783 | 33.52% |
| 2034 | 87,292 | 24,153 | 11,925 | 34,735 | 39.79% | 29,444 | 33.73% |
| 2035 | 88,756 | 24,558 | 12,253 | 35,690 | 40.21% | 30,124 | 33.94% |

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

In the center portion of the table, an approach is used based on the number of jobs in the city relative to the number of households. While many employees commute into the city to work, while many residents commute to jobs elsewhere, the jobs-to-households approach has merit as it relates job growth to city growth (rather than county growth) - i.e., cities with higher residential growth attract more businesses within or near their borders. The result is a notably higher 2035 projection (almost doubling over 2014 with 17,107 new jobs), and, of equal note, employment in the city as a percentage of the county increases over the projection period, reflecting the growing economic importance of the city relative to the county.

The two alternate approaches above present certain issues. On the one hand, the ‘percentage share’ approach does not recognize the city’s growing incorporation of and attraction to business development relative to other cities in the county and to the unincorporated area, and therefore seems low. On the other hand, the ‘jobs-to-households’ approach seems too high, resulting in 40% of all employment in the county to be located within the city.

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

Considering the major employment opportunities that have already been approved in the city, and the potential to attract more jobs in the future relative both to growth in business activity and the customer base, we recommend that the ‘averaged number’ approach be adopted for impact fee purposes. This reflects an increase of almost 11,800 jobs over 2014 (a 64% increase over 21 years) and a rise in the percentage of countywide jobs located within the city from 28.8% today to 33.9% in 2035 (an increase of 5.1 percentage points, or about a 21% increase in economic position).

SERVICE AREAS

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

Service Area Forecasts

| | Housing Units (Parks) | Day/Night Population (Fire, Police) |
|------|--------------------------|--|
| 2014 | 6,380 | 35,058 |
| 2015 | 6,905 | 37,336 |
| 2016 | 7,136 | 38,285 |
| 2017 | 7,368 | 39,252 |
| 2018 | 7,600 | 40,238 |
| 2019 | 7,835 | 41,245 |
| 2020 | 8,075 | 42,280 |
| 2021 | 8,319 | 43,339 |
| 2022 | 8,565 | 44,423 |
| 2023 | 8,813 | 45,529 |
| 2024 | 9,065 | 46,665 |
| 2025 | 9,323 | 47,831 |
| 2026 | 9,586 | 49,027 |
| 2027 | 9,855 | 50,256 |
| 2028 | 10,130 | 51,518 |
| 2029 | 10,411 | 52,815 |
| 2030 | 10,699 | 54,148 |
| 2031 | 10,994 | 55,518 |
| 2032 | 11,296 | 56,925 |
| 2033 | 11,606 | 58,373 |
| 2034 | 11,925 | 59,863 |
| 2035 | 12,253 | 61,396 |

Net Increase: **5,873** **26,338**

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

METHODOLOGY: 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 Fayetteville's roads will be generated by new growth, over and above the traffic generated by the city's residents and businesses today. This Methodology 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 Section also presents the process through which new growth and development's 'fair share' of road improvement costs is calculated, and tables summarizing the technical portions of this Methodology are included.

LEVEL OF SERVICE

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

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 2035 will represent a certain portion of all 2035 traffic, new growth would be responsible for that portions' cost of the road improvements.

It is noted that the cost-impact of non-Fayetteville generated traffic on the roads traversing the city (cross commutes) is off-set by state and federal assistance. The net cost of the road projects that accrues to Fayetteville reasonably represents (i.e., is 'roughly proportional' to) the impact on the roads by Fayetteville residents and businesses.

The basis for the road impact fee would therefore be Fayetteville's cost for the improvements divided by all traffic in 2035 (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 (above) 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 Fayetteville residents and businesses on the road system within the city is calculated from trip generation and commuting data for 2010, and extended to 2014.
- Future Fayetteville-generated traffic from new growth in the city is calculated from housing unit and employment forecasts to 2035.

- The portion of total 2035 traffic that is generated by new housing units and employment in the city establishes the percentage of Fayetteville'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 2035 traffic generated by new growth is calculated.

Average Daily Trip Ends Generated by New Growth

| | 2014 | 2035 | Increase | Percent New Growth Trip Ends |
|--------------------------|---------|----------|----------|---|
| Residential Trips | 61,924 | 116,338 | 54,414 |  |
| Nonresidential Trips | 447,607 | 735,496 | 287,889 | |
| Less: Internal Commutes* | (6,225) | (10,228) | (4,003) | |
| | 503,306 | 841,606 | 338,300 | 40.2% |

* Residents who work in Fayetteville. These trips to and from work are included in the residential trips, above.

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

Primary Daily Trip Ends Generated by New Growth

| | Percent Primary Trip Ends* | Primary Trip Ends | | | Percent New Growth Primary Trip Ends |
|-------------------------|----------------------------|-------------------|----------|----------|---|
| | | 2014 | 2035 | Increase | |
| Residential Trips | 80% | 49,539 | 93,070 | 43,531 |  |
| Commercial | 51% | 222,113 | 364,972 | 142,859 | |
| Industrial+Utility | 92% | 10,198 | 16,753 | 6,555 | |
| Less: Internal Commutes | 100% | (6,225) | (10,228) | (4,003) | |
| | | 275,625 | 464,568 | 188,943 | 40.7% |

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

Overall, new residents and businesses located within Fayetteville will generate 40.2% of all Fayetteville traffic on its roads. Thus, new growth's 'fair share' of the cost to the City to provide road improvements to serve current and future traffic cannot exceed 40.2%.

PASS-BY AND DIVERTED TRIPS

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

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

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

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

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

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

Impact fee calculations take note of these pass-by and diverted trip ends as not adding to the overall traffic on the road network, and deletes them from the total trip ends reported in ITE's *Trip Generation* manual. While the table above uses overall average percentages of primary trip ends derived from ITE for broad land use categories, the actual percentage for each land use listed on the impact fee schedule for roads is applied to the total trip ends to determine the primary trip ends attributed to that land use.

Although both summary tables above reflect about the same percentage of 2035 traffic that will be generated by new growth, the increase in primary trip ends from the second table will play an important role in calculating the per-trip road impact fee.

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.

Residential Units by Type: 2014 and 2035

| | 2010 | Additional Units* | 2014 | Percent** | Increase 2014-2035 | Total in 2035 |
|---------------------|--------------|----------------------|--------------|---------------|-----------------------|------------------|
| Single-Family Units | 5,375 | 274 | 5,649 | 82.2% | 4,964 | 10,613 |
| Multi-Family Units | 1,124 | 101 | 1,225 | 17.8% | 1,076 | 2,301 |
| Total | 6,499 | 375 | 6,874 | 100.0% | 6,040 | 12,914 |

* Based on building permits issued 2010-2014, adjusted to 2014 total.

** Percent authorized by building permits: 2000-2014.

The 2010 breakdown of housing units by type on the table above are taken from the 2010 Census. These numbers are extended to the number of housing units projected in 2014 (in a previous paper), combining the number of housing units authorized by building permits between 2010 and 2013 with adjustments to reach the 2014 projected total. The next column shows the percent of building permits by housing type historically issued by the City from 2000 to 2013. It is assumed that these percentages will persist into the future, producing a breakdown of the projected 6,240 new housing units forecast for the 2014-2035 period.

The next table, below, calculates the amount of traffic that is generated by the city’s housing stock today, and the amount that will be generated in 2035.

Residential Trip Generation: 2014-2035 New Growth Increase

| | ADT* Trip Ends | 2014 Units | 2014 ADT Trip Ends | 2035 Units | 2035 ADT Trip Ends | Increase 2015-2035 | Percent New Growth Trip Ends |
|---------------------|-------------------|---------------|-----------------------|---------------|-----------------------|-----------------------|---|
| Single-Family Units | 9.52 | 5,649 | 53,778 | 10,613 | 101,036 | 47,258 |  |
| Multi-Family Units | 6.65 | 1,225 | 8,146 | 2,301 | 15,302 | 7,156 | |
| Total | | 6,874 | 61,924 | 12,914 | 116,338 | 54,414 | 46.8% |

* Average Daily Traffic on a weekday; Institute of Transportation Engineers *Trip Generation*, 9th Edition. Total includes trips to/from work.

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

Comparing traffic in 2014 to 2035, the future increase in trip ends can be calculated, which will represent 46.9% of all residential trip ends generated in the city.

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 city.

NONRESIDENTIAL TRIP GENERATION

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

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

The following table shows the ‘trips per employee’ for those uses for which impact fees are commonly collected and for which the data is available.

ITE Trips-per-Employee Data

| | | | ADT | | Average | Average |
|--|-------------|-------------------------------------|---------------------------|---|----------------|-------------------|
| | ITE CODE | LAND USE | Trip Ends per Employee | | by Category | All Commercial |
| <i>Port and Terminal (000-099)</i> | 30 | Intermodal Truck Terminal | 6.99 | } | 10.21 | } |
| <i>Industrial/Agricultural (100-199)</i> | 110 | General Light Industrial | 3.02 | | | |
| | 120 | General Heavy Industrial | 0.82 | | | |
| | 140 | Manufacturing | 2.13 | | | |
| | 150 | Warehousing | 3.89 | | | |
| | 151 | Mini-Warehouse | 32.47 | | | |
| | 152 | High-Cube Warehouse | 22.13 | | | |
| <i>Lodging (300-399)</i> | 310 | Hotel or Conference Motel | 14.34 | } | 13.58 | |
| | 320 | Motel | 12.81 | | | |
| <i>Recreational (400-499)</i> | 430 | Golf Course | 20.52 | } | 34.79 | |
| | 443 | Movie Theater | 53.12 | | | |
| | 460 | Arena | 10.00 | | | |
| | 480 | Amusement Park | 8.33 | | | |
| | 490 | Tennis Courts | 66.67 | | | |
| | 491 | Racquet/Tennis Club | 45.71 | | | |
| | 492 | Health/Fitness Center | 46.71 | | | |
| | 495 | Recreational Community Center | 27.25 | | | |
| <i>Institutional (500-599)</i> | 520 | Private Elementary School | 15.71 | } | 29.58 | |
| | 530 | Private High School | 19.74 | | | |
| | 560 | Church/Place of Worship | 26.24 | | | |
| | 565 | Day Care Center | 28.13 | | | |
| | 566 | Cemetery | 58.09 | | | |
| <i>Medical (600-699)</i> | 610 | Hospital | 4.50 | } | 5.26 | |
| | 620 | Nursing Home | 3.26 | | | |
| | 630 | Clinic | 8.01 | | | |
| <i>Office (700-799)</i> | 710 | General Office Building | 3.32 | } | 4.18 | |
| | 714 | Corporate Headquarters Building | 2.33 | | | |
| | 715 | Single-Tenant Office Building | 3.70 | | | |
| | 720 | Medical-Dental Office Building | 8.91 | | | |
| | 760 | Research and Development Center | 2.77 | | | |
| | 770 | Business Park | 4.04 | | | |
| <i>Retail (800-899)</i> | 812 | Building Materials and Lumber Store | 32.12 | } | 32.86 | |
| | 814 | Variety Store | 66.70 | | | |
| | 815 | Free-Standing Discount Store | 28.84 | | | |
| | 816 | Hardware/Paint Store | 53.21 | | | |
| | 817 | Nursery (Garden Center) | 21.83 | | | |
| | 818 | Nursery (Wholesale) | 23.40 | | | |
| | 826 | Specialty Retail Center | 22.36 | | | |
| | 841 | Automobile Sales | 21.14 | | | |
| | 850 | Supermarket | 87.82 | | | |
| | 854 | Discount Supermarket | 40.36 | | | |
| | 860 | Wholesale Market | 8.21 | | | |
| | 861 | Discount Club | 32.21 | | | |
| | 875 | Department Store | 11.56 | | | |
| | 890 | Furniture Store | 12.19 | | | |
| <i>Services (900-999)</i> | 912 | Drive-in Bank | 30.94 | | | |
| OVERALL AVERAGE | | | 23.01 | | | 25.31 |

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

Overall, the average trip generation rate of all uses listed is 23.01 trips per employee. The table also shows average rates by category (truck terminals are included with ‘industrial’ and drive-in banks are included with ‘retail’ uses). The last column shows the average rate for all ‘commercial’ uses listed, as opposed to the ‘industrial’ uses shown in the column on its left.

We know from the 2010 Census how many people work in Fayetteville based on commuting patterns. The next table provides a breakdown between commercial and industrial employment in the city and calculates trip ends generated by each.

Nonresidential Trip Generation: 2010 Census

| | Tax Base | | Percent of Total | 2010 Employees | Average ADT | Total Nonres Trip Ends | |
|--|----------------|----------------|--------------------|----------------|-------------|-----------------------------------|----------------|
| Commercial | \$ 769,155,493 | } | 94.1% | 16,458 | 25.31 | 416,552 | |
| Industrial | \$ 22,284,190 | | \$ 48,432,353 | 5.9% | 1,036 | 10.21 | 10,575 |
| Utility | \$ 26,148,163 | | | | | | |
| Total Nonresidential | | \$ 817,587,845 | \$ 817,587,845 | | | | |
| | | | | 17,494 | | 427,127 | |
| | | | Internal Commutes* | 2,970 | times 2 = | 5,940 | |
| | | | | | | Net Nonres Trips | 421,187 |
| Alternate Using Overall Average | | | | | | | |
| | | | | 17,494 | 23.01 | 402,569 | |
| | | | Internal Commutes* | 2,970 | times 2 = | 5,940 | |
| | | | | | | Alternate Net Nonres Trips | 396,629 |

* Residents who work in Fayetteville. Trips are included in residential trip generation rate.

Tax base valuations give us some clue as to the breakdown. When the City’s ‘industrial’ and ‘utility’ tax valuations are combined, the figures suggest that a little over 94% of all uses are ‘commercial’ in nature, while a little less than 6% is industrial. These percentages, applied to total employment in Fayetteville, give us the number of employees in 2010 in each category.

The upper portion of the table calculates the total number of trips using the average rates for commercial and industrial from the previous table. From the total of all nonresidential trips is deducted the number of trips to/from work generated by city residents, since these trips have already been calculated as part of the residential trip generation rates.

For comparison, the lower part of the table calculates all trips using the overall average for all uses, regardless of type.

Lastly, the following table calculates the total number of trip ends that will be generated by new nonresidential growth in future traffic on Fayetteville's roads.

Nonresidential Trip Generation: 2014-2035 New Growth Increase

| | 2014 Employees | 2014 Trip Ends | 2035 Employees | 2035 Trip Ends | 2014-2035 Increase | Percent New Growth Trip Ends | |
|-------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|---|-------|
| Commercial | 17,247 | 436,522 | 28,340 | 717,286 | 280,764 |  | |
| Industrial+Utility | 1,086 | 11,085 | 1,784 | 18,210 | 7,125 | | |
| <hr/> | | | | | | | |
| Total | 18,333 | 447,607 | 30,124 | 735,496 | 287,889 | | |
| Internal Commutes at | 1.39% | 6,225 | | 10,228 | 4,003 | | |
| <hr/> | | | | | | | |
| Net Nonres Trips | | 441,382 | | 725,268 | 283,886 | | 39.1% |

The table shows the number of trip ends currently generated by Fayetteville businesses based on 2014 employment. The trip ends by use are distributed using the same percentages calculated on the previous table. The same calculations are made for the year 2035 based on projected employment in the city, and the difference between 2014 and 2035 represents trip ends generated by future growth and development. This totals 38.8% of all nonresidential 2035 trip ends.

The results of the residential and nonresidential trip generation analyses are combined on the Summary table at the beginning of this Methodology for an overall calculation of new growth's share of future traffic generated by Fayetteville residents and businesses. From these figures, pass-by and diverted trip ends will be 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".

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Capital Improvements Element

An Element of the
City of Fayetteville Comprehensive Plan 2017 Update

